



Planning

**MAJOR PROJECT ASSESSMENT:
Young to Wellington Gas Pipeline
Central West Region of New South Wales
(MP 09_0143)**



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

February 2011

Cover Photograph: Pipe stringing within a project corridor

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ABBREVIATIONS

AHIMS	Aboriginal Heritage Information Management System
BVT	Broad Vegetation Type
CMT	Culturally Modified Tree
CSP	Construction Safety Plan
DECCW	Department of Environment, Climate Change and Water (formerly DECC)
Department	Department of Planning
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning
DOC	Depth of Cover
EA	Environmental Assessment
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
ESP	Emergency Safety Plan
FHA	Final Hazard Assessment
I&I	Department of Industry & Investment
ICNG	Interim Construction Noise Guidelines
INP	NSW Industrial Noise Policy
KP	Kilometre Point (distance in kilometres from Young gas hub)
LALC	Local Aboriginal Land Council
MD SEPP	<i>State Environmental Planning Policy (Major Development) 2005</i>
MHU	Major Hazards Unit
Minister	Minister for Planning
MSP	Moomba Sydney Pipeline
NGLG	Noise Guideline for Local Government
NOW	NSW Office of Water
PAC	Planning Assessment Commission
Part 3A	Part 3A of the <i>Environmental Planning and Assessment Act 1979</i>
PEA	Preliminary Environmental Assessment
PHA	Preliminary Hazard Assessment
PPR	Preferred Project Report
Proponent	ERM Power Pty Ltd
RBL	Rating Background Level
SAOP	Safety and Operating Plan
TSC Act	<i>Threatened Species and Conservation Act 1995</i>

EXECUTIVE SUMMARY

ERM Power Pty Ltd (the Proponent) proposes to construct a 219 kilometre natural gas pipeline running in a south-north direction from the Young gas hub on the Moomba Sydney Pipeline (MSP) to the Wellington Gas Fired Power Station, which has been approved separately but has not yet been constructed. The Young to Wellington Gas Pipeline would traverse four local government areas: Young, Cowra, Cabonne and Wellington.

On 11 May 2009, the Director-General of Planning, as delegate of the Minister for Planning, formed an opinion that the project is a development of a kind described in Schedule 1 of the *State Environmental Planning Policy (Major Development) 2005*, namely development for the purposes of a pipeline in respect of which a licence is required under the *Pipelines Act 1967*. It is, therefore, a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* applies. Consequently, the Minister for Planning is the approval authority for the project.

On 18 November 2008, the then Minister for Planning delegated her approval functions under Section 75J of the EP&A Act (in relation to project applications) to the Planning Assessment Commission (PAC) in the case where a statement has been made disclosing a reportable political donation, where an application is made in the Minister's electorate, or where the Minister has a pecuniary interest in the development. The Proponent has provided a statement indicating it has made a political donation. Consequently, the project application is subject to determination by the PAC.

The Young to Wellington Gas pipeline would connect to the Wellington Gas Fired Power Station which received approval from the Minister on 4 March 2009 (MP 06_0315). That approval included a 100 kilometre pipeline to connect to the Central West Pipeline which runs between the MSP and Dubbo. A modification was approved on 7 September 2010 to enable the power station to expand from a peaking plant operating at a 5% annual capacity to an intermediate plant with 40% capacity. The Young to Wellington gas pipeline would provide a direct connection to the MSP for the power station, enabling expanded gas flows and avoiding capacity constraints that may result from increased demand being placed on the Central West Pipeline.

The Proponent's Environmental Assessment was publicly exhibited from Thursday, 10 June 2010 until Tuesday, 13 July 2010. The Department received a total of 14 submissions, seven of which were public submissions with the remainder from NSW public authorities including: the NSW Department of Environment, Climate Change and Water, the NSW Office of Water, Industry and Investment NSW, Roads and Traffic Authority, Young Shire Council, Cowra Shire Council and Cabonne Council.

The key environmental issues associated with the project include: hazard and safety, ecological impacts, Aboriginal heritage and construction noise. Submissions on the project reflected these issues but also raised concerns in relation to land use conflict, geological issues, subdivision potential, project justification, impact on property values and consultation.

The Department has assessed the Proponent's Environmental Assessment, Submissions Report and Statement of Commitments and submissions received from public agencies and the community regarding the project. On balance, the Department considers the project to be justified and in the public's interest.

The Department has also drafted a recommended instrument of approval incorporating stringent and comprehensive environmental mitigation and management requirements to enhance commitments made by the Proponent in its Statement of Commitments. Therefore, the Department considers that the project should be approved, subject to the recommended conditions of approval and the Proponent's Statement of Commitments.

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1. BACKGROUND

ERM Power Pty Ltd (the Proponent) proposes to construct the Young to Wellington Gas Pipeline. The project comprises a 219 kilometre long buried high-pressure gas pipeline that would provide a direct connection to the Moomba Sydney Pipeline (MSP) north of Young for the yet to be constructed Wellington Gas-Fired Power Station, approximately 3 kilometres to the north-north-east of Wellington, on the Gulgong Road (Figure 1-1).

Figure 1-1: Project Location

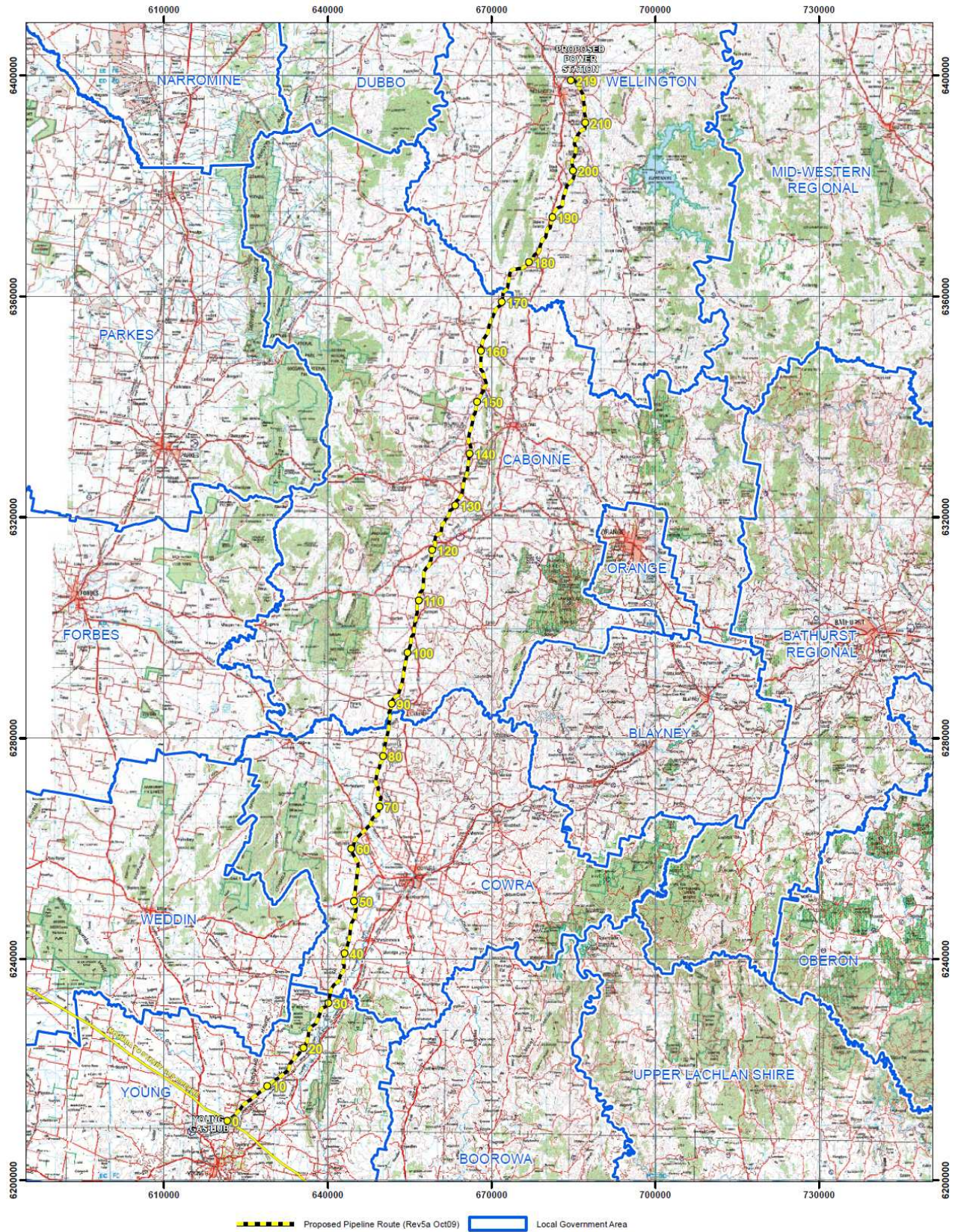


The route is located a linear corridor 100 metres wide to allow for realignment in response to site specific constraints. The vast majority of the pipeline corridor occurs within land used for agricultural purposes (cropping, grazing).

