NORTHERN PIPELINE INTER-CONNECTOR STAGE 1

Landers Shute Water Treatment Plant Main Line to Morayfield Reservoirs

Terms of Reference for an Environmental Impact Statement

UNDER PART 4 OF THE QUEENSLAND *STATE DEVELOPMENT AND PUBLIC WORKS ORGANISATION ACT 1971*

The Coordinator- General, June 2007

PREAMBLE

Project Summary

The Queensland State government has been reviewing the capacity of the existing and planned water infrastructure to supply the water needs of South East Queensland (SEQ) during the current long-term drought. The current drought is the worst on record requiring a substantial reduction in the yields of dams. The consequence is that substantial water supply upgrades are necessary to meet the water needs of an expanding urban population in the region. A number of strategies are being put into place to address this. One of the short-term drought contingency strategies to permit the transfer of water from areas that have plentiful supplies of water to areas that are experiencing water shortages is to develop a water grid that links existing and potential future water storages in SEQ.

The Northern Pipeline Inter-connector (NPI) is a drought contingency project that will provide the capability to transfer water from the Sunshine Coast to Brisbane. The NPI will be developed in several stages and will link with existing water supplies on the Sunshine Coast. Design parameters for the NPI will accommodate the potential for linkage with future water sources in the region and will be sized accordingly. The NPI will also be designed with a reverse flow capability to enable future transfer of water to the Sunshine Coast from elsewhere on the SEQ water grid. Whilst NPI is part of the proposed SEQ water grid, it is capable of being developed as a stand alone water pipeline to transfer up to 65 mega litres per day (ML/d) of potable water from the Sunshine Coast to Brisbane.

The first stage of the NPI is from the Landers Shute Water Treatment Plant (WTP) near Eudlo to the Morayfield water reservoirs, where it will link with the existing Caboolture and Brisbane water supply network. The balance of the NPI works is generally between Landers Shute and the existing Noosa WTP.

The project that is the subject of the Environmental Impact Statement (EIS) for which these Terms of Reference (ToR) relate is only for the Stage 1 component of the NPI, a water pipeline and associated ancillary infrastructure (eg pumping stations) between the Landers Shute WTP and the Morayfield reservoirs (“the Project”).

The Project is part of the SEQ Drought Emergency Strategy outlined in the *Water Amendment Regulation (No.6) 2006* and the *Water Regulation 2002*, which requires that the works be completed within the statutory timeframe of 31 December 2008.

The proposed pipeline route will traverse private land and land under the jurisdiction of several State and Local Government Bodies. Land uses along the route include rural uses such as agriculture and forestry, rural residential, urban and urban residential, conservation and forest reserves and national parks.

Initially, the Project would bring unused allocated water from the Baroon Pocket Dam (treated at the Landers Shute WTP). The supply of water from Baroon Pocket Dam, which is surplus to the current needs of the Sunshine Coast, would be maintained within the existing water entitlements already held by AquaGen for the operation of the dam.

AquaGen manages the Baroon Pocket Dam under the *Interim Resource Operations Licence for Baroon Pocket Water Supply Scheme 2004*. This licence details the provision and allocation of water to outlets leading to the Landers Shute WTP and Obi Obi Creek. Water supplied to the Project would be under the approved licensing conditions for the allocation to Landers Shute WTP. Under the operating conditions of the licence, approved flow management must be maintained to Obi Obi Creek under Schedule 2 of the licence and for the purposes of:

- Releases for the Mary River Cod;
- Environmental Provisions; and
- Releases for downstream landowners on Obi Obi Creek.

These have been developed since the Baroon Pocket Dam Impact Assessment Study was undertaken in 1985 for the construction of the dam. All extraction of water and environmental releases will comply with the provisions of the *Water Resource (Mary Basin) Plan 2006*. This includes ecological provisions for the Mary River and particular provisions for Obi Obi Creek, in the Obi Obi Creek Gorge area, to minimise changes to the hydraulic habitat requirements of existing ecological assets in the area. These requirements will be detailed in the Resource Operations Plan due in early 2008. The Resource Operations Plan will build on the provisions in the Interim Resource Operations Licence, including the development and implementation of a Mary River Cod release strategy. The environmental provisions in the water resource plan are based on full use of entitlements.

A drought management contingency plan will be instigated and, at pre-determined levels of storage capacity in the Baroon Pocket Dam, flows to the NPI will be reduced whilst maintaining the flow management to Obi Obi Creek.

A separate EIS process will be undertaken for NPI Stage 2 from Landers Shute to Noosa.

The Southern Regional Water Pipeline Company Pty Ltd (SRWP Co) has prepared an Initial Advice Statement (IAS) which provides further detail relating to the Project. The IAS can be viewed at: www.infrastructure.qld.gov.au/major_projects/northern_pipeline.shtm.

Project Proponent

The Project Proponent is SRWP Co, a company incorporated under the *Corporations Act 2001*. Currently, it is a subsidiary of SEQ Water Incorporated. The Queensland Government is in the process of purchasing the existing shares from SEQ Water and five local councils.

SRWP Co was specifically created to build, own and operate the Southern Regional Water Pipeline, but its charter has now been expanded to undertake works leading to the design, construction and operation of the Northern Pipeline Inter-connector and the Eastern Pipeline Inter-connector (another drought contingency project).

Administrative Details for these Terms of Reference

On 4 April 2007, the Coordinator-General (CG) declared the Stage 1 component of the Northern Pipeline Inter-connector project to be a significant project for which an Environmental Impact Statement (EIS) is required, pursuant to Section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). SRWP Co is now required to prepare an EIS about the Project to address the ToR.

On 21 March 2007, SRWP Co referred the project to the Australian Government Minister for the Environment and Water Resources for a decision as to whether the project constitutes a controlled action under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), Referral No 2007/3359. On 19 April 2007, the Department of the Environment and Water Resources (DEW) decided that the Project is not a controlled action and hence does not require assessment and approval by the Minister for the Environment and Water Resources before it can proceed.

Following two submissions to DEW requesting the Minister for the Environment and Water Resources to reconsider his decision under Section 78 of the EPBC, DEW initiated a formal process on 21 May

2007 to reconsider the original decision. The Proponent was invited to provide information relevant to this request for consideration during a 10-day period for public comment that ended on 4 June 2007. The Minister subsequently decided on 28 June 2007 to confirm the original decision that the Project is not a controlled action.

State and Local Government representatives and other relevant authorities have been invited to participate in the EIS process as Advisory Bodies. They have been invited in the first instance to examine the IAS and comment on the Draft ToR, along with interested members of the public and other stakeholders. The CG considered comments received on the Draft ToR from the Advisory Bodies and the public when finalising these ToR for the EIS. The ToR will be provided to SRWP Co to prepare the EIS.

When SRWP Co has prepared the EIS to the satisfaction of the CG, it will be made available for public review (including the Advisory Bodies) and submissions will be invited. The Proponent will have two years from the time that the ToR is presented to it (unless otherwise determined by the CG) in which to prepare the EIS. All properly made submissions on the EIS will be provided to SRWP Co to consider and respond to the issues raised in the submissions. The CG may request that the Proponent prepare a Supplementary Report to the EIS to address issues raised in the submissions.

When the CG has sufficient information to evaluate the EIS, the CG will prepare a report evaluating the EIS and other relevant material and make recommendations or conditions about the Project. The CG's Report will be made publicly available on the CG's website and will be provided to relevant government decision makers.

To build and operate the Project, SRWP Co may require development approvals under the *Integrated Planning Act 1997* and permits and authorities under legislation such as the *Water Act 2000* or the *Environmental Protection Act 1994*.

Results of Consultation on these Terms of Reference

Advertisements were placed in the following newspapers inviting public comment on the draft ToR for the Project: *Brisbane Courier Mail* and *Sunshine Coast Daily* on 14 April 2007. A similar notice was placed on the DoI website. Hard copies of the draft ToR were also available for viewing from the Queensland State Development Centres in Maroochydore and Caboolture and offices of the Caloundra and Brisbane City Councils and Maroochy and Caboolture Shire Councils from 16 April 2007.

The period for receipt of submissions closed on 14 May 2007, however late submissions were accepted from Queensland government agencies until 16 May 2007. A total of 27 written submissions were received, including fourteen (12) from Queensland Government agencies, two (2) from Government-owned corporations, two (2) from Local Government Authorities, seven (7) from Non-Government Organisations and four (4) from private individuals. Copies of all submissions were forwarded to the Proponent.

The content of all submissions has been reviewed and considered by the CG in finalising the ToR for the EIS for the Project.

The following is a list of responses and submissions received on the Draft ToR:

No.	Agency/Organisation	Date	Abbrev
1	Queensland Treasury Department*	10/05/07	DPIF
2	Energex*	10/05/07	Energex
3	Victor Hill	11/05/07	V Hill
4	Helga Hill	11/05/07	E Hill
5	Manuka Community Settlement Cooperative	11/05/07	MCSC
6	Lower Obi Obi Water Advisory Committee	14/05/07	LOOWAC
7	Calaqua – Caloundra City Council	14/05/07	CCC
8	Caboolture Shire Council	14/05/07	CSC
9	Environmental Protection Agency	14/05/07	EPA
10	Department of State Development	14/05/07	DSD
11	Mary River Catchment Coordination Association	14/05/07	MRCCA
12	Department of Primary Industries and Fisheries	14/05/07	DPIF
13	Department of Natural Resources and Water	14/05/07	DNRW
14	Queensland Police Services	14/05/07	QPS
15	Department of Main Roads	14/05/07	DMR
16	Lyndon De Vantier	14/05/07	De Vantier
17	Save the Mary River Coordinating Group	14/05/07	STMRCG
18	Department of Emergency Services	14/05/07	DES
19	Lin Fairlie	14/05/07	Fairlie
20	Sunshine Coast Environment Centre	14/05/07	SCEC
21	Conondale Range Committee	14/05/07	CRC
22	Queensland Rail	14/05/07	QR
23	Save the Valleys Conondale	14/05/07	STVC

24	PowerLink	11/05/07	PowerLink
25	Department of Communities	14/05/07	DoC
26	Department of Mines and Energy	14/05/07	DME
27	Department of Premier and Cabinet *	16/5/07	DPC

* Note: these government agencies indicated that they did not have any comments on the Draft ToR for the Project.

