

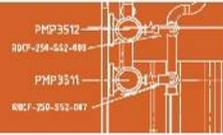


# Coordinator-General's report

## Wetalla Water Pipeline project

Report evaluating the environmental impact statement,  
pursuant to Section 35 of the *State Development and  
Public Works Organisation Act 1971* (Qld)

December 2008



# Wetalla Water Pipeline project

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# Synopsis

This report has been prepared pursuant to s.35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of a key infrastructure component of the New Acland Coal Mine: Stage 3 Expansion Project: the Wetalla water pipeline.

An initial advice statement was lodged with the Coordinator-General in April 2007 and the New Acland Coal Mine: Stage 3 Expansion Project was declared to be a “significant project for which an EIS is required”, pursuant to s.26(1)(a) of the SDPWO Act, on 9 May 2007.

The proponent for the New Acland Coal Mine: Stage 3 Expansion Project is New Acland Coal Pty Ltd (NAC). NAC owns and operates the New Acland Coal Mine which is located within the Toowoomba Regional Council area on the Darling Downs.

The New Acland Coal Mine: Stage 3 Expansion Project incorporates the expansion of the existing New Acland Coal Mine and associated infrastructure to increase coal production from 4 million tonnes per annum (Mtpa) up to 10 Mtpa.

A decision was made by the proponent to expedite the construction of the project by utilising section 32(1)(b) of the SDPWO Act, which allows proponents to prepare a separate EIS that addresses the terms of reference for particular stages of a project, in this case for the Wetalla water pipeline component of the New Acland Coal Mine: Stage 3 Expansion Project. The Wetalla water pipeline component will be herein referred to as “the project”.

The project is the construction and operation of an underground pipeline to deliver recycled water from Toowoomba Regional Council’s (TRC) Wetalla Water Reclamation Facility (WWRF) to the mine site.

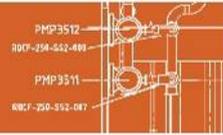
The proponent expects water supplied by the pipeline will ‘drought proof’ the mine. Groundwater from the Great Artesian Basin (GAB) will no longer be required as the main water supply for mine operations. Water supply from GAB is becoming less reliable due to drought and overuse in the Eastern Downs area. The pipeline is required to supply the water requirements for the mine expansion.

The project was determined in March 2008 as not being a ‘controlled action’ under the *Environment Protection and Biodiversity Conservation Act 1999*. Consequently, the project does not require environmental impact assessment and approval under this Commonwealth Government legislation.

The EIS was advertised publicly on Saturday 12 July 2008 inviting submissions until close of business on Friday 15 August 2008. All submissions were forwarded to the proponent for consideration and, following discussions with the proponent, its technical consultants and advisory agencies, it was determined that the preparation of a supplementary report to the EIS (SEIS) was necessary to address substantive issues that were raised.

The key issues raised in submissions were

- surface water management and construction impacts on river flow at Gowrie Creek



- mode of crossing Gowrie Creek
- erosion and sediment control measures along the pipeline route
- vegetation clearing
- rehabilitation of the pipeline route
- management of saline water from reverse osmosis plant
- groundwater impacts during construction and operation
- pipeline operational management and maintenance
- potential impacts associated with the decrease in recycled water discharged from the WWRF to Gowrie Creek.

On 17 September 2008, the SEIS addressing the above issues was forwarded to advisory agencies requesting their specific comments or advice for consideration in preparing this report and to other EIS respondents for their information.

In evaluating the environmental effects, I have considered: the EIS, SEIS and detailed construction environmental management plans (CEM plans) prepared by the proponent; public submissions received on the EIS; comments on the EIS and other advice provided by state and local government authorities (advisory agencies); and other relevant information.

Having regard to the above, I consider that the EIS for the project has adequately addressed the environmental and other impacts of the project and meets the requirements of the Queensland Government for impact assessment in accordance with the provisions of Part 4 of the SDPWO Act.

Therefore, I recommend that the project, as described in detail in the EIS and SEIS and summarised in Section 2 of this report, can proceed, subject to the recommendations and conditions contained in Appendices 1 and 2 of this report.

.....  
**Colin Jensen**  
**Coordinator-General**  
**Date: 19 December 2008**

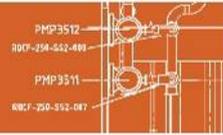
# 1. Introduction

This report has been prepared pursuant to s.35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the Environmental Impact Statement (EIS) for the Wetalla Water Pipeline Project (“the project”).

The EIS was conducted by the proponent, New Acland Coal Pty Ltd (NAC) and prepared on its behalf by Sinclair Knight Merz Pty Ltd.

The objective of this report is to summarise the key issues associated with the potential impacts of the project on the physical, social and economic environments at the local, regional, state and national levels. It is not intended to record all the matters which were identified and subsequently settled. Instead, it concentrates on the substantive issues identified during the environmental impact statement (EIS) process.

This report represents the end of the state impact assessment process. Essentially, it is an evaluation of the project, based on information contained in the EIS, the supplementary report to the EIS (SEIS), submissions made on the EIS, the SEIS and information and advice from advisory agencies and other parties, and states conditions under which the project may proceed.



## 2. Project description

### 2.1 The proponent

The proponent for the New Acland Coal Mine: Stage 3 Expansion Project is New Acland Coal Pty Ltd (NAC). NAC owns and operates the New Acland Coal Mine which is located within the Toowoomba Regional Council (TRC) area on the Darling Downs. The mine is located approximately 14 kilometres north-northwest of Oakey and 35km north-west of Toowoomba City. The coal resource was acquired from Shell Coal Australia Ltd in December 1999.

NAC is a wholly owned subsidiary of New Hope Corporation Limited (NHC), a company listed on the Australian Stock Exchange.

### 2.2 The project

The proponent is seeking approval to construct and operate an underground water pipeline to deliver recycled water from Toowoomba Regional Council's (TRC) Wetalla Wastewater Reclamation Facility (WWRF) to the mine site, a key infrastructure component of the New Acland Coal Mine: Stage 3 Expansion Project: the Wetalla Water Pipeline Project ("the project").

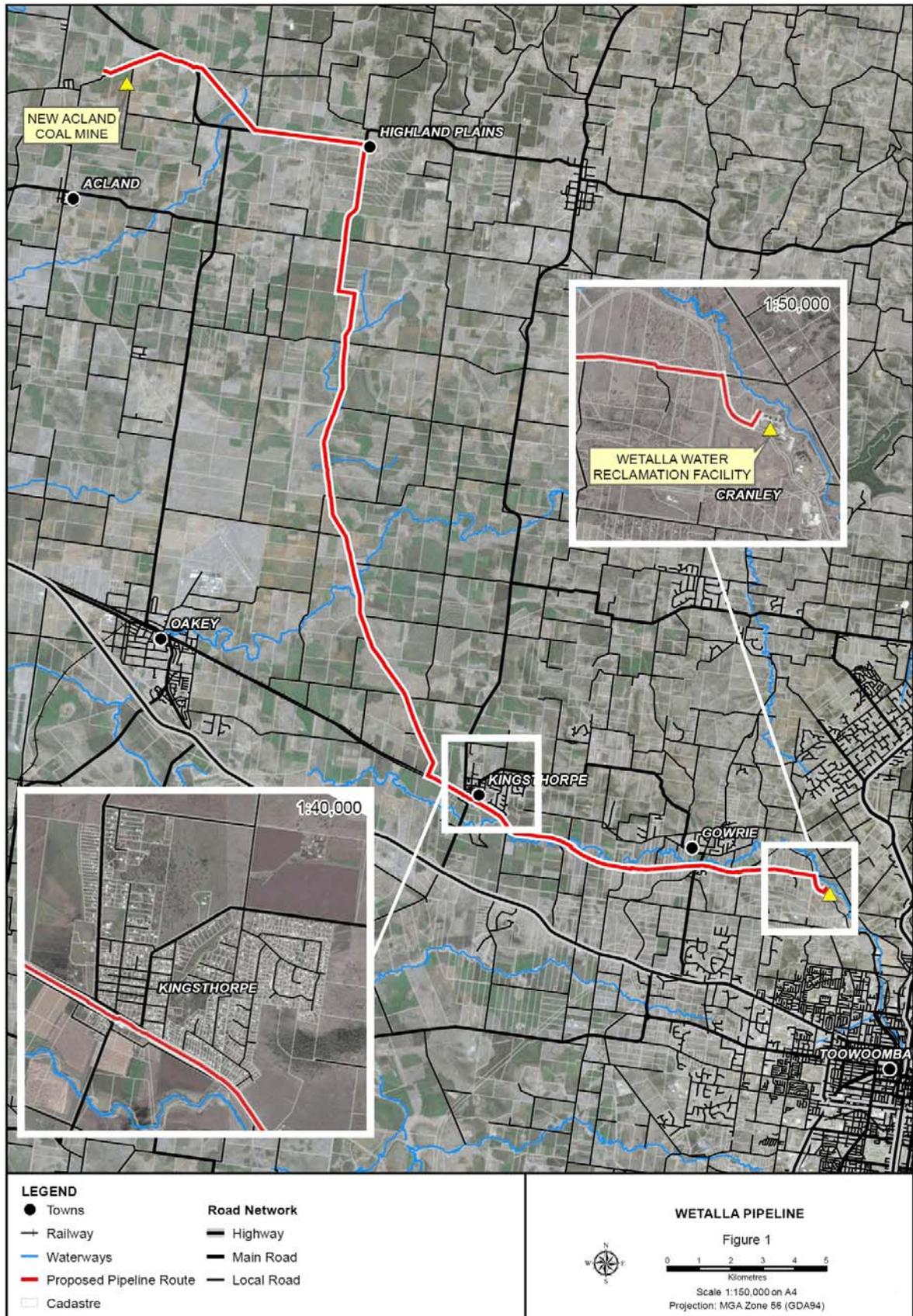
The project scope is described in the Wetalla Water Pipeline Project EIS issued in July 2008.

Subsequent community and stakeholder consultation and engineering studies refined the scope, extent and location of the project components resulting in the arrangements presented in the SEIS document.

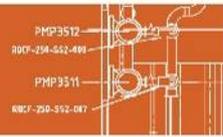
The project remains largely unchanged except for:

- the route at the southern end of the pipeline has been changed to pass along the northern (rather than southern) boundary of the Willims Road Reserve, and along the northern boundary of the WWRF site. The amendment enables the pipeline route to go around, rather than over Willims Hill reducing the pipeline gradient and accordingly, reducing the risk of erosion during construction and operation
- the location of the Gowrie Creek Crossing has also been moved to the southern side of the railway line and the railway crossing to the northern side of Gowrie Creek
- the location of the surge tower to reduce visibility of the structure to surrounding receptors.

These changes are relatively minor and the project area is the same area covered by the EIS (see Figure 1).



**Figure 1 - Overall project layout**



## 2.3 Project rationale

Demand for thermal coal for use in power generation has increased considerably in the last decade due to its low cost and stable supply compared to other fossil fuels. Demand for power generation capacity growth profile is expected to remain relatively strong, particularly in the developing economies of China and India, which is expected to support thermal coal process in the medium to long term. While the recent rate of global economic growth over the last five years is not expected to be sustained over the long term, there is sufficient sustainable demand to support the expansion of the New Acland Coal Mine.

The New Acland coal deposit is a relatively high quality coal resource that produces relatively less greenhouse gas emissions (per unit of electricity produced), other gaseous pollutants (e.g. NO<sub>x</sub> and SO<sub>x</sub>) and solid waste (e.g. fly ash). The total reserves included within the life of mine schedule are 415 million “Run-Of-Mine” tonnes to provide approximately 230 million product tonnes of coal over 25-30 years. The coal resource is contained within the West Moreton Basin, in the Walloon Coal Measures.

The region represents a significant driver for the state and national economies.

### **Water Supply**

The mine’s current water usage is 1400ML per annum. The proponent relies on groundwater from the Great Artesian Basin (GAB) and the storage of rainfall runoff for its water supply. These water sources have limited capacity and are becoming less reliable due to drought and overuse in the Eastern Downs area of the GAB.

The recycled water from WWRF will increase reliability of supply and help ‘drought proof’ the project. Once the pipeline is operational, groundwater from the GAB will no longer be required as the main supply for the current mine operations. This outcome will contribute to the amelioration of overuse of the GAB.

Further, ongoing groundwater use at the mine possesses an even higher degree of risk as it threatens the viability of the existing mining operations and precludes the New Acland Coal Mine: Stage 3 Expansion Project.

### **No action option**

The proponent expects that without a reliable water supply to the New Acland Coal Mine, that this project will secure, coal mining operations at New Acland would inevitably close and the proponent’s expansion plans of increasing coal production from 4Mtpa to 10Mtpa would not proceed.

In addition, the Toowoomba Regional Council (TRC) may in the future construct a reverse osmosis plant (RO plant) to enable treatment of the recycled water to a standard suitable for discharge to water supply reservoirs. RO plants are usually located along the coast where the brine stream can be discharged into saline waters minimising environmental impacts. Under the water supply agreement with TRC, the proponent will take the brine stream if a RO plant is constructed. The ability of the proponent to take the brine stream is important because its disposal would be problematic for TRC and the region’s environmental management due to the inland location of WWRF.

## 3. Impact assessment process

### 3.1 Review and refinement of the EIS terms of reference

An Initial Advice Statement was released for public information and draft terms of reference (TOR) for the New Acland Coal Mine: Stage 3 Expansion Project were advertised for public comment on 21 July 2007. Comments were accepted until close of business (cob) on 20 August 2007. Comments on the draft TOR were received from:

- Department of Primary Industries and Fisheries
- Department of Main Roads
- Department of Emergency Services
- Department of Natural Resources and Water
- Environmental Protection Agency
- Queensland Health\*
- Department of Housing
- Department of Mines and Energy\*
- Department of Communities
- Department of Local Government, Planning, Sport and Recreation
- Department of Transport
- Department of the Premier and Cabinet
- Department of Education and the Arts\*
- Queensland Treasury\*
- A resident of Acland

\*Note: these government agencies indicated that they did not have any comments on the draft TOR.

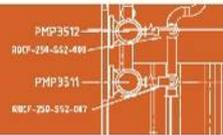
A final TOR was issued to the proponent in October 2007.

### 3.2 Public review of the EIS

The environmental impact statement (EIS) for the Wetalla Water Pipeline Project (“the project”) was approved for release and advertised publicly on Saturday 12 July 2008 inviting submissions until cob on Friday 15 August 2008. The EIS was available for download from the Department of Infrastructure and Planning web site. A CD-Rom copy of the EIS was available for a \$20.00 charge from the proponent.

The EIS was displayed at:

- Toowoomba Regional Council, 153 Herries Street, Toowoomba
- Toowoomba Regional Council, Goombungee Service Centre, Mocatta Street, Goombungee
- Toowoomba Regional Council, Oakey Service Centre, 64 Campbell Street, Oakey.



Information on the project was available via the NAC and Department of Infrastructure and Planning's web sites and general consultation was undertaken using methods such as agency briefings and community meetings.

The following advisory agencies were approached formally to conduct an evaluation of the EIS:

- Department of Emergency Services
- Department of Main Roads
- Department of Mines and Energy
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Queensland Police Service
- Department of Transport
- Toowoomba Regional Council

Following the four-week public review of the EIS a total of 29 submissions were received with the following distribution; 7 from advisory agencies and 22 from members of the public as follows.

#### **Agencies**

- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Environmental Protection Agency
- Queensland Transport
- Department of Mines and Energy
- Queensland Police Service

#### **Private**

- 1 from a local private land owner
- 21 of the same submission from members of the Gowrie Creek Irrigators Association Incorporated

The key issues raised in submissions were:

- surface water management and construction impacts on river flow at Gowrie Creek
- mode of crossing Gowrie Creek
- erosion and sediment control measures along the pipeline route
- vegetation clearing
- rehabilitation of the pipeline route
- management of saline water from reverse osmosis plant
- groundwater impacts during construction and operation
- pipeline operational management and maintenance and
- potential impacts associated with the decrease in recycled water discharged from the Wetalla Water Reclamation Facility (WWRF) to Gowrie Creek.

Submissions were forwarded to the proponent and following discussions with the proponent's representatives and its technical consultants it was determined that preparation of a supplementary report to the EIS was necessary to address issues raised.

### 3.3 Review of supplementary EIS

On 31 October 2008, the SEIS was forwarded to advisory agencies and respondents to the EIS.

The following agencies advised that they were satisfied that all issues had been addressed:

- Department of Emergency Services
- Queensland Police Service
- Department of Tourism, Regional Development and Industry.

The following agencies either provided advice or recommended conditions:

- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Environmental Protection Agency
- Department of Main Roads
- Queensland Transport
- Toowoomba Regional Council.

Substantive issues raised in submissions are discussed individually in the following sections.

