The Coordinator-General

MORANBAH AND NEBO POWER STATIONS PROJECT

Transfield Services Limited

DRAFT TERMS OF REFERENCE FOR AN ENVIRONMENTAL IMPACT STATEMENT

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

5 May 2006

Preamble

Project Proponent

Transfield Services Limited (TSL) is a leading provider of operations, maintenance and asset management services. It operates in Australia, New Zealand, South East Asia and the Gulf Region.

TSL operations span more than 130 contracts across 11 diverse industries, including mining, energy, roads, rail, public transport, water, telecommunications, facilities management, and defence. Clients of TSL include major national and international companies, as well as all levels of government.

TSL is publicly listed in Australia and is included in the S&P/ASX 200. The company has more than 13,000 employees and has a turnover in excess of A$1.5 billion (2004/05). TSL has a proven track record delivering large projects.

TSL has extensive infrastructure development expertise in the power industry, owning, operating and maintaining power stations at Townsville and Collinsville in Queensland and at Kemerton in Western Australia.

Project Summary

The proposal involves the establishment of power generation facilities near Moranbah and Nebo in the northern Bowen Basin west of Mackay. TSL proposes to construct and operate a 120 Megawatt (MW) gas-fired, intermediate power station at Moranbah; a 300 MW gas-fired, peaking power station near Nebo; and a 97 kilometre gas pipeline between these two locations. TSL's project proposals also include future expansions up to 480MW to provide an anticipated total capacity of 900MW by 2015.

These power stations will use locally sourced coal seam gas. Each power station will be linked via an overhead electricity feeder line to a nearby substation.

Further details of the Project are available in the Initial Advice Statement (IAS), a copy of which can be downloaded from the Coordinator-General website at:

www.coordinatorgeneral.qld.gov.au/major_projects/current.shtm

Administrative Details for the EIS Process

The Legislative Framework

The Moranbah and Nebo Power Stations Project was declared on 18 April 2006 by the Queensland Coordinator-General (CG) to be a significant project pursuant to Section 26(1)(a) of the Queensland *State Development and Public Works Organisation Act 1971* (SDPWOA). This declaration requires TSL to prepare an EIS in accordance with Part 4 of that Act.

Matters considered by the CG in making this declaration included information in an Initial Advice Statement prepared by TSL, the level of investment necessary for the Project, employment opportunities provided by the Project, potential impact on the environment, potential effects on relevant infrastructure and the significance of the Project to the region and State.

The CG is the authority responsible for coordinating the assessment of the EIS for this Project. State and local Government Agencies and appropriate authorities have been invited to participate in the EIS process. When TSL has prepared the EIS to the satisfaction of the CG, it will be made available for public review and comment. A public notice will be advertised in relevant newspapers circulating in the district and the State. The notice will state:

- where copies of the EIS are available for inspection;
- how the EIS can be purchased;
- how submissions may be made to the CG about the EIS; and
- the submission period.

The CG will coordinate the consultation process between TSL, Advisory Agencies and the public. The CG will collate and review all comments received on the EIS.

TSL may be required to prepare a Supplementary Report to the EIS to address specific matters raised in submissions on the EIS.

At the completion of the EIS phase, the CG will prepare a report evaluating the EIS and other related material, pursuant to Section 35 of SDPWOA. The CG Report will include an evaluation of the environmental effects of the proposed Project and any related matters. The Report will reach a conclusion about the environmental effects and any associated mitigation measures, taking into account all of the relevant material including:

- the EIS;
- all submissions on the EIS accepted by the CG;
- the Supplementary Report to the EIS (if prepared);
- comments and advice from Advisory Agencies;
- technical reports on specific components of the Project;
- legal advice; and
- any other material the CG considers is relevant to the Project.

With respect to any development application required by the Project under the *Integrated Planning Act 1997* (IPA), the EIS process under the SDPWOA:

- replaces the information and referral stage and the notification stage under the Integrated Development Assessment System (IDAS) of the IPA (i.e. there are no concurrence agencies);
- means that the CG's evaluation report is taken to be the concurrence agency's response under IDAS; and

- provides that submissions received in relation to the EIS are taken to be 'properly made submissions' under the IPA.

The CG Evaluation Report may state for the assessment manager one or more of the following:

- the conditions that must be attached to any development approval;
- that the development approval must be for part only of the development; and
- that the approval must be a preliminary approval only.

Alternatively, the report must state for the assessment manager:

- that there are no conditions or requirements for the Project; or
- that the application for the development approval must be refused.

Further, the Evaluation Report must:

- give reasons for the statements (above); and
- be given to the assessment manager for the application by the CG.

Further to the above IPA approvals, other approvals likely to be required include the *Environmental Protection Act 1994*, *Vegetation Management Act 1999,* the *Aboriginal Cultural Heritage Act 2003,* the *Water Act 2000,* the *Electricity Act 1994*, the *Petroleum Act 1923* and the *Nature Conservation Act 1992*.

Where another act requires the preparation of an EIS, or similar statement to address the environmental effects for the Project, this EIS can be taken as a statement satisfying those requirements. Where approval is required under another Act, the CG's Report may recommend (with reasons) to the person who will consider an approval required for the Project that:

- approval for the project be refused, or
- stated conditions to be imposed on the approval.

Alternatively, the CG's Report may recommend that there are no conditions to be attached to any approval given under another Act.

For further information about the EIS for this Project, please contact:

Project Manager
Moranbah and Nebo Power Stations Project
Major Projects
The Coordinator-General
PO Box 15009
BRISBANE CITY EAST QLD 4002
Tel: (07) 3247 5275 Fax: (07) 3225 8028
Email: Matthew.Grant@coordinatorgeneral.qld.gov.au

The TSL contact for the Moranbah and Nebo Power Stations Project will be:

Mr Peter Winch
Project Development Manager, Infrastructure Assets
Transfield Services
GPO Box 1020
Brisbane QLD 4001
Tel: (07) 3248-8789 Fax: (07) 3248-8790
Email: winchp@transfieldservices.com

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PART A – Information and Advice on the Preparation of the EIS

1. INTRODUCTION

This Terms of Reference (ToR) for an Environmental Impact Statement (EIS) for the Moranbah and Nebo Power Station Project has been developed in accordance with the requirements of Sections 29 and 30 of the *State Development & Public Works Organisation Act 1971* (SDPWOA).

The objective of the ToR is to identify those matters that should be addressed in the EIS. The ToR is based on the initial outline of the proposed Project given in the Initial Advice Statement (IAS).

The nature and level of investigations undertaken as part of the Project impact assessment process should be relative to the likely extent and severity of impacts. The State and local Governments, from which the Project Proponent requires approval, may request additional information on any matter not adequately dealt with in the EIS.

In order to clarify the nature and level of investigations that are envisaged in the ToR, the Proponent may contact relevant Government agencies (known as Advisory Agencies), peak community interest organisations and relevant individuals and groups as necessary. However the Coordinator-General (CG) reserves the final decision on interpretation of the requirements of the ToR.

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 attachments to the main report.

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

The EIS documentation and reports are to be cross-referenced to the ToR via a table of references.

2. EIS OBJECTIVES

The objective of the EIS is to identify potential environmental, social and economic impacts (both beneficial and adverse) and to ensure that adverse impacts are avoided where possible. Unavoidable impacts (direct, indirect and cumulative) must be examined fully and addressed, so that the development of the Project, including the selection of the preferred sites for each of the Project element, 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. The 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.
- 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 and the measures to be taken to mitigate all adverse impacts.
- 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 or not; 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 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 performance criteria is the recommended means of achieving this objective.

Completion of the EIS to the satisfaction of the final ToR does not mean 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 and built environment (including existing infrastructure). It should be acknowledged that readers are likely to include representatives of 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 about information, assessments and assumptions provided in the EIS:

- the source of the material, with appropriate references;
- how recent the material is;
- how the reliability of the material was tested; and
- 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.

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.

All uncertainties in the assessment and assumptions made should be clearly stated. 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, corridors etc) should be presented.

The terms “describe”, “detail” and “discuss” should be taken to include both quantitative and qualitative matters as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate. Should TSL or other stakeholders require any information in the EIS to remain confidential, this should be clearly indicated, and separate information should be prepared on these matters.

Within this ToR the term “Project” includes all activities undertaken on lands covered by the proposed power stations and gas pipeline and any right-of-way (ROW) necessary for construction purposes and supporting gas, waste, wastewater, electricity, accommodation, rail and/or road infrastructure.

A listing of all Advisory Agencies for the EIS process should be provided in the EIS.

Copies (number to be advised) of the prepared EIS should be lodged with the CG for distribution to Advisory Agencies for comment and review during the public review period. In addition, an electronic version of the EIS will be made accessible through the CG Internet sites. A quantity of the EIS documents should also be prepared for distribution to relevant libraries and other key Government offices. While there is a preference for documents to be made available in CD ROM format, a quantity of hard copy documents should also be produced.

While every attempt has been made to ensure that these ToR address all of 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

The Proponent is strongly encouraged to regularly consult with Advisory Agencies and other appropriate stakeholders throughout the EIS process.

It is the responsibility of the Proponent, in consultation with Advisory Agencies, to identify legislation, policies and methodologies relevant to the EIS process, and to determine appropriate parts of the community, community bodies or individual people who 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 draft EIS will be provided to all Advisory Agencies and on request to relevant individuals and peak groups with an interest in the Project.