The ToR provides information in two broad categories:

- Part A – Information and advice on the preparation of the EIS.
- Part B – Specific requirements – Content of the EIS.

The Coordinator-General's contact details for any further enquiries are:

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ABBREVIATIONS

The following abbreviations have been used in this document:

AHD	Australian Height Datum
ANZECC	Australia and New Zealand Environment and Conservation Council
CHMP	Cultural Heritage Management Plan
CO	Carbon Monoxide
CG	The Coordinator-General
DEW	Department of the Environment and Water Resources (Cth)
DMR	Department of Main Roads
DNRW	Department of Natural Resources and Water
DPIF	Department of Primary Industries and Fisheries
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1994*
EPA	Environment Protection Agency
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
GQAL	Good Quality Agricultural Land
IAS	Initial Advice Statement as described in Part 4 of the *State Development and Public Works Organisation Act 1971*
NES	National Environmental Significance as defined by the *Environment Protection & Biodiversity Conservation Act 1999* (Cth)
NOx	Oxides of Nitrogen
NPI	Northern Pipeline Inter-connector
NTA	Native Title Agreement
NTRB	Native Title Representative Bodies
ROW	Right-of-Way
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SRWP Co	Southern Regional Water Pipeline Company Pty Ltd
ToR	Terms of Reference as described in Part 4 of the *State Development and Public Works Organisation Act 1971*
WTP	Water Treatment Plant

PART A: INFORMATION AND ADVICE ON PREPARATION OF THE EIS

1. Introduction

The Terms of Reference ('the ToR') is for an Environmental Impact Statement ('the EIS') for the Stage 1 component of the Northern Pipeline Inter-connector (NPI) project (Morayfield to Eudlo/Landers Shute) ('the Project'). The ToR has been prepared in accordance with s.29 and s.30 of the *State Development and Public Works Organisation Act 1971* (the 'SDPWO Act').

The objective of the ToR is to identify those matters that should be addressed in the EIS. The ToR is based on the outline of the proposed Project given in the Initial Advice Statement (IAS) and which was declared to be a significant project by the CG on 4 April 2007.

In order to clarify the nature and level of investigations that are envisaged in the ToR, the Proponent may consult further with relevant Government Bodies (known as Advisory Bodies), peak community interest organisations and groups, as necessary during the preparation of the EIS to ensure that the ToR are addressed.

Reference to any culturally sensitive confidential information should be indicative only and disclosure of any such information must be negotiated with traditional custodians; other confidential information supplied by or to the Proponent must be clearly identified and placed in discrete attachment to the main report.

An executive summary should be provided in the EIS and be able to be provided separately for public information.

2. EIS Objectives

The objective of the EIS is to identify potential environmental, social and economic impacts of the Project and to ensure that adverse impacts are avoided where possible. Unavoidable impacts (direct, indirect and cumulative) must be examined in full and addressed, so that the development of the Project, including the selection of the preferred pipeline alignment, is based on sound environmental protection and management criteria. Consistent with this objective, the EIS should be a self-contained and comprehensive document containing sufficient information to make an informed decision on the potential impacts. This document should provide:

- For interested bodies and persons: a basis for understanding the Project, alternatives and preferred solutions, the existing environment that would be affected, both on and off the site, the impacts that may occur, and the measures to be taken to mitigate all adverse impacts.
- For groups or persons with rights or interests in land: an outline of the effects of the proposed Project on that land, including access arrangements.
- For the CG and other Government decision makers: a framework against which decision-makers are able to consider the environmental aspects of the proposed Project in view of legislative and policy provisions and decide whether the Project can proceed; as appropriate, set conditions for approval to ensure environmentally sound development and, where required by legislation, recommend an environmental management and monitoring program.
- For the Australian Government: information to determine the extent of potential impacts of the Project on matters of National Environmental Significance (NES): to be specifically addressed under the requirements of the EPBC Act.

- For the Proponent: a definitive statement of measures or actions to be undertaken to minimise any adverse impacts during and following the implementation of the proposed Project. A draft Environmental Management Plan (EMP) that describes acceptable impacts and environmental management strategies to agreed performances criteria is the recommended means of achieving this objective.

The Proponent is required to address the ToR to the satisfaction of the CG before the EIS is made publicly available. It should be noted that the CG does not evaluate the EIS until public notification is completed and the CG has obtained any other material that the CG considers relevant to the Project including additional information or comment about the EIS and the Project from the Proponent.

Completion of the EIS does not mean that the Project will necessarily be approved.

3. General EIS Guidelines

The key principle is that there should be sufficient detail presented in the EIS to enable readers to judge the impact of the Project on the natural, social, economic, cultural and built environment. The EIS should be a standalone document. It should contain sufficient information from the route selection criteria and other appended studies to avoid the need to search out previous reports.

It should be acknowledged that readers are likely to include representatives of Australian, State and Local Governments, special interest groups and the general public.

The EIS should relate to the entire life of the Project including construction, operation, maintenance, and decommissioning (including rehabilitation) of all Project related sites. The EIS should enable reasonable economic and technically achievable conditions to be developed to ensure that the impact of the Project is reduced to acceptable levels.

The EIS should state the following information, assessments and assumptions in the EIS:

- The source of the material with appropriate references
- How recent the material is
- How the reliability of the material was tested
- Any uncertainties in the material.

The EIS should state the criteria adopted in assessing the proposed Project and its impacts, such as compliance with relevant legislation, policies, standards, community acceptance and maximisation of environmental benefits and minimisation of risks.

The level of analysis and detail in the EIS should reflect the level of significance of the expected impacts on the environment. When considering the level of significance of an impact, the EIS should document the cause(s), likelihood, intensity and risk of the impact.

Any prudent and feasible alternatives should be discussed and treated in sufficient detail, and reasons for selection of the preferred option should be clearly identified.

Where possible, information provided in the EIS should be clear, logical, objective and concise, so that non-technical persons may easily understand it. Where appropriate, text should be supported by maps and diagrams. Factual information contained in the document should be referenced wherever possible. Where applicable, aerial photography and/or digital information (e.g. of Project sites, pipeline corridors etc) should be presented.

The term “detail” and “discuss” should be taken to include both quantitative and qualitative matters as is practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate. Should SRWP Co require any information in the

EIS to remain confidential, this should be clearly indicated, and separate information should be prepared on these matters.

The term "Project" includes all activities undertaken on lands covered by the proposed pipeline corridor, any associated facilities and any right-of-way (ROW) necessary for construction purposes and supporting infrastructure.

Copies (number to be advised) of the prepared EIS should be lodged with the CG for distribution to Advisory Bodies for comment and review during the public review period. In addition, an electronic version of the EIS will be made publicly available on the CG's website. A quantity of the EIS documents should also be prepared for distribution to relevant interstate and intrastate libraries and other key Government offices. There is a preference for documents to be made available in CD ROM format, however a quantity of hard copy documents should also be produced.

While every attempt has been made to ensure these ToR address all the major issues associated with this Project, they are not necessarily exhaustive and should not be interpreted as excluding from consideration matters deemed to be significant but not incorporated in them or matters (currently unforeseen) that emerge as important or significant during the completion of scientific studies, from public consultation, or otherwise, during the course of preparation of the EIS.

4. Stakeholder Consultation

To facilitate the assessment process, the proponent should undertake a comprehensive and inclusive program of consultation with Advisory bodies, key stakeholders, including Traditional Owners, and interested parties, throughout the EIS process.

The consultation program should provide stakeholders with the opportunity to obtain information about the Project being examined by this EIS, to raise issues and express their concerns and to receive feedback on how the proponent intends to address the issues and mitigate all adverse impacts of the project.

It is the responsibility of the Proponent, in consultation with Advisory Bodies, to identify legislation, policies and methodologies relevant to the EIS process, and to determine appropriate parts of the community which should be consulted during the EIS preparation stage. It is recommended that an open community consultation process be carried out in addition to the legislated environmental impact assessment process. Copies of the EIS will be provided to all Advisory Bodies and, on request, to relevant individuals and peak groups with an interest in the Project.

5. General EIS Format

The EIS should preferably be written in a format matching the ToR or indicate clearly how the EIS responds to the each aspect of the ToR.

The EIS must include appendices containing at least the following:

- A copy of the final ToR
- A list of persons and agencies consulted during the EIS
- A list of Advisory Bodies with an appropriate contact
- The names of, and work done by, all personnel involved in the preparation of the EIS.

Maps, diagrams and other illustrative material should be included in the EIS.

The EIS should be produced on A4 size paper capable of being photocopied, with maps and diagrams on A4 or A3 size. The EIS should also be produced on CD ROM. These versions should be in Adobe®

*.pdf format for placement on the internet. All compression must be down-sampled to 72 dpi (or ppi). PDF documents should be no larger than 500 kB in file size.

The Executive Summary should be supplied in HTML 3.2 format with a *.jpg graphics files. Text size and graphic files included in the PDF document should be of sufficient resolution to facilitate reading and enable legible printing, but should be such as to keep within the 500 kB file size.

The final nature and number of EIS copies to be submitted and made available, should be discussed and agreed with the CG Project Manager in the early stages of the EIS process.

PART B: SPECIFIC REQUIREMENTS – CONTENTS OF THE EIS

The EIS report should include the following sections but need not be limited to these sections or inferred structure.