The route has been chosen as far as practicable to avoid significant vegetation, dwellings, public land, sensitive waterways, known heritage sites, known threatened species, endangered ecological communities, towns or villages, infrastructure, steep land, known caves and pre-existing land uses.

The pipeline would cross nine major watercourses as well as road and rail infrastructure. The project will traverse the Young, Cowra, Cabonne and Wellington Local Government Areas. (Figure 1-2)

Figure 1-2: Pipeline Route

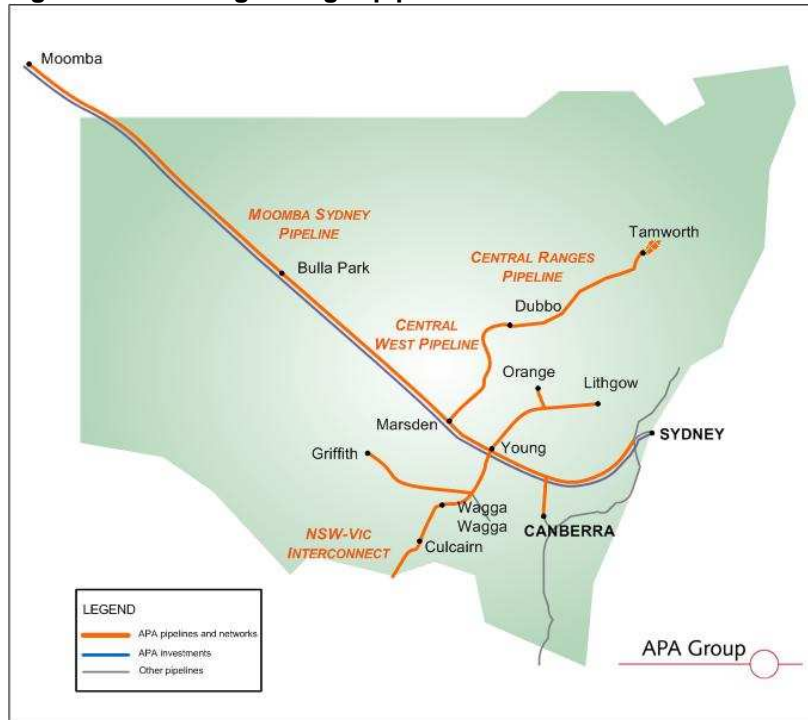


2. PROPOSED PROJECT

2.1. Project Description

The project involves the construction and operation of a high-pressure natural gas pipeline 219 kilometres in length between the MSP at Young and the Wellington Gas-Fired Power Station. Young is a major gas hub in NSW as the pipeline network diagram (Figure 2-1) illustrates:

Figure 2-1: Existing NSW gas pipeline network



The high density polyethylene (HDPE) pipeline would be buried at a minimum depth of 0.75 metres. This would increase to 1.2 metres in places such as crossings and where the alignment runs in closer proximity to dwellings. The pipe would have a maximum diameter of 508 mm (406 mm – 508 mm) and have a maximum design and operating pressure of 15.3 Mega Pascal and minimum operating pressure of 2.5 Mega Pascal. The pipeline would be built to *Australian Standards 2885 Pipelines Gas and Liquid Petroleum*. Other associated infrastructure includes:

- Approximately seven mainline valves (using the Semi-rural classification of 30 kilometre intervals)
- Marker posts – generally at 200 metre intervals with additional location requirements as per AS 2885 (clause 4.4)
- Cathodic test points

Construction

The total construction time is expected to be between four and five months. The pipe would be laid at a rate of approximately two to three kilometres a day. A peak construction workforce of between 200 and 250 people is expected during the construction period. Up to two construction camps may be required, to reduce travel times and accommodate the various construction activities spread out over the pipeline length, although some workers may also be accommodated in various towns along the route. Construction activities would involve the following:

- Ancillary facilities would be set up or constructed on the route. These include compound sites, laydown yards, site offices and construction camps.
- Pipes would be delivered to laydown yards.
- A 30 metre construction corridor would be cleared, levelled and graded using graders, excavators and bulldozers. This width may vary depending on site constraints (eg. narrower in sensitive areas or widened near watercourses for stockpiling of vegetation).
- Pipes are laid out (strung) along the construction corridor in continuous lengths or strings in preparation for welding.
- A trench is excavated to an appropriate depth (minimum 0.75 metres). This may be increased at roads, railways and in close proximity to residences, farm tracks that support heavy machinery and or traffic, areas of deep farm ripping, crossing of existing buried services and infrastructure, deep drains and waterway crossings as required. Breaks in the trench would be left to facilitate stock and wildlife crossing and vehicle movements.
- Pipes are welded together into strings, typically 1 – 1.5 kilometres in length.
- Joined pipe lengths are lifted, inspected and lowered into trenches using side-boom tractors or excavators. Pipes may be laid on sand bags or other supports in the trench.
- The trench is backfilled using subsoil stockpiled on the construction corridor. Backfill is compacted in the trench between layers. Pre-existing contours are then re-shaped across the corridor and stockpiled topsoil reinstated.
- Once the pipe is laid and the trench backfilled, hydrostatic testing is undertaken by pumping water through the pipeline at a pressure greater than the maximum operating pressure to verify the integrity of the pipeline. This is done in isolated sections between valves and the water re-used for the next section of pipeline.

Figures 2-2: Clockwise from top left: Pipeline laying (top 2), Compacting, Backfilling



2.2. Project Need and Justification

The current expansions of the State's energy generating capacity as recommended by the 2007 Owen Report into electricity supply has seen the development of additional gas-fired power stations in various locations around NSW. The choice of gas as a fuel source is based on its ability to provide timely energy supply during times of peak generation demand. Gas also produces less greenhouse emissions than coal and is therefore in line with the NSW State Plan to reduce the State's emissions by 60% by 2050.

The 2010 Electricity Statement of Opportunities (ESOO) has predicted that additional electricity generating capacity would be required by 2016/2017 to ensure on-going supply within acceptable reliability standards. This date has been pushed outwards since the Owen Report of three years ago with demand met partly by an increase in existing generation capacity and the addition of new local generation, plus a lower economic growth outlook and some allowances made for residential energy demand reduction measures. However, this has been offset by recent higher demand forecasts, based on a faster than anticipated recovery from the global financial crisis.

Renewable energy developments are likely to play an important role in the provision of sustainable energy to address the State's demand into the future. However, despite a number of approved and proposed renewable energy projects in NSW, the implementation is not being taken up at a rate sufficient to fully address predicted energy generation shortfalls. Furthermore, renewable energy projects such as solar and wind farms operate intermittently and generally do not satisfy peak energy demands. Gas-generated power has the potential to back up intermittent renewables during times of peak demand.

The Young to Wellington Gas Pipeline would form part of the Wellington Gas-Fired Power Station operation which received approval from the Minister for Planning on 4 March 2009 (MP 06_0315). This approval was for a peaking plant expected to operate at a 5% capacity factor, comprising four x 150 Megawatt Gas-fired turbines generating a nominal total capacity of 600 Megawatts, the construction of a 100 kilometre gas pipeline to connect to the Central West Gas Pipeline at Alectown, north of Parkes, and associated infrastructure.

On 7 September 2010, the Director, Infrastructure Planning, as delegate to the Minister for Planning, granted approval for the modification of the development (MP 06_0315 MOD 1). The modification enables the installation of two x 225 Megawatt Seimans 400 F gas-fired turbines as a possible alternative to the four x 150 Megawatt units, and to allow the power station to operate as an intermediate plant with an annual capacity of 40%.

ERM Power concluded that it would be more efficient to obtain gas directly from the gas hub at Young rather than via the Central West Pipeline. There is also concern that an increase in gas demand from customers along the Central West and Central Ranges Pipelines to Tamworth could further restrict the gas flow into the proposed Alectown Pipeline. The proposed pipeline would have a larger diameter (406-508 mm) than the approved Wellington to Alectown line so it can flow the expanded quantities of gas necessary, compared with the existing Central West Pipeline (219.1 mm) between Marsden and Alectown.