5. GENERAL EIS FORMAT

The EIS should be written in a format matching the ToR or include guidelines (preferably as an appendix) describing how the EIS responds to the ToR.

The main text of the EIS is to include appendices containing:

- a copy of the final ToR;
- a list of persons and agencies consulted during the EIS;.
- a list of Advisory Agencies with an appropriate contact;
- the names of, and work done by, all personnel involved in the preparation of the EIS; and
- the detailed specialist studies that support the main EIS document.

Maps, diagrams and other illustrative material should be included in the EIS where this may assist in the interpretation of information.

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. CD ROM copies should be in ADOBE® *.pdf format for placement on the internet. All compression must be down-sampled to 72 dpi. The executive summary should be supplied in HTML 3.2 format with *.jpg graphics files. Text size and graphics files included in the PDF document should be of sufficient resolution to facilitate reading and enable legible printing. Where possible, individual PDF documents should be no larger than 500kB file size and should not exceed a maximum file size of 2MB.

ToR GLOSSARY

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
CG	the Coordinator-General of the State of Queensland.
DLGP	Department of Local Government and Planning
DMR	Department of Main Roads
DNRMW	Department of Natural Resources, Mines and Water
DPI&F	Department of Primary Industries & Fisheries
EIS	Environmental Impact Statement
EMP	Environmental Management Plan

EP Act	*Environmental Protection Act 1994*
EPA	Environmental Protection Agency
ERA	Environmentally Relevant Activity
ESD	Ecologically Sustainable Development
IAS	Initial Advice Statement as defined by part 4 of the *State Development & Public Works Organisation Act 1971*
NTRB	Native Title Representative Bodies
ROW	Right-of-Way
SDPWOA	*State Development & Public Works Organisation Act 1971*
ToR	Terms of Reference as defined by part 4 of the *State Development & Public Works Organisation Act 1971*
TSL	Transfield Services Limited

PART B – Specific Requirements – Contents of the EIS

The EIS Report should address the following matters and be structured with similar headings to the Terms of Reference:

TITLE OF PROPOSED DEVELOPMENT

NAMES AND ADDRESSES OF PROPONENT(S)

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 focused 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 brief summary of previous projects and commercial activities undertaken by the Proponent and its associated entities;
- a concise statement of the aims and objectives of the Project;
- the legal framework, decision-making authorities and Advisory Agencies likely to be involved in the Project;
- an outline of the background to and need for the Project, including the consequences of not proceeding with the Project;
- a discussion 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; and
- an outline of the principal environmental impacts predicted and the proposed environmental management strategies to minimise the significance of those 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. The introduction should define the level of detail required to meet the information requirements for the various approvals being sought for the Project, and provide an overview of the structure of the document.

1.1 The Proponent

This section should provide detail regarding the Proponent (TSL) in terms that are relevant to the proposed works, including postal address and key contact details for the relevant staff and any project consultants. The section should outline the experience of the proponent, including the nature and extent of business activates and the Proponent's environmental record and Environmental Policy.

1.2 Project Description

This section should provide a brief description of the key elements of the Project including any associated infrastructure requirements. The location of the Project and its infrastructure requirements should be described and mapped.

Given likely temporal and physical overlap (including potential synergies and conflicts) between the Project and Dyno Nobel's neighbouring Ammonium Nitrate (AN) plant project, any Project elements that may interact with the AN project should be initially highlighted in this section.

A brief description should be provided of studies or surveys that have been undertaken for the purposes of developing the Project and preparing the EIS. This should include reference to relevant studies or investigations undertaken previously in the Project area.

1.3 Project Objectives and Scope

This section should provide a statement of the objectives, which have led to the development of the proposal, the size and type of the operation, the nature of the processes and the products, by-products and wastes produced, and the staging and timing of the Project.

1.4 The EIS Process

Provide an explanation of the legislative process under which the EIS is being produced, including timing and decisions to be made for relevant stages of the Project.

The explanation should include a description of the approval process as a significant project pursuant to the *State Development and Public Works Organisation Act 1971* (SDPWOA).

A statement should be made of the EIS objectives. The structure of the EIS should be outlined as an explanation of how the EIS will meet its objectives, including how it will provide the necessary information to decision makers considering approvals for the Project.

This section should also outline mechanisms in the process for public input, the public release of the EIS and the responses to stakeholder submissions. The EIS should describe how to make submissions and when submissions must be made to gain standing for any appeal process.

1.5 Public Consultation Process

An appropriate public consultation program, developed in accordance with the requirements under the SDPWOA is essential to the full conduct of the impact assessment. The aims of the public consultation process are to:

- develop an understanding of the Project, the nature and extent of proposed works, and the EIS process within the Moranbah community;
- consider stakeholder views on the proposed project with a view to achieving the most acceptable outcomes;
- target specific community stakeholders to assist in identifying social impacts and developing appropriate mitigation and management measures; and
- keep the community, key stakeholders and appropriate agencies informed of project progress.

Based on best practice principles, consultation processes should:

- be undertaken as early as possible in the environmental impact assessment process, underpin each phase, including feedback to participants about outcomes; and
- be designed in two stages; (1) identifying broad issues on concern and providing information to the community and specific interest groups; and (ii) providing for focussed, detailed consultation to consider issues, resolve conflicts, and to develop mitigation or monitoring strategies with the input of interested parties.

This section should outline the methodology that will be adopted to identify and mitigate the socio-economic impacts of the project.

Information about the consultation that has already taken place and the results of such consultation should be provided. A list of affected persons and interested stakeholders as well as information on consultation with these persons is to be provided.

The public consultation program should provide ongoing opportunities for community involvement and education. It may include public meetings, interest group meetings, production of regular summary information and updates and other consultation mechanisms as required that would encourage and facilitate active public consultation.

It is recommended that a Table of Consultation Findings be provided in the EIS, either as an appendix to, or included in, the EIS. The table should identify all the groups, agencies, and people who have been consulted, the issues they raised and the strategies put into place to resolve these concerns and or enhance particular positive impacts.

1.6 Project Approvals

1.6.1 Relevant Legislation and Policy Requirements

This section should identify the development approvals required for each element of the project and the expected program for approval of applications, and specify the legislation and policies controlling the approvals process. This should include a description of the public notification processes and appeal rights that will be available in the anticipated approval processes.

Reference should be made to the *Environmental Protection Act 1994 (EP Act),* SDPWOA*, Transport Infrastructure Act 1994, Integrated Planning Act 1997, Nature Conservation Act 1992, Aboriginal Cultural Heritage Act 2004, Vegetation Management Act 1994* and other relevant Queensland laws. All requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Native Title Act 1993 should also be included.

In addition, local government planning controls, local laws, and policies applying to the Project should be described, and a list of the Environmentally Relevant Activities (ERAs) necessary for each aspect of the project should be given.

This section should also discuss consistency with existing land uses or the long-term policy frameworks for the area. The information provided should refer to all state and regional planning policies, Including:

- *the Belyando and Nebo Shire Transitional Planning Schemes;*
- *SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide;*
- *SPP 1/92 Development and the Conservation of Agricultural Land;* and
- *Codes for the Clearing of Vegetation*.

2. PROJECT SUBSTANTIATION

This section is to provide the justification for the project, with particular reference made to economic and social benefits, including employment and spin-off business development. This section should also describe feasible alternatives, including conceptual, technological and locality alternatives to the Project and include discussion of the consequences of not proceeding with the project.

2.1 Need for the Project

This section should provide a broad statement of the objectives which have led to the development of the Project and a brief outline of any significant events leading up to the Project's formulation, including alternatives, envisaged time scale for implementation and project life, anticipated establishment costs and actions already undertaken within the Project area. The discussion of the justification for the Project should be explained in relation to current issues in the electricity industry and the associated policy and regulatory framework, and any relevant market factors.

2.2 Relationships with other Projects

This section should describe how the Project relates to any other projects or activities, of which TSL should reasonably be aware, that are being, or might be taken, or that have been approved in the area affected by the project. These relationships would include:

- Dyno Nobel's proposed Ammonium Nitrate plant;
- the further development of coal seam gas fields in the region by CH4;
- the construction of the Burdekin to Moranbah Water Pipeline;
- the operation of the small Ergon Power Station at Moranbah;
- the operation of Enertrade's North Queensland (Moranbah to Townsville) Gas Pipeline;
- the construction and operation of Enertrade's proposed Central Queensland (Moranbah to Gladstone) Gas Pipeline;
- expansion plans by Powerlink for the electricity transmission system or by Ergon for the electricity distribution system in the region;
- the PNG Gas Pipeline Project; and
- mine development plans by Anglo Coal or BMA in the vicinity of the power station sites.

2.3 Costs and Benefits of the Project to the Wider Community

This section should discuss:

- the economic costs and benefits to industry and the wider community; and

- the regional social impacts including employment and skills development (training) required directly for the Project and indirectly for any ancillary works to the Project.

2.4 Alternatives

This section should describe feasible alternatives within the proposed Project, including the option of taking no action i.e. of not building the two proposed power stations and the gas 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. In particular, discussion of reasonably practicable alternatives to the Project should include:

- alternative corridors considered, aided by maps and diagrams. The corridor options highlighting the preferred route, should be shown on topographical maps at a suitable scale;
- the rationale for selection of the preferred corridor and reasons other options were rejected;
- alternative power station sites investigated; and
- the rationale for the selection of the preferred sites and reasons the others were rejected.