Executive Summary

The Executive Summary should be written as a stand alone document, able to be reproduced on request for interested parties who may not wish to read or purchase the EIS as a whole. The structure of the Executive Summary should follow that of the EIS, though focussed strongly on the key issues allowing the reader to obtain a clear understanding of the proposed Project, its environmental and socio-economic implications and management objectives. The summary should include:

- The title of the Project.
- Name and contact details of the Proponent, and a discussion of previous projects undertaken by the Proponent or associated entities.
- A concise statement of the aims and objectives of the Project.
- The legal framework, decision making authorities and Advisory Bodies.
- An outline of the background to and need for the Project, including the consequences of not proceeding with the Project
- An outline of the alternative options considered and reasons for the selection of the proposed development option.
- A brief description of the Project (pre-construction, construction and operational activities) and the existing environment, utilizing visual aids where appropriate.
- An outline of the principal environmental impacts predicted and the proposed environmental management strategies (including waste minimisation and management) and commitments to minimise the significance of these impacts.

Glossary of Terms

A glossary of technical terms, acronyms and references should be provided.

1. INTRODUCTION

The introduction should clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. It should define the audience to whom it is directed, and contain an overview of the structure of the document.

1.1 Project Proponent

This section should describe the experience of the Project Proponent (or associated entities), including the nature and extent of business activities, experience and qualifications, and environmental record including the Proponent's environmental policy.

1.2 Project Description

This section should provide a brief description, including a summary of any major associated infrastructure requirements of the key elements of the Project and the proposed timeframe for development, if the Project is approved. Detailed descriptions should follow in the appropriate sections.

A brief description should be provided of Government policies or studies or surveys undertaken for the purposes of developing the Project and preparing the EIS.

1.3 Project Rationale

This section should set out what the Project aims to achieve. It should describe the current status of the Project and outline the relationship of the Project to other developments or actions to which it may relate.

1.3.1 Need for the Project

The EIS should address the specific objectives and justification for the proposal. Issues to be addressed include:

- Strategic, economic and environmental implications of the proposal including future water consumption and production and supply security and flexibility of distribution.
- Impact on other water users of increased demands on existing water supplies (i.e. consumption and stored levels of water).
- Longer term strategic implications of the proposal in terms of a water distribution network in South East Queensland, upgrade of existing infrastructure, integration with other supply systems (e.g. recycled water) and inter-connection with future water supply sources.
- Identification of customer demands for water and the implications of developing a regional wide basis for the funding of capital and operating costs of this and associated infrastructure.
- Appropriate timing and sizing of the pipeline or sections of the pipeline for regional water supply security purposes giving due consideration to current risks to supply and possible new regional sources of supply.
- Design implications associated with possible new sources of supply, in particular, desalination.

- The Project's compatibility with the National Water Initiative, Government Ecologically Sustainable Development policy, Queensland Natural Resources (Water) Policy and Water Resource Plans, National Strategy on Conservation of Australia's Biological Diversity; with water reform under the National Competition Policy; and any other relevant policy.

1.3.2 Costs and Benefits of the Project

This section should summarise:

- The economic costs and benefits to businesses and the wider community. Analysis should be conducted at local and regional levels, including feasible alternatives to the Project.
- Regional social impacts including community disruption, related land use changes, employment, skills development and any workforce accommodation issues.

1.4 Alternatives to the Project

This section should describe feasible alternatives within the proposed Project, including the option of taking no action i.e. of not building the pipeline. Alternatives should be discussed in sufficient detail to enable an understanding of reasons for preferring certain options and courses of action and rejecting others. Reasons for selecting preferred options should be delineated in terms of technical, commercial, social and natural environment aspects. The alternatives considered should include:

- Demand reduction techniques.
- Other water supply methods including:
  - Recycling;
  - Dam construction;
  - Desalination; and
  - Groundwater.
- Other pipeline locations, in particular, discussion of reasonably practicable alternatives to the Project, which should include:
  - Alternative locations considered, aided by maps and diagrams. The location options, highlighting the preferred location, should be shown on topographical maps at a suitable scale;
  - The rationale for selection of the preferred location and reasons other options were rejected; and
  - How the principles of Ecologically Sustainable Development and sustainable development were considered.
- The process and results of consultation with the Department of Main Roads (DMR) during the alignment selection process aimed at minimising impacts on road safety and efficient traffic flow and realignments of any telecommunications or other infrastructure can be minimised.

1.5 The Environmental Impact Assessment Process

1.5.1 Methodology of the EIS

This section should provide an outline of the impact assessment process steps, timing and decisions to be made for relevant stages of the Project, including compliance with regulatory requirements, referral to final ToR, and types of information detailed within the EIS and any complementary or subsequent documentation (i.e. technical background paper).

1.5.2 Objectives of the EIS

This section should provide a statement of objectives of the environmental impact assessment process. The structure of the EIS can then be outlined as an explanation of how the EIS will meet its objectives.

The audience should be able to distinguish the EIS as the key environmental document providing advice to decision makers considering approvals for the Project. The information in this section is required to ensure:

- That relevant legislation is addressed.
- There is an awareness of the process to be followed.
- That stakeholders are aware of any opportunities for input and participation.

1.5.3 Submissions

Interested and affected persons should be made aware of how submissions on the EIS will be addressed and taken into account in the decision-making process. The EIS should inform the reader on:

- How to make submissions;
- What form the submission should take; and
- When submissions must be made to gain standing for any appeal process.

1.6 Public Consultation Process

This section should outline the public consultation process that has taken place during EIS preparation and the results of such consultation. It should outline any further opportunities for public input into the EIS. A full account of community consultation data generated should be included as an appendix to the EIS.

The public consultation program should provide opportunities to encourage and facilitate active community involvement and education through public meetings, interest group meetings, production of regular summary information and updates, and other consultation mechanisms.

The public consultation process should identify broad issues of concern to local community and interest groups at all stages from Project planning, through construction, commissioning, operations and final decommissioning.

1.7 Project Approvals

1.7.1 Relevant Legislation and Policy Requirements

This section should identify and explain the legislation and policies controlling the approvals process. Reference should be made to the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and its relationship with the *Integrated Planning Act 1997*, and other relevant Queensland laws. A description of the Environmentally Relevant Activities, as defined under the *Environmental Protection Act 1994* and subordinate legislation, necessary for each aspect of the Project should be given.

The EIS should refer to the relationship to approvals under the SDPWO Act and those required under the *Water Act 2000*.

The EIS should include the Project's relationship with the relevant Water Resource Plans e.g. *Water Resource (Mary Basin) Plan 2006* and *Water Resource (Moreton) Plan 2007* and subsequent Resource Operations Plans, any other specific management plans, and methods for compliance with the environmental objectives.

Any requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), including the results of a Referral approvals for the Glasshouse Mountains National Landscape Heritage listing should also be included.

1.7.2 Planning Processes and Standards

This section should outline the Project's consistency with existing land uses or long-term policy framework for the pipeline route, and in particularly in relation to the SEQ Regional Infrastructure Plan developed by the Office of Urban Management; the Regional Water Supply Strategy Stage 2; and with legislation, standards, codes or guidelines available to monitor and control operations on site. It should refer to all relevant State and regional planning policies, including Nation Action Plans and Agreements relating to climate change. This information is required to demonstrate how the proposal conforms to State, regional and local policies for the area.

2. DESCRIPTION OF THE PROJECT

The EIS should provide detailed descriptions of construction, commissioning, operation and decommissioning stages (including rehabilitation) of the Project and any other supporting pump stations or balance tank requirements. Details should include:

- Design parameters for aspects of the Project that may impact on listed threatened species and ecological communities.
- A program covering activities relating to design, construction, commissioning and first operating activities.
- The overall Project duration and expected timing.

2.1 Location

This section should describe the regional and local context of the Project and associated infrastructure and illustrated on maps at suitable scales. Real property descriptions of the Project should be provided. Maps should show the precise location of the Project area, and in particular:

- The location and boundaries of land tenures, in place or proposed, to which the Project area is or will be subject.
- The location and boundaries of the Project footprint.
- The location of any proposed buffers surrounding the working areas (for construction).
- The location of proposed site office(s).

The process and criteria used for the selection of the specific Project site and infrastructure construction and relocation design should be described. The full extent of land that is required for infrastructure associated with the pipeline should be documented. The process of acquisition and/or resumption (if required) of land should be outlined. The method, by which ownership, control or owners' consent is to be acquired, should be presented.

2.2 Description of the Pipeline Construction and Operation

2.2.1 Water Pipeline

A detailed description of the pipeline project should be provided including:

- A map of the preferred route location using cadastral and topographical maps.
- Design parameters covering pipe grade, diameter(s), wall thickness, length, capacity (including transmission flow and reverse flow design), test and operating pressures, depth of cover of the pipe, cathodic protection, coating and design life.
- Detailed criteria for pipeline burial depth and above ground construction, along with pipeline orientation/location within any State-controlled road reserve.
- Above ground facilities, including physical dimensions and construction materials for surface facilities along the pipeline route and information on pipeline markers.
- Details of criteria to assess the minimum depth the pipeline is to be buried under creeks, rivers and ephemeral water ways, in particular the crossings proposed for the Caboolture, South Mooloolah and Mooloolah Rivers, taking into account Q100 flood events. Discussion on whether the proposed pipeline route intersects any areas below the Highest Astronomical Tide line or any Coastal Management districts as defined in the Regional Coastal Management Plan.
- For the proposed pipeline route describe, with the aid of maps and diagrams, the location and/or frequency of cathodic protection points, off-take valves, control valves (isolation points), pigging facilities (if applicable) and any other Project facilities and linkages to existing water supply infrastructure.
- Criteria for design and location of any temporary or permanent access crossing for machinery, transport etc across any waterway (e.g. construction of causeways, bridges, culvert crossings etc) and any permanent access points or roads for maintenance purposes, in particular where they are adjacent to waterways. Description of the nature of any permanent access points.
- Easement widths and access requirements along the route, including the use of existing areas of disturbance for pipeline access and future maintenance.
- An assessment of expected physical and chemical properties and quantities of soil/rock to be excavated