3. STATUTORY CONTEXT

3.1. Major Project

The proposal is a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it is development for the purpose of a pipeline in respect of which a licence is required under the *Pipelines Act 1967* under clause 26A of Schedule 1 of *State Environmental Planning Policy (Major Development) 2005*. Therefore the Minister for Planning is the approval authority.

3.2. Planning Assessment Commission

The Minister for Planning is the approval authority for the project. On 18 November 2008, the then Minister for Planning delegated her approval functions under Section 75J of the EP&A Act (in relation to project applications) to the Planning Assessment Commission (PAC) in the case where a statement has been made disclosing a reportable political donation, where an application is made in the Minister's electorate, or where the Minister has a pecuniary interest in the development. The Proponent has provided a statement indicating it has made reportable political donations (Appendix D). Consequently, pursuant to the Minister's delegation of 18 November 2008, the project application is subject to determination by the PAC.

3.3. Permissibility

The project is located in the Young, Cowra, Cabonne and Wellington local government areas. Within Young, the gas pipeline is situated on land zoned RU1 – Primary Production under the *Young Local Environmental Plan 2010*. Within Cowra, the pipeline is located on land zoned 1(a) Rural Zone under the *Cowra Local Environmental Plan 1990*. Within Cabonne, the pipeline is situated on land zoned 1(a) General Rural under the *Cabonne Local Environmental Plan 1991*. Within Wellington, the pipeline is situated on land zoned 1(a) Rural under the *Wellington Local Environmental Plan 1995*. The proposal is considered permissible with consent in these zones as it is a “public utility undertaking” within the respective Local Environmental Plans. Notwithstanding the local environmental plan provisions, the project is also considered permissible without consent under *State Environmental Planning Policy (Infrastructure) 2007*, by virtue of clause 53(1). This clause provides that a gas pipeline may be carried out without consent on any land if the project is subject to a licence under the *Pipelines Act 1967*. This licence will be sought by ERM Power prior to construction.

3.4. Environmental Planning Instruments

There are no environmental planning instruments that substantially govern the carrying out of the project.

3.5. Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act:

(a) *to encourage:*

- (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
- (iii) *the protection, provision and co-ordination of communication and utility services,*
- (iv) *the provision of land for public purposes,*
- (v) *the provision and co-ordination of community services and facilities, and*
- (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) *ecologically sustainable development, and*
- (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Of particular relevance to the environmental impact assessment and determination of the subject project are those objects in section 5(a). The relevant objects are stipulated under (i), (ii), (iii), (vi) and (vii) (noting that the proposal does not raise significance relating to land for public purposes, community services and affordable housing).

In addition to the above, the agency and community consultation undertaken as part of the assessment process (see section 4) address objects 5(b) and (c) of the Act.

3.6. Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- (a) *the precautionary principle,*
- (b) *inter-generational equity,*
- (c) *conservation of biological diversity and ecological integrity,*
- (d) *improved valuation, pricing and incentive mechanisms.*

The Department's assessment has given due consideration to ESD in its assessment as demonstrated by the following:

- the Department's assessment of the need for the project (section 2.2) has considered the benefits in helping to secure less greenhouse gas-intensive fuel resources, which are consistent with the principle of inter-generational equity;
- the Department's assessment of the cultural heritage impacts of the project (section 5.3) is based on a conservative and rigorous assessment of the likely extent of impacts and measures to avoid, register and preserve cultural heritage

items, which are consistent with the precautionary principle and the principle of inter-generational equity;

- the Department's assessment of the ecological impacts of the project (section 5.2) is based on a conservative and rigorous assessment of the likely extent of ecological impacts and likely offset requirements to ensure that appropriate and adequate measures are put in place to prevent threats of serious or irreversible environmental damage, consistent with the precautionary principle and the principle of the conservation of biological diversity and ecological integrity;
- the Department's assessment of key issues (section 5) has considered the requirement for appropriate contingency strategies to offset impacts in relation to gas pipeline hazards, cultural heritage and flora and fauna which are consistent with the precautionary principle;

3.7. Statement of Compliance

In accordance with section 75I of the EP&A Act, the Department is satisfied that the Director-General's environmental assessment requirements have been complied with.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment (EA) of an application publicly available for at least 30 days. After accepting the EA, the Department publicly exhibited it from 10 June 2010 until 13 July 2010 (34 days) on the Department's website, and at the following exhibition locations:

- Department of Planning's head office in Sydney
- Wellington Council
- Wellington Library
- Cabonne Council (Council offices at Bank Street, Molong and at Main Street, Cudal)
- Canowindra Library
- Cowra Shire Council
- Cowra Public Library
- Young Shire Council (Council's temporary offices at Short Street Young and at Boorowa Street Young)
- Young Library
- Nature Conservation Council in Sydney

The Department also advertised the public exhibition in the Wellington Times, Cowra Guardian and Young Witness on 9 June 2010 and 23 June 2010 and the Molong Express on 10 June 2010 and 24 June 2010 and notified relevant State and local government authorities in writing.

The Department received 14 submissions during the exhibition of the EA – seven submissions from public authorities and seven submissions from the general public.

A summary of the issues raised in submissions is provided below.

4.2. Public Authority Submissions

Seven submissions were received from public authorities: Department of Environment, Climate Change and Water, NSW Office of Water, Industry & Investment NSW, Roads and Traffic Authority, Young Shire Council, Cowra Shire Council and Cabonne Council. None of the agencies objected to the proposal, however, raised issues for the Department's consideration.

Submissions from State Government Agencies

Department of Environment, Climate Change and Water (DECCW)

- Aboriginal heritage
 - raised concern that 4.4% of the easement is yet to be surveyed due to access issues;
 - recommended that a suitably skilled and qualified archaeologist assisted by representatives of the registered Aboriginal stakeholders be present prior to and during construction to identify if significant Aboriginal objects are at threat from the proposal;

- any significant Aboriginal objects at threat from the proposal must be recorded and registered in the AHIMS database and suitable protective measures are to be determined;
- if avoidance cannot be made then a suitable salvage programme should be implemented;
- if no objects are visible prior to construction then request that the archaeologist be present to monitor works for subsurface objects in areas that have been identified as these areas are likely to have evidence of Aboriginal occupation;
- Pollution control
 - highlighted the issue of dust from unsealed roads;
 - raised the issue of management and mitigation measures for when the pipes once laid are grit blasted and a protective coating applied;
 - raised concern regarding potential noise and rock blasting during construction;
 - ensure a complaints system is in place and a timely response to noise complaints;
 - ensure that appropriate waste and chemical management measures are undertaken;
- Ecology
 - noted potential loss of biodiversity values and recommended the use of the Biobanking Assessment methodology to assess and determine specific offset requirements;
- Water
 - noted the methods of crossing waterways; and
 - highlighted the issue about the ability to adequately control erosion and sedimentation.

Industry & Investment NSW (I&I)

- Mineral Issues
 - noted that all current mineral title holders along the pipeline route had been contacted and that ongoing consultation will take place. Further liaison with I&I is required to finalise the pipeline route and in order to maintain access to a potential limestone resource near Gregra;
- Fisheries
 - stated that there should be no net loss of key fish habitats. The development must comply with the requirements of the *Fisheries Management Act 1994* (aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A respectively) and the associated Policy and Guidelines for *Aquatic Habitat Management and Fish Conservation (1999)*;
 - noted that waterway crossings should be in accordance with the I&I guideline *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings*. I&I will need to be notified for the construction and removal of temporary structures for the 177 waterway crossings;
 - raised concerns about the potential loss of riparian vegetation at waterway crossings. Any loss will require rehabilitation/replanting within the riparian zone and should include a compensatory habitat at a ratio of 2:1; and

- requires that I&I be consulted at detailed design stage regarding horizontal directional drilling (HDD) over major waterways including the Macquarie, Belubula, Bell and Lachlan Rivers and Bourimblah and Booree Creeks.

NSW Office of Water (NOW)

- Require a geomorphic and ecological assessment of all watercourses that are to be impacted by the pipeline construction and an assessment of riparian vegetation and weed infestation; presence of threatened species or ecological communities; identification of any groundwater dependent ecosystems and aquatic habitat for fish and macro invertebrates; water quality; environmental and base flow requirements and landholder usage.