## 4. Evaluation of environmental effects

### 4.1 Introduction

The *State Development and Public Works Organisation Act 1971 (Qld) (SDPWO Act)* defines ‘environment’ to include:

- (a) ecosystems and their constituent parts, including people and communities
- (b) all natural and physical resources
- (c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community
- (d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c)

‘Environmental effects’ means “the effects of development on the environment, whether beneficial or detrimental”. These effects can be direct or indirect, of short, medium or long-term duration and cause local or regional impacts.

This section outlines the major environmental effects identified during the environmental impact statement (EIS) process, including those raised in the EIS, supplementary report to the EIS (SEIS), in submissions on the EIS and in consultation with advisory agencies and other key stakeholders. I have provided comments on these matters and, where necessary, set conditions or made recommendations to mitigate adverse impacts.

This report states recommendations and conditions, collated in Appendix 1 and Appendix 2, which must attach to any development approval issued pursuant to the *Integrated Planning Act 1997 (IPA)*.

The New Acland Coal Mine: Stage 3 Expansion Project was declared a ‘significant project’, for which an EIS is required, under s.26(1)(a) of the SDPWO Act on 9 May 2007. This report provides an evaluation of a key infrastructure component of the New Acland Coal Mine: Stage 3 Expansion Project: the Wetalla water pipeline (“the project”). As a result, I am required under s.35(3) of the SDPWO Act to prepare a report evaluating the EIS. In evaluating the EIS, I may under s.35(4):

- (a) evaluate the environmental effects of the project and any other related matters
- (b) state conditions under section 39, 45, 47C 49 or 49B
- (c) make recommendations under section 43 or 52; and
- (d) if division 8 applies to the project—impose, under that division, conditions for the undertaking of the project.

In evaluating the environmental effects of the project, I have made findings on the major environmental effects identified during the EIS process. In order to be satisfied that unavoidable adverse environmental effects can be adequately managed, I have made specific recommendations for other agencies to consider in

granting the necessary approvals, licences and permits for the project development to proceed.

In making these recommendations, I have considered the following:

- information provided in the EIS, the SEIS and detailed construction environmental management plans (CEM plans) prepared by the proponent
- comments in formal submissions on the EIS
- comments from advisory agencies on the SEIS
- specific advice sought from agencies

The proponent presented a List of Commitments as Appendix 3 in this report. These commitments include actions beyond those required to meet statutory approvals and their implementation would enhance the mitigation of potential adverse environmental impacts of the project. Further, the proponent has prepared detailed CEM plans to address specific environmental issues identified during the EIS process that are associated with each element of the project. I have considered the commitments and CEM plans and where necessary, I have extended particular commitments or components of the CEM plans and recommend that the proponent implements specific actions, in accordance with best practice environmental management.

## 4.2 Nature conservation

### **EIS findings and/or key points**

The EIS investigated impacts on native vegetation and requirements under the *Vegetation Management Act 1999* and the *Nature Conservation Act 1992*. The EIS concluded that for the majority of the pipeline route, vegetation is highly disturbed and mainly comprised of native and pastoral grasses and introduced weeds.

The central and northern sections of the pipeline route have the greatest extent of woody vegetation. Non-remnant woody vegetation is also prominent in road reserves within the northern half of the pipeline route, particularly along the Kingsthorpe-Silverleigh Road. The endangered grass *Homopholis belsonii* (Belson's Panic) is also sporadically present in this area. The EIS identified that these sections contain a number of regional ecosystems potentially including three 'endangered', one of 'concern' and two 'not of concern'.

The proponent has developed CEM plans that outlines mitigation strategies to minimise the impacts on vegetation, and regional ecosystems. Strategies include the development of designated exclusion zones of significant vegetation which are not to be disturbed, restricting the width of clearing to less than 5m and undertaking progressive rehabilitation as the pipeline is constructed. The CEM plans also determines the best strategy for the translocation of individual plants and seed collection for propagation, as appropriate.

Department of Natural Resources and Water's (NRW) submission on the EIS raised concern about the clearing of mature trees at the crossing of Doctors Creek north of Nara Boah Water Hole Road and the need for a vegetation offset due to the clearing of these trees. The proponent has demonstrated in the supplementary report to the EIS that the pipeline route can be realigned to avoid clearing these trees and as a result the need for a vegetation offset is no longer required.

In addition potential impacts and mitigation measures have also been considered for the prevention and management of weeds and the protection of fauna. I have noted that the pipeline trench is to be filled in at the completion of work each day and this will assist with preventing fauna falling into the pipeline trench at night. A range of other mitigation measures are also to be undertaken including the use of an appropriately trained spotter/catcher prior to habitat tree clearing.

I note on 16 October 2008 the Environmental Protection Agency (EPA) issued an exemption for the clearing of least concern plants under the *Nature Conservation (Protected Plants) Conservation Plan 2000* and the proponent has committed to a 5-year period for the rehabilitation success and undertaking corrective action where rehabilitation has not been successful.

The proponent will also require approvals for the clearing of *Homopholis belsonii* under the *Nature Conservation Act 1992* and vegetation under the *Vegetation Management Act 1999*. The proponent must comply with all conditions relating to the issuing of these permits.

## **Conclusions**

I find that the construction of the project has the potential to impact regional ecosystems. In order to reduce the impacts on vegetation and ecosystems, it is essential that vegetation clearing and disturbance are minimised. I accept that the proposed mitigation measures outlined in the EIS and supplementary report to the EIS would minimise vegetation clearing and disturbance and development of a monitoring and inspection schedule to ensure that the mitigation plans and rehabilitation are effective.

I find that the construction of the project would result in the clearing of remnant native vegetation, including relatively small areas of vegetation communities of conservation significance. I note that the proponent has committed in the EIS to minimising the disturbance of these vegetation communities through limiting the extent of clearing and through the design and location of the pipeline predominately in road easements with disturbed vegetation. In addition, the implementation of the CEM plan should minimise the impacts to vegetation and enable its rehabilitation post-construction.

I find that the construction of the project has the potential to cause injuries to fauna during all stages of project construction. I accept that the proposed CEM plan is the appropriate mechanisms for addressing any such potential injuries.

In order to minimise impacts to sensitive regional ecosystems and to manage unavoidable impacts associated with clearing vegetation, I recommend the following:

### **Recommendation 1**

**The proponent must comply with the Vegetation Clearing Conditions set down in Appendix 2 of this report, as required by NRW in relation to the issuing of Vegetation Clearing Permits, pursuant to the *Vegetation Management Act 1999* and the EPA in relation to the issuing of a Clearing Permit for *Homopholis belsonii* pursuant to the *Nature Conservation Act 1992*. The EPA will be responsible for monitoring compliance with the *Nature Conservation Act 1992***

and NRW will be responsible for monitoring and compliance with the *Vegetation Management Act 1999* for this recommendation.

#### **Condition 1**

**The CEM plans must include a baseline monitoring and inspection schedule of the affected ecosystems against which the effectiveness of the rehabilitation and conservation criteria can be assessed. NRW will be responsible for monitoring compliance for this condition.**

#### **Condition 2**

**The proponent must ensure that progressive rehabilitation, including re-contouring, topsoil replacement, and revegetation that is consistent in species composition and density with the pre-construction state, occurs as soon as construction activities are completed in each area disturbed. Rehabilitation should be monitored for success against the design criteria and corrective actions taken if rehabilitation is not proving to be successful. NRW will be responsible for monitoring compliance for this condition.**

## 4.3 Waterway crossings

### **EIS findings and/or key points**

The EIS identified that the pipeline route crosses four creeks, Gowrie Creek, Oakey Creek, Lagoon Creek, and Doctors Creek at three locations. A description of the site characteristics and ecological state of each creek crossings were provided in the EIS. I note the proponent is currently planning to utilise the trenching method as the preferred pipeline technique at all watercourses crossings.

The EIS found that the flow characteristics in all the creeks are highly seasonal with the majority of flow occurring during the wet season in summer. Conditions of low flow are present in Gowrie Creek due to the contribution of spring flows from the upper reaches of the catchment and the discharge of treated water from the Wetalla Water Reclamation Facility (WWRF).

The EIS found that the water quality of these creeks could be considered poor as they exceed the physio-chemical parameters of the ANZECC Guidelines. The pipeline crossing locations are characterised with limited riparian vegetation and the degraded habitat of the creek systems supports limited habitat opportunities for invertebrate species.

I note that in response to the EIS, EPA and NRW indicated that stream flow data from the Oakey gauging station on Gowrie Creek was not included in the EIS. These advisory agencies indicated that data from this station would be more representative of the flow likely to be encountered at the proposed pipeline crossing for Gowrie Creek. Appendix D in the supplementary report to the EIS provides a review and discussion on the stream flow data from the Oakey gauging station on Gowrie Creek. The gauging station contains relevant data which demonstrates the perennial (rather than ephemeral as reported in the EIS) nature of the flow in Gowrie Creek as a result of discharge from the WWRF.

I note that NRW and DPI&F raised a concern in their submission to the EIS regarding the trenching of Gowrie Creek, and recommended that under-boring of the creek, rather than trenching, would be a more suitable crossing method considering its perennial characteristics as indicated from Oakey gauging station.

I am aware that since the EIS was submitted, the proponent has held discussions with NRW regarding the creek crossings and in particular the crossing of Gowrie Creek. I understand that NRW is satisfied with the management strategy presented in the supplementary report to the EIS for the crossing of Gowrie Creek, and following further discussion with the proponent and a site inspection of each of the creek crossing, has approved Riverine Protection Permits for the creeks crossings via trenching. I note that the Riverine Protection Permit is not linked by any statutory mechanism to the EIS.

In general, the method chosen to install the pipeline at watercourse crossings will depend on environmental factors, including water flow, geotechnical and other construction constraints at the time of construction.

The construction environmental management plan (CEM plan) developed as part of the EIS and the supplementary report to the EIS deals with:

- water flow and quality management
- riparian vegetation management and
- creek bank and bed management

I am satisfied that the proponent, through the EIS and SEIS, has demonstrated that pipeline construction may have a localised impact but will not have a noticeable effect on water quality within the water courses.

Key potential impacts on water crossings may include the effects of erosion from corridor clearing and sedimentation. Both issues are addressed in the CEM plan.

I note that Department of Primary Industries and Fisheries (DPI&F) raised concerns in its submission to the EIS regarding the potential for fish kills in association with the pumping of water around the construction site at Gowrie Creek. I am aware that the proponent has consulted with NRW and has agreed to utilise a method that involves gravity fed piping of water through a 900mm diameter pipe around the construction site at Gowrie Creek. I am satisfied this method will negate the need for pumping and will limit any potential for fish kills at the Gowrie Creek crossing.

## **Conclusions**

I find that construction of the pipeline across waterways could adversely affect the environment through removal of riparian vegetation, potential scour and erosion of stream banks, disturbance of the stream bed, and associated reduction in water quality downstream. I am satisfied that the measures outlined in the CEM plan will mitigate potential adverse environmental impacts on the waterways being crossed.

I recommend the following to ensure that best practice environmental management outcomes are achieved for all watercourse crossings:

## **Recommendation 2**

**The proponent must comply with the construction EMP and any other provision set out in the Riverine Protection Permits. NRW will be responsible for monitoring compliance for this recommendation.**

## 4.4 Land use

### **EIS findings and/or key points**

The EIS identified that the majority of the project area will run mostly through state-controlled road reserves and Council road reserves and some Queensland Rail easements.

The project also crosses a number of freehold properties at the southern and northern end of the pipeline route. The owners of these properties include Toowoomba Regional Council (TRC) in association with the WWRF, the proponent and a private land owner at the northern end of the pipeline route. I note that consent has been obtained from the private land owner regarding the use of the land for the pipeline route. The pipeline also passes through the township of Kingsthorpe in the middle of the route.

The EIS identified that the land adjacent to the project area is characterised as good quality agricultural land supporting activities including intensive animal production, grazing and cropping. There are no significant industrial activities other than the WWRF at the start of the pipeline route, and the New Acland Coal Mine at the end of the pipeline route. Residential housing, community facilities and some commercial businesses characterise the structure of the township of Kingsthorpe.

Several issues were raised in submissions received on the EIS from advisory agencies on the issue of land use and tenure. I have been informed since the publication of the SEIS that Department of Main Roads (DMR) have issued an Ancillary Works and Encroachments Permit and NRW have issued Permit to Occupy. These permits are not linked by any statutory mechanism to the EIS. Similarly, authorisations to undertake works within the railway corridors have also been obtained from QR Limited (QR).

I find the construction impacts of the project on land use are mostly localised and temporary in nature and may include partial road closures, temporary disruption to structures, such as fences, or access restrictions. I note the proponent has committed to consulting with landowners to find a suitable solution prior to the commencement of work in that area, which may include for example, arranging work hours to coincide when access is not required or temporary bridging if access needs to be maintained.

The EIS identified the potential for temporary impacts on good quality agricultural land through erosion and site disruption to agronomic systems. Once pipeline construction activities are complete, agricultural activities can resume along the corridor provided the activity does not impact on the integrity of the pipeline. In the operational phase, the depth and construction of the pipeline should minimise any disruption to ongoing agricultural activities. Where appropriate, financial

compensation will be paid to individual landholders affected by such restrictions or encumbered by an easement.

The NRW and EPA drew attention to the potential impacts to soil erosion and erosion control works, topsoil and vegetation removal, and rehabilitation. I note the proponent has committed to implementing strategies suggested by the NRW and EPA to mitigate these potential impacts.

The submissions from members of the Gowrie Creek Irrigators Association Incorporated (GCIAI) raised a number of concerns regarding agricultural productivity from reduced flows in Gowrie Creek. The submission from GCIAI is discussed further in Section 4.11 *Social and economic environment*.

Queensland Transport's submission to EIS raised concerns about the impact of the proposed pipeline route as it passes through the planned route of the Gowrie to Grandchester rail corridor. I have been informed the proponent has discussed this issue with both QT and QR and have reached agreement that the proponent will take full responsibility for the relocation of the pipeline if this rail line is constructed. I understand these conditions have been committed to by the proponent with QR in a Letter of Offer dated 18 September 2008 and a Deed of Licence dated 16 September 2008.

There are a number of sites on the EPA Environmental Management Register for contaminated land within the pipeline route. This includes land owned by QR and the WWRF site. Details of these sites are contained in the EIS. I note the proponent has committed to further investigations of these areas with the EPA, QR and TRC to determine whether there is a likely risk of encountering contaminated land and has prepared mitigation measures to control potential impacts on these sites during the construction phase of the project.

## **Conclusions**

I find that the restriction on use of some good quality agricultural land would be an unavoidable consequence of the development of the project and that this loss would be temporary and will be minimised through the implementation of the mitigation and avoidance strategies contained within the proponent's CEM plans. I note the proponent has committed to consulting affected landowners and stakeholders. I accept that these measures, in addition to the temporary nature of construction, would be satisfactory to mitigate potential impacts.

In order to ensure impacts on affected landowners, including primary producers, are minimised, I make the following recommendation:

### **Recommendation 3**

**The proponent must consult with landowners directly affected by construction activities throughout the planning and construction phases of the project. Issues for consultation should include: likely and potential impacts to landowners; minimisation or mitigation strategies; timeframes for construction activities; access restrictions; and rehabilitation or reinstatement of impacted land and infrastructure, or other appropriate compensation. The EPA will be responsible for monitoring compliance for this recommendation.**

## 4.5 Soil erosion

### **EIS findings and/or key points**

The EIS found that there is potential for soil erosion and sediment releases to watercourses along the construction route during the construction and rehabilitation stages due to the removal of vegetation, excavation and general disturbance associated with construction activities. This could occur until rehabilitation measures stabilise the affected soils.

Sediment releases to watercourses can result in adverse impacts to aquatic flora and fauna as well as impacts on downstream water users due to increases in turbidity. Intense rainfall events on areas of disturbance also have the potential to cause significant sediment releases.

NRW's submission on the EIS raised concern about the potential for dispersible subsoils to be encountered along the Kingsthorpe-Silverleigh Road. The submission also raised concern about areas where coordinated runoff control works have been installed under the *Soil Conservation Act 1986* and recommended the use of 'whoa boys' for erosion control.

I note that the proponent has committed to putting in place proper and effective sediment and erosion control measures in accordance with the *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites (1996)*, and has agreed with NRW to implement a testing regime and management strategy for dispersive subsoils.

I also note that the proponent has committed to minimising the area of disturbance and initiating revegetation and rehabilitation of cleared areas as soon as possible after construction has been completed.

### **Conclusions**

I find that the construction of the pipeline and associated activities has the potential to cause soil erosion and sediment release to watercourses. To ensure that the potential impacts from erosion or sediment releases do not cause environmental harm, I make the following recommendation:

#### **Condition 3**

**The proponent must ensure that all land disturbance construction activities comply with the requirements set out in the “*Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia (Qld), 1996, or later version)*”. NRW will be responsible for monitoring compliance for this recommendation.**

## 4.6 Air quality

### EIS findings and/or key points

The EIS identified that the main potential impacts on air quality from the project were found to be as a result of dust generation during construction. Construction activities identified as a specific potential source of dust generation include:

- vegetation clearing
- earthmoving activities and excavation
- movement of vehicles and construction machinery on unsealed surfaces
- transport of construction materials, fill, rubble and waste
- stockpiling of materials
- build-up of material around erosion and sedimentation controls.