- Disposal/reuse of surplus excavated material and if this material can be coordinated with concurrent construction activities in the vicinity.
- Procedures for trench construction and pipe-laying if rock is encountered, in particular whether ripping rock or blasting may be required and the necessary procedures especially in proximity to habitation and existing infrastructure and compliance with all relevant design and construction codes.
- Pipeline construction techniques including:
  - Plant and machinery likely to be involved.
  - Supply and storage of materials – volume, composition, handling and storage during construction.
  - Anticipated timing, duration and progress of pipeline laying.
  - Possible interruption of pipeline laying to other land activities, e.g. interruption to road and or rail traffic.
  - Extent that service corridors will be used during construction and maintenance.
  - Width of vegetation clearing required. This information should indicate where vegetation to be cleared has significant conservation value (such as sensitive environmental areas and creek crossings), and should also reference where in the EIS the impacts on such vegetation have been addressed.
  - Management of soil during construction.
  - Depth of trenching and burial of the pipeline; bedding materials (if any) including compaction techniques on the pipeline trench and in particular adjacent to and within waterways, to achieve bank stability.
  - Procedures for trench construction and pipe-laying if rock is encountered.
  - Typical crossing techniques including restoration works that would be used at creek crossings, and road, rail, and other service corridor crossings. Detail whether the flow of water will need to be altered within and/or diverted out of any waterway during pipeline construction. Where in-stream infrastructure is in place, identify practicality of attaching the pipeline to these structures.
  - Management of weed seed spread, including quarantine areas and wash-down facilities and the dispersal/destruction of weed seeds and contaminated vegetative matter.
  - Disposal or reuse of plant-matter left after clearing vegetation to minimise potential increase in fuel loads.
  - Details of the anticipated hydrostatic testing procedures (discussion of water usage for this activity should be addressed).
  - Testing the pipeline's integrity, including an outline of cathodic protection requirements, launcher and receiving scraper station and hydrostatic testing.
  - Clean-up and restoration (rehabilitation) of areas used during construction, including camp sites and storage areas.
- Details of any off-site quarrying activities necessary for the Project.
- Pipeline operation and maintenance – inspection and surveillance activities and frequency, including: the impact on waterways as a result of operation and maintenance activities; safety

procedures (including provision of shut-down and/or venting in event of an emergency); and provision for public safety in such circumstances.

- Procedures to restrict unauthorised access to pipeline ROW.
- Decommissioning methodologies, clean-up and rehabilitation.

2.2.2 Workforce and Accommodation

This section should provide details on the employment requirements and skills base of the required workforce for both the construction and operations phases of the project for the entire pipeline system. The EIS should also describe the deployment strategies proposed for the workforce over the construction period and the length of the pipeline. Information should be provided on the accommodation requirements for the workforce, (if any), and if applicable their family members.

2.3. Associated Infrastructure requirements

2.3.1 Transport

This section should provide a brief over view of transport requirements. Full details of transport volumes, modes and routes should be provided in accordance with Section 3.8 Traffic, Transport and Access Arrangements.

2.3.2 Electricity and Telecommunications

This section should identify the extent of electricity supply requirements and energy conservation measures proposed, including for water treatment and pumping. Telecommunications requirements should also be noted.

2.3.3 Water Supply/Storage

This section should provide information on water usage by the Project.

In relation to the water to be transported, the EIS should address the quality and quantity; the supply source(s); security of supply; and resource availability.

Options for the source of water for hydrostatic testing, and any other construction and/or operational water use, should be discussed. Detailed plans for any storage, reuse and disposal of water used for hydrostatic testing should be outlined. Where recycled water is proposed to be used the *Queensland Recycled Water Guidelines December 2005* should be considered.

Determination of potable water demand for the Project during the construction period should be made. Details should be provided of any existing town water supply to be used to meet such requirements. If water storage and/or treatment are proposed on site, for use by the site workforce, then this should be described. This description should include the management practices to maintain the quality of the water, including the source of the water, transportation, water treatment processes, microbiological and chemical testing program.

2.3.4 Gas Supply

This section should provide information on gas usage (if any) by the Project, including the source and quality of all gas to be used.

2.4. Waste Management

This section should provide a brief overview of the waste management requirements of the Project. Full details of the waste volumes, characteristics and management strategies should be provided in accordance with section 3.6 Waste.

3. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS

This section should address all elements of the environment, (such as land, water, nature conservation, cultural heritage, social and economic, air, noise, waste, transport and traffic and hazards and risk) in a way that is comprehensive and clear.

The EIS should assess the impacts of the construction, commissioning, operation and decommissioning stages (including rehabilitation) of the Project, together with impacts associated with potential ongoing maintenance, access and servicing resulting from the development and any other facilities required for the Project.

The functions of this section are to:

- Identify and describe existing environmental values of the area that may be affected by the proposal.
- Describe potential adverse and beneficial impacts of the proposal on the identified environmental values.
- Identify how the Project will be managed to protect environmental values and strategies to be applied to prevent or minimise harm to these values and if unavoidable, how these will be offset.
- Present environmental protection objectives and the standards and measurable indicators to be achieved.

Environmental protection objectives may be derived from legislative and planning requirements which apply to the proposal including Australian Government strategies, State planning policies, local authority strategic plans, environmental protection policies under the *Environmental Protection Act 1994* (EP Act), any catchment management plans prepared by local water authorities or land care groups in support of the South East Queensland Region of Councils 2021 Strategy and any threatened species recovery plans. Special attention should be given to those mitigation strategies designed to protect the values of any sensitive areas and any identified ecosystems of high conservation value within the area of possible proposal impact.

It is recommended that the EIS follow the heading structure shown below. The mitigation measures, monitoring programs etc, identified in this section of the EIS should be used to develop the Environmental Management Plans (EMP) for the Project (see Section 4).

3.1 Natural Disasters & Management of Impacts

This section should describe climatic conditions in the Project area in relation to their bearing on the design of Project facilities, construction methods and operational parameters.

Seasonal conditions (e.g. cyclones, thunderstorms, floods and storms) that may influence timing and/or construction methods should be discussed and how these will be managed. The vulnerability of the Project area to natural or induced hazards, such as floods, bush fires, earthquakes and land slips should also be addressed. Details should be provided of earthquake fault lines or past earthquake activity in the vicinity of the Project area and the implications for the Project.

The EIS should discuss how weather will be monitored to minimise the risk of adverse impacts to the Project area during the construction period. In particular, how risks from climatic events such as intense rainfall during construction and rehabilitation will be managed.

3.2 Land

This section should detail the existing land environment for all areas associated with the Project, including areas affected by the pipeline route, and any new permanent or temporary facilities constructed for the pipeline.

This section should also describe the potential for the construction and operation of the Project to change existing and potential land uses of the Project sites and adjacent areas.

3.2.1 Land Use and Infrastructure

3.2.1.1 Description of Environmental Values

The EIS should identify, with the aid of maps:

- Land tenure (including reserves, tenure of special interest such as protected areas and forest reserves, identification of both existing roads and road reserves and any corridors preserved by the Department of Main Roads for future transport needs or identified in the SEQ Regional Plan and accompanying SEQ Infrastructure Plan and Program, railways and rail reserves).
- Land use (urban, residential, industrial, agricultural, forestry, recreational, mining including mining and petroleum exploration tenures, mining leases, mining claims, mineral development licences and extractive industry permits).
- Areas covered by applications for Native Title determination or Native Title determinations (including traditional and contemporary uses of land and water by Aboriginal people and Torres Strait islanders). Provide description of Representative Bodies (NTRB) boundaries.
- Information on any known occurrences of economic mineralisation and extractive resources within the Project area.
- Distance of facilities and pipelines from residential and recreational areas.
- The locations of gas and water pipelines, power lines, roads, rail and any other easements
- The location of fences and gates to be crossed by the pipeline or constructed for pipeline access.

3.2.1.2 Potential Impacts and Mitigation Measures

The potential for the construction and operation of the Project to change existing and potential land uses of the proposal site and adjacent areas should be detailed. Post operations land use options should be detailed including suitability of the area within the ROW to be used for agriculture or nature conservation. The factors favouring or limiting the establishment of those options should be given in the context of land use suitability prior to the Project and minimising potential liabilities for long-term management.

The EIS should address the following:

- Identify any land units requiring specific management measures.
- Assess the compatibility of the proposal with surrounding land uses (e.g. mining)
- Describe possible impacts on surrounding land uses and human activities, including impacts to Good Quality Agricultural Land (GQAL) and forestry land (addressing loss of access to land, fragmentation of sites, increase of fire risk and loss of productive land for those purposes) as well as residential and industrial uses.
- Indicate measures to be taken to minimise impact on GQAL

- Describe the strategy and progress in relation to making of Native Title agreements, including NTRB's, consultant selection, traditional owner involvement and related statutory processes.
- Comment on the suitability of the pipeline route for co-location of other infrastructure services, and/or the separation requirements with specific reference to transport corridors in the SEQ Regional Infrastructure Plan, and within individual impacted council boundaries.
- Identify how easement widths and vegetation clearance in sensitive environmental areas have been minimised.
- Consider the suitability of any pipeline alignment and the cost of alternatives in terms of corridors preserved by the DMR for future transport needs.
- Outline the potential issues involved in proximity of the water pipeline to electric transmission lines and electrified rail lines, both at crossing points, where lines run parallel, and where construction and maintenance machinery is used in the vicinity of other infrastructure corridors.
- Include the specification of all possible impacts on, or sterilisation of, identified mineral or energy resources and extractive industry deposits, the amount of sterilisation (if any) of the deposits resulting from the construction and/or operation of the pipeline and associated infrastructure.
- Identify if commercial timber (sawlog and other products) or quarry resources exist on the pipeline route and conduct an assessment of the commercial value of these resources satisfying the requirements of the DNRW.
- Provision for the protection and reasonable restoration of the visual amenity of the locale prior to the pipeline implementation, should the pipeline or any associated infrastructure be situated above ground.