Submissions from Local Government

Young Shire Council

- raised no objection to the proposal, but provides comments;
- require that all road crossings be undertaken using underboring in accordance with Council's policy "Water Services – Beneath Road (Rural Roads)";
- request that prior to commissioning of the pipeline, that a works as executed plan showing the location of the pipeline be submitted to Council;
- note that there are 15 dwellings along the pipeline route that do not comply with the recommended minimum separation distance from the pipeline and request that if any of these dwellings are within the Young Shire, that details of these dwellings be provided to Council together with a copy of the Final Hazards Analysis (FHA);
- require that any new vehicle accesses (temporary or permanent) be approved by Council prior to work commencing on the access, following lodgement of an application under the Roads Act 1993 and receipt of approval; and
- note that water is required for dust suppression, camp facilities and hydrostatic testing and that water is sourced from town water supplies, bores, dams or watercourses. Council does not have a reticulated supply in the area of the proposed pipeline. However, Cowra Shire Council supplies water to both the villages of Bendick Murrell and Koorawatha, which are located in Young Shire in the general vicinity of the pipeline.

Cowra Shire Council

- did not state a specific position, but provided comments;
- require that Cowra Shire roads be underbored. Where this is not possible, Council require the Proponent or its construction contractor to provide a report to Council setting out the particulars of the site, the reasons why it cannot be underbored and obtain relevant approvals under the Roads Act 1993;
- would prefer all rivers, creeks and waterways to be tunnelled. Where this is not possible, provide Council with a copy of the site specific assessment including reasons for the inability to tunnel;
- all water supply pipelines being identified by the Proponent and consultation undertaken with Council prior to commencement of gas pipeline installation;
- request further information from the Proponent to determine the need for a construction camp. Council prefers the pipeline workforce to be accommodated within existing towns located along the pipeline corridor; and

- the Statement of Commitments to include a maintenance period of 24 months whereby the applicant is responsible for the management of weeds, soil erosion etc.

Cabonne Council

- Council generally supports the proposal;
- note that there may be property owners of rural land within proximity to the proposed pipeline who currently have subdivision approvals that are yet to be enacted upon; and that there may be additional subdivision patterns to be identified beyond those identified by use of land mapping systems; and
- note the pipeline's close proximity to the townships of Canowindra, Cudal, Manildra, Molong and Cumnock and is keen to identify and discuss any potential for offtakes to be provided at each of these locations for potential future servicing of these communities, and in particular, the major industrial businesses presently established at Manildra.

4.3. Public Submissions

Of the seven public submissions received, five objected to the project and two did not object but raised concerns. The key issues raised in public submissions are listed in Table 4-1.

Table 4-1: Summary of Issues Raised in Public Submissions

Issue	Raised by Submission No:
Hazard issue: 15 dwellings are inside the distance determined by the hazard evaluation to be safe.	1, 5, 6
Hazard issue: It is unclear whether landholders will need to make a declaration of toxic materials when selling a property storing SEPP 33 toxic materials. It is unclear what the responsibilities of a landholder are under the <i>Contaminated Land Management Act</i> for storing SEPP 33 hazardous material in a pipeline that runs through their property.	6
Hazard issue: Proponent should justify the incorporation of gas storage capacity. Large pipe limits the length of sections of the route where low-impact, narrow-disturbance techniques can be used to reduce the impact on affected land owners.	6
Decommissioning: Problems caused by subsidence once pipeline is abandoned after decommissioning, evidence by the commitment to fill sections under roadways with concrete. The risk to ERM will be reduced as they will have rescinded the easement and will no longer have responsibility for the abandoned pipe. The risk matrix for post abandonment should be ranked as "very high".	6
Deliberate Damage: Potential for deliberate damage to pipeline through terrorism, making landowners effectively a target.	6
Land use conflict – farming practices: Impact of pipeline construction and operation on farming activities – prime agricultural land used to grow vegetables and lucerne crops, grain cropping, deep ploughing and deep ripping to turn ground over every year. This may necessitate a minimum 1.2 metre Depth of Cover (DOC) The EA demonstrates an ignorance of farming practices along the route. The route should avoid category 1 and 2 agricultural land and the desired minimum cover should be 2 metres on all categories 1, 2 and 3 land.	2, 5, 7
Land use conflict – land rehabilitation: Pipeline is incompatible with current and future land rehabilitation (revegetation) activities, including a transition of	6

Issue	Raised by Submission No:
farming activities to organic status, the on-farm policies of minimum vehicle movement to prevent soil compaction and a no-till policy to preserve soil structure that is incompatible with the pipeline construction.	
Land use conflict – ecology: The proposed pipeline cuts through a 940 metre long rehabilitation and fauna route which has already been established and will prevent the completion of revegetation of native species along this route. Proposal will remove 8 mature trees from our property and cut through fossiliferous limestone outcrops that form habitat for lizards on the property. The pipeline route cuts through a tree lot which hosts potential habitat for the Superb Parrot.	6
Land use conflict: Impact on private infrastructure including irrigation mains, power cables, water pipes, Telstra lines. Eg. if the pipeline cuts irrigation mains and stock cannot be watered, this will have a huge impact on farming activities.	6
Land use conflict: Pipeline should be located on adjoining Crown land that is used for grazing, rather than land used for cropping. Pipeline should use alternative, existing easements rather than private land including an extensive network of north-south road reserves.	5, 6
Land use conflict – property values: The presence of the pipeline is inconsistent with the objectives of the farm business that has undertaken revegetation programmes with an organic focus. Easement compensation will not cover the cost of this and will reduce the saleability of the property to the green-oriented demographic of potential purchasers. Pipeline has the potential to reduce the value of small land holders, particularly considering the liabilities associated with an abandoned corroding pipeline.	6
Subdivision: Pipeline will be a major determining factor in realising subdivision potential with the opportunity cost to be born by landholders.	4, 7
Ecological issue: weed management and appropriate rehabilitation to curb erosion and weed germination.	2, 6
Objection to pipeline being constructed through property (no reason given).	3
Geological issues: Land subsidence post-decommissioning of pipeline.	6
Geological issue: The pipeline crosses a north-east to south-west trending fault with an estimated 1 km sinistral offset (as indicated by a straightening of an otherwise meandering creek). The pipe crosses the fault from unconsolidated soil on the south-east side to solid limestone on the north-west side. This will ensure that any further movement along this fault will shear the pipe and cause catastrophic failure.	6
Geological issues: Pipeline is located in the Garra Formation – an area of fossiliferous limestone which hosts the Wellington Cave System. Concern that any leaks from the pipeline would react with groundwater to produce sulphuric acid which would rapidly dissolve the surrounding limestone.	6
Geological issues: Pipeline traverses an area known to contain voids.	6
Construction Noise: Impact of impulse noise on farming activities (eg. handling cattle and horses)	7
Justification: Justify the gas storage capacity and the 508 mm diameter of the pipeline.	7
Justification: The purpose of the pipeline is to fuel the gas-fired Wellington Power Station which has approval as a peaking plant, with a modification application to operate at a higher utilisation (since approved by the Department of Planning). Justification for the gas pipeline is based on a flawed justification for the power station that did not consider more environmentally acceptable	6

Issue	Raised by Submission No:
renewable energy alternatives (eg. solar thermal technology).	
Soil Erosion: Soil is light sandy clay loams susceptible to soil erosion. The EA should include erosion and sediment control measures and assess the extent of highly erodible soils.	7
Consultation: Objection to the method of consultation and poor communications from the Proponent and their Consultants.	6, 7
Consultation: A resident was advised that the pipeline may need to be relocated to accommodate their dwelling that had not been identified on satellite maps. There is a sense of being unable to move forward with the development of a land holding while the precise location of the pipeline inside a 5 hectare holding is unknown.	1

4.4. Proponent’s Response to Submissions

The Proponent provided a response to the issues raised in submissions (see Appendix C). The Department’s consideration of issues raised in public and agency submissions is summarised in table 4-2.