3. DESCRIPTION OF THE PROJECT

The objective of this section is to describe the Project through its lifetime. This information is required to allow assessment of all aspects of the life of the Project including all phases of the Project from planning, construction, decommissioning of the construction site, long-term operation and decommission of the Project.

3.1 Location

The regional and local context of the proposal should be described and illustrated on maps at suitable scales. Real property descriptions of the project site should be provided. Mapping should include details of:

- the location of the facilities in a regional and local context;
- land tenures;
- present land uses and Planning Scheme zonings;
- surrounding industries and other land uses;
- features of State and national environmental significance;
- proposed buffer zones;
- locations and layout of new structures;
- photo images at approximate scales;
- the Project in the context of the sub-regional transport system; and
- the Project in relation to adjacent infrastructure such as rail and road that illustrate access arrangements.

The EIS should provide details of areas adjacent to the project areas that could be affected by the Project and existing infrastructure facilities available on and adjacent to the Project areas.

3.2 Construction

This section should describe the type and methods of construction, the construction equipment to be used and the items of plant to be transported onto the construction sites, including:

- a preliminary predictive program of activities relating to design, delivery and operational activities. The description should also state the design life and the expected operating life of the project;
- potential construction lay-down areas and assembly areas;
- design parameters including proposed earth works at each power station site, trenching specifications, methods for trenching and rehabilitating across creeks, and design life;

- estimates of material quantities and likely sources for each material;
- details of the design criteria for flood immunity of power station sites;
- the preferred alignment of the gas pipeline and electricity transmission corridors, including works within and outside of the reserves;
- criteria to be used to locate access for machinery, transport, etc. in the vicinity of each waterway or wetland (e.g. construction of causeways, bridges, culvert crossings, etc) and the location and nature of any permanent access points, roads or sidetracks for maintenance purposes, in particular where they are adjacent to waterways or wetlands; recreation and sport facilities and parkland; and
- easement widths and access requirements along all corridor alignments, including the use of existing areas of disturbance for machinery access and future maintenance.

This section should also describe the numbers (over time) of construction personnel, proposals for their accommodation (with reference to section 3.4.2) and hours of construction.

3.3 Operations

The location and nature of all operational facilities and processes for the Project should be illustrated with maps and diagrams, and described in the text.

Concept and layout plans should be provided showing proposed buildings, structures, plant and equipment, infrastructure, site access, services access, buffer areas, car parks, landscaping and beautification proposals and site boundaries.

Indicative process flow-sheets should be provided showing anticipated rates of inputs, along with similar data on products, wastes and recycle streams for the power stations. Additional detail on waste and recycle streams should be included in section 3.5.

The size of the operational workforce should be detailed, with a full description of proposed arrangements for their accommodation. The hours of operation, expected life of the operation and the likely timing and probability of any future expansions should be described. Stages of development should be indicated with proposed plans for each stage, including anticipated dates for construction, plant testing and final commissioning.

3.4 Other Infrastructure Requirements

3.4.1 Transport

The EIS should clearly and fully describe all transport requirements for construction and operational phases. This should include:

- the volume, composition (types and quantities), origin and destination of goods to be moved, including construction materials, plant, raw materials, wastes and ;hazardous materials;
- the volume of traffic generated by workforce personnel, visitors and service vehicles;

- the likely types of vehicles to be used and any oversize indivisible loads;
- likely scenarios for origin and destination of inputs/supply source and likely transport routes; and
- potential access requirements, especially around the entrances to each power station site.

3.4.2 Workforce, Accommodation and Other Infrastructure

The EIS should provide information on the number of personnel to be employed and the sources (local, regional and overseas) for the workforce during the construction and operational phases of the Project. This information should include an estimate of the anticipated numbers of workers who will be accompanied by dependents, as well as those who will be unaccompanied (i.e. single workers). Estimates should be provided according to skilled and semi-skilled worker categories and expected dates when the workforce requirements will fluctuate for each stage of the Project. Information should include requirements for any offsite workforce requirements and the expected indirect or flow-on effects to be generated.

Details of the construction workforce should be given, with particular reference to the source of skilled tradespeople and labour. An outline of recruitment schedules and policies for recruitment of workers (addressing recruitment of local and non-local workers) should be included. The information should show anticipated peaks in worker numbers during the construction period.

An accommodation strategy for the construction workforce should be included which addresses the estimated housing needs of both single and accompanied construction workers. This should include details of the size, location and management of any temporary worker accommodation that will be required either on-site or off-site. Maps should be included as necessary to illustrate the site(s), and should include the location of any proposed construction workers' accommodation on-site or in the vicinity of the Project.

The location(s) design and adequacy of temporary worker accommodation should be described in sufficient detail to permit development applications under the IDAS process for a construction camp to be assessed.

Information provided on workforce camps should include details of facilities provided for food preparation and food storage, ablution facilities, and vector or pest management activities.

The accommodation requirements of the operational workforce should be addressed, with reference to the Moranbah Growth Management Strategy Group.

3.4.3 Energy

This section should describe all energy requirements, including electricity, natural gas, and/or solid and liquid fuel requirements for the construction and operation of the Project.

Electricity and natural gas demands for the facility should include:

- maximum demand;
- annual consumption;
- load fluctuations; and
- source.

The EIS should outline any impacts the development may have on surrounding energy infrastructure including gas pipelines, high voltage transmission lines and power lines.

Any energy interactions with Dyno Nobel's proposed Moranbah Ammonium Nitrate Project should also be described here.

3.4.4 Water Supply and Management

The availability of the water supply is a key component of the EIS as there is no spare capacity within Moranbah and Nebo town water supply systems.

The following details on daily, seasonal and/or peak operational requirements should be provided:

- quality of water required, including strategies to prevent contamination;
- maximum hourly demand;
- maximum daily demand;
- mean day maximum monthly demand;
- total annual consumption;
- any additional water supply infrastructure; and
- requirements for fire-fighting or other emergency services.

The EIS should provide information on proposed water usage by the Project, including the source, quality and quantity of all water supplied to the site. In particular, the proposed and optional sources of water supply should be described. The EIS should demonstrate that adequate water resources for the Project are in place and the supply is readily accessible. The EIS should demonstrate that a guaranteed water supply would be available throughout the life of the Project.

Other water supply requirements to be addressed include:

- estimated rates of supply from each source (average and maximum rates);
- determination of potable water demand, including the temporary demands during the construction period;
- water storage and treatment onsite;
- any interaction between water supply for this Project and Moranbah town water supply, especially in the context of the Moranbah domestic water needs analysis

currently being undertaken by the Belyando Shire Council and several Queensland Government agencies;

- contingency plans for planned and non-planned supply failures; and
- projected dates for increased raw and treated water supplies.

The EIS should also provide details of any wastewater management at the site and how this waste stream will be managed or reused offsite. Any intentions to manage water or wastewater jointly with Dyno Nobel's proposed Moranbah Ammonium Nitrate Project should be detailed.

The proposed management of wastewater for the site should make reference to the *Queensland Water Recycling Guidelines* and the *Queensland Water Recycling Strategy*.

The EIS should describe the site layout plans for all aspects of the Project which incorporate requirements and conceptual plans of stormwater management structures, including descriptions of any discharge requirements for both the construction and operational stages. This should include proposals for drainage structures and dams, and an overall site water balance. The topography of the site and adjacent areas should be discussed if any run-off is expected to leave the site.

The EIS should provide volume estimates of industrial and domestic effluent that will be produced and the proposed method of disposal. Physical and chemical characteristics of the effluent should be described. If discharging into an existing sewerage system, an assessment of the capacity of the existing system to accept the effluent should be provided. This component of the EIS will relate to both the operational and the construction workforce for the Project.

3.4.5 Telecommunications

The EIS should:

- identify the owners of any existing infrastructure;
- provide details of telecommunication requirements, sources and methods; and
- describe any impacts on existing telecommunications infrastructure (such as optical cables, microwave towers, etc).

3.5 Rehabilitation of Construction Sites and Decommissioning

This section should present the strategies and methods for progressive and final rehabilitation of the environment disturbed during construction. Final rehabilitation of the construction site should be discussed in terms of ongoing land use suitability, management of any residual contaminated land and any other management issues.

This section of the EIS should also present strategies for the final decommissioning of the power stations and other infrastructure, and rehabilitation of the environment disturbed by the Project. This would include discussion of removal of equipment and

structures, revegetation, residual land use suitability, management of contaminated land and other land management issues.

4. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS

This section of the EIS should:

- describe the existing environmental values of the area affected by the proposal through reference to background information and studies;
- describe the potential adverse and beneficial impacts of the proposal on the identified environmental values, including analysis of any cumulative impacts on the environment;
- present environmental protection objectives, standards and measurable indicators; and
- examine viable alternative strategies for managing impacts based on objectives and standards to be achieved through discussion of available techniques and best practice.

The EIS should detail environmental protection measures which are to be incorporated in the planning, construction, operations, decommissioning and associated works for the Project. Measures proposed in the EIS should aim to minimise environmental harm and maximise socio-economic and environmental benefits of the proposal.

Particular attention should be given to strategies for the protection of environmentally sensitive areas or areas of a high conservation value and the requirements of any Commonwealth strategies, State planning policies, local authority planning schemes, environmental protection policies under the EP Act and any catchment management plans prepared by local water boards or land care groups.