Most of these activities will occur for a limited period at any location along the pipeline route, and will typically be restricted to daylight hours (nominally 6:30 am to 6:30 pm). No direct dust impacts are likely as a result of tunnelling or boring activities, as these works are conducted below the surface.

The generation and impact of construction dust emissions will be minimised by the use of appropriate management techniques, especially the minimisation of cleared areas and the use of watering to bind the surface layer.

I am satisfied that the construction and operation of the project will not result in significant greenhouse gas emissions and that any emissions will be minimised through:

- route selection that reduces overall materials consumption
- use of appropriately sized equipment for construction activities
- design of a construction works program to minimise haulage distance for most construction materials to reduce fuel use
- maintaining construction equipment and haul trucks in good working order to increase fuel efficiency of construction equipment
- the use of bio-fuels for vehicles during construction where practicable and
- the use of high efficiency pumps and motors during construction and operational phases.

### Conclusions

I find that the construction and ongoing operation of the project could have short-term air quality impacts. The air quality management plan of the CEM plans will minimise any impacts and provide an appropriate monitoring regime.

### Condition 4

**The proponent must implement the air quality management plan of the CEM plans to ensure that there is no significant impact to air quality, particularly from dust generation caused by construction activities. The EPA will be responsible for monitoring compliance for this condition.**

## 4.7 Noise and vibration

### **EIS findings and/or key points**

The pipeline construction will generate noise emissions from activities such as excavation and truck movements. Construction of the pipeline will be carried out mostly in rural areas that have typically low background noise levels. Consequently, careful consideration needs to be given to ensure proper and effective noise abatement strategies and measures are developed and implemented.

The EIS identified the most significant noise sources for the project are likely to be the operation of machinery such as excavators, generators and trenching equipment used during construction, as well as noise associated with haulage vehicles.

The proponent has committed to limiting construction, including haulage activities, to daytime hours, from 6.30am to 6.30pm Monday to Friday, as much as practicable to avoid or minimise any impacts on sensitive receptors. I note that some night time works may be required if the proponent considers it desirable to lessen community impact or for safety reasons and these works should be in accordance with Environmental Protection (Noise) Policy 1997.

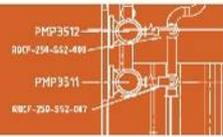
The EIS demonstrates once construction works are completed, the operation and use of the pipeline itself should not generate any excessive noise. I note the proponent has committed to a noise criterion of  $L_{A90, 1hr}$  25dB(A) during the operational phase of the project, which satisfies the requirements contained in the EPA Planning for Noise Control Guideline in a 'Very Rural' area.

The proponent has developed a noise management plan in the CEM plan designed to address the issues identified above. The proponent has also established a communication protocol for any complaints about the construction activities, such as noise, from affected persons. All complaints will be registered and investigated by the proponent's environmental manager or environmental officer and corrective and preventative actions undertaken where practical.

The EIS identified that there is potential for construction activities to result in vibration impacts, particularly associated with excavating, compacting and heavy vehicle movement. The EIS investigated potential damage to vulnerable buildings, as well as human discomfort. The EIS concluded that the vibration impact of the project is expected to be minimal considering the nearest sensitive receptor along the pipeline route is more than 50m away. This compares with DMR's specification of 20m (MRS 11.51 12/99) recommended safe distance for vibrations from excavation and compacting activities.

### **Conclusions**

Due to the nature of the construction of the pipeline, I am satisfied that any noise impacts experienced by persons in proximity to the construction corridor will be temporary in nature and will be minimal when considering the relatively large buffer distance between the construction zone and the nearest sensitive receptors. I note that the first performance criteria of the noise and vibration management plan of the CEM plans that the proponent has developed is for "no noise complaints from regulatory authorities or the community". I am satisfied that through the development and implementation of the CEM plans ensures this criteria is met, the proponent will



either avoid noise impacts or mitigate such impacts on receptors so that they do not cause a noise nuisance.

I am satisfied that the vibration impact of the project will be at an acceptable level.

In order to ensure that the performance criteria in relation to management of noise are achieved, I recommend the following:

#### **Condition 5**

**The proponent must implement the CEM plans to minimise and mitigate any impacts associated with noise, particularly from construction activities when working in close proximity to sensitive receptors. The EPA will be responsible for monitoring compliance for this condition.**

#### **Condition 6**

**The proponent must consult with potentially affected residents about the timing, duration and likely impact of works, at least one week prior to the works commencing. Where noise impacts are likely to cause unavoidable nuisance and abatement measures cannot adequately reduce the noise level, the proponent should implement an appropriate mitigation response, such as possible temporary alternative accommodation arrangements for affected residents. The EPA will be responsible for monitoring compliance for this condition.**

#### **Condition 7**

**The pump station is to operate with a noise level criteria of  $L_{A90, 1hr}$  25dB(A) which, is to be measured at the nearest sensitive receptor. The EPA will be responsible for monitoring compliance for this condition.**

## 4.8 Traffic

### **EIS findings and/or key points**

The pipeline route has been designed to avoid major existing road infrastructure as far as practicable. The details of the pipeline's impact on road infrastructure are contained in section 11 of the EIS. However, the construction of the pipeline is likely to have local impacts on road pavements, traffic flow and temporary access or road use restrictions.

The EIS identified that there will be significant traffic movements of heavy vehicles involved for the removal of spoil and with the delivery of pipe and quarry materials used in the bedding of the pipeline. There will also be a number light vehicle movements associated with the transport of the construction workforce to the construction site. These movements are quantified in the EIS.

The proponent discussed potential haulage routes in the EIS, including impacts on the existing transport networks, community traffic including emergency service access and school bus routes. Access and haulage routes will be finalised during the final planning process, in conjunction with the relevant controlling authorities (the Department of Main Roads (DMR) for state-controlled roads or TRC for local roads).

The CEM plans considers the potential impact of site access routes and construction traffic on school bus routes and other community traffic.

I note the Queensland Police Service, in a submission to the EIS, expressed the desire to be involved in the consultation process during the development and implementation of the traffic management, public safety and incident response plans for the project.

The DMR in its submission on the EIS, requested the proponent prepare a Traffic Management Plan for state controlled roads, and stated that an Ancillary Works and Encroachments Permit will be required. I note in the SEIS that the proponent has committed to preparing a Traffic Management Plan. I also note that since the submission of the EIS, the proponent has been issued an Ancillary Works and Encroachments Permit, which is not linked by any statutory mechanism to the EIS, has been obtained.

The proponent has committed in the EIS that all crossings of state-controlled roads will be tunnel bored and this is expected to result in minimal disruption to traffic carrying capacity. Open trench crossings will be utilised for construction across local roads with lower volumes of traffic and this is expected to result in temporary part road closures.

In a submission received on the EIS, a resident in the project area raised concerns regarding potential heavy vehicle traffic on the Gowrie-Birnam Road and its subsequent effect on road safety and amenity. I note the proponent has made a commitment in the SEIS that during the project's construction the Gowrie-Birnam Road will be avoided.

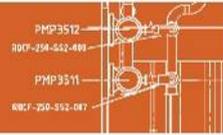
## **Conclusions**

I am satisfied that temporary traffic delays as a result of construction of the pipeline would be restricted and relatively minor in nature and that the proponent's commitment to implementing CEM plans for traffic management in consultation with the relevant agencies and the community will ensure that such impacts are minimised. I find that the proponent needs to consult with the appropriate controlling authority in regard to remedial actions for affected road pavements, as committed to in the EIS.

To ensure that all potential impacts associated with the transport task for the construction of the pipeline are properly managed, I recommend the following:

### **Condition 8**

**The proponent must prepare Traffic Management Plans in consultation with the relevant controlling authority to fully address any project-related impacts on roads before work commences and within the timeframe agreed with the controlling authority. The proponent should also consult with the Queensland Police Service during the development and implementation of the Traffic Management Plans. DMR for state-controlled roads and TRC for local roads will be responsible for monitoring compliance for this condition.**



## **Condition 9**

**The proponent must rehabilitate all temporary access roads and other areas of disturbance resulting from the construction of the pipeline to a state equivalent to or better than the pre-construction state. NRW will be responsible for monitoring compliance for this condition.**

## 4.9 Cultural heritage

### **EIS findings and/or key points**

The EIS found that the project has the potential to affect objects or places of Aboriginal and non-indigenous cultural heritage through physical disturbance of such sites during construction activities, or changes to cultural heritage values associated with development of the project.

The proponent has identified that the Western Wakka Wakka People are the 'native title party' for all areas within the external boundaries of that claim as there are no current registered native title claims within the boundary of the project. As such the Western Wakka Wakka People are the 'Aboriginal party', as defined under the *Aboriginal Cultural Heritage Act 2003* (ACH Act). No registered Aboriginal cultural heritage sites were identified within the proposed pipeline corridor.

Apart for the general 'duty of care' provisions under the ACH Act to ensure that activities do not harm Aboriginal cultural heritage, the proponent is required to develop a Cultural Heritage Management Plan (CHMP), through consultation and in partnership with the Western Wakka Wakka People.

I note from the EIS, no Indigenous archaeological material was located during the inspection of the pipeline route. However, three areas of further interest have been identified, but have not been listed to ensure the locations remain confidential. I understand these sites will be monitored during the construction phase by a cultural heritage monitor in accordance with the CHMP.

I note from the EIS, that searches of the relevant databases revealed that no items of non-Indigenous cultural heritage sites existed along, adjacent to, or in the immediate vicinity of the pipeline route. During the consultation process no sites of non-Indigenous cultural heritage were raised as being potentially impacted by the project.

The proponent acknowledges that there exists potential for cultural and archaeological sites to be uncovered during construction activities within the project area. The potential cultural heritage impacts associated with the proposed water pipeline project are largely associated with the construction phase. Clearing or excavation works may uncover potential artefacts or sites currently buried just beneath the surface and not previously recorded. Apart from the registered CHMP, the proponent has developed CEM plans to avoid or minimise any adverse impacts to non-indigenous cultural heritage that might be identified during the project's construction phase.

## Conclusions

I am satisfied that the CHMP and the CEM plans will minimise and effectively manage any impacts that the project may have on Aboriginal and non-indigenous cultural heritage. I note that the CHMP has been approved by NRW, in accordance with the requirements under s.87 of the ACH Act.

### Recommendation 4

**The proponent must ensure that pipeline construction staff undergo cultural awareness training and that communication with the Western Wakka Wakka People be maintained during the construction phase of the project to ensure Indigenous cultural heritage is protected. NRW will be responsible for monitoring compliance for this recommendation.**

## 4.10 Waste

### EIS findings and/or key points

The EIS finds that the volume and type of waste generated by the project will be relatively small when compared to waste generated by larger and more complex construction projects. The EIS identified that the primary sources of waste will be generated during construction, with only minor amounts of waste being generated during the operational phase of the pipeline. Waste generated during construction will be from surplus soil from the pipeline trench, site offices (such as domestic waste and sanitary system waste), work sites (including green waste/mulched timber, concrete wastes) and maintenance areas (waste oil and chemical wastes).

The proponent has committed in the EIS and the CEM plans to implementing waste management practices for the project that are consistent with the waste management hierarchy outlined in the *Environmental Protection (Waste Management) Policy 2000*. For example, surplus soil will be reused on site or off site at the New Acland Coal Mine where possible, cut and fill earthworks will be balanced to ensure maximum reuse of fill material on site, which will minimise the need for stockpiling, transport and importation of material. Similarly, all recycled materials will be considered for use in concrete and other construction materials, such as road base.

In its submission on the EIS, NRW required details of measures to remove saline groundwater should it be encountered during the pipeline's construction. During the pipeline's operation, NRW was concerned without appropriate management, the release of water from scour valves could cause environmental harm.

Relatively large volumes of waste water will also be generated during pressure hydro-testing and flushing of the pipeline. NRW highlighted, in its submission on the EIS, the need for proper management and careful disposal of this hydro-testing water.

### Conclusions

I find that the potential for adverse impacts caused by waste from the project are unlikely, however there is a need for the proponent to ensure that the project follows best practice environmental management principles in relation to waste

management. The implementation of the CEM plans, including the early planning of construction activities to maximise waste reuse opportunities and the training of employees in the waste hierarchy and waste management principles, is essential to achieving this outcome.

I find that the disposal of some waste water during the pipeline's commissioning and operational phases has the potential to cause environmental harm. I therefore recommend the following:

#### **Condition 10**

**The proponent must ensure that no environmental harm occurs in relation to the disposal or reuse of water used in the commissioning and operation of the pipeline and must take all reasonable and practicable measures to ensure that it complies with the general environmental duty, as defined under the *Environmental Protection Act 1994 (Qld)*. The EPA will be responsible for monitoring compliance for this condition.**

## 4.11 Social and economic environment

### **EIS findings and/or key points**

The EIS discussed potential adverse impacts on the social environment and public amenity of the area related to the construction phase of the project. The primary social impacts are likely to be associated with: traffic disruptions; access to private land and services; impacts on visual amenity due to the presence of machines and construction workers; and potential dust and noise emissions. The EIS finds that all such impacts would be temporary in nature.

Issues associated with restrictions to ongoing use of land directly affected by the pipeline are addressed in section 4.4 *Land Use* of this report and traffic issues are addressed in section 4.8 *Traffic*.

Conversely, beneficial socio-economic impacts also occur as a result of the project, as the construction phase of the pipeline will generate direct employment for approximately 18 people. Indirect employment and business opportunities are also likely to result from manufacturing of the pipe and associated pipeline materials and the provision of other goods and services to the project. The proponent has estimated that employment for approximately 55-60 full time equivalent workers could be indirectly provided based on the total cost of the project.

I find that the construction workforce is unlikely to result in any noticeable impacts to the availability or affordability of accommodation in the region, or the availability of community and social services. The proponent does not intend to house its construction workforce in temporary camps due to the relatively short-term duration of the construction phase and the ready availability of suitable accommodation in the vicinity of the project.

I note the project is critical for the proposed expansion of the New Acland Coal Mine. In addition the project will result in the substantial lessening of use of groundwater from the Great Artesian Basin, which will be of positive benefit to the overall sustainability of this groundwater resource in the region.

I note the proponent has made a commitment in the EIS to ensure that early and ongoing community engagement and cultural heritage issues will occur during the construction phase of the project as outlined in the CEM plans.

I find that the social impact assessment process has been sufficiently comprehensive and inclusive for such a relatively transient construction project, with minimal operational impacts.

There are a number of community facilities located close to the pipeline corridor that may be temporarily affected due to their physical proximity to the pipeline construction activities and the usage of local roads for access to construction areas.

A submission was received from a private landholder expressing concern that the social amenity along the Gowrie-Birnam Road could be impacted by heavy vehicle traffic transporting material associated with construction phase of the project. I find the proponent's commitment to utilise an alternative haulage route and the traffic management commitments made in the CEM plans would sufficiently reduce the impact of this concern.

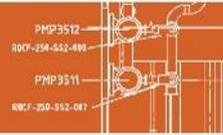
Submissions were received from members of the Gowrie Creek Irrigators Association Incorporated (GCIAl) that expressed concern that the cost-benefit analysis provided in the EIS for the project required detail to examine the social and economic impacts on reduced agricultural productivity as a consequence of reduced flows into Gowrie Creek irrigators that draw water along Gowrie Creek.

GCIAl members are concerned that the potential impact on the commercial viability of their farming activities as a result of the reduced waste water stream flow from the WWRF into Gowrie Creek will have a significant detrimental impact on the social and economic structure of the region.

I am satisfied that this issue is outside the scope of this project for the following reasons. The wastewater stream from the WWRF is owned by TRC and as a consequence, TRC possesses the right to sell the wastewater to any interested party for a commercial benefit. TRC's ownership of the wastewater is acknowledged in a letter to the former Toowoomba City Council from the Queensland Minister for Natural Resources and Mines in December 2001.

The proponent entered into a commercial agreement with TRC, the validity of this contract was confirmed in a letter from TRC on 14 November 2007. The letter also confirmed that the Department Local, Government, Sport and Recreation has considered the matter and concluded that TRC could negotiate the sale of wastewater without the need for auctions or calling for tenders.

I have been advised that officers of the NRW, DPI&F and DIP are currently coordinating a strategy to address the potential social and economic dislocation impacts on the affected irrigators of utilising the resources of Gowrie Creek. As this particular issue relates to impending change and adjustment for a rural community with heavy dependency on agricultural production DPI&F have taken on lead agency status on behalf of the state government. I understand details of this strategy will be made available during December 2008 and meetings have been held with TRC regarding their involvement and participation.



The proponent has also stated that it has no control over the quantity of effluent discharged from the WWRF to Gowrie Creek, and the control of the discharge is the responsibility of TRC.

I find that the level of detail provided in the EIS appropriately addresses these effects.