Table 4-2: Submission Issues

Issue	Department’s consideration
Hazards	Refer to Section 5.1
Ecological issues	Refer to Section 5.2
Aboriginal heritage	Refer to Section 5.3
Construction noise	Refer to Section 5.4
Justification	Refer to Section 2.2
Decommissioning	The Proponent has commented that decommissioning, as for all other aspects of pipeline design, construction and operation, is guided by Australian Standard AS 2885 <i>Pipelines – Gas and Liquid Petroleum</i> . Options have included suspension (ie. cap and fill with inert gas, with cathodic protection maintained) and abandonment (ie. pipe is disconnected, purged, plugged and left in situ). Removal is less frequently used due to the environmental impacts (similar to construction) and financial cost. Part 3 of AS 2885 has stringent requirements for pipelines post-decommissioning that do not enable the owner to simply walk away and include such measures as ongoing regular patrols and contact with landowners. The Proponent has committed to further address decommissioning issues in a Final Hazard Analysis.
Deliberate damage	Issues in relation to the potential for deliberate damage to the pipeline were addressed in the Proponent’s Submissions Report. The Department concurs with the finding that a deliberate attack (eg. terrorism) is considered highly unlikely particularly in such a remote location.
Land use conflict – ideological objection to hosting a gas pipeline and impact to property values	The Department’s consideration of the project justification has been assessed in section 2.2 of this report and included an assessment in relation to greenhouse gas issues and renewable energy developments. The construction impacts will be short-term and owners appropriately compensated for any disruption or loss of income that may result. During easement negotiations, property owners will also be invited to have a property valuation undertaken to assess whether there is any impact to property values resulting from an easement.
Land use conflict – farming practices; deep farm ripping; private infrastructure;	The Department is satisfied that the majority of farming practices (cropping and grazing) and a gas pipeline easement can coexist. The pipeline route has been chosen as far as possible to minimise

<p>alternative locations (road easements and Crown land); impact of construction noise on</p>	<p>environmental impacts. Areas of Crown land and road reserve are not automatically suitable locations for a pipeline easement, and present their own environmental issues (see Section 5.2 Ecological Impacts of this report). The Proponent has resolved to negotiate with landholders to manage the construction impact to farmers – eg. whether construction occurs around specific agricultural practices, greater depth of coverage is found to be appropriate, or minor adjustments are made to accommodate private infrastructure – and to compensate for any short-term or long-term impacts as a result of the project.</p>
<p>Subdivisions</p>	<p>The Proponent has resolved to seek a response from each property owner as to whether a subdivision is approved or in the process of being applied for. The Department is satisfied that subdivision potential cannot be predicted beyond existing zoning provisions outlined in relevant Local Environmental Plans, or those currently under review. Notwithstanding this, the presence of an underground pipeline does not preclude subdivision proposals, only that this will be an additional factor in their consideration.</p>
<p>Geological issues – pipeline leaks</p>	<p>The Proponent's hazard consultant provided additional information in response to concern raised in relation to pipeline leakage and resulting impacts. The hazard assessment notes firstly that the likelihood of pinhole leaks is considered to be low and would be unlikely to remain undetected for an extended period of time such that it would dissolve underlying limestone. Pipeline corrosion would be minimised by cathodic protection while pipeline patrols and pipeline gauging (intelligent pigging) would be routinely undertaken to test the structural integrity of the pipeline. Notwithstanding this, the low sulphur content of typical natural gas sources would also reduce the potential for acid impact in the event of a pipeline leak.</p>
<p>Geological issues – "Garra Formation" and potential voids</p>	<p>The Proponent has sought additional information from a geologist regarding the presence of subsurface voids through limestone that may threaten the integrity of the pipeline. Although the presence of karst features may be plausible, karst features are more likely to occur in areas where limestone is exposed at the surface. Were the pipeline to be routed near such features, further investigation would be warranted. However, to date no catalogued karst features have been found in the area of the proposed pipeline. Notwithstanding this, the Proponent has committed to investigate topological and geographical traits along the proposed pipeline route.</p>
<p>Geological fault</p>	<p>The Proponent sought additional information from a geologist in regard to the pipeline's proximity to a northeast-southwest trending fault with evidence cited from an offset in outcropping limestone ridges, a straightening of the path of a creek where it intercepts the inferred fault, and the presence of unconsolidated soil on the south-eastern side of the inferred fault. The geologist reported that given the roadside reconnaissance conducted, and with no such fault noted on geological maps jointly produced by the Australian Geological Survey Organisation and Geological Survey of NSW (a fault of such magnitude would warrant plotting on government mapping) no geological fault exists at the location given for the pipeline. Notwithstanding this, faults in western NSW are commonly accepted as being inactive and reactivation of such a fault is considered negligible. (A full account of the reasoning is in Appendix B of the Proponent's Submissions Report.)</p>
<p>Soil erosion</p>	<p>The Proponent shall be required to submit an Erosion and Sediment Control Plan as a Condition of Approval to establish management measures to mitigate erosion of all soil types.</p>
<p>Consultation</p>	<p>The procedures outlined by the Proponent in relation to public consultation and negotiation with landholders are considered satisfactory. The Proponent submitted a Landholder Consultation Report as part of the Environmental Assessment that outlined the consultation methodology and the common concerns raised by landholders. Of the 178 landholders along the pipeline route, 171</p>

	<p>(96%) agreed to provide access for further survey and seven refused access. The Department is satisfied that the Proponent made all relevant stakeholders aware of the proposed development and ongoing consultation is a necessary requirement for the development of the project. The Department has made recommendations that the Proponent continue to consult with relevant stakeholders, including affected landholders in finalising the route alignment.</p>
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5. ASSESSMENT

The Department considers the key environmental issues for the project to be:

- Hazard and Safety
- Ecological impacts
- Cultural Heritage
- Construction Noise

5.1. Hazard and Safety

As required by the Director-General's Requirements (DGRs), the Environmental Assessment included an assessment of the hazards and risks of the proposed project and presented this in the form of a Preliminary Hazard Analysis (PHA).

The proposed project is potentially hazardous. The main hazard identified is the loss of containment of the natural gas/methane followed by immediate or delayed ignition, resulting in:

- Jet fires (immediate ignition); or
- Flash fires (delayed ignition)

As part of the Department's assessment process for this project, the Major Hazards Unit (MHU) of the Department reviewed the PHA prepared by the Proponent. The MHU found that the PHA had been prepared based on a preliminary design and is consistent with the approach outlined in the Department's "Hazardous Industry Planning Advisory Paper No. 6" together with *Australian Standard AS 2885.1 Pipelines – Gas and Liquid Petroleum*.

The PHA has quantified the risks from the pipeline to the adjacent land uses based on calculated consequences and estimated frequencies. Results are presented as risk transects.

Table 9.1 of the PHA shows the minimum separation distances to specified individual fatality risk levels. The Department's MHU recommended that residences maintain a minimum separation distances of 240 metres from the pipeline at a depth of cover (DOC) of 750 mm to meet the Department's risk criteria. However, the MHU states that separation distances can be reduced with the use of additional safety measures such as an increased DOC and use of marker tape.

The Environmental Assessment has identified 15 dwellings within the minimum separation distance from the pipeline (200 metres based on 1200 mm DOC, 9 mm wall thickness and use of marker tape). The Proponent has resolved to provide additional safeguards such as concrete capping to reduce risks to nearby dwellings. Such specifications will be provided in a Final Hazard Analysis (FHA).

Consideration

The MHU considers that the risk transect appears to be appropriate for the pipeline. The frequencies are based on historical failure rates and appear reasonable. Potential impacts on the pipeline from bushfires and floods were assessed in the PHA and considered satisfactory.

The Department considers that the proposal would not present any hazard or safety risks that could not be appropriately managed to acceptable levels. In this regard, the Department recommends a range of conditions including:

- the Proponent be required to prepare and submit for the approval of the Director-General a Final Hazard Analysis (FHA) study, confirming that risk management measures will meet the Department's risk criteria at reduced separation distances from the pipeline;
- a Construction Safety Plan (CSP) also be submitted addressing the requirements of section 2.7 Construction and Commissioning of AS 2885.1;
- both the FHA and CSP must be submitted to the Department prior to the commencement of construction of the proposed project;
- the Proponent must provide details to the Department of the Safety and Operating Plan" (SAOP) in accordance with the requirements of AS2885.3 and an Emergency Safety Plan (ESP) prior to commissioning;
- the Proponent must submit for the approval of the Director-General, a report detailing compliance with the above recommendations (FHA, CSP, SAOP, ESP) including:
 - a) dates of study/plan/system completion, commencement of construction and commissioning; and
 - b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
 - c) responses to each requirement imposed by the Director-General; and
- the Proponent must comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the reports submitted in accordance with the recommended conditions, within such time as the Director-General may agree.

The Department's MHU concluded that the project can operate under acceptable safety levels, provided the Proponent implements all the nominated environmental commitments, safety measures and the abovementioned studies.

5.2. Ecological Impacts

An Ecological Assessment conducted as part of the Environmental Assessment identified biodiversity values along the proposed pipeline corridor, including the potential presence and impact of the Project on endangered ecological communities, threatened species and/or their habitat listed under the *Threatened Species Conservation Act 1995* (TSC Act), *Fisheries Management Act 1994* and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The assessment included both a desktop review of vegetation mapping and inspection of the pipeline corridor. Access was gained to all but one property.