4.1 Land Use and Planning

4.1.1 Description of Land Use, Tenure and Infrastructure

The EIS should provide a description of current land uses, including native title issues, in the proposal area, with particular mention of land with special purposes. The location of areas covered by applications for native title or native title determinations in the area should be shown. All minerals and energy related tenures should be identified.

Maps at suitable scales showing existing land uses and tenures, reserves, roads and road reserves, stock routes and the like, and the proposed corridor, should be provided for the entire area that could be affected by the Project. These maps should also indicate locations of gas and water pipelines, power lines and any other easements. The maps should identify locations of conservation value, existing dwellings and recreational areas, and the zoning of all affected lands according to the Belyando and Nebo Shire Transitional Planning Schemes.

Lots within the proposed route listed on the Environmental Protection Agency's (EPA) *Environmental Management Register/Contaminated Lands Register* should be identified. Where lots are listed on a register, the potential for the presence or absence of the source of contamination within all proposed Project areas should be evaluated.

A land suitability map of all areas within and adjacent to the Project area should be provided, setting out land suitability and current land uses, e.g. grazing, native and improved pastures and horticulture. Land classified as Good Quality Agricultural Land under the Department of Natural Resources Land Classification System is to be shown in accordance with *State Planning Policy 1/92*.

4.1.2 Potential Impacts and Mitigation Measures

Any land units requiring specific management measures should be identified and the compatibility of the Project with surrounding land uses (e.g. coal mining and the proposed Moranbah Ammonium Nitrate plant) should be assessed.

Possible impacts on surrounding rural land uses and human activities, including impacts to Good Quality Agricultural land, grazing land and forestry land, loss of access to land, fragmentation of properties, increase of fire risk, as well as impacts on residential and industrial uses should be described. This section should indicate the range of measures to be taken to minimise the described impacts on surrounding land uses.

The EIS should describe proposed strategies and progress in relation to making of Native Title agreements, where applicable, including consultation with Native Title Representative Bodies, traditional owner involvement and related statutory processes.

Potential 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 Project, and any proposed measures to minimise these impacts should be described.

4.2 Topography/Geomorphology/Geology

4.2.1 Description of Topography/Geomorphology/Geology

Maps should be provided locating the Project in both regional and local contexts. The topography of the Project areas should be detailed with contours at suitable increments, shown with respect to Australian Height Datum (AHD). Significant features of the locality should be included on the maps. Such features would include any locations subsequently referred to in the EIS (e.g. the nearest noise sensitive locations) that are not included on other maps for this section. Commentary on the maps should be provided highlighting the significant topographical features.

4.2.2 Potential Impacts and Mitigation Measures

The Project should be discussed in the context of major topographic features and any measures that may be required to avoid or minimise impacts on these features.

Re-contouring, landscaping or revegetation elements of the Project should describe any proposals to use threatened plant species.

4.3 Visual Amenity

4.3.1 Description of Visual Amenity

An assessment should be made of the existing visual quality/landscape character of the Project Areas and their local or regional prominence. The visual amenity and scenic value should be described in terms of the views from places of residence, work, and recreation, from roads, from the air and other known vantage points during the day and night, as they relate to the surrounding landscapes.

4.3.2 Potential Impacts and Mitigation Measures

The visual impacts, in terms of the extent and significance of changed skylines as viewed from places of residence, work, and recreation, from roads, from the air and other known public vantage points day and night, during all stages of the Project as they relate to the surrounding landscapes are to be analysed and discussed. Any measures proposed to reduce such impacts should be described.

An assessment of all potential impacts of lighting of the Project, during all stages of construction and operation, is to be provided, with particular reference to:

- the visual impact at night;
- night operations/maintenance and effects of lighting on fauna, flora and residents;
- the potential impact of increased vehicular traffic;
- affected industry and businesses; and
- changed habitat conditions for nocturnal fauna and associated impacts.

4.4 Soils

4.4.1 Description of Soils

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) and must include horizon differentiation and depths, field texture, colour, mottles, soil structure, erosion hazard rating, pH and Electrical Conductivity, dispersibility, permeability, attenuation/absorption characteristics and engineering and structural properties. An appraisal of the depth and quality of useable soil 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.*

This description should include any physical or chemical properties of the surface or subsurface materials that may influence ground stability, occupational health and safety, rehabilitation programs or the quality of wastewater leaving any Project areas.

The strategies and methods for the rehabilitation of the environment disturbed by the Project and related activities should be described in the context of the expected final landform and potential final land uses.

The means of decommissioning the Project, in terms of removal of plant, equipment, concrete footings and foundations, hardstand areas, storage tanks, (including any potential for reuse of these facilities) and buildings should be described. The methods proposed for the stabilisation of the affected areas should be given. Final rehabilitation of the plant site should be discussed in terms of ongoing land use suitability, management of any residual contaminated land and other land management issues. The rehabilitation strategy should be developed with a view to minimising the amount of land disturbed at any one time.

4.4.2 Potential Impacts and Mitigation Measures

For all permanent and temporary landforms, possible erosion rates and management techniques should be described. For each soil type identified, erosion potential (wind and water) and erosion management techniques should be outlined. Methods proposed to prevent or control erosion should be specified and should be developed to prevent soil loss in order to maintain land capability/suitability, and to prevent significant degradation of local waterways by suspended solids.

Where dams, roads gas pipelines and other infrastructure are to be constructed, proposals for the management of these structures after the completion of the proposal should be given. A contour map of each Project area should be provided and the final drainage and seepage control systems and any long-term monitoring plans described.

Methods used and release limits of any suspended solids from Project areas must be based on implementation of best practice erosion and sediment control guidelines, in particular, *Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites*.

4.5 Contaminated Land

4.5.1 Description of Contaminated Land

A search of the Queensland *Contaminated Land Register* (CLR) and the *Environmental Management Register* (EMR) should be undertaken to assess potential contamination at the site. Where activities are identified that have caused contamination at the site (e.g. notifiable activities), an investigation of the potential contamination will be undertaken including an investigation consistent with the requirements under the *Draft Guidelines for the Assessment and Management of contaminated land in Queensland* published by the EPA. Any results from such an investigation should be summarised within the EIS and provided in detail in an appendix.

4.5.2 Potential Impacts and Mitigation Measures

The EIS should describe the possible contamination of land resulting from aspects the Project, including waste, reject product, and spills at chemical and fuel storage areas. The means of preventing land contamination (within the meaning of the EP Act) should be addressed and methods proposed for preventing, recording, containing and remediating any contaminated land outlined. Intentions should be stated concerning the classification (in terms of the CLR) of land contamination on all Project sites.

4.6 Climate

This section should describe the rainfall patterns (including magnitude and seasonal variability of rainfall), air temperatures, humidity, wind (direction and speed) and any other special factors (e.g. temperature inversions) that may affect air quality within the environs of the Project. Extremes of climate (droughts, floods, cyclones, etc) should also be discussed with particular reference to water management at the Project sites. The vulnerability of the area to natural or induced hazards, such as floods and bushfires, should also be addressed. The relative frequency, magnitude and risk of these events should be considered.

4.7 Water Resources

4.7.1 Description of Water Resources

This section describes the existing environment for water resources that may be affected by the proposal in the context of environmental values as defined in such documents as the EP Act, Environmental Protection (Water) Policy 1997 and Australia and New Zealand Environment and Conservation Council (ANZECC) 2000. If a licence or permit will be required under the *Water Act 2000* 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 the application. The following parameters are to be described for surface water:

- existing surface 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 watercourses, including riparian zone vegetation and form; and
    - any Water Resource Plans, Land and Water Management Plans relevant to the affected catchment;
- existing surface drainage patterns, flows, history of flooding including extent, levels and frequency and present water uses; and
- the watercourses to be crossed by the pipeline showing planned crossing locations and crossing methods on a map. Discuss consideration of alternative crossing locations in environmentally sensitive areas.

All watercourses within the project area are ephemeral. Therefore, the basis for this assessment of existing water quality in surface waters likely to be affected by the Project should be a sampling program conducted upstream and downstream of each Project element. Preferably, these samples will be collected at three-day intervals during flow events during the EIS period. However, if water is not running in the creeks and the Isaac River during the EIS period, then TSL will be required to undertake those water quality assessments during the next available flow event.

The EIS should review the quality, quantity and significance of groundwater, in terms of physical, chemical and biological characteristics, in the Project area, together with groundwater use in neighbouring areas. The review should include a desktop review of available information on existing groundwater supply facilities (bores, wells, or excavations) in the vicinity of the power station sites and include:

- location;
- pumping parameters;
- draw down and recharge at normal pumping rates; and
- seasonal variations (if records exist) of groundwater levels.

The data obtained from the groundwater surveys should be sufficient to enable specification of the major ionic species present in the groundwater, pH, electrical conductivity and total dissolved solids.

The EIS should provide a description of groundwater resources in terms of:

- geology/stratigraphy;
- aquifer type - such as confined, unconfined;
- depth to and thickness of the aquifers;
- depth to water level;
- groundwater flow directions (defined from water level contours);
- interaction with surface water;
- possible sources of recharge; and
- vulnerability to pollution.