The project will supply recycled water from the WWRF to provide a reliable source of water for the New Acland Coal Mine: Stage 3 Expansion Project. Without the project, the New Acland Coal Mine: Stage 3 Expansion Project would most likely not proceed and may close existing mining operations at the New Acland Coal Mine. The cessation of mining at the New Acland Mine would cause significant economic and social impacts at the local, regional, state and Commonwealth levels.

I find the project offers scope for a net economic benefit at the local, regional, state and Commonwealth levels in both the short and long term, without significant offsetting social or environmental costs.

### **Conclusions**

The project is an important component of the New Acland Coal Mine: Stage 3 Expansion Project, that will provide a reliable source of water for the existing mining operation at the New Acland Coal Mine and its proposed expansion.

As this is a construction project of short duration, I am satisfied that the proponent has adequately assessed the social and economic impacts arising from this project in the EIS.

I find that the project will create short term employment opportunities and flow on economic benefits, through the provision of indirect employment opportunities, for the Darling Downs region.

I find that whilst the proponent is not responsible for the control of the quantity of effluent discharged from the WWRF to Gowrie Creek, the project will enable treated waste water to be redirected away from the creek. This will have a subsequent impact on the current users of the effluent discharged from the WWRF to Gowrie Creek. I also note that the discharge of effluent to Gowrie Creek may cease altogether should TRC decide to find other uses for the water, such as through the construction of a reverse osmosis plant (RO Plant).

To minimise any potential adverse impacts of the construction of the pipeline on the community, I make the following recommendations:

### **Recommendation 5**

**The proponent must implement the communication strategy outlined in the EIS. The communication strategy should ensure that community members, including those in sensitive groups identified in the EIS, are informed of the project and its impacts. All landowners or business owners directly or potentially affected by the construction activities must be consulted at least one week before the commencement of such activities to identify potential issues, concerns and appropriate mitigation strategies. The EPA will be responsible for monitoring compliance for this recommendation.**

### **Condition 11**

**The proponent must establish a complaints response management system that provides for the receipt, recording and timely investigation and response to complaints, including the implementation of preventative or corrective actions and communication with the person who made the complaint to inform them of the actions undertaken. The EPA will be responsible for monitoring compliance for this condition.**

### **Recommendation 6**

**The proponent should work cooperatively with officers of DPI&F as lead agent for the state government to address the potential social and economic dislocation impacts on the affected Gowrie/Oakey Creek irrigators.**

## 4.12 Water resources

### **EIS findings and/or key points**

The EIS has identified that the New Acland Coal Mine currently relies on groundwater from the Great Artesian Basin (GAB) and rainfall for the supply of water to the Mine. The proponent has agreed to a 43 year contract with TRC for the supply of up to 5500 ML per annum of treated effluent from the WWRF.

The EIS has identified that once operational, the project will no longer need to obtain groundwater from the GAB for its main water supply. I find that this will be of benefit as the GAB is a resource under pressure.

The submission from the GCIAI raised a number of concerns regarding reduced flows into Gowrie Creek. The submission from GCIAI is discussed further in section *4.11 Social and economic environment*.

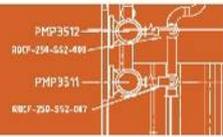
The EIS identified that should TRC construct a RO Plant, under the contract the proponent will take the brine wastewater. Submissions from NRW and the EPA have raised concern about how the brine wastewater will be managed at the Mine, and also what impact it would have should the pipeline rupture.

I note that the proponent has stated in the supplementary report that the brine wastewater received from the WWRF is to have a conductivity (salinity) equivalent to that which is currently used at the New Acland Coal Mine. I find that on the basis that the mine is currently managing water of a similar quality under an approved authority under the *Environmental Protection Act 1994*, it can be expected that the New Acland Coal Mine will be able to appropriately manage water received from the WWRF.

I note that the proponent has incorporated into the design of the pipeline, shut down mechanisms in the event of pipeline failure.

### **Conclusions**

I find that the discontinuation of use of groundwater from the GAB will be of benefit to the region. I am satisfied that the mine will be able to satisfactorily manage effluent received from the WWRF at the mine.



I find that the project may potentially have an indirect impact on the users of the effluent discharged from the WWRF to Gowrie Creek and have discussed this matter in section 4.11 *Social and economic environment*.

I find that rupture of the pipeline has the potential to impact on ground and surface waters. To ensure that the release from a pipeline rupture does not cause environmental harm, I make the following recommendation:

**Condition 12**

**The proponent must prepare an Environmental Emergency Response Plan for rupture of the pipeline. This plan is to be included in the operational environmental management plan. Should rupture of the pipeline occur, the proponent is to notify the relevant statutory authority of the incident, and the measures undertaken to investigate and mitigate the incident and prevent reoccurrence. The plan must be lodged and approved prior to the commencement of the operation of the pipeline. The EPA will be responsible for monitoring compliance for this condition.**

## 5. Environmental management plans

Separate CEM plans have been prepared by the proponent for the project and are contained in the supplementary report to the EIS and in Appendix 4 of this report.

These CEM plans have been prepared in order to propose environmental protection commitments to protect the environmental values potentially affected by the project footprint. These CEM plans have been refined based on submissions received during the EIS consultation period. The CEM plans will be further refined and expanded following the Coordinator-General's decision on the project; during the further design planning of the project; and through consultation with the regulators.

The CEM plans identify and describe the environmental values and potential impacts that may be caused by the project. Commitments are proposed and identified including environmental protection objectives, standards, measurable indicators and control strategies (i.e. to demonstrate how the objectives will be achieved).

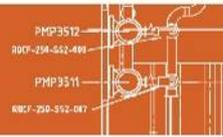
The aim or purpose of these CEM plans is to detail the actions and procedures to be carried out during the construction phase of the project in order to mitigate adverse and enhance beneficial environmental and social impacts. The environmental studies and consultation conducted as part of the EIS have identified the potential construction and operational impacts of proceeding with the project.

A range of mitigation measures have been identified from the EIS environmental studies to mitigate and manage these potential impacts and need to be implemented during the construction stage of the project.

The CEM plans address the proposed mitigation measures, record environmental commitments and establish the framework to ensure they are implemented during each stage of the project. In effect, the CEM plans become the key reference documents in that they convert the undertakings and recommendations of the environmental studies into a set of actions and commitments to be followed by the designers, constructors and future operators of the proposed Project.

The CEM plans will also serve as the benchmark for measuring the effectiveness of environmental protection and management. This can be achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing to ensure the necessary mitigation measures are met. The CEM plans also make provision, as appropriate, for unforeseen events by outlining corrective actions which may be implemented in these situations.

The effective implementation of the CEM plans will serve to implement the commitments made by the proponent in the EIS; the supplementary report to the EIS; and in correspondence with members of the public and advisory agencies; and ensure the effective management of environmental impacts of the project.



## 7. Conclusion

The project will involve the supply of up to 5500 ML per annum of treated effluent from the WWRF to the New Acland Coal Mine over an agreed 43 year contract period with TRC.

The project is critical for the proposed Stage 3 expansion of the New Acland Coal Mine. Operation of the pipeline will result in the discontinued use of groundwater from the Great Artesian Basin as a main water supply source. As such, it is expected that the project will realise a positive benefit to groundwater users in the region.

Having regard to the documentation and information provided during the EIS process for the project, I am satisfied that the requirements of the Queensland Government for impact assessment in accordance with the provisions of Part 4 of the *State Development and Public Works Organisation Act 1971 (Qld)* (SDPWO Act) have been met. The EIS process has provided sufficient information to all stakeholders to allow for an evaluation of the potential impacts that could be attributed to the project.

The proponent has developed detailed CEM plans to address specific environmental issues identified during the EIS process associated with the project.

In reaching a conclusion on the acceptability or otherwise of the management of potential impacts of the project I have considered these CEM plans, the EIS, the supplementary report to the EIS, and action being undertaken by the Queensland Government to prepare a management strategy for irrigators along Gowrie Creek.

Where necessary, I have made specific recommendations that the proponent should implement in accordance with best practice environmental management.

Thus, on the basis of the information provided, including advice from advisory agencies, I am satisfied that the adverse environmental impacts associated with the project are able to be addressed through

- implementation of the CEM plans
- implementation of specific conditions set down in Appendix 1 of this Report.

I consider that, on balance, there is an over-riding need for the project in terms of enabling further expansion of the New Acland Coal Mine, and reducing pressure on the Great Artesian Basin.

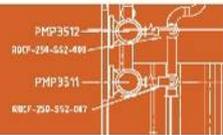
I therefore recommend that the project, as described in detail in the EIS and the supplementary report to the EIS, and summarised in Section 2 of this report, can proceed, subject to the qualifications above.

The proponent and its agents, lessees, successors and assigns, as the case may be, must implement the recommendations in this report, conditions, and all mitigation measures presented in the EIS, the supplementary report to the EIS and CEM plans.

A copy of this report will be issued to the proponent pursuant to s.35(5)(a) of the SDPWO Act.



A copy of this report will be provided to all advisory agencies and will also be made available on the Department of Infrastructure and Planning web site, at:  
<http://www.dip.qld.gov.au/projects/energy/coal/new-acland-coal-mine-stage-3-expansion.html>



# Abbreviations

ACH	<i>Aboriginal Cultural Heritage Act 2003 (Qld)</i>
AHD	Australian Height Datum
ASS	Acid sulphate soils
Cob	Close of business
CG	Coordinator-General
CEM plans	Construction environmental management plans
CHMP	Cultural Heritage Management Plan
DEWHA	Department of Environment, Water, Heritage and the Arts (C'th)
DIP	Department of Infrastructure and Planning
DMR	Department of Main Roads
NRW	Department of Natural Resources and Water
EPA	Environmental Protection Agency
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (C'th)</i>
EIS	Environmental impact statement
GCAI	Gowrie Creek Irrigators Association Incorporated
IAS	Initial advice statement
IPA	<i>Integrated Planning Act 1997 (Qld)</i>
NRW	Department of Natural Resources and Water
ROP	Resource Operations Plan
SEQ	South East Queensland
SEQRWSS	South East Queensland Regional Water Supply Strategy
SEIS	Supplementary report to the environmental impact statement
SDPWO Act	<i>State Development and Public Works Organisation Act 1971 (Qld)</i>
TOR	Terms of reference
Water Act	<i>Water Act 2000 (Qld)</i>

# Appendix 1

## List of recommendations

### Recommendation 1

The proponent must comply with the Vegetation Clearing Conditions set down in Appendix 2 of this report, as required by NRW in relation to the issuing of Vegetation Clearing Permits, pursuant to the *Vegetation Management Act 1999* and the EPA in relation to the issuing of a Clearing Permit for *Homopholis belsonii* pursuant to the *Nature Conservation Act 1992*. The EPA will be responsible for monitoring compliance with the *Nature Conservation Act 1992* and NRW will be responsible for monitoring and compliance with the *Vegetation Management Act 1999* for this recommendation.

### Recommendation 2

The proponent must comply with the construction EMP and any other provision set out in the Riverine Protection Permits. NRW will be responsible for monitoring compliance for this recommendation.

### Recommendation 3

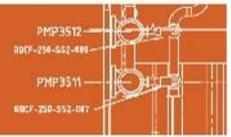
The proponent must consult with landowners directly affected by construction activities throughout the planning and construction phases of the project. Issues for consultation should include: likely and potential impacts to landowners; minimisation or mitigation strategies; timeframes for construction activities; access restrictions; and rehabilitation or reinstatement of impacted land and infrastructure, or other appropriate compensation. The EPA will be responsible for monitoring compliance for this recommendation.

### Recommendation 4

The proponent must ensure that pipeline construction staff undergo cultural awareness training and that communication with the Western Wakka Wakka People be maintained during the construction phase of the project to ensure Indigenous cultural heritage is protected. NRW will be responsible for monitoring compliance for this recommendation.

### Recommendation 5

The proponent must implement the communication strategy outlined in the EIS. The communication strategy should ensure that community members, including those in sensitive groups identified in the EIS, are informed of the project and its impacts. All landowners or business owners directly or potentially affected by the construction activities must be consulted at least one week before the commencement of such activities to identify potential issues, concerns and appropriate mitigation strategies. The EPA will be responsible for monitoring compliance for this recommendation.



### **Recommendation 6**

**The proponent should work cooperatively with officers of DPI&F as lead agent for the state government to address the potential social and economic dislocation impacts on the affected Gowrie/Oakey Creek irrigators.**

# Appendix 2

## List of conditions

### Conditions of the Coordinator-General

#### Condition 1

The CEM plans must include a baseline monitoring and inspection schedule of the affected ecosystems against which the effectiveness of the rehabilitation and conservation criteria can be assessed. NRW will be responsible for monitoring compliance for this condition.

#### Condition 2

The proponent must ensure that progressive rehabilitation, including re-contouring, topsoil replacement, and revegetation that is consistent in species composition and density with the pre-construction state, occurs as soon as construction activities are completed in each area disturbed. Rehabilitation should be monitored for success against the design criteria and corrective actions taken if rehabilitation is not proving to be successful. NRW will be responsible for monitoring compliance for this condition.

#### Condition 3

The proponent must ensure that all land disturbance construction activities comply with the requirements set out in the “*Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites* (The Institution of Engineers, Australia (Qld), 1996, or later version)”. NRW will be responsible for monitoring compliance for this recommendation.

#### Condition 4

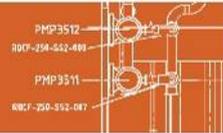
The proponent must implement the air quality management plan of the CEM plans to ensure that there is no significant impact to air quality, particularly from dust generation caused by construction activities. The EPA will be responsible for monitoring compliance for this condition.

#### Condition 5

The proponent must implement the CEM plans to minimise and mitigate any impacts associated with noise, particularly from construction activities when working in close proximity to sensitive receptors. The EPA will be responsible for monitoring compliance for this condition.

#### Condition 6

The proponent must consult with potentially affected residents about the timing, duration and likely impact of works, at least one week prior to the works commencing. Where noise impacts are likely to cause unavoidable nuisance and abatement measures cannot adequately reduce the noise level, the proponent should implement an appropriate mitigation response, such as possible temporary alternative accommodation arrangements for affected



residents. The EPA will be responsible for monitoring compliance for this condition.

#### **Condition 7**

The pump station is to operate with a noise level criteria of  $L_{A90, 1hr}$  25dB(A) which, is to be measured at the nearest sensitive receptor. The EPA will be responsible for monitoring compliance for this condition.

#### **Condition 8**

The proponent must prepare Traffic Management Plans in consultation with the relevant controlling authority to fully address any project-related impacts on roads before work commences and within the timeframe agreed with the controlling authority. The proponent should also consult with the Queensland Police Service during the development and implementation of the Traffic Management Plans. DMR for state controlled roads and TRC for local roads will be responsible for monitoring compliance for this condition.

#### **Condition 9**

The proponent must rehabilitate all temporary access roads and other areas of disturbance resulting from the construction of the pipeline to a state equivalent to or better than the pre-construction state, unless otherwise agreed with the landowner or relevant authority. NRW will be responsible for monitoring compliance for this condition.

#### **Condition 10**

The proponent must ensure that no environmental harm occurs in relation to the disposal or reuse of water used in the commissioning and operation of the pipeline and must take all reasonable and practicable measures to ensure that it complies with the general environmental duty, as defined under the *Environmental Protection Act 1994* (Qld). The EPA will be responsible for monitoring compliance for this condition.

#### **Condition 11**

The proponent must establish a complaints response management system that provides for the receipt, recording and timely investigation and response to complaints, including the implementation of preventative or corrective actions and communication with the person who made the complaint to inform them of the actions undertaken. The EPA will be responsible for monitoring compliance for this condition.

#### **Condition 12**

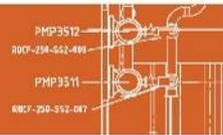
The proponent must prepare an Environmental Emergency Response Plan for rupture of the pipeline. This plan is to be included in the operational environmental management plan. Should rupture of the pipeline occur, the proponent is to notify the relevant statutory authority of the incident, and the measures undertaken to investigate and mitigate the incident and prevent reoccurrence. The plan must be lodged and approved prior to the commencement of the operation of the pipeline. The EPA will be responsible for monitoring compliance for this condition.

## Vegetation management conditions

The New Acland Coal – Wetalla Water Pipeline Project Environmental Impact Study July 2008 (EIS) has been assessed against provisions of the *Regional Vegetation Management Code : Brigalow Belt and New England Tableland Bioregions (20 November 2006)*, specifically Part S – Requirements for Clearing for Significant Projects (the Code).

The proposal—with conditions imposed—meets the Code. These conditions are provided below.