The following flora features were noted in relation to the pipeline corridor:

- a search of the NPWS Atlas found nine threatened flora species listed under the TSC Act within a 30 kilometre radius of the pipeline. Seven of these species are also listed as threatened under the EPBC Act;
- there are no listed endangered populations of plants found in the vicinity of the proposal area;
- 15 weed species listed under the *Noxious Weeds Act 1993* were recorded. 14 of these were Control Class 4 which requires that growth and spread of these plants

must be controlled according to measures specified in a management plan by a local authority;

- according to vegetation mapping sourced from DECCW (DECC 2008), 15 vegetation communities - or Broad Vegetation Types (BVTs) - occur within 3 km of the route; and
- of these 15 BVTs, seven occur in close proximity to, or are likely to be directly impacted by the pipeline. They comprise: one area defined as woodland to open woodland; four as open forests; one defined as closed grassland (improved pasture); and one as cropland (oats, canola, lucerne). The latter two have no biometric classification and have very limited native vegetation (scattered eucalypts and occasional native grasses). Collectively these two comprise the majority of the route.

Six potential Endangered Ecological Communities (EECs) are considered to occur within 2 km of the proposed pipeline. Three were either mapped or observed within the proposal area: White Box Yellow Box Blakely's Red Gum Woodland; Inland Grey Box Woodland; and Sandhill Pine Woodland.

The pipeline intersects features of the White Box Yellow Box Blakely's Red Gum at two points. At Scenic Road – 2.5 kilometres from the Young gas hub (KP 2.5) – the pipeline would be bored under the road and all vegetation of this community retained.

However, an area of White Box woodland considered EEC under both the TSC and EPBC Acts would be impacted at KP 121.4 where it flanks the north and south side of The Escort Way. The pipeline may be bored under the road to a width of approximately 36 metres, however due to the remaining width of approximately 24 metres on the northern side of the road reserve an area of some 0.07 hectares of native grassland (no trees) would be removed. This impact may be lessened by reducing clearing widths at this sensitive location.

The following fauna features were noted in relation to the pipeline corridor:

- a search of the NPWS Atlas found 42 threatened fauna species listed under the TSC Act within a 30 kilometre radius of the pipeline. They comprise one amphibian, two reptiles and the remainder avifauna. Eight of these threatened species are also listed under the EPBC Act;
- the field inspection found two amphibian species, four reptile species, 90 bird species and 13 mammal species (of which ten are introduced);
- six threatened fauna species were recorded within the vicinity of the proposed pipeline: Brown Treecreeper, Diamond Firetail, Grey Falcon, Little Lorikeet, Superb Parrot, Flame Robin (listing being determined);
- three threatened fish species listed under the *Fisheries Management Act 1994* and one species (the Murray Cod) listed under the EPBC Act is also known to occur in the Lachlan and Macquarie catchments; and
- two aquatic EECs: the Darling River EEC and Lachlan River EEC occur in the area.

The Ecological Assessment concluded that the project area is unlikely to contain Core Koala Habitat. Some habitat trees were present (White Box and River Red Gums); however, there was no evidence of koala scats or scratches noted during the field inspection. Therefore, the provisions of the *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP 44) do not apply.

Almost the entire pipeline route occurs within agricultural land which has been historically cleared and modified. The pipeline area hosts few contiguous habitat areas of any significant size or connectivity. Vegetation provides stepping stone habitats for birds in paddocks and along road reserves while riparian vegetation along rivers provide better quality habitat along linear remnants. The Ecological Assessment has found that the proposal is likely to result in very little habitat loss.

While the best aquatic habitats were along the major rivers (Macquarie, Bell, Belubula and Lachlan) and better developed creeks (Booree Creek and Bourimblah), it is considered that construction is unlikely to compromise aquatic habitat when appropriate methods are used, such as Horizontal Directional Drilling (HDD), and open cutting in conjunction with appropriate erosion and sediment control measures.

Four submissions raised issues regarding ecological impacts: NOW, I&I and DECCW and one public submission. Issues were in relation to the assessment methodology that would be used in the final detailed design stage for water crossings; requirements for an offset for native vegetation loss; erosion and sediment control; and weed control. Concern was also raised in relation to the proposed route through a substantial area of private land where native vegetation rehabilitation has been undertaken. The Proponent has rerouted the pipeline on the subject property to avoid the rehabilitated areas.

The total area of native vegetation to be removed comprises:

- 0.07 hectares EEC (grassland only);
- two small areas of consolidated vegetation (not EEC) including: 0.6 hectares of Yellow Box Woodland at KP2.7 comprising approximately 10 mature trees; and open woodland of Yellow Box/Blakely's Red Gum at KP 9.2 comprising 8-10 trees – none of which contains hollows; and
- individual or sparsely scattered trees within road reserves, watercourse crossings and widely scattered (open woodland and paddock trees).

Consideration

The Environmental Assessment asserts that the pipeline route has been chosen to avoid areas of significant vegetation. These have included travelling stock routes and roadside vegetation, with a preference for short-term interruption to cropped and grazed land that can be mostly returned to their previous state following construction. The Department is satisfied with this approach.

Both DECCW and I&I (Fisheries) recommended the Proponent provide adequate offset areas to compensate for the loss of EEC and threatened species habitat. Given the fragmented and modified nature along the existing corridor, and limited impact to EECs, the Department considers that this is not warranted and that the use of specific measures of replanting, rehabilitation work and provision of roosting boxes would be adequate in achieving the outcome of "improve or maintain biodiversity values" which is in accordance with the *Principles for the Use of Biodiversity Offsets in NSW* guidelines (DECC 2008).

Disturbance to areas of contiguous riparian vegetation should be minimised as far as possible. As such, the Department has recommended a condition of approval that the four key rivers – Macquarie, Lachlan, Belubula and Bell Rivers – be crossed

using the HDD method. The Department considers that the remaining waterway crossings should be assessed by a geomorphologist for the appropriate crossing methods in consultation with the NOW and I&I (Fisheries).

Given the presence of weed species along the pipeline corridor, the Department considers weed mitigation measures to be a critical component of flora management during the construction of the Project. This has also been reflected in the requirements for a construction environmental management plan.

The Department considers that the implementation of mitigation measures that are proposed in the Environmental Assessment would reduce specific impacts of the project on flora and fauna. The Department is satisfied that the proposed pipeline corridor has been selected to avoid intact remnant or regrowth vegetation and that the overall impacts are acceptable and manageable especially with the implementation of mitigation measures outlined by the Proponent.

5.3. Cultural Heritage

An Aboriginal Cultural Heritage Assessment was undertaken as part of the Environmental Assessment and comprised of a desktop study and field assessment of the proposed corridor across a 100 metre wide easement. Seven properties along the route, equating to 9.8 kilometres of the proposed pipeline, were not able to be accessed for the field survey. The assessment was conducted in accordance with the draft *Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation* (DECC 2005).

The Environmental Assessment has noted that European land use activities – particularly land clearing, agricultural ploughing and trampling by grazing stock – would likely have destroyed the detailed archaeological context of many, if not most, Aboriginal heritage sites, particularly the earthen mounds, leaving only rare specimens.

The proposal crosses four Local Aboriginal Land Council (LALC) areas including Young LALC (10 km), Cowra LALC (86 km), Orange LALC (66 km) and Wellington LALC (57 km). An initial search on the Aboriginal Heritage Information Management System (AHIMS) database found 129 sites within 3 kilometres of the proposed pipeline alignment and no recorded sites within the proposed pipeline assessment corridor.

The results of the cultural heritage field survey were as follows:

- 18 new Aboriginal sites were identified in the field survey and registered with DECCW in the AHIMS database. These comprised 13 culturally modified trees and five open sites containing stone artefacts either isolated or in concentrations (see table 5-1 below);
- all sites are in the Wellington, Orange and Cowra LALCs. There were no sites recorded in the Young section;
- no potential archaeological deposits (PADs) were encountered during the survey;
- 11 of the sites are within the pipeline corridor, with the remainder more than 50 metres from the proposed pipeline alignment; and

- eight of the 11 sites – comprising three open sites and five scar trees – would require a slight adjustment of the proposed alignment to avoid the sites by the recommended 30 metres. These are highlighted in Table 5-1.