3.2.2 Topography and Geomorphology

3.2.2.1 Description of Environmental Values

Maps should be provided locating the Project and its environs in both regional and local contexts. The topography of the proposal site should be detailed with contours at suitable increments, shown with respect to Australian Height Datum (AHD). Significant features of the landscape should be included on the maps. Commentary on the maps should be provided highlighting the significant topographical features.

In coastal areas, where acid sulfate soils may be disturbed, and for major watercourse crossings, surrounding topography should be detailed at 1 m increments with levels shown with respect to AHD.

3.2.2.2 Potential Impacts and Mitigation Measures

- The Project should be discussed in the context of major topographic features and any measures taken to avoid or minimise impact to such (if required).
- The objectives to be used for the Project in re-contouring and landscaping should be described. Consideration should be given to the use of threatened plant species during any landscaping and revegetation.
- Potential impacts to scenic amenity should be discussed.

3.2.3 Soils

3.2.3.1 Description of Environmental Values

Soils along the Project route should be described and mapped at a suitable scale, with particular reference to the physical and chemical properties of the soils which will influence erosion potential, storm water run-off quality, rehabilitation and agricultural productivity of the land, for example for dry-land cropping, irrigated cropping or grazing uses. Information should also be provided on soil stability and suitability for construction of all Project facilities.

Soils should be mapped at a suitable scale and described according to the *Australian Soil and Land Survey Field Handbook* (Gunn et al 1988 and McDonald et al 1990) using the Australian Soil Classification (Isbell, 1996). An appraisal of the depth and quality of useable soils should be undertaken. The location of each borehole should be accurately presented on maps, and boreholes should equitably represent different soil types present. Information should be presented according to the standards required in the *Planning Guidelines: The Identification of Good Quality Agricultural Land* (DPI, DHLGP, 1993) that supports *State Planning Policy 1/92: Development and the Conservation of Agricultural Land*.

The EIS should discuss the potential for:

- The existence of acid sulfate soils within the disturbance zone of the pipeline.
- The existence of GQAL along and adjacent to the proposed pipeline route, including alternative routes as outlined in Section 2.3.

3.2.3.2 Potential Impacts and Mitigation Measures

This section should provide details on any potential impacts on soils, including:

- Measures to ensure that soil erosion does not accelerate along the pipeline route due to construction or maintenance activities, in accordance with measures detailed in *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites, 1996.*
- Influence of time of year of construction on the impact on soils, particularly from localised rain events.
- Management measures for acid sulphate soils that may be encountered in association with the Project should be consistent with that support *State Planning Policy 2/02 – Planning and Managing Development Involving Acid Sulphate Soils Version 2 (DLGP and DNRM, August 2002*) and *Soil Management Guidelines Version 3.8, DNRM November 2002* (Dear et al, 2002).
- Details of erosion control measures and criteria used to assess methods that will minimise/alleviate sedimentation over various terrain types including waterway beds, banks and adjacent areas. Methods of stockpiling and disposal of trench material from excavated streambed, bank, and adjacent areas should be included.
- Pipeline route adjustments and/or rehabilitation measures to minimise impacts on GQAL.

A description of topsoil management should consider transport, storage and replacement of topsoils to disturbed areas. The minimisation of topsoils storage times (to reduce fertility degradation) should also be addressed. Erosion and sediment control should be described with a Soils Erosion and Sediment Control Plan included in the EMP.

3.2.4 Land Contamination

3.2.4.1 Description of Environmental Values

A review should be undertaken to identify land within the project route and within any other areas affected by the proposed works, which has been used, or is being used, for a Notifiable Activity as listed in Schedule 2 of the EP Act, or is potentially contaminated, or is on the Environmental Management Register (EMR) or Contaminated Land Register (CLR). A preliminary site investigation should be prepared for properties that will be affected by the proposed pipeline.

3.2.4.2 Potential Impacts and Mitigation Measures

A strategy for managing potential contamination on those properties, which are listed on the EMR/CLR, should be developed and submitted to the Environmental Protection Agency's Contaminated Land Unit, prior to commencement of the Project.

The EIS should discuss the management of any contaminated land and potential for contamination from construction, commissioning and operation, in accordance with EPA's *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (*1998*) and the *National Environment Protection (Assessment of Site Contamination) Measure 1999*.

3.3 Nature Conservation

This section should detail the existing nature conservation values of the Project area. The environmental values of nature conservation for the affected area should be described in terms of:

- Integrity of ecological processes, including habitats of rare and threatened species.
- Conservation of resources.
- Biological diversity, including habitats of rare and threatened species.
- Integrity of landscapes and places including wilderness and similar natural places.
- Aquatic and terrestrial ecosystems.

The flora and fauna communities should be described, in particular those that are rare or threatened, in environmentally sensitive localities, including waterways, riparian zones, and wilderness and habitat corridors. The description should include species lists with reference to international, national, state and local significance.

Reference should be made to relevant Queensland and Australian Government legislation and policies on threatened species and ecological communities including recovery plans.

All surveys undertaken should be in accordance with best practice advice from the Environmental Protection Agency (EPA) *Guidelines for Flora and Fauna Assessments* and should include consideration of seasonality, potential for occurrence of significant species, rarity of species and the sensitivity of the species to disturbance.

This section should also discuss all likely direct and indirect environmental harm on flora and fauna in both terrestrial and aquatic environments in sensitive areas.

The EIS should demonstrate how the Project (including the proposed pipeline route and other areas of disturbance such as access tracks) would comply with the following hierarchy:

1. Avoiding impact on areas of remnant flora and fauna communities and other areas of conservation value.

2. Mitigation of impacts through rehabilitation and restoration.
3. Measures to be taken to replace or offset the loss of conservation values where avoidance and mitigation of impacts cannot be achieved.
4. Explanation of why measures 1 to 3 above would not apply in areas where loss will occur.

This section should discuss the exact alignment where the proposed pipeline runs through or adjacent to (within 1 km of) an endangered ecological community, including details of the footprint width. The discussion should include why the alignment is preferred and the viability of alternatives where the alignment will impact upon a threatened community. Information should be presented on the amount of time that trenches would be open and how the potential for fauna to be trapped in open trenches would be reduced.

3.3.1 Sensitive Environmental Areas

3.3.1.1 Description of Environmental Values

The EIS should identify areas that are environmentally sensitive in proximity to the Project. Environmentally sensitive areas, including important wildlife corridors should also be classified as having state, regional or local biodiversity significance or flagged as important for their integrated biodiversity values. Such areas should include those identified by the EPA's Biodiversity Planning Assessment and the Caloundra City Council's Local Nature Conservation Strategy, and Caboolture Shire Council's nature conservation mapping, existing dwellings and recreational areas, and the zoning of affected lands according to existing town/strategic plans.

In addition, the EIS should address matters of National Environmental Significance, identified under the EPBC Act e.g. listed threatened species and communities – particularly but not exclusively wet heathland, eucalypt and melaleuca woodland, and riparian vegetation, if necessary.

The proximity of the Project elements to any of these areas should be identified and mapped.

Areas which would be regarded as sensitive with regard to flora and fauna have one or more of the following features:

- Important habitats of species listed under the *Nature Conservation Act 1992* and/or the EPBC Act as presumed extinct, endangered, vulnerable or rare.
- Regional ecosystems recognized by the EPA as 'endangered' or 'of concern' or 'not of concern' but where permits are no longer granted due to being at threshold levels, and/or ecosystems listed as 'presumed extinct', 'endangered' or 'vulnerable' under the EPBC Act.
- Ecosystems which provide important ecological functions, such as riparian vegetation, important buffer to a protected area, refugia or important habitat corridor between areas.
- Protected areas which have been proclaimed under the *Nature Conservation Act 1992* or are under consideration for proclamation.

3.3.1.2 Potential Impacts and Mitigation Measures

This section should discuss the following:

- The impact of the proposal on species, communities and habitats of local, regional or national significance as identified above, including wet heathland, eucalypt and melaleuca woodland, and riparian vegetation.

- Proposals to mitigate impacts (e.g. timing of works, minimise width of disturbance, proposed rehabilitation of in-stream and floodplain disturbances).
- Planned rehabilitation of wet heathland, eucalypt and melaleuca woodland, and riparian vegetation communities and any relevant previous experience/experiments rehabilitating these communities.
- Appropriate mitigation measures for remnant ecosystems that may be affected by the Project should refer to the *Regional Vegetation Management Code: Southeast Queensland Bioregion (DNRW 2006),* including an offset strategy.

3.3.2 Terrestrial Flora

3.3.2.1 Description of Environmental Values

Terrestrial vegetation maps at a suitable scale (e.g. 1:10,000 generally) should be provided for the entire Project area. Mapping should be produced from aerial photos and ground truthing and should show and discuss the following:

- Location and extent of vegetation types using the EPA's regional ecosystem descriptions in accordance with the *Conservation Status of Queensland's Bioregional Ecosystems. (Sattler P.S. & Williams R.D. (Eds) 1999)* and the EPA's website (www.epa.qld.gov.au/environment/science/wildlife/) listing the biodiversity status of regional ecosystems.
- Location of species listed as 'protected plants' under the *Nature Conservation (Wildlife) Regulation 1994* and subsequent amendments, and listed as 'threatened' under the EPBC Act 1999.
- Any plant communities of cultural, commercial or recreational significance.
- Vegetation map unit descriptions, including their relationship to regional ecosystems. Sensitive or important vegetation types should be highlighted and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types discussed.
- The distribution and abundance of exotic and weed species, particularly declared plants under the *Land Protection (Land and Stock Route Management) Act 2002*. A weed management strategy will be required to include the provision of surveys for pest plants to occur after significant rainfall events that will allow germination.

The description should contain a review of published information regarding the assessment of the significance of the vegetation to conservation, recreation, scientific, educational and historical interests. The assessment should also include the significance of native vegetation (including regrowth and restored areas in addition to remnant vegetation), from a local, regional, state and national perspective.