- Clearing of assessable vegetation as a result of the pipeline construction will not exceed 5 metres in width.
- All works will be managed in accordance with the publication *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites* (The Institute of Engineers, Australia (Qld) 1996).
- Construction activities at creek crossings will only be conducted during dry weather and during periods of low or no flow.
- Work will be scheduled to ensure that temporary erosion control works are in place by the end of each work day, especially before weekends, if rain is imminent or when permanent erosion control works are not in place or not feasible.
- Construction activities will be scheduled so that work in sensitive areas can be completed and rehabilitated as soon as feasible.
- Materials excavated will be segregated (e.g.: topsoil, subsoil, creek bed) and reinstated in their correct order.
- Materials reinstated will be compacted and reinstated to the original profile including vegetation, in accordance with pre-installation surveys.
- Where possible, watercourse crossings will be undertaken at approximately ninety degrees to the normal direction of flow within a straight section of the watercourse to minimise erosion.
- Loss of vegetation will be minimised by avoiding unnecessary clearing.
- Sedimentation fences and bunds will be used to contain excavated material.
- Soil and surface stability will be maintained at all times.
  - Trenching and underboring will be conducted in a manner compatible with the *Code of Environmental Practice – Onshore Pipelines* (Australian Pipeline Industry Association 2005).
  - During construction, soil and surface stability inspections will be undertaken continually by the Pipeline Construction Contractor. Following completion of construction, stability will be monitored on a monthly basis and following significant rainfall events.

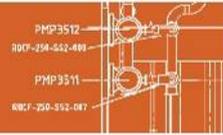


- Areas along the pipeline route identified and/or found to have highly dispersive or highly saline soils will be clearly marked. All operational personal will be made aware of these soils and the control measures necessary when working in these areas.
- Should dispersive or saline subsoil be exposed, then the following additional requirements are needed:
  - This material will not be stockpiled for use in revegetation.
  - The exposure time for this material will be minimised.
  - Dispersive material will be separated from non-dispersive material.
  - Measures will be undertaken as required to minimise erosion of these materials.
- Progressive rehabilitation will be undertaken during construction.
- An appropriate rehabilitation procedure will be developed for the pipeline route based on the Code of Environmental Practice – Onshore Pipelines (Australian Pipeline Industry Association 2005).
- All works are managed in accordance with the *Code of Environmental Practice – Onshore Pipelines* (Australian Pipeline Industry Association 2005).
- Assisted regeneration will be used at creek crossings.
- Site specific rehabilitation plans will be prepared and included for:
  - The Gowrie Creek crossing
  - For areas of vegetation with mapped remnant vegetation as per development approvals
- Any deviation of the alignment that requires clearing of assessable vegetation (outside that approved within the Environmental Impact Statement) will require referral to the Department of Natural Resources and Water - Vegetation Management Unit.

## Appendix 3

# Project commitments

The key commitments for implementation during the design, construction and operational phases of the project are summarised in **Attachment 1**.



# Appendix 4

## Environmental management plan

### 1.1 Overview

A number of recommendations have been made in this report and the environmental impact statement (EIS) in relation to the mitigation of environmental impacts during the construction and operation of the project. These recommendations will require actions to be taken during the design, construction and operational life of the project. In order to ensure that these recommendations are implemented, an environmental management plan (EMP) has been developed for the project. An EMP is provided in this section to demonstrate the commitment of the proponent to ensure that the recommendations of this report are implemented.

### 1.2 Purpose

An EMP is a management tool used to assist with the management of design, construction and operational activities for the purpose of minimising impact to the environment. The EMP is a dynamic document. It will be regularly updated during the lifetime of the project to incorporate changes in environmental management procedures and practices in light of ongoing monitoring results, new techniques, legislation and environmental policies of the proponent in consultation with the relevant authorities.

The implementation of an EMP will ensure that recommendations made in the EIS are undertaken so that the potential impacts associated with the construction and operation of the project are minimised.

### 1.3 EMP structure

The EMP has been separated into construction and operational phases of the project. This has been undertaken to account for the different mitigation requirements applicable to each phase.

The component of the EMP which covers the construction phase of the project is provided in **Section 1.6**. It is referred to in the EIS as the “the Construction EMP”. The purpose of the construction EMP is to provide clear guidance to the Contractor responsible for the construction of the project regarding management and mitigation measures which need to be implemented during construction.

The component of the EMP which covers the operational phase of the project is provided in **Section 1.7**. It is referred to in the EIS as the “the operational EMP”. The purpose of the operational EMP is to provide clear guidance to the proponent regarding management and mitigation measures which need to be implemented during the operational phase of the project.

Collectively the construction EMP and the operational EMP are referred to in this section as “the EMP”. Where the EMP refers to specific requirements, these are applicable to the construction EMP and the operational EMP.

## 1.4 Environmental requirements and obligations

The EMP is devised to ensure that identified environmental impacts relating to the project construction and operation are avoided or minimised. In this regard, the EMP may refer to environmental legislation, controls, standards and guidelines relevant to impact mitigation and avoidance. The EMP also requires that, wherever possible, works related to site development meet environmental expectations of the broader and local community.

Where practical, the EMP should demonstrate 'leading practice' and generally be in keeping with the principles of sustainable development. A list of legislation applicable to the project is identified in this section.

### Queensland Legislation

Queensland legislation relevant to the project and the draft EMP includes:

- *Environmental Protection Act 1994 (EP Act).*

The EP Act is the umbrella legislation for the regulatory management of the environment in Queensland.

The EP Act provides for the licensing of Environmentally Relevant Activities (ERAs) and the granting of development approvals and registration certificates for the operation of regulated activities. The EP Act also provides the power to administering authorities to order actions to be taken to improve environmental management performance, conduct audits and environmental evaluations of activities, approval of environmental management programs and impose penalties or prosecute persons for non-compliance within the requirements of the EP Act.

The EP Act is the primary environmental legislative tool in Queensland. The EP Act also allows for the preparation of Environmental Protection Policies (EPPs). The following EPPs have been proclaimed:

- *Environmental Protection (Water) Policy 1997;*
- *Environmental Protection (Noise) Policy 1997;*
- *Environmental Protection (Air) Policy 1997; and*
- *Environmental Protection (Waste Management) Policy 2000.*

### Other state legislation

This EIS has been prepared under the provisions of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). Relevant information in this EIS is then used to support applications for permits, licenses and approvals as outlined in **Appendix B** of the EIS.

In addition to the EP Act other major legislation relevant to the project includes:

<ul style="list-style-type: none"><li>▪ <i>Aboriginal Cultural Heritage Act 2003;</i></li><li>▪ <i>Dangerous Goods Safety Management Act 2001;</i></li></ul>	<ul style="list-style-type: none"><li>▪ <i>Nature Conservation (Wildlife) Regulation 1994;</i></li><li>▪ <i>Queensland Heritage Act 1992</i></li></ul>
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<ul style="list-style-type: none"> <li>▪ <i>Fisheries Act 1994;</i></li> <li>▪ <i>Health Regulations under the Health Act;</i></li> <li>▪ <i>Integrated Planning Act 1997;</i></li> <li>▪ <i>Land Act 1994;</i></li> <li>▪ <i>Nature Conservation Act 1994;</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Soil Conservation Act 1986;</i></li> <li>▪ <i>Transport Infrastructure Act 1994;</i></li> <li>▪ <i>Vegetation Management Act 1999;</i></li> <li>▪ <i>Water Act 2000; and</i></li> <li>▪ <i>Workplace Health and Safety Act 1995.</i></li> </ul>
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**1.4.1 Objectives**

The main objectives of the EMP are to ensure:

- the recommendations of the EIS are implemented to either mitigate, avoid or eliminate the potential environmental impacts during the project’s construction and operation;
- the environmental impacts from the project’s construction and operation are managed in a sustainable manner; and
- the level of environmental management is commensurate with the level of environmental risk during the project’s construction and operation.

**1.4.2 Environmental responsibilities**

**Terminology**

For the purpose of the EMP the proponent during the construction and operational phases of the project is referred to as the “project manager”.

For the purpose of this EMP contractor(s) employed by the project manager<sup>1</sup> during the detailed design and construction phase of the project are referred to as the “contractor”.

**Management structure**

To achieve the over-arching objective of sound environmental management and deliver the project with the least possible impact on the local community, a clear implementation and management structure is required.

The proposed structure, regardless of the contractual delivery mechanism adopted for the project, includes the following roles.

**The project manager – the proponent**

The responsibilities of the project manager during the construction phase of the project include:

- administrating the Head Agreement or Contract to ensure that the Conditions of Contract are met by the contractor
- obtaining all necessary development and environmental approvals with the exception of those relating to environmental licences (if required) and contaminated land during the construction phase of the project

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<sup>1</sup> including any sub-contractors or other persons employed or managed by the contractor(s) employed by the project manager

- ensuring that the Contractor operates in accordance with the Construction EMP, statutory approvals and legislative requirements
- liaising and coordinating with relevant Administering Authorities and Interested Persons (refer Section 12 of the EIS)
- providing environmental technical support to the contractor as required;
- ensuring that prior to commencement of construction the contractor has obtained all necessary approvals
- ensuring that the contractor has undertaken the necessary community consultation and/or consultation with Affected Persons
- undertaking audits of the contractor environmental performance;
- reviewing progress reports provided by the contractor
- reviewing the EMP and updating as required and updating the contractor of any revisions.

The responsibilities of the project manager during the operational phase of the project include:

- implementing and complying with the operational EMP, statutory approvals regarding the operation of the project, legislative requirements, Australian Standards and any relevant Code of Practice and/or Industry Standard;
- reviewing environmental performance and updating the EMP as required;
- reporting incidents (as required) to the EPA in a timely manner and ensuring appropriate corrective actions are undertaken.

**The Contractor:**

The responsibilities of the contractor during the design and/or construction phase of the project include:

- managing the construction process
- implementing and complying with the Construction EMP, Conditions of Contract, statutory approvals relating to the construction of the project and project design, legislative requirements, Australian Standard and any relevant Code of Practice and/or Industry Standard
- preparing the detailed engineering design which incorporates the recommendations made in the EIS and provides for the safe and efficient construction and operation of the project
- obtaining all workplace health and safety, construction and traffic related approvals, and if required and environmental approvals relating to environmental licenses and contaminated land
- maintaining for the duration of the construction phase, open and effective communications with Affected Persons and Interested Persons<sup>2</sup> as instructed by the project manager in regard to access requirements, the construction programme, nature of the proposed work and mitigation measures. The

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<sup>2</sup> Affected Persons include landowners located directly along the pipeline route. Interested Persons include landowners in close proximity to the pipeline route, local and state regulatory authorities and local community groups and non-statutory organisations.

Contractor will be responsible for liaising with Interested Persons (e.g. Toowoomba Regional Council and Main Roads) in regard to traffic control

- maintaining a record of incidents, records of the completion of planned actions, monitoring and reports for audit purposes
- ensuring that staff are appropriately qualified and trained regarding the requirements of the construction EMP
- ensuring all equipment is properly maintained and ‘fit for the purpose’ of the required task;
- ensuring that all standard operating procedures or method statements have been prepared and are available for all required tasks and have incorporated the requirements of the construction EMP
- undertaking regular monitoring in relation to environmental management issues and ensuring that monitoring results are made available to the project manager
- ensuring corrective actions arising from self-assessments (monitoring) and audits are completed, and are in accordance with the construction EMP
- notifying the project manager of environmental incidents and maintaining a record of events relating to the environmental incidents including any remedial and corrective actions taken
- ensuring there is adequate and accurate identification and reporting of any non-conformances and any other environmental issues that may arise during construction
- undertaking regular management reviews of the construction EMP, either at scheduled intervals, or on the identification of a system failure.

#### **1.4.3 Competence, training and awareness**

The EMP will only be successful where all those responsible for its implementation and review are thoroughly conversant with its content, interpretation and performance measurement. The project manager is committed to providing training for its site workforce and ensuring that the contractual arrangements with the contractor specify the need for adequate training to be provided to all contracted members of the workforce.

Staff involved in environmental monitoring will be trained and competent in the applicable monitoring equipment and procedures (including sample collection, handling, storage and transport methodologies and techniques).

Records of staff training will be auditable and available for inspection, on request.

#### **1.4.4 Documentation, communication and complaints**

##### **Documentation and environmental records**

Adequate records must be maintained to demonstrate compliance with the EMP. These records will be available at all times and readily accessible for independent inspection and audit. This includes:

- contract documents
- statutory approvals, permits and licences (if required)

- reports
- monitoring data
- environmental audits and reviews
- environmental training records
- details of non-conformance reports
- complaints register
- inspection, calibration and maintenance activity
- corrective action reports.

The following documents must be readily accessible for personnel to carry out the activities associated with the construction and operation of the project:

- a copy of the EMP
- copies of records required by the EMP
- copies of relevant work instructions and procedures;
- Material Safety Data Sheets (MSDS) for any chemicals stored or used on the site
- copies of permits, approvals and attached conditions.

#### **Internal communication**

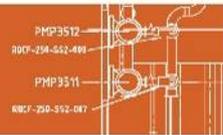
Environmental protection will be achieved through clear and concise internal communications, which will be subject to periodic audits by the project manager to ensure that the communication structure is performing adequately and all actions are performed and recorded. The audits will also provide for follow-up on specific or corrective actions raised during previous audits to ensure responses are complete.

The EMP will be held in a prominent location and will include at the start of the document a list of the names, affiliations, phone numbers and fax numbers (including after hours numbers where necessary) of the people within the designated environmental management reporting structure.

The contractor will submit a summary of the following as part of their Monthly Report to the proponent:

- works undertaken
- monitoring results
- compliance with approvals, permits, licences (if required) and the EMP
- complaints
- corrective actions and contingency, and success of implemented measures.

Significant communications, including all reports, incident forms and complaints will be documented and kept up to date. During the project's construction, the contractor must report any significant incidents and environmental harm (material or serious) to the proponent in a timely manner.



## External Communication

To ensure external communication is timely and transparent, only nominated personnel will be involved in consultation with external bodies on environmental issues. The project manager is responsible for nominating all staff members responsible for external communication and liaising with government agencies and the community on significant matters.

Any significant incidents and environmental harm (material or serious) during construction or operation of the project will be reported to the EPA as soon as possible (as per Section 320 of the EP Act). The project manager is responsible for reporting to the EPA.

The contractor is responsible for ensuring the Affected Persons and Interested Persons were instructed by the project manager along the Pipeline Route are adequately advised about the progress of pipeline construction in the vicinity of their properties. The contractor will be responsible for liaising with Interested Persons (e.g. Toowoomba Regional Council and Main Roads) in regard to traffic control.

## Complaints and Responses

The environmental management process managed by the contractor is to include a procedure for receiving and acting upon complaints. Attention to complaints will be carefully managed, prompt and effective, and will form a key part of the environmental reporting mechanism. Responsibility for minor complaints management will rest with the contractor. Major complaints management will be the responsibility of the project manager.

While the EMP will establish the procedure for complaints, basic requirements will include:

- a procedure for receiving and responding to complaints which is acceptable to the EPA and involves:
- the contractor maintaining, during the construction phase, a complaints telephone service (contact number) for minor complaints
- the project manager managing major complaints.
- a process for registering and handling all complaints received in terms of:
  - time and date of complaint
  - the identity of the complainant and the recorder of the complaint
  - the specific action or activity causing the complaint
  - whether environmental compliance requirements are being met
  - the action taken to address the complaint if legitimate
  - recording of complaints and actions taken in response
  - immediate communication of all significant complaints to the proponent (project manager)
  - feedback to the complainant, and if involved, the EPA, within a specified time period

- any subsequent remedial action required to avoid cause for future complaints if relevant
- monitoring and periodic auditing of complaints management.

Other informative resources are also to be accessible by external stakeholders via the project manager's website that will also offer feedback forms for complaints and grievances.

#### **1.4.5 Monitoring**

Measuring, monitoring and evaluating will be key activities of each element within the EMP. Monitoring shall mean the setting in place and implementation of various procedures to monitor, measure and record the level of impact on the environment during the execution of the project.

The monitoring of environmental impacts shall be carried out in accordance with the monitoring requirements for each element in the EMP, relevant legislation and the relevant conditions of any approvals and/or permits.

As required, monitoring procedures will be developed in accordance with standard protocols and the requirements of the EPA, Department of Primary Industries & Fisheries (DPI&F), Department of Natural Resources and Water (NRW), and other relevant statutory authorities.

All equipment used for environmental monitoring will be calibrated and maintained to the standards recommended by the supplier/manufacturer. Records of calibration and maintenance for each piece of monitoring equipment will be held on site.

As required, environmental monitoring samples will be sent for analysis to a National Association of Testing Authorities (NATA) registered laboratory. All records of laboratory analysis results and quality assurance will be auditable and available for inspection upon request from regulatory authorities.

#### **1.4.6 Auditing**

Aspects of the project with a potential for environmental impact will be subject to periodic environmental audits. The audit objectives will be to verify compliance with applicable Commonwealth, state and local government environmental permits, approvals and regulations issued for the project.

Each audit will be internally reviewed by the contractor and/or the project manager and all recommendations/actions raised will be addressed. Copies of audit reports and details of corrective actions will be made available for regulatory inspection.