4.7.2 Potential Impacts and Mitigation Measures

This section should assess potential impacts on water resource environmental values identified in the previous section. It will 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 water consumption volumes, where this water will be sourced from and options for disposal;
- likely impacts associated with the construction and operation of crossings of 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;
- the quality of water leaving construction sites (including physical, chemical and biological characteristics), potential impacts for any likely discharged water and how the impacts will be assessed. Evaluating potential effects of any discharges should be in accordance with the *ANZECC 'National Water Quality Management Strategy, Australian Water Quality Guidelines for Fresh and Marine Waters' (November 1992) and the EPP (Water) Policy 1997*;
- 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 water table and secondary influence on flooding. If levee banks or stream 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;
- discussion of the proposed drainage structures for all aspects of the proposal, including supporting facilities such as access roads;
- discussion of the timing of the construction works relative to likely periods of flooding and proposals to minimise the risk of adversely impacting downstream water quality;
- a description of the proposed stormwater drainage systems and the proposed disposal arrangements, including any off-site services with reference to the properties of process wastes from the power stations and the techniques to be employed to ensure that contaminated water is contained and successfully treated on the power station sites;
- a risk assessment for uncontrolled releases of water from the power station sites due to system or catastrophic failure, implications of such emissions for human health and natural ecosystems, and list strategies to prevent, minimise and contain impacts;
- management strategies that demonstrate best practice management to ensure that environmental values of receiving waters will be maintained to nominated water quality objectives;
- monitoring programs, which will assess the effectiveness of management strategies for protecting water quality during the construction, operation and decommissioning of the Project, should be described;

- discussion of measures to ensure viable weed seeds are not released into the water environment including from machinery traversing creek systems or riparian areas;
- whether any water supplies will be sourced via water trading or taking of unallocated water as identified in the *Fitzroy Basin Resource Operations Plan (January 2004)*; and
- proposed arrangements for the supply of water to the Project from the Burdekin to Moranbah water pipeline currently being constructed.

The EIS should discuss the potential environmental impacts caused by the Project to local groundwater resources. The impact assessment should define the extent of the area within which groundwater resources are likely to be affected by the proposed operations.

An assessment of the potential to contaminate groundwater resources and measures to prevent, mitigate and remediate such contamination should be discussed.

4.8 Nature Conservation

4.8.1 Description of Nature Conservation Values

This section should detail the existing nature conservation values of the Project area. The EIS should identify any actions of the project that require an authority under the *Nature Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999.*

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. Key flora and fauna indicators should be identified for future ongoing monitoring, where required.

The EIS should provide descriptions of the environmental values of nature conservation for the affected area in terms of:

- integrity of ecological processes, including habitats of rare and threatened species
- conservation of resources;
- biological diversity, including habits of rare and threatened species;
- integrity of landscapes and places including wilderness and similar natural process;
- aquatic and terrestrial ecosystems;
- remnant native vegetation; and
- conservation status of regional ecosystems.

Reference should be made to both State and Commonwealth legislation and policies on threatened species and ecological communities.

All surveys undertaken should be in accordance with best practice advice from the EPA 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.

4.8.2 Description of Terrestrial Flora

Terrestrial vegetation maps at a suitable scale (e.g. 1:100,000 for the gas pipeline corridor and 1:50,000 for each power station site) should be provided. Vegetation maps should be ground truthed. Vegetation maps and associated discussion should indicate:

- the location and extent of vegetation types using the EPA's regional ecosystem type descriptions in accordance with *The Conservation Status of Queensland's Bioregional Ecosystems (Sattler P.S. & Williams R.D. (Eds) 1999)* and the EPA's web site (www.epa.qld.gov.au/environment/science/wildlife/) listing the biodiversity status of regional ecosystems;
- the location of species listed as Protected Plants under the *Nature Conservation (Wildlife) Regulation 1994* and subsequent amendments;
- any plant communities of cultural, commercial or recreational significance;
- the relationship of vegetation map unit descriptions to regional ecosystems;
- sensitive or important vegetation types and their value as habitat for fauna and conservation of specific rare floral and faunal assemblages or community types; and
- a comparison of site mapping with mapping produced by the Queensland Herbarium for the *Vegetation Management Act 1999*, with identification of any differences.

Vegetation survey data should include species structure, assemblage, diversity and abundance.

Within each defined vegetation community at each power station site and along the route of the proposed gas pipeline, at least one site should be surveyed for plant species, as follows:

- site data should be recorded in a form compatible with the Queensland Herbarium;
- the minimum survey plot size should be 10 by 50 metres;
- a complete list of species present at each site should be recorded;
- the relative abundance of plant species present should be recorded;
- any plant species of conservation, cultural, commercial or recreational significance should be identified; and
- any unidentified specimens are to be submitted to the Queensland Herbarium for identification and entry into the HERBRECS database.

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 report. 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.

The occurrence of pest plants (weeds), particularly declared plants under the *Land Protection (Land and Stock Route Management) Act 2002* should be shown on a map at an appropriate scale.

4.8.3 Potential Impacts on Terrestrial Flora and Mitigation Measures

This section of the EIS should discuss the ability of identified stands of vegetation to withstand any increased pressure resulting from the proposal and identify measures proposed to mitigate Project impacts.

The area of each remnant regional ecosystem to be cleared and any alternatives considered should be detailed for the proposed gas pipeline route, the power station sites, and any supporting facilities. Separate identification should be provided for regional ecosystems:

- considered by EPA to be 'endangered' or 'of concern';
- sites containing common species which represent a distributional limit and are of scientific value;
- sites containing high biodiversity that are of a suitable size or with connectivity to corridors/protected areas to ensure survival in the longer term; and
- sites containing other special ecological values, for example, high habitat diversity and areas of high endemism.

The future use (such as erosion control or habitat) or method of disposal of cleared vegetation should be detailed.

Methods that ensure rapid rehabilitation of disturbed areas following construction, including the species chosen for revegetation consistent with the surrounding associations, should be described. Details of any post construction monitoring programs and benchmarks to be used for review of monitoring should be included.

Necessary permits/authorities required by the Project (e.g. Riverine Protection Permits may be required dealing with riverbank vegetation and in the construct ion of waterway crossings, temporary or permanent) should be identified.

Description of methods of minimising the potential for the introduction and/or spread of weeds should include:

- identification of the origin of construction materials, machinery and equipment;
- the need for vehicle and machinery washdown and any other hygiene protocols; and
- staff/operator education programs.

Include a weed management plan in the EMP, to be developed in consultation with local government environmental officers, to cover construction, rehabilitation and operation periods. Reference should be made to the Belyando and Nebo Shire Councils' pest management plans when determining control strategies.

4.8.4 Description of Terrestrial Fauna

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 refugees 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 which 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;
- 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); and
- the use of the area by migratory birds, nomadic birds, fish and terrestrial fauna.

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 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 sites occur. The methodology for subregional analysis of representativeness 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.

4.8.5 Potential Impacts on Terrestrial Fauna and Mitigation Measures

This section should identify any impact the Project may have on terrestrial fauna, relevant wildlife habitat and other fauna conservation values.

The potential environmental harm to the ecological values of the area arising from the construction, operation and decommissioning of the Project including clearing, salvaging or removal of vegetation should be described, and the indirect effects on remaining vegetation should be discussed. Short-term and long-term effects should be considered with comment on whether the effects are reversible or irreversible.

Details should be provided for any management measures proposed, (such as provision of nest hollows, use of cleared vegetation for ground-level habitat, ramps in trenches to allow animals to escape) to reduce identified impacts on terrestrial fauna resulting from fragmentation of habitat and creation of barriers to movement.

Measures to mitigate the environmental harm to habitat or the inhibition of normal movement, propagation or feeding patterns and change to flood chains should be described.

The methodology that will be used to minimise injuries and mortality that may be inflicted on livestock or native fauna as a result of operation of the project should be detailed.

Methods of minimising the introduction of feral animals, and other exotic fauna should be discussed.

4.8.6 Description of Aquatic Biology

The aquatic flora and fauna occurring in the creeks and rivers 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 in the area should include:

- fish species, mammals, reptiles, amphibians, and aquatic invertebrates occurring in aquatic environments within and downstream of the Project area;
- any listed rare or threatened species; and
- aquatic plants.

Should dry conditions not permit an adequate assessment of the aquatic biology of the creeks and rivers impacted by the Project during the EIS period, then TSL will be required to undertake such an assessment the first time that flow conditions do permit.

4.8.7 Potential Impacts on Aquatic Biology and Mitigation Measures

The potential environmental impact on aquatic flora and fauna of any alterations to the surface and ground water environments should be discussed with specific reference to impact on riparian habitat values.

This section should discuss 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).

Any proposed stream diversions, causeway construction and crossing facilities, stockpiled material and other impediments (temporary or permanent) required for construction or maintenance purposes that will restrict free movement of fish (short or long term) should be discussed. Consideration should be given to the extent to which seasonal construction of waterway crossings can avoid fish spawning periods.

4.9 Historic and Cultural Heritage

4.9.1 Description of Historic and Cultural Heritage

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

A cultural heritage study will be required which will describe indigenous and non-indigenous cultural heritage sites and places, and their values, and include:

- consultation with:
    - the *Register of the National Estate* (maintained by the Australian Heritage Commission);
    - the EPA regarding the *Queensland Heritage Register* and other information regarding places of potential non-indigenous cultural heritage significance;
    - the Department of Natural Resources Mines and Water regarding the *Aboriginal and Torres Strait Islander Database*;
    - any local Government heritage register; and
    - any existing literature relating to the affected areas;
- liaison with representatives of relevant indigenous and non-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; and
    - significance assessment of any cultural heritage sites/places located.
- liaison with relevant community groups/organisations (e.g. local historical societies) concerning:

  - places of 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 works construction, including:
  - stone artefact scatters;
  - culturally significant vegetation;
  - buildings or places of archaeological significance;
  - archaeological sites, natural sites, story sites etc;
- when examining tenure, the location of historical mining areas should be shown on maps. This may be used to identify former mining zones or historical workings where slumping or other problems might occur in the future; and
- a report of work done which includes 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*, to protect areas and objects of cultural heritage significance.