Vegetation surveys should be undertaken for each significant natural vegetation community likely to be impacted by the Project at a sufficient number of sites, allowing for seasonal factors, as follows:

- All data requirements of the Queensland Herbarium CORVEG database should be collected.
- The minimum size site should be 500 square metres.
- A complete list of species present at each site should be recorded.
- The relative abundance of plant species should be recorded.

- Any plant species of conservation, cultural, commercial or recreational significance should be identified. The existence of any rare, threatened or otherwise noteworthy species/communities in the study area, including discussion of range habitat, breeding, recruitment feeding and movement requirements, and current level of protection (e.g. any requirement of Protected Area Management Plans or recovery plans) should be identified.
- Vegetation mapping and data should be submitted to the Queensland Herbarium to assist the updating of the CORVEG database.
- Specimens of species listed as 'protected plants' under the *Nature Conservation (Wildlife) Regulation 1994*, other than common species, are to be submitted to the Queensland Herbarium for identification and entry into the HERBRECS database.

The existence of rare or threatened species should be specifically addressed under sensitive areas, and the location of any horticultural crops in the vicinity of the Project facilities should be shown.

Details of any riparian vegetation and native grasslands, and their value for fauna habitat and conservation of specific rare floral and faunal assemblages or community types, from both a local and regional perspective, should be provided. Any special landscape values of any natural vegetation communities should be described.

Existing information on plant species may be used instead of new survey work provided that the data are derived from surveys consistent with the above methodology. Methodology used for flora surveys should be specified in the appendices to the EIS. Any existing information should be revised and comments provided on whether the areas are degraded, cleared or affected in ways that would affect their environmental value.

3.3.2.2 Potential Impacts and Mitigation Measures

This section should discuss all foreseen direct and indirect effects on terrestrial flora and the potential level of environmental impact identified and measures to mitigate the impacts of the Project on vegetation types, particularly those identified as having high conservation values. The discussion should include the following:

- Description of the construction and operation of the Project involving clearing, salvaging or removal of vegetation, including assessment of both direct impacts and indirect impacts on vegetation not cleared. Short term and long term durations should be considered with specific reference to impacts on riparian vegetation and native grasslands or other sensitive vegetation communities.
- Ability of identified stands of vegetation to withstand any increased pressure resulting from the proposal and identify measures proposed to mitigate impacts.
- Mitigation plans to address anticipated impacts arising from land clearing, including identification of suitable areas for offsets (in consultation with council's and state agencies) to compensate vegetation/habitat loss.
- Plans to allow for the maintenance or enhancement of habitat and corridor functions outlined.
- Methods to ensure rapid rehabilitation of disturbed areas following construction including the species chosen for revegetation which should be consistent with the surrounding associations. Details of any post construction monitoring programs and what benchmarks will be used for review of monitoring should be included.
- Methods of minimising the potential for the introduction and/or spread of weeds or plant disease, including:

  - Identification of the origin of construction materials, machinery and equipment.
  - The need for vehicle and machinery wash-down and any other hygiene protocols.
  - Staff/operator education programs.
- A weed management plan presented in the EMP, to be developed in consultation with local government environmental officers, to cover construction, commissioning, rehabilitation and operation periods.

3.3.3 Terrestrial Fauna

3.3.3.1 Description of Environmental Values

The terrestrial and riparian fauna occurring in the areas affected by the Project should be described, noting the broad distribution patterns in relation to vegetation, topography and substrate. Wildlife corridors and refugia along the proposed route should be identified and mapped.

The description of the fauna present or likely to be present in the area should include:

- Species diversity (i.e. a species list) and abundance of animals, including amphibians, birds, reptiles, mammals and bats.
- Any species that are poorly known but suspected of being rare or threatened.
- Habitat requirements and sensitivity to changes, including movement corridors and barriers to movement.
- The existence of feral or exotic animals, including maps of major pest infestations.
- Existence of any rare, threatened or otherwise noteworthy species/communities in the study area, including discussion of range, habitat, breeding, recruitment feeding and movement requirements, and current level of protection (e.g. any requirements of Protected Area Management Plans or Threatened Species Recovery Plans).

The EIS should contain results from surveys for species listed as threatened or migratory under the EPBC Act. Surveys are to be conducted at the appropriate time of the year when the species is known to be present on the site, so that identification and location of these species is optimal.

The EIS should indicate how well any affected communities are represented and protected elsewhere in the subregion where Project is located. The methodology for subregional analysis of representatives and adequacy of protection for the terrestrial/riparian vegetation communities and the flora and fauna taxa that inhabit them within the affected areas should be clarified.

Site data should be recorded in a format compatible with EPA WildNet databases and provided to EPA.

The following issues should be addressed when assessing the potential impacts on matters of National Environmental Significance.

Impact on a listed threatened species or ecological community:

Potential impacts vary depending on whether the species or ecological community is extinct in the wild, endangered or vulnerable but are generally as follows:

- Lead to long-term decrease in the size of a population or a long-term adverse affect on an ecological community.
- Reduce the area of occupancy of the species or extent of occurrence of the ecological community

- Fragment an existing population or ecological community.
- Adversely affect habitat critical to the survival of the species or ecological community.
- Disrupt the breeding cycle of a population.
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for the ecological community's survival.
- Result in invasive species that are harmful to the species or ecological community becoming established.
- Interfere with the recovery of the species or ecological community.
- Consistency with any recovery plan.

Impact on a listed migratory species includes:

- Loss or modification of habitat important for migratory species (including fragmentation, altered land use, fire regimes, altered nutrient cycle etc).
- Introduction of invasive species.
- Disruption to lifecycle (breeding, feeding, migration, roosting, etc.).

3.3.3.2 Potential Impacts and Mitigation Measures

This section should discuss all foreseen direct and indirect effects on terrestrial fauna, including strategies for protecting rare or threatened species and any obligations imposed by Queensland or Australian Government endangered species legislation or policy. The discussion should include the following:

- Assessment of any impacts the proposal may have on terrestrial fauna, relevant wildlife habitat and other fauna conservation values during construction and operation of the Project, including consideration of short term and long term duration impacts.
- Measures to mitigate the impact on habitat or the inhibition of normal movement, propagation or feeding patterns, and change to food chains.
- Measures to minimise wildlife capture and mortality.
- Details of the methodology that will be used to assess and handle injuries that may be inflicted on livestock or native fauna as a result op operational works for the Project.
- Methods of minimising the introduction of feral animals, and other exotic fauna. Such as tramp ants (fire ants and yellow crazy ants).
- The effects of construction activities and disposal of construction wastes on biting insect species of pest and health significance, including measures to prevent increases and the spread of these species. Management of spoil in the South Western Fire Ant Declared Area must be specifically addressed.

3.3.4 Aquatic Flora and Fauna

3.3.4.1 Description of Environmental Values

The aquatic flora and fauna occurring in the areas affected by the Project should be described noting the patterns and distribution in the waterways.

A description of the habitat requirements and the sensitivity of aquatic flora species to changes in flow regime, water levels and water quality in the Project areas should be described.

The discussion of the fauna and flora present or likely to be present at any time during the year, (including the presence of any rare, threatened or otherwise noteworthy aquatic species or communities) should include:

- Fish species, mammals, reptiles, amphibians, and aquatic invertebrates occurring in the waterways within the Project area, including feral and exotic fauna species.
- Aquatic (waterway) plants, including any declared pest plants.
- Aquatic substrate and stream type.

3.3.4.2 Potential Impacts and Measures

This section should discuss all foreseen direct and indirect effects on aquatic flora and fauna, including strategies for protecting rare or threatened species and any obligations imposed by Queensland or Australian Government endangered species legislation or policy. The discussion should include the following:

- Assessment of any impacts the proposal may have on aquatic flora and fauna, habitat or the inhibition of propagation during construction and operation of the Project, including consideration of short term and long term duration impacts.
- Any proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments that will restrict free movement of fish, including if seasonal construction of waterway crossings can avoid fish spawning periods.
- Identification of necessary permits/authorities required by the Project (e.g. permits under the *Fisheries Act 1994* to construct temporary or permanent waterway barriers).
- The potential for and mitigation measures to prevent the creation of new mosquito and biting midge breeding sites during construction (e.g. in quarries and borrow pits).
- The potential for and mitigation measures to prevent the introduction, transfer or facilitation of exotic, non-indigenous and noxious plants (including blue green algae) and water borne insect pests.

3.4 Water Resources and Water Quality

3.4.1 Description of Environmental Values

This section should describe the existing environment for water resources that may be affected by the Project in the context of the environmental values as defined in such documents referred to in the *Environmental Protection Act 1994*, the *Environmental Protection (Water) Policy 1997* and the *National Water Quality Management Strategy* (Australian and New Zealand Environment and Conservation Council 2000 [ANZECC]).

If a licence or permit will be required under the *Water Act 2000* or EP Act (e.g. dredging) to take or interfere with the flow of water, this section of the EIS should provide sufficient information for a decision to be made on this application,

The EIS should discuss the following:

- Watercourses to be crossed by the pipeline showing planned crossing locations on a map, and including consideration of alternative crossing locations in environmentally sensitive areas.
- Existing surface and ground water in terms of physical, chemical and biological characteristics.
- Environmental values of the surface waterways of the affected area in terms of:
  - Values identified in the *Environmental Protection (Water) Policy*.
  - Sustainability, including both quality and quantity.
  - Physical integrity, fluvial processes and morphology of water courses, including riparian zone vegetation and form.
- Existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses.

3.4.2 Potential Impacts and Mitigation Measures

This section should assess potential impacts on water resource environmental values identified in the previous section. It should also define and describe the objectives and practical measures for protecting or enhancing water resource environmental values, to describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.