#### **1.4.7 Reporting**

Monthly summary reports will be produced for the duration of the works and will include environmental matters. Copies of the reports shall be held on site and will be available for regulatory inspection. The report shall include, but is not limited to, the following:

- record of inspections

- a list of any performance criteria that have not been met, the corrective action taken and a description of any possible environmental impact
- a register of complaints detailing:
  - origin of the complaint
  - complaint investigation (personnel, date and summary of action/s taken)
  - response to actions and suggested changes to practices or procedures
- results of any audits carried out
- results of any community consultation undertaken.

#### 1.4.8 Non-compliance and corrective actions

Monitoring and reporting will incorporate a non-compliance and corrective action procedure. Records of any non-compliance and corrective actions undertaken will be kept. Where required, the EMP will be revised.

### 1.5 Environmental activities requiring management

There are a number of activities taking place during the construction phase of the project which have the potential to impact on environmental values. These are:

- vegetation clearing
- trenching and backfilling
- creek crossings
- operation of workshop (mobile)
- operation of re-fuelling activities (mobile)
- operation of site project / administration office
- use of vehicles and equipment on site
- construction and use of haulage roads.

The environmental elements addressed in this EMP are:

<ul style="list-style-type: none"> <li>▪ erosion and sediment control</li> <li>▪ surface water resources</li> <li>▪ terrestrial flora and fauna</li> <li>▪ aquatic flora &amp; fauna</li> <li>▪ weed management</li> <li>▪ pest management</li> <li>▪ air quality</li> </ul>	<ul style="list-style-type: none"> <li>▪ noise and vibration</li> <li>▪ waste</li> <li>▪ hazard and risk</li> <li>▪ transport and roads</li> <li>▪ cultural heritage</li> <li>▪ visual amenity.</li> </ul>
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### 1.6 Construction environmental management plan

This Section provides the construction EMP for the project. The contractor will be responsible for the implementation of the construction EMP unless otherwise stated in the construction EMP.

#### 1.6.1 Erosion and sediment control

Environmental Objective – Effective Erosion and Sediment Control

- Minimise environmental impact by preventing soil loss and erosion.

**Environmental Objective – Effective Erosion and Sediment Control**

- Minimise environmental impact by preventing soil loss and erosion.

<p>Performance Criteria</p>	<ul style="list-style-type: none"> <li>The impacts from erosion and sediment loss are eliminated or mitigated to an acceptable level.</li> <li>No complaints are received from regulatory authorities or the community in relation to erosion and sediment control issues.</li> <li>All works are managed in accordance with the Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia (Qld), 1996 and the Code of Environmental Practice – Onshore Pipelines (Australian Pipeline Industry Association, 2005) and any other relevant approval and statutory requirement.</li> </ul>
<p>Mitigation Measures</p>	<p><b>General works</b></p> <ul style="list-style-type: none"> <li>As required during construction, erosion and sediment control methods will be implemented in accordance with the Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites 1996 and the Code of Environmental Practice – Onshore Pipelines (Australian Pipeline Industry Association, 2005).</li> <li>Before commencing earthworks on any part of the Project, sufficient materials will be available to enable implementation of erosion and sediment controls as required.</li> <li>Key phases of the construction sequence will be timed to coincide where possible with low rainfall periods.</li> <li>Work will be scheduled to ensure that temporary erosion control works are in place by the end of work each day, especially before weekends, if rain is imminent or when permanent erosion control works are not in place or feasible.</li> <li>Construction activities will be scheduled so that work in sensitive areas can be completed and rehabilitated as quickly as feasible.</li> <li>Stormwater will be diverted around construction sites.</li> <li>Whoa boys will be used along the trench (where required) in accordance with the Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Site (1996)</li> </ul> <p><b>Identification of dispersive soils</b></p> <ul style="list-style-type: none"> <li>Tests for dispersive soils (Emerson Dispersion Tests or EDTs) were undertaken by PB as part of the geotechnical appraisal of the Pipeline Route. These were undertaken at the northern and southern end of the Pipeline Route. In order to confirm whether dispersive soils are present along the section of the Pipeline Route adjacent to the Kingsthorpe-Silverleigh Road, it has been agreed with NRW that an addition six EDTs will be undertaken of sub-soils along this road including areas considered to be most of risk in the map to be provided by NRW. The results of the EDTs will be used to confirm the management strategy outline as follows.</li> </ul> <p><b>Clearing of vegetation</b></p> <ul style="list-style-type: none"> <li>All required approvals will be obtained prior to the clearing of vegetation.</li> <li>Where possible, options to maximise vegetation preservation will be implemented.</li> <li>Clearing will be restricted to the minimum area required for safe operations.</li> <li>A clearing procedure will be developed that clearly designates areas to be disturbed (e.g. vegetation removal, etc.).</li> <li>Environmental controls will be included in all work procedures involving disturbance of land.</li> <li>A responsible person will be nominated to ensure that environmental controls are maintained.</li> </ul> <p><b>Clearing/grading</b></p> <ul style="list-style-type: none"> <li>Topsoil to will be stripped to a width of 3.8m over the centre line of the trench. The depth of topsoil stripped will average 200mm.</li> <li>Graded soil will be stockpiled separately from other materials where it can be readily recovered for re-spreading.</li> <li>Graded soil will not be stockpiled where it has the potential to result in sedimentation or acidification of land or surface water.</li> <li>Grading and stockpiling activities will be conducted in a manner that does not adversely affect surface drainage or water flows.</li> </ul>

**Environmental Objective – Effective Erosion and Sediment Control**

- Minimise environmental impact by preventing soil loss and erosion.

	<ul style="list-style-type: none"> <li>Soil and surface stability will be maintained at all times.</li> <li>Grading of watercourse beds and banks will be minimised to prevent sediment runoff into watercourses.</li> </ul> <p><b>Trenching/under boring</b></p> <ul style="list-style-type: none"> <li>Trenching and under boring will be conducted in a manner compatible with the Code of Environmental Practice – Onshore Pipelines (Australian Pipeline Industry Association 2005).</li> <li>Trench spoil will not be mixed with stockpiled topsoil and vegetation.</li> <li>Spoil stockpiles will be located away from watercourses and drainage lines.</li> <li>Spoil stockpiles will not impede natural or constructed surface drainage lines or access tracks.</li> <li>Erosion within the trench will be prevented utilising appropriate mitigation measures (e.g. trench plugs).</li> <li>Measures will be employed to prevent obstruction of subsurface water flows in side slopes across the trench.</li> <li>Backfill material will be replaced in the trench in the order of excavation.</li> <li>Backfill soils will be compacted to a level consistent with surrounding soils to prevent trench subsidence.</li> <li>Riverine Protection Permits will be obtained prior to the interfering with the bed and banks of any watercourse.</li> </ul> <p><b>Construction of access roads</b></p> <ul style="list-style-type: none"> <li>Where required, construction of site access roads for heavy vehicles will need to be suitably compacted, scour protected and drained.</li> <li>Care will be taken to minimise exposure of subsoils.</li> </ul> <p><b>Soil dispersion and salinity (on pipeline route)</b></p> <ul style="list-style-type: none"> <li>Areas along the Pipeline Route identified and/or found to have highly dispersive or highly saline soils will be clearly marked. All operational personnel will be made aware of these soils and the control measures necessary when working in these areas.</li> <li>The proposed management of dispersive subsoils will involve the following:</li> <li>areas with dispersible subsoils will be documented in the Pipeline Construction Contractors EMP.</li> <li>Any excess dispersive or saline soil will be appropriately disposed of.</li> <li>Limiting the depth of topsoil stripping to 0.15m below ground level</li> <li>keeping topsoil stockpiled separate from sub-soils</li> <li>reinstatement of the materials in order of excavation (i.e. topsoils will be placed over backfilled sub-soils).</li> <li>Clearing of vegetation will be limited within recharge areas where soil salinity exists.</li> <li>Drains and pumps will be installed to dewater areas with high water tables, particularly in areas where soil salinity exists.</li> <li>Care will be taken to minimise exposure of subsoils.</li> </ul> <p><b>Rehabilitation</b></p> <ul style="list-style-type: none"> <li>Progressive rehabilitation will be undertaken during construction (refer to <b>Section 1.6.3 and 1.6.5</b>).</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding terrestrial erosion and sediment control.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing monitoring of the effectiveness of erosion and sediment control measures implemented.</li> <li>The project manager undertake inspections of the effectiveness of erosion and sediment control measures along the pipeline route on a monthly basis and/or after significant rainfall events until rehabilitation is deemed satisfactory by the project manager.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report prepared by the contractor and submitted to the project manager will include a summary of the effectiveness of erosion and</li> </ul>

**Environmental Objective – Effective Erosion and Sediment Control**

- Minimise environmental impact by preventing soil loss and erosion.

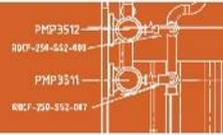
	<ul style="list-style-type: none"> <li>sediment controls.</li> <li>The contractor will inform the project manager as soon as possible in the event of a significant erosion and sediment control issue.</li> <li>The project manager will inform the Administering Authority in a timely manner in the event of a significant erosion and sediment control issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Appropriate control measures will be implemented in a timely manner where sedimentation or erosion issues are identified or have the potential to occur in the future.</li> <li>All complaints in relation to erosion and sediment control will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

**1.6.2 Surface water resources**

**Environmental Objective – Protection of Surface Water Resources**

- Maintain environmental flows during construction
- Minimise degradation to the downstream water quality

Performance Criteria	<ul style="list-style-type: none"> <li>No deterioration in water quality as a result of construction activities.</li> <li>No existing surface water users are affected.</li> <li>No complaints are received from regulatory authorities or the community in relation to surface water issues.</li> <li>All works are managed in accordance with the <i>Code of Environmental Practice – Onshore Pipelines</i> (Australian Pipeline Industry Association 2005).</li> <li>All works are managed in accordance with Riverine Protection Permits.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>The <i>Code of Environmental Practice – Onshore Pipelines</i> (Australian Pipeline Industry Association 2005) will be used to help develop a specific construction procedure for creek crossings.</li> <li>All construction work in creeks will be undertaken in accordance with the relevant Riverine Protection Permit.</li> <li>Construction activities at creek crossings will only be conducted during dry weather and during periods of no or low flow.</li> <li>Alternative work methods will be used in wet weather and/or high flow conditions (e.g. under boring).</li> <li>The pipeline trench will be open for a minimal period of time during construction.</li> <li>Materials excavated from the creek bed and banks will be segregated (e.g. topsoil, sub-soil, creek bed material) and reinstated in its natural order.</li> <li>Materials reinstated will be compacted and reinstated as far as practicable to the original profile identified during pre-installation surveys, including vegetation.</li> <li>Banks of creek crossings will be stabilised with erosion control structures and rehabilitated as soon as practicable following construction (Refer to <b>Section 1.6.2 and 1.6.3</b>).</li> <li>Where possible watercourse crossings will be undertaken at approximately 90° to the normal direction of flow within a straight section of the watercourse to minimise erosion.</li> <li>The movement of vehicles, plant and personnel will be restricted within the watercourse and its banks.</li> <li>Vegetation clearance will be kept to an absolute operational minimum for construction activities.</li> <li>Sedimentation fences or bunds will be used to contain excavated material during construction.</li> <li>Excavated material will be stockpiled away from gully heads, active creek banks, bank erosion or other unstable areas.</li> <li>Where possible, local runoff will be diverted around or away from disturbed areas.</li> <li>Stockpiling of vegetation and soil will be undertaken in a manner to prevent the diversion of overland flow.</li> </ul>



**Environmental Objective – Protection of Surface Water Resources**

- Maintain environmental flows during construction
- Minimise degradation to the downstream water quality

	<ul style="list-style-type: none"> <li>▪ Water released from the scour valves shall be undertaken in a way as to prevent environmental harm.</li> <li>▪ Streambed material and creek bank soil will not mixed at any time.</li> <li>▪ In the event that construction becomes necessary though a water body other than when dry, the water body will be contained by levee banks, the trench dug, the pipe laid and the area rehabilitated in the shortest practical time to minimise the potential for erosion.</li> <li>▪ The construction of temporary waterway barriers during pipeline installation will include the provision to transfer flows from upstream of the works to the downstream channel without passing though the disturbed construction site.</li> <li>▪ The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding the protection of surface waters.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>▪ During construction the contractor will undertake ongoing monitoring regarding the effectiveness of controls in place to prevent the loss of excavated material and the erosion of creek banks and creek beds.</li> <li>▪ Following rehabilitation, the contractor will undertake monthly inspections of creek crossings and/or after significant rainfall events until rehabilitation is deemed to be satisfactory completed by the project manager.</li> <li>▪ Should significant erosion of the creek bank or bed occur following construction, monitoring of water quality upstream and downstream of the creek crossings will be undertaken during flow events to identify significant changes to turbidity, conductivity and pH until appropriate corrective actions have been successfully implemented.</li> <li>▪ Should a major hydrocarbon/chemical spill occur resulting in the discharge of these substances into a water course, appropriate monitoring of the downstream receiving environment will be undertaken.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>▪ During construction, the Monthly Report prepared by the contractor and submitted to the project manager will include a summary of the effectiveness of mitigation measures undertaken when working in creeks, rehabilitation undertaken and its effectiveness and any incident resulting in significant erosion, flow impendance, and/or hydrocarbon/chemical spillage.</li> <li>▪ The contractor will inform the project manager as soon as possible in the event of any significant erosion of creek bed and banks during and/or following construction, flow impendance, and/or spills of hydrocarbon/chemicals.</li> <li>▪ The project manager will inform the Administering Authority in a timely manner in the event of any incident involving significant erosion, flow impendance, and/or hydrocarbon/chemical spillage.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>▪ The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>▪ Appropriate control measures will be implemented in a timely manner where erosion and sediment control (bed and bank stability), flow impendance, and/or hydrocarbon/chemical spillage issues are identified or possess the potential to occur in the future.</li> <li>▪ In the event of a hydrocarbon/chemical spill, appropriate remediation actions (land and water) will be undertaken (i.e. commensurate with the significance of the spill).</li> <li>▪ Where a significant hydrocarbon, chemical or other environmental contaminant spill occurs, with the potential to cause environmental harm, the incident must be notified to the EPA via the Pollution hotline number 1300 130 372.</li> <li>▪ All complaints in relation to erosion and sediment control (bed and bank stability), flow impendance, and/or hydrocarbon/chemical spillage will be investigated, and as required, legitimate problems will be rectified.</li> <li>▪ All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

### 1.6.3 Terrestrial flora

**Environmental Objective – Minimise impacts to Terrestrial Flora**

- Implementation of vegetation clearance, stockpiling, recycling or disposal practices that maximise the re-use of native vegetation and minimise environmental harm
- Undertake progressive rehabilitation during construction

Performance Criteria	<ul style="list-style-type: none"> <li>▪ No significant long-term disturbance or impact to vegetation communities outside the construction zone except where deemed unavoidable for access.</li> <li>▪ Successful rehabilitation of disturbed areas (as measured against pre-construction assessment).</li> <li>▪ Vegetation clearance is kept to an operational minimum.</li> <li>▪ All rehabilitation works are managed in accordance with the <i>Code of Environmental Practice – Onshore Pipelines</i> (Australian Pipeline Industry Association 2005) and conditions of approval.</li> <li>▪ No complaints are received from regulatory authorities or the community in relation to vegetation issues.</li> </ul>
Mitigation Measures	<p><b>Vegetation disturbance control</b></p> <ul style="list-style-type: none"> <li>▪ Vegetation identified in the EIS to be retained will be clearly marked on construction drawings and is not to be damaged during construction.</li> <li>▪ Prior to construction the boundaries of significant areas of vegetation to be avoided will be clearly marked by tape and/or pegs and conform to limits shown on construction drawings.</li> <li>▪ Significant areas of vegetation to be avoided will be communicated to the relevant staff well ahead of each construction zone.</li> </ul> <p><b>Protection of trees within construction zones</b></p> <ul style="list-style-type: none"> <li>▪ Appropriate measures will be implemented to prevent unintended physical damage to the root system, trunk or canopy of native vegetation identified for retention, which may be impacted upon by clearing works and construction activities.</li> <li>▪ As required, a qualified arborist or horticulturist will be consulted for works carried out on either foliage or root systems of trees within the construction zone.</li> </ul> <p><b>Vegetation clearing</b></p> <ul style="list-style-type: none"> <li>▪ The contractor will monitor vegetation clearing to ensure only necessary areas are cleared.</li> <li>▪ Cleared vegetation will be stockpiled (following mulching as required) alongside the trench to be used in rehabilitation.</li> </ul> <p><b>Topsoil</b></p> <ul style="list-style-type: none"> <li>▪ Topsoil will be stripped and stockpiled alongside the trench to be used in rehabilitation.</li> <li>▪ Topsoil will be kept separate from subsoils.</li> </ul> <p><b>Rehabilitation</b></p> <ul style="list-style-type: none"> <li>▪ Progressive rehabilitation will be undertaken as soon as practical after backfilling operations.</li> <li>▪ An appropriate rehabilitation procedure will be developed for the Pipeline Route based on the <i>Code of Environmental Practice – Onshore Pipelines</i> (Australian Pipeline Industry Association 2005) and conditions of approval. Sensitive areas, such as creek crossings and erosion prone areas, will receive additional care and attention. It is anticipated that the rehabilitation procedure will comprise             <ul style="list-style-type: none"> <li>▪ replacement of excavated materials in order of excavation;</li> <li>▪ retention and reuse of topsoil to allow for natural regeneration; and</li> <li>▪ assisted rehabilitation as required in creek crossings with steep banks and erosion prone areas.</li> </ul> </li> </ul> <p><b>Sediment and erosion control</b></p> <ul style="list-style-type: none"> <li>▪ Appropriate erosion and sediment control methods will be applied to minimise impacts to vegetation (refer to <b>Section 1.6.1</b>).</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>▪ The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding terrestrial flora.</li> </ul>