Table 5-1: New sites identified in project corridor and recommendations made in Cultural Heritage Assessment

No.	Site Name	AHIMS No.	KP	Distance to proposed alignment (m)	Within Pipeline Corridor	Route requires slight realignment	Specific recommendations in Cultural Heritage Assessment
1	Power Station CMT 1	36-4-0117	219.4	235	No	No	
2	Power Station CMT 2	36-4-0118	219.4	285	No	No	
3	Watson's Creek Open Site 1	36-4-0121	207.3	0	Yes	Yes	Although it was suggested by a GAC* site officer that the pipeline might proceed through part of the site, it is recommended that the site be avoided . Although somewhat eroded around the edges, the site is likely to maintain a relatively intact central portion over most of its original area, which is estimated to be 9,000m ² . The site should be fenced with orange flag fencing tied to star pickets. It should be possible to place the alignment between the site and Watson's Creek without disturbing either feature.
4	Cooyong old well CMT 2	36-4-0120	204.1	33	Yes	No	
5	Cooyong old well CMT 1	36-4-0119	203.5	20	Yes	Yes	There was agreement among GAC that CMT 1&2 be left as they are. It is recommended that the tree be avoided . For planning purposes the centreline of the alignment should come no closer than 30m to the trunk. In practice, the closest extent of the graded alignment should come no closer than 5m to the closest extent of the canopy. The tree is to be fenced with orange flagging fencing at a distance of 5m beyond the canopy.
6	Sunnyside CMT 1	36-4-0122	202.1	8	Yes	Yes	GAC placed high importance on this scar tree. It is recommended that the tree be avoided . For planning purposes the centreline of the alignment should come no closer than 30m to the trunk. In practice, the closest extent of the graded alignment should come no closer than 5m to the closest extent of the canopy. The tree is to be fenced with orange flagging fencing at a distance of 5m beyond the canopy.
7	Neurea Meadows Open Site	36-4-0123	194.7	37	Yes	No	
8	Baker's Swamp Ridge Open Site 1	36-4-0124	189.3	22	Yes	No	
9	Red Hill CMT 1	36-4-0125	181	20	Yes	Yes	It is recommended that the tree be avoided . For planning purposes the centreline of the alignment should come no

No.	Site Name	AHIMS No.	KP	Distance to proposed alignment (m)	Within Pipeline Corridor	Route requires slight realignment	Specific recommendations in Cultural Heritage Assessment
							closer than 30m to the trunk. In practice, the closest extent of the graded alignment should come no closer than 5m to the closest extent of the canopy. The tree is to be fenced with orange flagging fencing at a distance of 5m beyond the canopy.
10	Eurimbla CMT 1	36-4-0126	176.4	220	No	No	
11	Dora Creek CMT 1	44-1-0101	156	360	No	No	
12	Scenic Road CMT 1	44-1-0102	127.3	75	No	No	
13	Bourimblah Open Site 1	44-1-0103	111.7	0	Yes	Yes	Representatives of the Orange LALC noted the significance of the site, which was extensive near a creek. They recommended some form of collection if the site could not be avoided. The site should be avoided by the proposed pipeline alignment. It will continue to be affected by ploughing. It should be noted that the site has been disturbed by ploughing and is unlikely to contain sub-surface, in situ artefacts or features. The part of the site closest to the proposed alignment should be fenced with orange flagging fencing, supported with star pickets. Should it not be possible to avoid the site, mitigation should include collection and curation of the collected objects.
14	Back Mogong Road CMT 1	44-4-0363	92.5	20	Yes	Yes	The tree should be avoided. Although inside the recommended 30m buffer, it is situated within a small fenced area beyond the proposed alignment and is considered to be suitably protected as it stands.
15	Belubula Palaeochannel Open Site 1	44-4-0364	86.2	0	Yes	Yes	The site should be protected and avoided. The proposed alignment may cross the site boundary to a small degree, but the inspected corridor is wide enough to move the alignment a small distance to ensure that construction will not impact on the site. Land both sides of the site (west and east) was inspected closely to verify the site extent and boundary, and to allow planning for a slight deviation of the alignment to avoid the site. It is recommended that the site be fenced with orange flagging fencing. Although it is unlikely that any objects would be found during construction, it is recommended that should this occur, such objects should be placed in a convenient location within the site boundary.
16	North Logan Road CMT 1	44-4-0365	74	144	No	No	

No.	Site Name	AHIMS No.	KP	Distance to proposed alignment (m)	Within Pipeline Corridor	Route requires slight realignment	Specific recommendations in Cultural Heritage Assessment
17	Garrallan CMT 1	44-4-0366	67.8	3	Yes	Yes	The tree was highly valued by representatives who felt the tree should be left as it is . It is recommended that the trunk be fenced with orange flagging fencing to a distance of 20m, and the alignment avoid the tree.
18	Bendick Murrell CMT 1	50-3-0022	15	75	No	No	

* Gallangabang Aboriginal Council (Wellington section)

The Proponent has reviewed the 11 sites within the pipeline corridor and has confirmed that the pipeline can be realigned to avoid all eight sites that are in close proximity to the proposed route. The final location of the alignment, with consideration of all site constraints including heritage sites, would be confirmed during the detailed design stage of the project.

The Environmental Assessment has included measures to avoid or minimise harm to Aboriginal heritage including:

- avoidance of all identified sites;
- further consultation with relevant stakeholders;
- monitoring of the construction right-of-way to ensure site protection and to identify if any additional sites or objects are present;
- survey and undertake an impact assessment of land to which access was not granted (a non-contiguous total of 9.8 kilometres) prior to construction commencing; and
- contingency plans for unexpected events.

The Environmental Assessment reported that there are no recorded non-Aboriginal sites within the pipeline corridor.

DECCW's submission raised concerns that the final 4.4% of the easement had not yet been surveyed due to access issues. As such DECCW recommended that a suitably qualified and skilled archaeologist, assisted by representatives of the registered Aboriginal stakeholders, be present prior to and during construction. In its Statement of Commitments and Environmental Assessment Report, the Proponent has committed to the ongoing survey of the pipeline. The Department has also recommended that as part of the Construction Environmental Management Plan, the proponent detail procedures to deal with previously unidentified Aboriginal objects as part of a cultural heritage management plan.

Consideration

The Department is aware that the highly modified nature of the project area has significantly impacted and destroyed many Aboriginal heritage sites. Notwithstanding this, newly identified Aboriginal sites are located along or adjacent to the pipeline corridor. The Department is satisfied that the implementation of identified management measures would minimise direct and indirect impacts occurring on these archaeological sites during construction of the project.

Specific measures to monitor and manage Aboriginal heritage impacts, including induction processes for construction personnel, procedures for ongoing consultation

and procedures for continued assessment of the unsurveyed sections of the pipeline, have been recommended to be included in an Aboriginal heritage management plan as part of the Construction Environmental Management Plan for the project.

The Department acknowledges there may still be some items of cultural heritage significance that were not uncovered by the field survey as well as in areas not surveyed. As such the Department has recommended that procedures for dealing with previously unidentified Aboriginal objects be incorporated into the Aboriginal heritage management plan that includes halting of construction works, assessment of the significance of the item and determination of appropriate mitigation measures by a qualified archaeologist in consultation with registered Aboriginal stakeholders, registering the site in the DECCW AHIMS register, procedures for the determination of whether a "keeping place" will be established including a requirement to obtain a Care Agreement in accordance with section 85A of the *National Parks and Wildlife Act 1974*, and when works can recommence.

5.4. Construction Noise

The Environmental Assessment included a desktop quantitative noise impact assessment to determine noise impacts during construction and to identify offset distances to achieve acceptable noise goals.

The *Interim Construction Noise Guidelines (DECC 2009)* (ICNG) recommends standard hours of construction as 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday, with no work on Sundays or public holidays. The Proponent has reasoned that in order to shorten the life of the project and to achieve maximum efficiency for specialist construction crew, the proposed hours of construction are 6.00 am to 6.00 pm, seven days a week. The time between 6.00 am and 7.00 am is outside standard hours and considered to be night time. Work on Sundays and outside 8.00 am to 1.00 pm on Saturdays is also outside the standard construction hours.

The total construction period for the project is expected to be four to five months. Construction is progressive and the pipeline would be laid at a rate of two to three kilometres a day such that the impact to residents along the pipeline corridor would be short-term.

The Proponent's Construction Noise Assessment has identified construction noise goals based upon the following assumptions:

- background noise (RBL) is the minimum 30 dB(A) under the *NSW Industrial Noise Policy* for all receivers in the vicinity of the proposal due to the pipeline's rural location;
- background night-time noise level is 25 dB(A) based on RBL - 5;
- work during day time on weekends being considered acceptable at 35 dB(A); and
- a sleep disturbance goal of 45 dB(A). The ICNG requires a quantitative assessment of the potential for sleep disturbance if works will occur for more than two consecutive nights. A commonly used goal is DECCW's *Noise Guide for Local Government* (NGLG) which states that the $L_{A1,1 \text{ min}}$ should not exceed background noise level by more than 15 dB(A).