Cultural heritage surveys previously undertaken in the area should be described and the findings stated.

The EIS should identify all Native Title claims and associated issues within the Project area.

4.9.2 Potential Impacts and Mitigation Measures

Every attempt should be made to identify a pipeline alignment that avoids any significant heritage areas. The EIS should provide an assessment of any likely effects on sites of European or 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 proposal and their values at a local, regional and national level; and
- recommended means of mitigating any negative impacts on cultural heritage values and enhancing any positive impacts.

The management of cultural heritage impacts should be detailed in a Cultural Heritage Management Plan (CHMP) that is developed specifically for the proposed Project. The CHMP should provide a process for the management of identified cultural heritage places and values within the proposed areas of works. The CHMP should be based on

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

- a process for including Indigenous communities associated with the proposed route in protection and management of Indigenous cultural heritage;
- processes for mitigation, management and protection of identified cultural heritage places and material along the proposed 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;
- the monitoring of foundation excavations and other associated earthwork activities for possible sub-surface cultural material;
- cultural awareness training or programs for Project staff; and
- a conflict resolution process.

The development of the 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 Islander Heritage Protection Act 1984*.

4.10 Social and Economic Environment

4.10.1 Description of Social and Economic Environment

This section should detail the existing social and economic environment of the Project area. Issues to be addressed include:

- structure of potentially affected communities in the Project area;
- number of properties directly affected by the Project;
- number of families directly affected by the Project, including families of workers either living on impacted properties or workers where those properties provide their primary employment;
- community profile, providing information on the following characteristics:
    - rural properties, farms, croplands and grazing areas;
    - demography and family structure;
    - workforce characteristics, including types of skills or occupations and availability during both construction and operational stages;
    - accommodation type, quantity and availability (as it relates to the need for accommodation of the Project construction and operation workforce);
    - public health and education facilities;

  - local government and public services;
  - recreational, cultural, leisure and sporting facilities; and
  - other community services and facilities;
- socio-demographic characteristics, including employment and unemployment rates; and
- economic character and basis of the local and regional economies, including:
  - current local and regional economic opportunities and trends;
  - existing labour force and unemployment statistics;
  - types and numbers of businesses;
  - a description of large scale industrial developments and their effects in the region;
  - the availability of land for support industrial uses; and
  - availability and prices of goods and services.

Information should also be provided on the existing housing market, with an emphasis on:

- the size of the private rental market in the area;
- the vacancy rate of rental accommodation, including assessment of seasonal fluctuations;
- typical rents for the area;
- the availability and typical cost of housing for purchase in the area;
- the level of social housing in the area; and
- constraints and opportunities for new housing construction in the area, including the capacity of the local land development and housing construction industries to provide new housing, especially in relation to initiatives currently being managed by the recently convened Moranbah Growth Management Strategy Group.

4.10.2 Potential Impacts and Mitigation Measures

This section should aim to define and describe the objectives for protecting or enhancing the social and economic values of the Project area, and how the achievement of these objectives will be monitored, audited and managed.

The social and community impacts of the proposed development should be addressed as part of the EIS incorporating any assessment of stakeholder concerns about adverse impacts to the natural, social, economic or built environment so that appropriate mitigation strategies can be developed. Assessment of the social and economic impacts should give consideration to:

- restrictions to public access and recreational use during construction and operational phases, and after decommissioning;

- strategies to minimise access requirements for operation and maintenance activities;
- the potential and mechanisms for local communities and businesses to meet contracts for services and supplies for the construction, rehabilitation and operation phases of the Project;
- employment 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 demand for places in local primary, secondary schools and regional tertiary education facilities;
- the ability of people to participate in regional and local employment assistance and training opportunities
- the impact of accommodation requirements, such as construction camps or other staff and family housing arrangements during the construction and operation stages, on communities along the gas pipeline corridor;
- 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;
- any possible cumulative impacts on the local and regional housing market due to the presence of other existing or proposed major projects in the area (especially existing coal mine expansions and Dyno Nobel's proposed Moranbah Ammonium Nitrate Project), and any seasonal employment factors;
- strategies responding to Government Policy relating to:
    - the level of training provided for construction contracts on Queensland Government building and construction contracts. (*The State Government Building and Construction Contracts Structured Training Policy (the 10% Policy)*);
    - indigenous employment opportunities. (Indigenous Employment Policy for Queensland government building and Civil Construction projects (the 20% Policy)); and
    - the use of locally sourced goods and services (in consultation with the Townsville office of the Industry Capability Network);
- strategies to foster cross-cultural awareness for the project and its participants; and
- 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.

The effect on local and regional labour markets should be discussed with regard to the source of the workforce. This information should be presented according to skilled and semi-skilled worker categories and occupational groupings, with special attention drawn to those groups for which skill shortages anticipated. Clarification should be provided

about whether TSL or contractors are likely to employ locally or through other means and whether there are initiatives for local employment opportunities.

The EIS should investigate the potential impacts on the Central Queensland regional labour pool and possible mitigation strategies including:

- any proposals to access alternative labour-pool sources outside of the northern Bowen Basin;
- the inclusion, training, sourcing, and occupational identification of apprentices for the construction site, with potential for employment in the production phase and 'up-skilling' of the current available workforce in advance of the construction phase; and
- development of support strategies to assist current regional employers with backfilling skilled shortages caused by employees moving to the Project.

An economic analysis should be presented from the state, regional and local perspectives. The general economic benefits from the Project should be described in terms of:

- the relative significance of this proposal in the local and regional economic context;
- the short and long-term beneficial (e.g. job creation) and any potential adverse (e.g. skills and materials shortages) impacts that may arise;
- the need for any additional regional infrastructure triggered by the additional economic development (but not specifically required for the Project); and
- implications for future development in the region (including constraints on surrounding land uses and existing industry);

For identified impacts on social or economic values, proposed mitigation and enhancement strategies should be described, and approaches to facilitate community acceptance of these strategies identified. Practical monitoring regimes should also be discussed.

4.10.3 Impact of the Gas Pipeline on Property Management

This section should address the current and future management processes for properties which are impacted by the gas pipeline easement, by virtue of the fact that the corridor may intersect these properties, or separate adjoining properties, and there is potential for current farming or grazing and cropping practices to be affected in some material way. Mention should be made of:

- the impact of the Project on existing agricultural and grazing and cropping land uses and management practices – e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, agricultural machinery and any loss of agricultural land;
- the range of measures required to mitigate real and potential disruptions to rural practices and management of properties (both within properties and with adjoining landholdings);

- economic impacts resulting from fragmentation of rural lots, costs of alternative property management practices, or losses of agricultural land or productivity; and measures to manage these impacts; and
- the impact on property values and local authority rates.

4.11 Air Environment

4.11.1 Description of Air Quality

This section should describe the existing air environment including particulates, gaseous and odorous compounds, which may be affected by the proposal in the context of environmental values as defined by the EP Act, the *Environmental Protection (Air) Policy*, and the *National Environmental Protection Council (Ambient Air Quality) Measure* (NEPM Air). Sensitive receptors to the site should be identified and described.

Sources of suspended particulates, SOx, NOx, and greenhouse gases, should be discussed. An assessment should be provided of how local meteorological conditions may affect air quality from the operation of the proposed facility. Sufficient data on local meteorology and ambient levels of pollutants should be gathered to provide a baseline for later studies or for the modeling of air quality environmental within the air shed. Parameters should include air temperature, wind speed and direction, atmospheric stability, mixing depth and other parameters necessary for input to the models.

4.11.2 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 gas pipeline corridor follows existing road networks or passes in close proximity to residences;
- predicted changes to existing air quality from access tracks and storage locations of construction materials;
- potential for impacts on air quality from operation of the power stations;
- potential impacts on greenhouse gas targets and policies; and
- any proposed mitigation measures for each identified impact relating to power station, vehicle, and equipment emissions, dust generation, and gaseous emissions, including how nominated quantitative standards and indicators may be achieved and how the achievement of the objectives will be monitored, audited and managed.

If air-shed modelling is deemed to be appropriate, such models should predict average ground level concentrations in nearby areas. These models should consider any cumulative and/or interactive impacts arising from both this project and the Moranbah Ammonium Nitrate Project and surrounding coal mining operations.

This section should identify features of the proposal designed to suppress or minimise emissions.

Any emissions dispersion modelling should be as detailed as possible, reflecting any variation of emissions with time and including at least a full year of representative hourly meteorological data. Ground level concentration at the nearest sensitive receptor(s) based on 1-hour average for maximum (99.9 percentile) and 99.5 percentile values should be estimated. Results of the dispersion modelling must be presented as concentration contour plots and frequency contour plots.

Any model input parameters must be based on the actual stack conditions proposed by TSL for the Development Approval and Generating Licence conditions. TSL must provide stack parameters such as diameter, temperature, exit velocity and volume flow rate.