**Environmental Objective – Minimise impacts to Terrestrial Flora**

- Implementation of vegetation clearance, stockpiling, recycling or disposal practices that maximise the re-use of native vegetation and minimise environmental harm
- Undertake progressive rehabilitation during construction

Monitoring	<ul style="list-style-type: none"> <li>▪ The contractor will undertake ongoing monitoring to ensure that vegetation which has been identified to be retained is not disturbed during construction.</li> <li>▪ The Contractor will inspect rehabilitated areas monthly for the first 12 months following construction and then every six months for the next five years, to demonstrate success over time (i.e. in relation to percentage ground cover, species diversity and abundance, general vegetation health, erosion status and no pre-weed growth).</li> <li>▪ The project manager will undertake periodic inspections of remnant vegetation areas to monitor the extent of clearing and individual tree damage.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>▪ During construction, the Monthly Report submitted to the Project Manager will include a summary of rehabilitation performance and vegetation disturbance issues.</li> <li>▪ The contractor will inform the project manager as soon as possible in the event of a significant rehabilitation or vegetation disturbance issue.</li> <li>▪ The project manager will inform the Administering Authority in a timely manner in the event of a significant rehabilitation or vegetation disturbance issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>▪ The contractor</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>▪ Appropriate control measures will be implemented in a timely manner where unacceptable rehabilitation or vegetation disturbance issues are identified or possess the potential to occur in the future.</li> <li>▪ All complaints in relation to rehabilitation and/or vegetation disturbance will be investigated, and as required, legitimate problems will be rectified.</li> <li>▪ All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

### 1.6.4 Terrestrial Fauna

**Environmental Objective – Minimise impacts to Terrestrial Fauna**

- Ensure that tree clearing operations are completed in a manner that provides maximum protection of the health and livelihood of native fauna.

Performance Criteria	<ul style="list-style-type: none"> <li>▪ No significant long-term disturbance or impact to fauna from site clearing works or unnecessary mechanical disturbance.</li> <li>▪ Successful rehabilitation of disturbed areas (as measured against pre-construction assessment).</li> <li>▪ Fauna species continue to utilise the area post-development.</li> </ul>
Mitigation Measures	<p><b>General</b></p> <ul style="list-style-type: none"> <li>▪ No domestic animals, such as dogs and cats are to be allowed onto construction site.</li> </ul> <p><b>Compliance with the code of practice</b></p> <ul style="list-style-type: none"> <li>▪ Work will be undertaken in compliance with the Draft Queensland Code of Practice for the Welfare of Animals (Wildlife).</li> <li>▪ As required wildlife spotters, catchers or carers will be present during clearing activities.</li> </ul> <p><b>Identification of habitat trees</b></p> <ul style="list-style-type: none"> <li>▪ Habitat trees, old growth trees and any dead (stag) trees considered to be habitat trees will be identified with flagging tape prior to the selective clearing operations.</li> <li>▪ Clearing will be conducted using a staged approach where the smaller non-habitat trees are removed with the larger remaining habitat trees removed three to five days after the initial clearing.</li> </ul> <p><b>Tree removal</b></p> <ul style="list-style-type: none"> <li>▪ Where possible, the actual felling of the habitat trees will be conducted in a manner that will maximise the chances of survival for any fauna remaining within the tree hollows. This will involve pushing rather than cutting, and cushioning the tree fall with other felled timber and foliage.</li> </ul>

Environmental Objective – Minimise impacts to Terrestrial Fauna

- Ensure that tree clearing operations are completed in a manner that provides maximum protection of the health and livelihood of native fauna.

	<p><b>Retention and re-use of hollow logs</b></p> <ul style="list-style-type: none"> <li>Hollow logs will be retained where practicable and moved to the side of the Project area and where practicable reinstated following construction.</li> </ul> <p><b>Pipeline trench</b></p> <ul style="list-style-type: none"> <li>Only the minimum required section of pipeline trench will remain open overnight to reduce the area of impact.</li> <li>The end of the trench will have a gradual slope (no more than 50%) to allow fauna escape. If the open trench is longer than 500 m, then an exit ramp will be installed to allow escape.</li> <li>To provide shelter and to prevent overheating or desiccation, sawdust-filled hessian sacks soaked in water will be placed at 50 m intervals along the open pipeline trench overnight. Alternatively watered-down vegetation material may be used in place of hessian sacks.</li> <li>The open pipeline will be plugged at the end of the day to prevent fauna entering the pipeline. If the pipeline is unable to be plugged, the pipeline will be checked daily by an appropriately qualified person for the presence of fauna.</li> <li>The open trench will be checked daily by an appropriately qualified person and any wildlife removed will be relocated to an adjacent habitat.</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding terrestrial fauna.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing inspection and assessment of vegetation clearance and construction activities to confirm that specific controls and work practices are employed and effective.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager by the contractor will include a summary of fauna disturbance issues.</li> <li>The contractor will inform the project manager as soon as possible in the event of a significant fauna disturbance issue.</li> <li>The project manager will inform the Administering Authority in a timely manner in the event of a significant fauna disturbance issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Appropriate control measures will be implemented in a timely manner where unacceptable fauna disturbance issues are identified or possess the potential to occur in the future.</li> <li>All complaints in relation to fauna disturbance will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

## 1.6.5 Aquatic flora and fauna

### Environmental Objective – Minimise impacts to Aquatic Flora & Fauna

- Ensure that construction activities are conducted in a manner that minimises adverse impacts on aquatic fauna and flora.

Performance Criteria	<ul style="list-style-type: none"> <li>No impact to water quality in the receiving environment as a result of construction activities.</li> <li>No unacceptable loss of aquatic flora and fauna as a result of construction activities.</li> <li>Reinstatement of creek crossings to a condition commensurate with pre-construction conditions.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Water quality will be maintained through implementing the measures described in Section 1.6.1 and 1.6.2.</li> <li>Construction activities and rehabilitation will be completed in the shortest practical time to ensure minimal disturbance to aquatic flora and fauna.</li> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding aquatic flora and fauna.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>Photographic records of stream bed condition, including surrounding vegetation, will be undertaken prior to construction provide a baseline for rehabilitation works.</li> <li>A post construction survey will be conducted to ensure that creeks have been effectively reinstated.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager by the Contractor will include a summary of aquatic flora and fauna disturbance issues.</li> <li>The contractor will inform the project manager as soon as possible in the event of a significant aquatic flora or fauna disturbance issue.</li> <li>The project manager will inform the Administering Authority in a timely manner in the event of a significant aquatic flora or fauna disturbance issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Appropriate control measures will be implemented in a timely manner where unacceptable aquatic flora and fauna disturbance issues are identified or possess the potential to occur in the future.</li> <li>All complaints in relation to aquatic flora and fauna disturbance will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

## 1.6.6 Weed management

### Environmental Objective – Weed Management

- Minimise the environmental impact of weed infestation and to avoid the spread of otherwise pestiferous species.

Performance Criteria	<ul style="list-style-type: none"> <li>Obligations under the <i>Land Protection (Pest and Stock Route Management) Act 2002</i> to prevent the movement of declared pest plants to and from the construction site are met.</li> <li>No introduction of weed and pest infestations or increase in their distribution as a consequence of construction activities.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>All machinery, equipment and vehicles will be certified as “clean” by the contractor prior to entering the site by trained personnel in accordance with NRW practices.</li> <li>Vegetation containing weeds will not to be used as mulch for regeneration.</li> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness training covering the requirements of the EMP regarding vegetation clearing and weed management.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing monitoring during construction to ensure weeds are not introduced to construction sites or spread through construction activities. The distribution of known declared weeds will be monitored during construction.</li> </ul>

**Environmental Objective – Weed Management**

- Minimise the environmental impact of weed infestation and to avoid the spread of otherwise pestiferous species.

	<ul style="list-style-type: none"> <li>The Contractor will inspect rehabilitated areas monthly to identify new infestations and eradicate any declared weeds found.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager by the Contractor will include a summary of weed management issues.</li> <li>The contractor will inform the project manager of weed outbreaks or potential for infestations.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Appropriate control measures will be implemented in a timely manner where weed infestation or their potential to spread is identified.</li> <li>All complaints in relation to weed infestation will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

### 1.6.7 Pest management

**Environmental Objective – Pest Management**

- Minimise the environmental impact of pest infestations and avoid the increase of existing pest populations.

Performance Criteria	<ul style="list-style-type: none"> <li>Pest infestations do not increase as a consequence of construction activities and existing populations of introduced fauna are controlled.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Conditions favourable to pest species will not be created by:                             <ul style="list-style-type: none"> <li>appropriately waste management measures are undertaken (refer to <b>Section 1.6.10</b>);</li> <li>ensuring that water is not left accessible to animals unless purposively placed under <b>Section 1.6.4</b>; and</li> <li>ensuring erosion and sediment controls do not create breeding habitat for mosquitoes.</li> </ul> </li> <li>Where necessary appropriate pest control measures will be implemented.</li> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding pest management.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing monitoring during construction to ensure conditions favourable for pests are not created and where pests are found appropriate actions are undertaken regarding their control and to prevent reoccurrence.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager by the contractor will include a summary of pest management issues.</li> <li>The Contractor will inform the Project Manager of pest outbreaks or potential infestations.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Actions	<ul style="list-style-type: none"> <li>Appropriate control measures implemented in a timely manner where pest infestations are identified.</li> <li>All complaints in relation to pest infestation will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

## 1.6.8 Air quality

### Environmental Objective – Minimise Impacts to Air Quality

- To prevent dust and other atmospheric emissions generated by construction activities from causing a hazard or nuisance.

Performance Criteria	<ul style="list-style-type: none"> <li>No complaints are received from regulatory authorities or the community in relation to air quality issues.</li> <li>All works are managed in accordance with the <i>Environmental Protection Act 1994</i> and the <i>Environmental Protection (Air) Policy 1997</i>.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Environmental work methods that minimise dust generation will be employed on site during construction.</li> <li>The size of cleared areas will be kept to an operational minimum to limit exposed areas available for dust generation by wind erosion.</li> <li>The speed of light vehicles on-site will be limited to reduce wheel-generated dust.</li> <li>As required, a watering truck will be employed to control dust in dry and/or windy conditions.</li> <li>Progressive rehabilitation will be conducted as primary construction works are completed to reduce potential for dust generation.</li> <li>The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding air quality.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing monitoring during construction to identify the need for dust suppression measures and the effectiveness of measures undertaken.</li> <li>A site activity log will be maintained, recording the type of activities occurring during various times of the day to assist with the retrospective investigation of community complaints.</li> <li>In the event of a complaint and at the request of the Administering Authority dust deposition monitoring will be undertaken at the nearest sensitive receiver.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager by the contractor will include a summary of dust management issues.</li> <li>The contractor will inform the project manager as soon as possible in the event of a significant air quality issue.</li> <li>A register of complaints received and corrective actions taken will be maintained and made available for inspection on request.</li> <li>The project manager will inform the Administering Authority in a timely manner in the event of a significant air quality issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Appropriate control measures will be implemented in a timely manner where nuisance dust and other air quality issues are identified or possess the potential to occur in the future.</li> <li>All complaints in relation to nuisance dust will be investigated, and as required, legitimate problems will be rectified.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

## 1.6.9 Noise and vibration

Environmental Objective – Minimise the Impacts of Noise & Vibration	
<ul style="list-style-type: none"> <li>▪ To minimise noise and vibration impacts from construction activities at residential locations near the project.</li> </ul>	
Performance Criteria	<ul style="list-style-type: none"> <li>▪ No complaints are received from regulatory authorities or the community in relation to noise or vibration issues.</li> <li>▪ All works are managed in accordance with the <i>Environmental Protection (Noise) Policy 1997</i> and <i>Environmental Protection Regulation 1998</i>.</li> </ul>
Mitigation Measures	<p><b>General noise management practices and scheduling of activities</b></p> <ul style="list-style-type: none"> <li>▪ In general, construction works will be carried out in accordance with Australian Standard 2436-1981, <i>Guide to Noise Control on Construction, Maintenance and Demolition Sites</i> (Standards Australia, 1981).</li> <li>▪ Prior to the commencement of site works, the community will be informed of the upcoming activities and likely duration.</li> </ul> <p><b>Plant and Equipment</b></p> <ul style="list-style-type: none"> <li>▪ Where possible, equipment having directional noise characteristics (emits noise strongly in a particular direction) will be oriented to direct noise away from sensitive areas.</li> <li>▪ If adjacent to sensitive receivers, the coincidence of noisy plant working at the same time close together will be avoided where possible.</li> <li>▪ All mechanical plant will be silenced by best practical means using current control technology and in accordance with manufacturers' specifications, and maintained appropriately.</li> <li>▪ Where possible, plant with the lowest noise rating which meets the requirements of the task will be selected.</li> <li>▪ Tailgates on trucks are to be securely fitted to avoid unnecessary "clanging" noise, particularly during movement of empty trucks.</li> <li>▪ Where possible, pneumatic equipment with the lowest noise rating (i.e. silenced compressors or quieter hydraulic equipment) which meets the requirements of the task will be selected.</li> <li>▪ Stationary and mobile plant and equipment (including mufflers, enclosures etc) will be regularly inspected and suitably maintained.</li> <li>▪ Equipment not being utilised as part of the work will not be left standing with engines running for extended periods.</li> </ul> <p><b>Traffic noise management</b></p> <ul style="list-style-type: none"> <li>▪ Designated access route/s to the site will be established and drivers will be informed of these routes, parking lots and acceptable delivery times.</li> <li>▪ Entry and departure of heavy vehicles to and from the site are restricted to the standard daytime construction times.</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>▪ The contractor will ensure that the appropriate personnel undertake adequate environmental awareness and training covering the requirements of the EMP regarding noise management.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>▪ The contractor will undertake ongoing monitoring during construction as to the effectiveness of noise control measures and the control of excessive noise.</li> <li>▪ A site activity log will be maintained, recording the type of activities occurring during various times of the day to assist with the retrospective investigation of community complaints.</li> <li>▪ In the event of a complaint and at the request of the Administering Authority dust deposition monitoring will be undertaken at the nearest sensitive receiver.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>▪ During construction, the Monthly Report submitted to the Project Manager by the contractor will include a summary of noise management issues.</li> <li>▪ The contractor will inform the Project Manager as soon as possible in the event of a significant noise management issue.</li> <li>▪ A register of complaints received and corrective actions taken will be maintained and made available inspection on request.</li> <li>▪ The project manager will inform the Administering Authority in a timely manner in the event of a significant noise or vibration issue.</li> </ul>

**Environmental Objective – Minimise the Impacts of Noise & Vibration**

<ul style="list-style-type: none"> <li>To minimise noise and vibration impacts from construction activities at residential locations near the project.</li> </ul>	
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>All complaints relating to noise and vibration issues will be investigated promptly and appropriate actions taken.</li> <li>Where investigations show unacceptable noise levels, revision to management plans will be undertaken and further controls implemented, as necessary.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