Matters to be addressed should include:

- Likely impacts associated with the construction and operation of the Project on water courses, particularly with respect to erosion and scouring, and selection criteria for determining the final crossing type for various stream orders to protect watercourse integrity.
- Potential impacts on flooding levels upstream of any new crossing of water courses.
- Amelioration or mitigation measures to address each impact identified that may affect local and regional water quality, particularly measures to ensure beds and banks of water courses remain stable and measures to safeguard downstream water quality.
- Possible sources of water pollution or other changes in water quality, including soil erosion, situation, accidental spills, waste and sewage disposal and likely chemical composition of any leachate from introduced fill on the site.
- The quality of water leaving construction sites (including physical, chemical, and biological characteristics), potential impacts for any likely discharged water (e.g. hydrotest water) and how the impacts will be assessed and monitored.
- The effects of drainage works, placement of fill, clearing or any other alterations to existing topography and landform on the hydrology of the site including any alteration to drainage patterns and the watertable and secondary influence on flooding. If levee banks or downstream diversionary constructions are proposed, the effects on neighbouring landholders should be considered, and any works requiring permits or licensing in accordance with the *Water Act 2000* identified.

- Proposed drainage structures for all aspects of the Project, including facilities such as access roads.
- The timing of the construction works relative to likely periods of flooding and proposals to minimise the risk of adversely impacting downstream water quality.
- Measures to ensure viable weed seeds and pathogens are not released into the water environment including from machinery traversing creek systems or riparian areas.
- Measures to minimise the likelihood for the transfer of toxins and pathogens between catchments.

3.5 Air Environment

3.5.1 Description of Environmental Values

This section should describe the existing air environment, which may be affected by the Project in the context of environmental values as defined by the EP Act and *Environmental Protection (Air) Policy 1997*.

Ambient air quality conditions in terms of particulate matter should be described for any sensitive sites (residences) in proximity to the pipeline and associated construction areas, including any baseline monitoring results.

3.5.2 Potential Impacts and Mitigation Measures

The following air quality issues should be considered:

- Impacts of dust generation from construction activities, especially in areas where the pipeline follows existing road networks or passes in close proximity to residences.
- Identification of climatic patterns that could affect dust generation and movement.
- Predicted changes to air quality from vehicle emissions and dust generation along haulage routes.
- Impacts on air quality from gaseous emissions including carbon monoxide (CO) oxides of nitrogen (NOx) from pump stations (if any), greenhouse gas emissions and ozone depleting substances.
- Amelioration or mitigation measures for each identified impact relating to vehicle emission, dust generation and gaseous emissions from pump stations should be proposed.

3.6 Waste

3.6.1 Waste Generation

The EIS should identify and describe all sources of waste associated with construction, commissioning, operation and decommissioning of the pipeline. This section should describe all activities including:

- Chemical and mechanical processes conducted on the construction sites/camps (e.g. chemical storage, sewage treatment, power generation, fuel burning, mechanical workshop, diesel storage).

- The amount and characteristics of solid and liquid waste produced on-site (e.g. pumping facilities, pipeline, construction camps) by the Project.
- Any waste treatment process involved, including site drainage and erosion controls.
- Selection criteria for, and location of, likely run-off/stormwater discharge points.
- Selection criteria for, and location of, disposal points for hydro-test water.
- Hazardous materials to be stored and/or used on-site, including provision of their Material Safety Data Sheets and environmental toxicity data and biodegradability.

Descriptions should also include (using maps and plans as appropriate):

- Generation points.
- Storage methods and facilities.
- Quantities.
- Disposal arrangements.
- Recycling/reuse arrangements.

The EIS should provide details of any waste water output including:

- Volume estimates of industrial and domestic effluent that will be produced at each Project site.
- Quality of effluent produced.
- Any mobile sewerage facilities to be used.
- The proposed method of disposal and extent of use of local government facilities (i.e. Council sewerage works).

3.6.2 Waste Management

Waste management strategies should incorporate measures to avoid waste generation where possible. The EIS should discuss waste management strategies, including reduction, reuse, recycling, storage, transport and disposal of waste (including measures to minimise attraction of vermin, insect and pests).

The EIS should address the potential impacts to any aquifers, underground water flows and surface waters to be traversed by construction of the pipeline from disposal of waste water. Similarly, the EIS should address potential impacts from the disposal of excavated material or fill.

3.7 Noise and Vibration

3.7.1 Description of Environmental Values

This section should describe the existing noise and vibration environment, which may be affected by the proposal in the context of environmental values as defined by the EP Act and *Environmental Protection (Noise) Policy 1997*.

Sensitive noise receptors adjacent to the pipeline route should be mapped and typical background noise levels discussed. The potential sensitivity of such receptors should be discussed and performance indicators and standards should be nominated for each affected receptor. Current background levels for noise should be surveyed or reported.

3.7.2 Potential Impacts and Mitigation Measures

The EIS should include the following analysis of noise and vibration impacts:

- The levels of noise and vibration generated during construction of the pipeline and ancillary activities (e.g. access roads, camp sites) and operations (e.g. pumping stations) against current typical background levels.
- The potential environmental harm of noise and vibration (including from any blasting required for construction of the pipeline) at all potentially sensitive places, in particular, any places of work, residence, recreation, or worship, should be quantified and compared with objectives, standards to be achieved and measurable indicators.
- Potential environmental harm of noise and vibration on terrestrial animals.
- Proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or bunding of facilities, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise.
- Assessment of the potential emission of low-frequency noise (i.e. noise with components below 200 Hz) from major items or plant or equipment and, if necessary, measures for reducing the intensity of these components.

3.8 Transport and Access Arrangements

3.8.1 Transport Methods and Routes

The EIS should describe (including with the use of maps and data tables) transport methods and routes for delivering pump station and balance tank equipment, pipeline construction and maintenance materials and other necessary goods and consumables and workforce transportation. Information should include:

- Existing traffic volumes on the proposed transport routes.
- Volumes, tonnage, and composition of construction inputs.
- Hazardous or dangerous material that may be transported.
- Method of transport (e.g. sea, rail, road) and the type of vehicles most likely to be used for transport.
- Number and type of workforce traffic and service vehicles.
- Number of trips generated (both light and heavy vehicles).
- Origin and destination of inputs and transport route proposed (with the use of maps). Existing traffic volumes will need to be shown.
- Details of over-dimension, excess mass loads or any hazardous goods.
- Timing and duration of transport activities.

The EIS should clearly and fully describe transport information for all stages of the Project including:

- Any new access requirements to State-controlled or local government roads or corridors preserved by the DMR or corridors set out in the SEQ Regional Plan and Program.
- Full details of where the pipe alignment crosses or runs close to road and rail reserves, stock route easements etc.

The EIS should provide sufficient details to allow DMR and Queensland Transport to ascertain compliance with legislative and design requirements to ensure the safe and efficient operation of State-controlled roads is not compromised and the integrity of preserved transport corridors is protected.

3.8.2 Potential Transport Impacts and Mitigation Measures

The EIS should present an assessment of the impacts of the transport task for the entire alignment of the pipeline, including the following:

- The likely impacts and mitigation strategies of increased traffic on local and regional road networks (with appropriate directional distributions), including Forest Plantations Queensland access roads, with reference to:
  - Traffic volume.
  - Vehicle size and types, including heavy vehicle access.
  - Usage rates.
  - Road safety issues, including safe access to construction sites and school bus routes within the Project area (e.g. consideration of the need for turning lanes, improved sight lines, waiting areas, off-road parking locations).
  - Reduced efficiency of traffic flows or intersections along key routes, especially during construction.
  - Additional wear/reduced life of pavements requiring additional or accelerated rehabilitation and maintenance, if any.
  - Social, amenity, environmental or cultural heritage impacts of transport not covered in other sections.
- The proposed traffic management arrangements and plans, especially within both rural and urban residential areas and steps to be taken to prevent public access to construction access ways not provided on pubic roads.
- Specific issues related to construction phase activities, including:
  - Site depot location and access.
  - Construction traffic on local road networks, daily movement patterns, possible road closures and emergency access, especially in rural and urban residential areas.
  - Methods to be adopted to avoid obstruction to other road uses during construction.
- The likely impact of increased traffic on rail haulage systems.
- The likely impacts on rail corridor security and access, drainage, dust, noise, blasting, vibration and electrical effects.
- Potential impacts and mitigation measures for heavy vehicle use of railway level crossings.
- Environmental issues relating to transport (e.g. weed management, vegetation clearing in road reserves, dust control and erosion protection) are adequately assessed and ways to ameliorate any adverse impacts are outlined.
- The impacts of construction with regard to seasonal considerations such as potential for road impacts during wet weather.

Findings of studies and assessments should be incorporated into a road management strategy including Transport and Traffic Management Plans set down in the EMP.

Reference should be made to any relationship between Project road works and works proposed in the current Road Implementation Program(s) of the DMR. Road infrastructure impacts should be described and assessed according to DMR's *Guidelines for Assessment of Road Impacts of Development Projects* (April 2006). Reference should also be made to other DMR planning documents where applicable.

3.9 Cultural Heritage

3.9.1 Description of Environmental Values

The EIS should describe the existing environment values for cultural heritage that may be affected by the Project activities.

The EIS should include a cultural heritage study that describes Indigenous and non-Indigenous cultural heritage sites and places, and their values, including the following:

- Consultation with:
  - The Australian Heritage Places Inventory.
  - The EPA regarding the Queensland Heritage Register and other information regarding places of potential non-indigenous cultural heritage significance.
  - The Department of Natural Resources and Water regarding the Indigenous Site Database.
  - Any local government heritage register.
  - Any existing literature relating to the affected areas.
- Liaison with representatives of relevant Indigenous communities concerning:
  - Places of significance (including archaeological sites, natural sites, story sites etc), and appropriate involvement in field surveys.
  - Any requirements by communities and/or informants relating to selection of consultants and confidentiality of site data.
  - Assessment of significance of any cultural heritage sites/places located.
- Liaison with relevant community groups/organisations (e.g. local historical societies) concerning:
  - Places on non-Indigenous cultural heritage significance.
  - Opinion regarding significance of any cultural heritage places located or identified.
- Identifying locations of culturally significant sites likely to be impacted by pipeline construction, including:
  - Stone artefact scatters.
  - Culturally significant vegetation.
  - Buildings or places of archaeological significance.
  - Archaeological sites, natural sites, story sites etc.