The EIS should identify 'worst case' emissions that may occur at start-up, shut-down or during other 'upset' operating conditions of the power stations.

The averaging period for ground level concentrations of pollutants that are modelled should be consistent with the relevant averaging periods for air quality indicators and goals in the EPP (Air) and the NEPM Air.

Modelled concentration levels at the "most exposed existing or likely future sensitive receptors" must be compared with the appropriate national and international ambient air quality standards.

The EIS should describe proposed back-up measures in the event of failure of primary measures to minimise the likelihood of plant upsets and adverse air impacts.

The assessment of the Project's impact on air quality should consider:

- the extent to which NOx, SOx and volatile hydrocarbon emissions from the Project and existing emission sources within the region will contribute to the generation of photochemical smog;
- the human health risk associated with emissions from the facility;
- the potential for odour impacts;
- Project technology and Project emission control systems designed to suppress or minimise emissions, including dusts, gases and odours;
- air quality aspects for forecast emissions derived from other similar projects; and
- the extent to which air emissions could impact on water quality following deposition locally.

Where there is no single atmospheric dispersion model that is able to handle the different atmospheric dispersion characteristics exhibited in the proposal area, a combination of acceptable models will need to be applied. The limitations and accuracy of the dispersion models used for calculating ground level concentrations and a sensitivity analysis of each model to variations in the input parameters should be discussed.

4.12 Noise and Vibration

4.12.1 Description of Noise and Vibration

Sensitive noise and vibration receptors adjacent to the power stations 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 and reported (e.g. the Enertrade gas compressor station, the railway, heavy vehicle traffic on the Goonyella Road). Noise from existing facilities should be measured in sensitive places and used to assist the modelling of predicted levels for the new proposal.

Monitoring methods should adhere to relevant EPA Guidelines and *AS1055-1997 – Acoustics – Description and Measurement of Environmental Noise*, and any relevant requirements of the EPP (Noise).

Any potential attenuation (or cumulative impact) of noise resulting from the construction and operation of both the Moranbah Power Station and the proposed Moranbah AN Project with respect to sensitive receptors to the south-east should be addressed.

4.12.2 Potential Impacts and Mitigation Measures

The following analysis of noise impacts should be presented in this section of the EIS:

- the levels of noise generated during construction of the pipeline and power stations (e.g. access roads, camp sites) should be assessed against current typical background levels;
- quantified potential environmental impact of noise at all potentially sensitive places, in particular, any places of work, residence, compared with objectives, standards to be achieved;
- proposals to minimise or eliminate these effects, including details of any screening, lining, enclosing or mounding, or timing schedules for construction and operations that would minimise environmental harm and environmental nuisance from noise and vibration; and
- assessment of the potential emission of low-frequency noise (noise with components below 200Hz) from the power stations, and necessary, measures to reduce the intensity of these components.

Acoustic modelling should be undertaken using monitoring data to predict and map noise contours arising from the proposed plant. Predicted noise levels should include the boundary of the site and nearest sensitive receptors. Predicted noise levels should be discussed with reference to the EPA Guideline, “Planning for Noise Control”, and should comply with:

- EPP Noise;
- *Australian Standard AS 1055.2 – 1997 Acoustics-Description and Measurement of Environmental Noise Part 2: Application to Specific Situations*;

- Department of Main Roads' *Road Traffic Noise Management: Code of Practice*; and
- World Health Organisation (WHO) *Guidelines for Community Noise* (including sleep disturbance criteria).

This section of the EIS should also provide comment, with reference to international standards, on the potential of Project construction and operation vibrations to impacts on adjacent infrastructure (e.g. the proposed Moranbah Ammonium Nitrate plant).

4.13 Waste

4.13.1 Waste Generation

This section should describe all sources of waste associated with construction, operation and decommissioning of the Project, including:

- chemical and mechanical processes conducted on the construction sites/camps (e.g. chemical storage, sewage treatment, power generation, fuel burning, mechanical workshop, fuel storage);
- the amount and characteristics of solid and liquid waste produced on-site;
- any waste treatment process, (including site drainage and erosion controls);
- likely run off/stormwater discharge points;
- proposed means for management of wastes produced under circumstances other than as a result of normal Project operation, including wastes generated during unusual conditions when the facilities are operating modification (e.g. chemical cleaning of the gas pipeline or power station components before commissioning or at start-up, maintenance, shut-down or modification); and
- hazardous materials to be stored and/or used on-site, (for each such hazardous material provide in an appendix the Material Safety Data Sheets, environmental toxicity data and biodegradability).

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

- generation points;
- storage methods and facilities;
- quantities;
- disposal arrangements; and
- recycling/reuse arrangements.

The EIS should provide details of any waste water output[1] including:

[1] Potential impacts to any aquifers, underground water flows and surface waters to be traversed by construction of the proposed works should be discussed in Section 4.3.2

- volume estimates of industrial and domestic effluent that will be produced at each Project site;
- quality of effluent produced; and
- any mobile sewerage facilities to be used.

4.13.2 Waste Management

Waste management strategies should incorporate measures to avoid waste generation where possible. Discussion should include waste reduction, reuse, recycling, storage, transport and disposal, including measures to minimise attraction of vermin, insects and pests.

Where wastes are to be disposed of off-site, details should be provided of:

- the name and location of the facility to which each waste will be sent for disposal;
- confirmation from each facility that it will accept the type, concentration and quantity of the nominated wastes;
- an assessment that the proposed facilities are capable of accepting this waste without creating an adverse environmental impact; and
- details that the transport of the wastes to the disposal facility will comply with all requirements of the relevant acts governing the transport of hazardous wastes.

4.14 Traffic, Transport Infrastructure and Access Arrangements

This section should analyse transport impacts during both construction and operation.

4.14.1 Description of Environmental Values

This section should describe existing infrastructure facilities within and adjacent to the Project area. The location and owner/custodians of all tenures, reserves, roads and road reserves, railways and rail reserves, stock routes easements and the like, covering the affected land should be shown. The locations and descriptions of all existing roads, railways, gas and water pipelines, power lines, telecommunications systems, constructed waterways, and any other infrastructure within the Project area, or likely to be affected by Project activities, should be provided. Any environmental values likely to be affected by this infrastructure should be described. Transport infrastructure also includes the transport operations that utilise that infrastructure.

Existing traffic patterns should be described.

4.14.2 Construction Transport Methods and Routes

This section should use of maps and data tables to discuss transport methods and routes for delivering construction equipment, other necessary goods and consumables and workforce transportation. Information should include:

- volumes, tonnage, and composition of construction inputs;

- hazardous or dangerous material that may be transported;
- method of transport (e.g. 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);
- the origin and destination of inputs and transport route proposed for each phase of the project construction and in particular, for the expected range and locations of workforce inputs and travel patterns;
- details of over-dimension, excess mass loads or any hazardous goods; and
- the timing and duration of transport.

The EIS should describe transport information for all stages of the project construction including:

- any new access requirements to State-controlled or local government roads; and
- full details of where the gas pipeline crosses road or rail reserves.

The EIS should provide sufficient details to allow Department of Main Roads (DMR), Queensland Rail and Queensland Transport to ascertain compliance with legislative and design requirements.

4.14.3 Construction Transport Impacts and Mitigation Measures

Assessment of impacts for the construction period should discuss:

- the likely impacts and mitigation strategies of increased traffic on local and regional road networks (with appropriate directional distributions), with reference to:
    - road safety issues on public roads, including danger from large transport vehicles, safe access to construction sites (e.g. consideration of the need for turning lanes, improved sight lines, waiting areas, off-road parking locations);
    - reduced efficiency of traffic flows on roads and intersections along key routes, during construction;
    - additional wear/reduced life of pavements requiring additional or accelerated rehabilitation and maintenance if any; and
    - social, amenity, environmental or cultural heritage impacts of transport not covered in other sections;
- the proposed traffic management arrangements and plans, especially within rural residential areas and steps to be taken to prevent public access to construction access ways not provided on public roads;
- specific issues related to construction phase activities such as:
    - site depot location and access;
    - construction traffic on local road networks, daily movement patterns and emergency access, especially in rural residential areas; and

- methods to be adopted to avoid obstruction to other road uses during construction; and

- 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.

Reference should be made to any relationship between Project road works and works proposed in the current Road Implementation Program(s) of the Department of Main Roads (DMR). Road infrastructure impacts should be described and assessed according to DMR's *Guidelines for Assessment of Road Impacts of Development Proposals (Nov 2000).* Reference should be made to other Main Roads planning documents. The EIS should discuss the results of consultation with the Central Queensland Region officers of DMR (located in Emerald, Mackay and Rockhampton) and the Belyando and Nebo Shires regarding the potential impacts of the Project on the road network.

Local traffic along shire roads adjacent to the proposed route will increase substantially as a result of construction activity. The Project will need to advise Councils if and when significant increases in vehicle use on minor roads is expected, and discuss rehabilitation strategies.

The impacts of any increased traffic (due to construction activities and/or on-going operations) on existing school bus routes and services should be discussed. Necessary measures to eliminate or minimise the impact on the operation of these services and any infrastructure proposed (such as bus pull-off areas) to maintain current safety standards should be presented.

A comparison of the traffic situation and road conditions with and without the Project should be shown. The EIS should include traffic management measures as part of a draft road use management plan that deals with mitigating the impacts of both the construction and operational phases of the Project on the road network. The draft Road Use Management Plan (RUMP) should cover issues related to traffic, operational performance, safety, and other aspects. The final version of the RUMP will form part of the Environmental Management Plan (or plans) as proposed in Section 5.