**1.6.10 Waste**

**Environmental Objective – Minimise the Impacts of Waste Management**

<ul style="list-style-type: none"> <li>To prevent or minimise the generation of wastes and to appropriately contain, control and dispose of all waste generated.</li> </ul>	
Performance Criteria	<ul style="list-style-type: none"> <li>Where practicable waste management principles (Reduce, Re-use, Recycle) and sustainable disposal strategies will be implemented on site including:               <ul style="list-style-type: none"> <li>Water conservation, treatment and re-use;</li> <li>Efficient energy usage;</li> <li>Effective waste disposal;</li> <li>Lawful disposal of all waste from site; and</li> <li>Construction and storage areas are maintained in a clean and tidy state.</li> </ul> </li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Where practicable the implementation of the waste minimisation hierarchy - waste avoidance, waste re-use and waste recycling will be undertaken.</li> <li>Waste generation will be avoided and, if avoidance is not reasonable or practicable, waste generation on site will be reduced.</li> </ul> <p><b>Reuse and recycling</b></p> <ul style="list-style-type: none"> <li>Where practicable the following measures will be implemented on site:               <ul style="list-style-type: none"> <li>re-use of cleared vegetation and trench excavation within the pipeline corridor in accordance with <b>Section 1.6.3</b> and <b>1.6.6</b>;</li> <li>re-use of timber pallets and timber skids;</li> <li>recycling of packaging waste (e.g. bottles, cans, boxes, drums);</li> <li>recycling of office paper;</li> <li>recycling of waste oils and batteries; and</li> <li>re-use of excess chemicals (e.g. solvents, herbicides).</li> </ul> </li> <li>Recyclable wastes will be stored in separate bins or areas as appropriate, for collection by a licensed waste contractor and recycling off-site.</li> </ul> <p><b>Waste storage, handling and disposal</b></p> <ul style="list-style-type: none"> <li>Cleared vegetation, topsoil and subsoil will be stockpiled in separate windrows along site trenches.</li> <li>The management of regulated wastes (storage, collection, transport, tracking, treatment and disposal) will be in accordance with the EPA Guidelines, including appropriate licensing of the contractor, transport vehicles and facilities.</li> </ul> <p><b>Waste transport</b></p> <ul style="list-style-type: none"> <li>Transport of all regulated wastes will be carried out by a licensed carrier, and in accordance with the EPA tracking system as defined in <i>Environment Protection (Waste Management) Regulation 2000</i>.</li> <li>General waste transport will be conducted in a manner that does not cause littering or unlawful waste disposal.</li> </ul> <p><b>Training</b></p> <ul style="list-style-type: none"> <li>Appropriate personnel will undertake environmental awareness training covering the requirements of the EMP regarding waste management.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>Regular inspection of on-site facilities will be undertaken to ensure waste is being generated, stored, handled, disposed and transported in accordance with regulations.</li> <li>Records will be kept of any regulated waste removed from the site, including name and licence number of waste transporters, volume and description of waste</li> </ul>

**Environmental Objective – Minimise the Impacts of Waste Management**

- To prevent or minimise the generation of wastes and to appropriately contain, control and dispose of all waste generated.

	transported, destination of waste and licence number of the waste treatment operator.
Reporting	<ul style="list-style-type: none"> <li>▪ During construction, the Monthly Report submitted to the project manager will include a summary of waste generation and management issues.</li> <li>▪ The contractor will inform the Project Manager as soon as possible in the event of any significant waste management issue.</li> <li>▪ The project manager will inform the Administering Authority in a timely manner in the event of any significant waste management issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>▪ The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>▪ All complaints relating to waste disposal will be investigated promptly and appropriate actions taken.</li> <li>▪ All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> </ul>

### 1.6.11 Hazard and Risk

**Environmental Objective – Hazard & Risk (Hazardous Substances)**

- Safely manage the risks to the existing environmental values, including surrounding land uses associated with the construction.

Performance Criteria	<ul style="list-style-type: none"> <li>▪ Compliance with relevant standards, guidelines and legislation.</li> <li>▪ No incidents occurring during construction.</li> </ul>
Mitigation Measures	<p><b>General mitigation measures</b></p> <ul style="list-style-type: none"> <li>▪ AS4801 Occupational health and safety management systems - Specification with guidance for use and AS4804 Occupational health and safety management systems - General guidelines on principles, systems and supporting techniques will be complied with during construction.</li> <li>▪ Appropriate personnel will undertake environmental awareness training covering the requirements of the EMP regarding safe working procedures, the management of hazardous substances, first aid and emergency response.</li> </ul> <p><b>Hazardous materials or dangerous goods</b></p> <ul style="list-style-type: none"> <li>▪ Storage and transport of materials will be undertaken in accordance with relevant Australian standards, guidelines and legislation, including: <ul style="list-style-type: none"> <li>▪ AS4452 The Storage and Handling of Toxic Substances;</li> <li>▪ AS1940 The Storage and Handling of Flammable and Combustible Liquids;</li> <li>▪ AS3780 The Storage and handling of Corrosive Substances;</li> </ul> </li> <li>▪ Dangerous Goods Safety Management Act 2001;</li> <li>▪ regulatory requirements; and</li> <li>▪ Material Safety Data Sheets (MSDS) requirements. MSDS for products kept on site will be readily available.</li> <li>▪ Spill response measures will be kept on site.</li> <li>▪ Appropriate signage using Dangerous Goods classes will be visible at all times. Signage details will also list contact details in case of an emergency.</li> <li>▪ Fire fighting equipment will be checked and maintained at all times.</li> <li>▪ Records will be kept on chemicals, fuel and dangerous goods used during construction.</li> <li>▪ All relevant staff will be trained in appropriate handling, storage and containment practices for chemicals, fuel and dangerous goods.</li> </ul> <p><b>Emergency response</b></p> <ul style="list-style-type: none"> <li>▪ Emergency response procedures will be implemented for fuel, oil and chemical use and as a minimum will include the use of appropriate spill response kits, involve adequately trained staff and incorporate a contact protocol for emergency services and the notification of regulatory authorities.</li> <li>▪ First aid and fire fighting equipment (hand held extinguishers and fire hoses) will be available at construction sites.</li> </ul>

Environmental Objective – Hazard & Risk (Hazardous Substances)	
<ul style="list-style-type: none"> <li>Safely manage the risks to the existing environmental values, including surrounding land uses associated with the construction.</li> </ul>	
	<p><b>Vehicle collision and driving conditions</b></p> <ul style="list-style-type: none"> <li>Construction workers operating vehicles on-site will be trained and licensed, so that these vehicles are operated in a safe and appropriate manner.</li> <li>Speed controls (signage) will be employed on construction sites.</li> <li>All vehicles will be fitted with radios for two-way communication.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>The contractor will undertake ongoing monitoring during construction regarding the control of dangerous goods and emergency response.</li> <li>An incident register will be maintained by the contractor which includes corrective actions undertaken and persons notified.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager will include a summary of issues relating to hazardous substances, incidents which occurred and corrective actions undertaken.</li> <li>Any environmental incidents involving spills will be recorded including time of incident, persons involved, details of incident, mitigation measures and actions taken to minimise the probability of recurrence.</li> <li>The contractor will inform the project manager immediately of any incidents resulting in potential or actual environmental harm.</li> <li>The project manager will inform the Administering Authority immediately in the event of any incident involving potential or actual environmental harm and the measures being undertaken for mitigation.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>All complaints relating to hazardous substances will be investigated promptly and appropriate actions taken.</li> <li>All reasonable requests for corrective action from the relevant Administering Authorities in relation to legitimate issues will be implemented.</li> <li>In the event of a spill of hazardous substances work procedures and control measures will be reviewed to ensure they are fit for purpose and revised where necessary.</li> <li>In the event of an environmental incident, corrective or remedial action will be taken as is required to render the area safe and avoid or minimise environmental harm.</li> </ul>

### 1.6.12 Land contamination

Environmental Objective – Minimise Impacts from Land Contamination (Spills & Clean Up)	
<ul style="list-style-type: none"> <li>Prevent spills occurring at the construction site.</li> <li>Contain, clean up and, if necessary, remediate any spills that do occur.</li> </ul>	
Performance Criteria	<ul style="list-style-type: none"> <li>Minimal waste generated by the project.</li> <li>No spillage or leaks of hazardous materials.</li> <li>No contamination of soil, air or water as a result of any spillages.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Appropriate personnel will undertake environmental awareness training covering the requirements of the EMP regarding contaminated land.</li> <li>Preparation of a Construction Occupational Health and Safety Plan by the construction contractor which includes measures to prevent exposure (e.g. dermal contact, ingestion and inhalation of dust) of construction workers to potential contaminants in soil and/or water. For example through the wearing of personal protective equipment and the control of dust during construction.</li> <li>Undertaking consultation with the WWRF and EPA Contaminated Land Unit regarding the use and history of land to be disturbed during construction for the purpose of identifying mitigation measures required during construction.</li> <li>Undertaking consultation with the EPA Contaminated Land Unit and Queensland Rail regarding the potential for contamination within the railway corridor and mitigation measures required during construction.</li> <li>A Contaminated Land Management Procedure will be prepared prior to the commencement of construction which includes but is not limited to:</li> </ul>

**Environmental Objective – Minimise Impacts from Land Contamination (Spills & Clean Up)**

<ul style="list-style-type: none"> <li>▪ Prevent spills occurring at the construction site.</li> <li>▪ Contain, clean up and, if necessary, remediate any spills that do occur.</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ the prevention of land contamination during construction;</li> <li>▪ the identification, investigation and management of unforeseen contamination;</li> <li>▪ spill response and remediation;</li> <li>▪ the management, remediation and disposal of contaminated soil and/or spoil generated from properties listed on the EMR/CLR; and</li> <li>▪ post construction management and/or monitoring requirements.</li> <li>▪ As required, approval and a disposal permit will be obtained from the EPA (Contaminated Land Unit) for the removal of contaminated soil in accordance with the Environmental Protection Act 1994.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>▪ The contractor will undertake ongoing monitoring during construction regarding the management of contaminated land and required mitigation measures.</li> <li>▪ An incident register will be maintained by the contractor which includes corrective actions undertaken including remedial measures and persons notified.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>▪ During construction, the Monthly Report submitted to the Project Manager will include a summary of issues relating to contaminated land.</li> <li>▪ Any environmental incidents involving spills will be recorded including time of incident, persons involved, details of incident, mitigation measures and actions taken to minimise the probability of recurrence.</li> <li>▪ The contractor will inform the project manager immediately of any incidents resulting in potential or actual environmental harm.</li> <li>▪ The project manager will inform the Administering Authority immediately in the event of any incident involving potential or actual environmental harm and the measures being undertaken for mitigation.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>▪ The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>▪ In the event of an environmental incident, corrective or remedial action will be taken as is required to render the area safe and avoid or minimise environmental harm.</li> <li>▪ In the event of an environmental incident, the incident will be investigated, managed and remediated in accordance with the requirements of the contaminated land provisions of the EP Act and EPA requirements.</li> <li>▪ All complaints relating to environmental incidents involving land contamination will be investigated promptly and appropriate actions taken.</li> <li>▪ In the event of an environmental incident relating to a spill work procedures and control measures will be reviewed to ensure they are fit for purpose and revised where necessary.</li> </ul>

**1.6.13 Transport and roads**

<p><b>Environmental Objective – Transport &amp; Roads</b></p> <ul style="list-style-type: none"> <li>▪ Minimise potential traffic disruptions to the operation of the road network due to construction works.</li> <li>▪ Manage construction traffic and transport issues to minimise potential impact on the community and the operation of the road network.</li> </ul>	
Performance Criteria	<ul style="list-style-type: none"> <li>▪ No traffic accidents as a result of the construction activities.</li> <li>▪ No public complaints in relation to transport and road related activities.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Traffic management measures will be employed at each worksite to ensure safe workings in the area.</li> <li>▪ Appropriate personnel will undertake environmental awareness and training covering the requirements of the EMP regarding traffic management.</li> <li>▪ Where practicable haulage during peak traffic periods will be avoided during school drop-off and pick-up times when working near these areas.</li> <li>▪ Where possible established truck routes and arterial roads will be used for the haulage of construction materials and spoil in order to minimise truck traffic on local roads.</li> <li>▪ Local communities and regulatory authorities will be notified as required in regard to changes to traffic conditions due to construction activities. Clear signage will be provided regarding changes to traffic conditions.</li> </ul>

#### Environmental Objective – Transport & Roads

- Minimise potential traffic disruptions to the operation of the road network due to construction works.
- Manage construction traffic and transport issues to minimise potential impact on the community and the operation of the road network.

Monitoring	<ul style="list-style-type: none"> <li>The contractor will monitor traffic flows and road network performance on an ongoing basis to confirm that controls have been implemented and management measures are appropriate.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the Project Manager will include a summary of issues relating to Traffic Management.</li> <li>The contractor will inform the project manager and regulatory authorities as soon as possible in the event of any significant traffic management or transport issue.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Investigation and implementation of additional traffic management and transport options where required.</li> <li>All complaints relating to traffic issues will be investigated promptly and appropriate actions taken, if required and reported to the project manager and regulatory authorities.</li> </ul>

### 1.6.14 Cultural heritage

#### Environmental Objective – Minimise impacts to Cultural Heritage

- Conduct all activities in a manner that will minimise the effect on heritage items including the protection aboriginal sites, artefacts and areas of high cultural and heritage value.

Performance Criteria	<ul style="list-style-type: none"> <li>No impact to all known indigenous archaeological records, as identified within the CHMP from construction activities.</li> <li>All unknown indigenous archaeological items found during the course of the construction are appropriately protected and reported to the NRW.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>As required, construction staff will be undergo cultural awareness training in order to identify potential material that may be discovered during construction.</li> <li>The project manager will maintain communications with the Wakka Wakka People (Traditional Owners) during construction.</li> <li>Construction work will be undertaken in accordance with the agreed CHMP.</li> <li>In the event that any indigenous items are uncovered during the course of the construction, work in the immediate area will cease and the finds immediately be reported to the project manager.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>Regular inspection and assessment of the effectiveness the implementation of the CHMP will be undertaken to confirm that specific controls and work practices are employed and effective.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>The contractor will notify the project manager immediately of any findings of indigenous archaeological items.</li> <li>The project manager will inform the Administering Authority in a timely manner of any findings of indigenous archaeological items or European archaeological items of significance.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor – Implementation of CHMP.</li> <li>The project manager – Communication with the Western Wakka Wakka People.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>All non-compliances in relation to cultural heritage will be rectified in an appropriate manner.</li> </ul>

### 1.6.15 Visual amenity

#### Environmental Objective – Minimise Impacts on Visual Amenity

- Minimise the potential impacts on the visual environment during construction.

Performance Criteria	<ul style="list-style-type: none"> <li>No deterioration of the visual aesthetics at sensitive locations adjacent to the construction activities.</li> <li>Disturbed areas successfully rehabilitated with the appropriate vegetation types.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>The design will incorporate strategic placement of structures to minimise impacts on visual amenity.</li> <li>Construction sites will be maintained in a tidy state (i.e. no littering will be</li> </ul>

**Environmental Objective – Minimise Impacts on Visual Amenity**

- Minimise the potential impacts on the visual environment during construction.

	<ul style="list-style-type: none"> <li>allowed).</li> <li>Where practicable existing roadside and fence line vegetation will be retained to assist in partially screening the construction activities.</li> <li>Particular attention will be made to the retention of the well-established treed verges at the intersection of Oakey - Cooyar Road and Oakey Mount - Darry Road. Alternative reasonable and practical options will be explored that limit the removal of these trees.</li> <li>In the event that it is necessary to remove existing vegetation, such as grasses and trees, efforts will be made to ensure that the affected area is restored to its previous state.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>During construction activities the visual amenity of the project will be monitored regularly.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>During construction, the Monthly Report submitted to the project manager will include a summary of issues relating to visual amenity and house keeping.</li> <li>The contractor will inform the project manager of any incidents resulting in visual complaints.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The contractor.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>All complaints relating to visual amenity issues will be investigated promptly and appropriate actions taken, if required and reported to the project manager.</li> </ul>

### 1.7 Operational environmental management plan

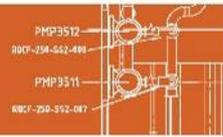
This section provides the operational EMP for the project. The project manager will be responsible for the implementation of the operational EMP. The operational EMP is appropriate to both the commissioning and operational phases of the project. The operational EMP will be updated following the completion of construction and include any residual environmental issues which require management (e.g. rehabilitation) upon the completion of the construction phase of the project.

#### 1.7.1 Management and maintenance of project infrastructure

**Environmental Objective**

- To minimise environmental impacts during the operational phase of the Project

Performance Criteria	<ul style="list-style-type: none"> <li>Manage operation of the pipeline in accordance with statutory approvals and legislative requirements.</li> </ul>
Mitigation Measures	<ul style="list-style-type: none"> <li>Implement a flow monitoring system and shut down mechanisms to control any breaches of the pipeline during operation.</li> <li>Maintenance activities will be undertaken as required to ensure safe and efficient operation.</li> <li>Maintenance activities will be undertaken in a manner to reduce the potential for environmental harm.</li> <li>Undertake further rehabilitation along the Pipeline Route as required upon completion of the construction phase.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>Following construction the project manager will undertake monthly inspections of the pipeline route until rehabilitation has been satisfactorily completed.</li> <li>Until rehabilitation has been satisfactorily completed, following periods of heavy rainfall, creek crossings and erosion prone areas will be inspected to check for erosion.</li> <li>The project manager will monitor pipeline integrity during the operation phase of the project.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>The project manager.</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>The project manager.</li> </ul>
Corrective Action	<ul style="list-style-type: none"> <li>Additional rehabilitation will be undertaken along the pipeline route as necessary during the operation phase of the project.</li> </ul>



Environmental Objective

- To minimise environmental impacts during the operational phase of the Project
  - Prompt repair of pipeline in the event of a breach in integrity.
  - All complaints relating to operation of the water pipeline will be investigated promptly and appropriate actions will be taken to rectify legitimate problems.

END OF REPORT