- The location of historical mining areas, which should be shown on maps, including the potential for former mining zones or historical workings to cause slumping or other problems.

The EIS should present a report of the work done, including background research, relevant environmental data and methodology, as well as results of field surveys, significance assessment and conclusions and management recommendations (having due regard for any confidentiality requirements specified by community representatives).

As a minimum, investigations and consultation should be undertaken in such manner and detail to satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage Act 2003* and the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, and to protect areas and objects of cultural heritage significance.

3.9.2 Potential Impacts and Mitigation Measures

The EIS should provide an assessment of any likely effects of the Project on sites of Indigenous and non-Indigenous cultural heritage values, including but not limited to the following:

- Describing the significance of artefacts, items or places of conservation or cultural heritage value likely to be affected by the Project and their values at a local, regional and national level.
- Recommended means of mitigating any negative impacts on cultural heritage values and enhancing any positive impacts.

The management of Indigenous cultural heritage impacts should be detailed in either a Native Title Agreement (NTA) with Indigenous parties or in a Cultural Heritage Management Plan (CHMP) that is developed specifically for the proposed Project. The NTA or CHMP should provide a process for the management of identified cultural heritage places and values within the proposed pipeline route and be developed in a form that complies with the provisions of Part 7 of the *Aboriginal Cultural Heritage Act 2003,* to meet the cultural heritage duty of care requirements.

The NTA or CHMP should be based on information contained in the cultural heritage study report and/or information from Indigenous communities. The NTA or CHMP should include the following:

- A process for including Indigenous communities associated with the proposed pipeline route in protection and management of Indigenous cultural heritage.
- Processes for mitigation, management and protection of identified cultural heritage places and material along the pipeline route, including associated infrastructure developments, both during the construction and operational phases of the Project.
- Provisions for the management of the accidental discovery of cultural material including burials.
- A conflict resolution process.

The development of a NTA or CHMP should be negotiated with all relevant stakeholder representatives, subject to any confidentiality specified by indigenous communities and registered Native Title applicants.

As a minimum, impact assessment, protection and management strategies should satisfy statutory responsibilities and duties of care, including those under the *Queensland Heritage Act 1992*, the *Aboriginal Cultural Heritage Act 2003* and the Commonwealth *Aboriginal and Torres Strait Heritage Protection Act 1984*.

3.10 Social and Economic Environment

3.10.1 Description of Environmental Values

This section should detail the existing social and economic values that might be affected by the Project. Issues to be addressed include:

- Structure of potentially affected communities in the study area.
- Community profile, providing information on the following characteristics:
  - Rural properties, farms, croplands and grazing areas.
  - Demography and family structure.
  - Health status and sensitive groups.
  - Workforce characteristics, including types of skill or occupations and availability during both construction and operational stages.
  - Accommodation type, quantity availability (as it relates to the need for accommodation of the Project construction and operational work force, if any).
  - Public health and education facilities.
  - Local government and public services.
  - Other community services and facilities.
- Socio-demographic characteristics, including employment and unemployment rates.
- Aboriginal people's traditional and contemporary uses of the land affected by the Project.
- Economic base and economic activity.

3.10.2 Potential Impacts and Measures

The social and economic impacts of the proposed development should be addressed as part of the EIS incorporating any assessment of stakeholders' concerns about adverse impacts to the natural, social, economic or built environment so that appropriate mitigation strategies can be developed. Considerations should be given to the following:

- The impact of the Project on existing agricultural and grazing land uses, e.g. disruption to stock, fences, water points, sowing or harvesting of crops, movement of agricultural machinery and any loss of agricultural land.
- The impact on affected landowners and communities, e.g. impact on property values and local authority rates.
- Restrictions to public access and recreational use during construction, commissioning and operational phases, and after decommissioning.
- Strategies to minimise access requirements for operation and maintenance activities.
- The potential and mechanisms for local communities and business to meet contracts for services and supplies for the construction, rehabilitation and operation phases of the Project.
- Strategies for local residents including members of Indigenous communities interested in employment opportunities, which would identify skills required for the Project and initiate appropriate recruitment and training programs.

- The impact of the Project on public health and safety of adjacent communities, including such impacts as noise, dust, waste, transport, and other hazards particularly for closely settled communities such as Landsborough and strategies to mitigate these impacts.
- Potential skills shortage for the Project and strategies to address these.
- The impact of accommodation requirements (if any) during construction and operation stages, on communities along the pipeline route and strategies to mitigate these impacts.
- Any impacts (positive or negative) on the local and regional housing construction sector with regard to the supply of dwellings for the construction workforce.
- Impact of the Project workforce on local human services (e.g. housing, education and health facilities) and local community social and recreational environments and strategies to mitigate these impacts.
- Strategies responding to Government Policy relating to:
  - The level of training provided for construction contracts on Queensland Government building and construction contracts, with regard to the *Queensland Government Building and Construction Contracts Structured Training Policy (the 10% Policy)*.
  - Indigenous employment opportunities, with regard to the *Indigenous Employment Policy for Queensland Government Building and Civil Construction projects (the 20% Policy)*.
  - The use of locally sourced goods and services, with regard to the *Local Industry Policy* (Department of State Development 1999).
- Strategies to foster cross-cultural awareness for the Project and its participants.
- Establishment of a complaints' register and response procedure.
- Direct and indirect impact of the Project on the regional, state and national economies in terms of direct and indirect effects on employment, income and production.
- Estimated total economic costs, including materials, labour and infrastructure for construction, rehabilitation and operation.

3.11 Hazard and Risk

3.11.1 Hazard and Risk Assessment

This section should describe the potential hazards and risks that may be associated with the Project. The EIS should include a risk assessment and hazard analysis for all components of the Project to include the following:

- An assessment of risks during the construction, commissioning, operational and decommissioning phases of the pipeline. Where possible these risks should be assessed in quantitative terms.
- Possible hazards, accidents, and abnormal events that may arise for the Project, during construction, commissioning and operation, including potential protest activity. This should include accidental release of water or other materials, and explosions and fires associated with incidents arising from the pump stations, or catastrophic failure of the balance tanks, or collapse of the pipeline trench. It may include seismic stability of the pipeline route and the vulnerability of the route to flooding, bushfire and landslip.

- Analysis of the consequences of each of these events on safety to workers and the public and environmental damage in the Project area, particularly in the vicinity of the pipeline and associated facilities.
- The likelihood of these consequences being experienced, both individually and collectively
- Presentation of risk and risk contours (preferably quantitative levels) from the above analysis.
- Safeguards that will be employed or installed to reduce the likelihood and severity of hazards, consequences and risks to persons, fauna and environmentally sensitive sites along the pipeline route. Where possible the reduced level of risk which would be experienced with these safeguards in place should be indicated.
- Comparison of assessed and mitigated risks with acceptable risk criteria for land uses adjacent to the pipeline route locations.
- Detailed risk management procedures in relation to road users in case of catastrophic failure of any element of project infrastructure such as pipeline or pump stations.

3.11.2 Emergency Management Plan

An outline of the proposed emergency management procedures should be provided for the range of situations identified in the above risk assessment where there are measurable risks.

The following should also be presented:

- Contingency plans to deal with hydrocarbon (e.g. diesel, lubricating oils) oil spills during construction, operation and maintenance of the pipeline.
- Contingency plans to account for natural disasters such as storms, floods and fires during the construction, operation and maintenance phases.
- Emergency planning and response procedures that have been determined in consultation with State and regional emergency service providers.
- Plans for involvement of the relevant State agencies (such as the Queensland Ambulance Service) in relation to emergency medical response and transport and first aid matters.

3.12 Cumulative Impacts

The purpose of this section is to provide clear and concise information on the overall impacts of the Project. In addition, the cumulative impacts that could occur as a consequence of the Project in conjunction with the development of other proposals that are currently under study should be considered, including the interrelationship of these impacts as they relate to particular issues (e.g. water, air, noise cultural heritage, social etc.). These impacts should be considered over time or in combination with other impacts because of the scale, intensity, duration or frequency of the impacts.

In particular, the requirements of any relevant State Planning Policies, Environmental Protection Policies, National Environmental Protection Measures and emergency drought response strategies and regulations should be addressed in assessing the cumulative impacts of the Project on the existing environment.

4. ENVIRONMENTAL MANAGEMENT PLANS

Draft Environmental Management Plans (EMPs) should be presented in the EIS for construction, commissioning, and operational phases of the Project, and should detail measures to address impacts identified in this EIS for the respective phase of the Project. EMPs should contain the following:

- Environmental element – the environmental aspect requiring management consideration.
- Potential impacts – as identified in the EIS.
- Performance objective – the target or strategy to be achieved through management.
- Management actions – the strategies and actions to be undertaken to achieve the performance objective, including any necessary approvals, applications and consultation.
- Performance indicators – criteria against which the implementation of the actions and the level of achievement of the performance objectives will be measured.
- Monitoring – process of measuring actual performance.
- Responsibility – assignment of responsibility for carrying out strategies and monitoring actions to relevant persons/organisations.
- Reporting – the process and responsibility for reporting monitoring results.
- Corrective action – the action to be implemented in the case of non-compliance and the person/organisation responsible for action.
- A mechanism to receive complaints from the community and stakeholders, and a process to demonstrate that these complaints have been appropriately considered and any required mitigation measures implemented within a timely fashion, and that these actions have been communicated to the complainant.

5. CONCLUSION AND RECOMMENDATIONS

The EIS should make conclusions and recommendations with respect to the Project, based on the studies presented, the Environmental Management Plans and the conformity of the proposal with legislative and policy requirements.

6. REFERENCES

All references used in the preparation of the EIS should be consistent and presented in a recognised format.

7. APPENDICES

Items in the Appendices should include:

- Terms of Reference
- Development Approvals required for the Project
- Study Team, including qualifications and experience.
- Consultation Report
- Research Reports and Specialist Studies
- List of Proponent Commitments, with reference to the relevant section in the EIS