4.14.4 Operational Transport Impacts and Mitigation Measures

This section should describe the relevant transport impacts of the operation of the power stations and the gas pipeline, including any direct maintenance and servicing tasks associated with operations.

4.15 Health, Safety and Risk

4.15.1 Risk Assessment

The Proponent should carry out a Risk Assessment in accordance with appropriate parts of *AS/NZS Risk Management Standard 4360:1999*. The study should assess risks during the construction, operational and decommissioning phases. Where possible these risks are to be assessed in quantitative terms.

Possible hazards, accidents, and abnormal events that may arise for the project, both during construction and in operation on the health and safety of the community, workforce, suppliers and other stakeholders in relation to factors such as air emissions, odour, dust, pests, traffic, noise and vibration, waste and water, should be described. This should include accidents involving gas leaks, explosions and fires associated with such incidents, and interfaces with other infrastructure, and include health and safety matters associated with onsite and offsite workforce accommodation.

Details are to be provided of the safeguards which will be employed or installed to reduce the likelihood and severity of hazards, consequences and risks to persons, and fauna along the corridor. Where possible, the reduced level of risk which would be experienced with these safeguards in place should be indicated.

A comparison should be provided of the assessed and mitigated risks with acceptable risk criteria for land uses adjacent to the gas pipeline corridor and the power stations, including public roads and railways which border or cross Project sites.

Any impacts on the health and safety of the community, workforce, suppliers and other stakeholders should be detailed in terms of health, safety, quality of life from factors such as air emissions, odour, traffic, dust, waste and product handling and noise. This includes health and safety matters associated with onsite and offsite workforce accommodation. It should include details of:

- compliance with relevant Health and Safety legislation;
- security arrangements;
- emergency plans and safety management strategies, as well as corroboration of the effectiveness of such systems;
- details of on-site emergency response capabilities (e.g. on-site paramedic or first-aid officer), for both the construction and operational phases of the Project, which should include personnel trained for fire suppression and containment, rescue and first aid; and
- the location and nature of sensitive sites including, but not limited to, residences and schools, within the surrounding 10 kilometre radius.

Safety management strategies and control measures to be used to minimise the risks of incidents on site and to minimise the consequences of any incident under known operating conditions should be included in the EIS. This information should include:

- the handling of reworked or recycled material;

- the prevention and handling of fires on site;
- the segregation of incompatible products and ingredients;
- the containment of hazardous materials;
- the collection, treatment and disposal of any spillage of hazardous materials and wastes (provide details of the design, volume and capacity of any retention ponds, process tanks, waste holding tanks or bunded areas);
- the application of safety distances to the various activities on site to minimise consequences of incident;
- quality control of products and raw materials on site, including handling of non conforming material;
- maintenance of critical items of equipment and the training of operators of this equipment;
- emergency procedures, including evacuation procedures where necessary; and
- any special health and safety considerations with respect to:
    - any electromagnetic fields associated with the power station or the associated transmission lines to the substations; and
    - the interaction of the Moranbah Power Station with Dyno Nobel's proposed neighbouring Ammonium Nitrate plant.

The acceptability of the risk to surrounding land uses should be assessed by referring to nationally adopted risk criteria presented in the *New South Wales Department of Urban Affairs and Planning's Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 "Risk Criteria for Land Use Safety Planning*".

With regard to fires, the EIS should address:

- building fire safety measures for any construction or permanent accommodation;
- details of any changes to existing emergency response plans for surrounding mining operations and bushfire mitigation plans under the State Planning Policy 1/03 – "*Mitigating the Adverse Impacts of Floods, Bushfire and Landslide*";
- on-site fire fighting equipment provided and the level of training of staff (if any) who will be responsible for emergency management activities; and
- detailed maps showing the plant outline, hazardous material store, incident control points, fire fighting equipment, etc..

An assessment should be made of any areas where mosquitos may breed (e.g. areas with poor drainage or where water ponds) and mitigation measures developed to prevent the harbourage and breeding of mosquitoes and other pests of public health significance. The EIS should include a discussion on the site planning, management, mitigation and monitoring of potential pest impacts by considering Division 2 of Part 8 of the *Health Regulation 1996*. This section should also draw on the information in

Queensland Health's *Guidelines to Minimise Mosquito and Biting Midge Problems in New Development Areas (March 2002)*.

4.15.2 Emergency Management Plan

An outline of the proposed emergency management procedures is to be provided for the range of situations identified in the above risk assessment as providing 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;
- contingency plans to account for natural disasters such as storms, floods and fires during the construction, operation and maintenance phases;
- contingency plans to deal with gas leaks during operations;
- emergency planning and response procedures to deal with relevant incidents above, which have been determined in consultation with State and regional emergency service providers; and
- 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.

4.16 Greenhouse Gas Emissions

Greenhouse Gas Emissions should be described in the context of relevant protocols and agreements including:

- an inventory of projected future annual emissions for each Greenhouse Gas, both on-site and off-site, attributable to the Project, and for each component of the Project expressed as total mass CO_2 equivalents per annum and, if possible, as a percentage of Queensland and Australia's annual greenhouse gas emissions;
- the intended measures to avoid, minimise or offset greenhouse emissions, including any sink-enhancement activities;
- an analysis of comparable technologies, processes and equipment to demonstrate the degree to which the selected option minimises emissions; and
- intended audit and critical review procedures.

5. ENVIRONMENTAL MANAGEMENT PLANS

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

An EMP should provide life-of-proposal control strategies in accordance with agreed performance criteria for specified acceptable levels of environmental harm. In addition, EMPs should identify:

- potential impacts on environmental values;
- mitigation strategies;
- relevant monitoring;
- appropriate indicators and performance criteria;
- reporting requirements; and
- appropriate corrective actions, should an undesirable impact or unforeseen level of impact occur.

The aims of an EMP are to provide:

- commitments by the Proponents to practical and achievable strategies and design standards (performance specifications) for the management of the Project to ensure that environmental requirements are specified and complied with;
- an integrated plan for comprehensive monitoring and control of impacts;
- local, State and Commonwealth authorities, stakeholders and the Proponents with a common focus for approvals conditions and compliance with policies and conditions; and
- the community with evidence that the environmental management of the Project is acceptable.

An EMP should commit to manage, enhance or protect identified environmental values. The commitments should contain the following components for performance criteria and implementation strategies:

- environmental protection objectives for enhancing or protecting each relevant value;
- indicators to be measured to demonstrate the extent to which the environmental protection objective is achieved;
- environmental protection standards (a numerical target or value for the indicator), which defines the achievement of the objective; and
- an action program to ensure the environmental protection commitments are achieved and implemented. This will include strategies in relation to:

- continuous improvement;
- environmental auditing;
- monitoring;
- reporting;
- staff training; and
- a decommissioning program for land proposed to be disturbed under each relevant aspect of the proposal.

6. CONCLUSION AND RECOMMENDATIONS

The EIS should make conclusions and recommendations with respect to the proposal, based on the studies presented, the EMPs and conformity of the proposal with ESD policy. This should include reference to proponent commitments for the management and operation of the project.

7. REFERENCES

All references used in the preparation of the EIS should be consistent and presented in a recognised format such as the Harvard standard (refer to the *Style Guide, Australian Government Publishing Services*). This standard lists references by presenting in the following order: author (date of publication) title, publisher and place of publication.

8. RECOMMENDED APPENDICES

8.1 Final Terms of Reference

The finalised Terms of Reference should be included as an Appendix to the EIS.

8.2 Site Plans

Site plans for the Project should be provided.

8.3 Statutory Permits and Development Approvals

A list of the statutory permits and development approvals required by the Project should be provided.

8.4 Consultation Report

A list of Advisory Agencies should be provided in a summary Consultation Report, which should also list the Commonwealth, State and local government agencies consulted, and the individuals and groups of stakeholders consulted. A summary of the issues raised by these groups, and the means by which the issues have been addressed, should be provided in the text of the EIS.

The EIS should summarise the results of the community consultation program, providing a summary of the groups and individuals consulted, the issues raised, and the means by which the issues were addressed. The discussion should include the methodology used in the community consultation program, including criteria for identifying stakeholders and the communication methods used.

Information about identifying affected parties (as defined by the EPBC Act (where applicable)) and interested and/or affected persons (as defined by the EP Act) should be included.

8.5 Study Team

The qualifications and experience of the study team and specialist sub-consultants should be provided.

8.6 Research Reports and Specialist Studies

Relevant supporting data and information generated from specialist studies undertaken as part of the EIS are to be included as appendices. These may include:

- geology;
- soil survey and land suitability studies;
- land use and land capability studies;
- waterway hydrology;
- groundwater;
- flora and fauna studies, including the subregional analysis of representativeness and adequacy of protection for the terrestrial/riparian vegetation communities and their component flora and fauna taxa within the affected areas;
- an integrated assessment of relative biodiversity/conservation values, based on the methodology outlined in Biodiversity Assessment and Mapping Methodology (EPA 200);
- air pollution, noise and vibration;
- transport and traffic studies;
- economic studies; and
- hazard and risk studies.

8.7 List of Proponent Commitments

A list of commitments made by the Proponent in the EIS should be provided, together with a reference to the relevant section of the EIS.