The Proponent's construction noise goals for receivers in the vicinity of the pipeline project are presented in table 5-2:

Table 5-2: Construction Noise Goals

RBL – All Receivers dB(A)	Acceptable :A _{eq} Noise Level				Sleep Disturbance Acceptable L _{LA1,1min} Noise Level Night RBL + 15 dB(A)
	Standard Construction Hours RBL + 10 dB(A)	Outside Construction Hours			
		With Justification** RBL + 5 dB(A)	Without Justification, RBL - 5 dB(A)		
			Night	Daytime	
30	40	35	25	35	45

** “with justification” – eg. works that cannot be rescheduled without an adverse impact to the project timeframes

The Noise and Vibration Assessment undertaken for the Wellington Gas Fired Power Station project (PB 2008) found that noise criteria were exceeded up to 500 metres from the Power Station. On this basis, the Proponent’s Construction Noise Assessment for the pipeline project identified all human receptors within an arbitrary 600 metres of the pipeline. There are 128 sensitive receivers (dwellings) with the closest sensitive receiver a distance of 74 metres from the pipeline.

Noise emissions during construction would be the result of the use of various plant and heavy machinery. The Noise Assessment identified construction activity scenarios and predicted the maximum sound power levels emitted resulting from the various equipment in use for that scenario. These are presented in Table 5-3.

Table 5-3: Construction Scenario Sound Power Levels (SWL)

	Construction Activity	Required Plant / Equipment	SWL (dbA)	
			L _{aeq}	LA _{1, 1min}
A	Ground clearance and soil separation	Grader, dozer, backhoe, tip trucks	115	120
B	Pipe haul and string	Semi trailer trucks, mobile crane	111	115
C	Excavation	Dozer with ripper, excavator, trenching machine, tip trucks, backhoe, front end loader	115	120
D	Welding and x-ray joint wrapping	4WDs with trailers, generator	95	99
E	Pipe lay	Directional drilling rig and side booms	107	110
F	Backfill and topsoil spreading	Grader, dozer, backhoe, tip trucks	115	120
G	Seeding and restoration	Tractor and seeder	95	99

Activities A, C and F are the highest noise generating scenarios particularly as they involve use of the dozer which contributes heavily to noise emissions. The Proponent’s noise assessment plotted each of the seven construction activity scenarios against the 128 sensitive receivers. The modelling predicted that 26 receivers would be affected by noise levels above 60 dB(A) for these higher noise construction activities, with the highest being 71 dB(A) at one receiver.

For the “quietest” construction activities (D and G) the noise impact would reach a level of 50 dB(A) at the most noise-affected receiver. For 102 of the sensitive receivers, the activities outlined in D and G would be less than 40 dB(A) – the standard construction hours noise goal – and would be less than 59 dB(A) for the highest noise generating construction scenarios.

As the Proponent’s noise modelling has predicted that construction of the pipeline would exceed the construction noise goals in proximity to receivers, the noise assessment has stated that in order to manage noise impacts, construction works should be limited to construction hours proposed in the Environmental Assessment when they are within a nominated distance of sensitive receivers.

Noise modelling identified buffer distances to achieve construction noise goals for work outside of standard construction hours across three scenarios: night works with justification*; night works without justification; and weekend day/evening works. The distances range as follows:

- 250 metres for “low” noise generating works (scenarios D and G) for weekend day/evening works and night work with justification – to achieve a goal of 35 dB(A); and 500 metres for night works without justification – where 25 dB(A) is the noise goal;
- for “high” noise generating works not involving the dozer (scenarios B and E), the distances are 600 metres for weekend day/evening works and night works with justification, and 1,100 metres for night works without justification to achieve a noise goal of 25 dB(A); and
- for “very high” noise generating works involving the dozer (scenarios A, C and F), the ranges are 800 metres for night works with justification and night works without justification and 1,400 metres for night works without justification.

The assessment has identified that works can be undertaken within the buffers if mitigation measures are in place including:

- remove all tonal reversing alarms;
- avoid the use of noisy plant in the early morning period between 6.00 am and 7.00 am;
- conduct an audit of noise emissions from the selected plant items once detailed methodology is finalised and revise the buffer distances accordingly;
- negotiate agreements with landowners within the buffers to conduct noisy works outside standard construction hours, noting that the trade off will be a reduction in the duration of activity;
- implement a detailed, real-time complaints handling system with a commitment to investigate noise levels and to stop works when complaints are received.

The Proponent has committed to include these in a construction noise management sub-plan.

The assessment also notes that rock breaking may be required at some locations along the pipeline route. The level of vibration would depend on the excavation method (sawing or blasting), type of rock and depth at which it is located. However, vibration impacts would only occur for short periods. Vibratory rollers and rock hammers are expected to be used sparingly on the project and with the nearest identified receiver 74 metres from the pipeline, vibration levels would be below building damage criteria.

DECCW's submission recommended that construction works be undertaken within the standard construction hours outlined in the ICNG. In order to minimise the impact on residents outside of these hours, DECCW recommends that the Proponent comply with buffer distances included in Table 8, of the Construction Noise Assessment in the Environmental Assessment, or as revised in any audit methodology. One public submission also raised concern about the impact of the impulse noise on livestock, particularly horses and cattle. As noted in Section 4, the

* 'Justification' is discussed in the ICNG.

Proponent has resolved to negotiate with landholders on any issues of land-use conflict with farming activity, including livestock.

Consideration:

The Department is satisfied that the Proponent's noise assessment has been undertaken in accordance with the *NSW Interim Construction Noise Guidelines (July 2009)*. Based on the rate of pipe lay down, the works would be progressive along the route and therefore exposure to construction noise by any receiver would be temporary and generally only between one and three days, that is, between 12 and 36 hours. This is a best case construction works scenario that includes no delays, however, the Department considers that even under a worst case scenario it is unlikely that a receiver at a single location would be exposed to construction activities for more than one week.

The Department considers the exposure of dwellings to a noise affected level to be acceptable provided that the noise mitigation measures identified in the Proponent's Environmental Assessment are implemented to minimise noise impacts where possible. Furthermore, given the short duration and finite nature of impacts (total construction at four to five months) the Department is satisfied that the construction noise generated by the project would not result in an unacceptable noise impact to surrounding receivers and landuse (including livestock and rural activities).

Therefore, the Department recommends extending construction hours to between 7.00 am and 6.00 pm Monday to Saturday, and between 8.00 am and 6.00 pm on Sundays and public holidays for a maximum period of 28 days at a time, separated by a minimum respite period of nine days. However, in the event that written agreement is obtained from affected receivers, noise generating activities can proceed outside of these construction hours.

This condition is subject to the restriction on construction hours for high noise works that have impulsive, intermittent, low frequency or tonal characteristics, such as jack hammering, line drilling, pile driving, rock hammering, rock breaking, saw cutting, sheet piling and vibratory rolling. Such works should take place only between 8.00 am and 6.00 pm Monday to Friday and 8.00 am to 1.00 pm Saturday, and in continuous blocks of no more than three hours, with at least one hour respite between each block of work generating high generating high noise impact, where the location of the work is likely to impact the same receiver.

The Department's recommended construction hours also exclude works associated with blasting, which is limited to between 9.00 am to 5.00 pm Mondays to Fridays, 9.00 am to 1.00 pm Saturdays; and at no time on Sundays or public holidays.

In the event that construction noise exceeds the "highly noise affected level" of 75 dB(A) specified in the ICNG at any receiver (eg. during rock breaking), then appropriate mitigation measures should be put in place. These should be negotiated with the affected receiver. The Department considers that this assessment should be confirmed at construction stage once detailed construction methodology and available mitigation options have been confirmed.

The Department has recommended a condition that requires the Proponent to seek approval from the Director-General for any noise-generating construction works

outside the Department's recommended construction hours. This would also enable the Proponent to seek approval for unforeseen out-of-hours work. Each request would be considered on a case by case basis, accompanied by details of the need for the works and site-specific mitigation measures proposed to ensure there are no unreasonable noise impacts at nearby receivers.

In order to coordinate the effective implementation of the Proponent's proposed mitigation measures, the Department recommends the Proponent submit a management plan for noise, vibration and blasting impacts incorporating measures to monitor and manage impacts. This shall be incorporated into the Construction Environmental Management Plan to be submitted to the Director-General for approval prior to the construction. This management plan would detail the procedure for notifying receivers of any construction activities that are likely to affect their amenity within a reasonable time frame. A complaints procedure would also be implemented by the Proponent in order to deal with any potential noise complaints arising from construction of the project. Any non-compliance would be dealt with in a contingency plan and should be contained in the noise management plan.

Subsequent to inclusion of the Proponent's proposed noise mitigation measures, the Department is satisfied that any construction noise associated with the proposal can be managed to avoid any unacceptable noise impacts at nearby sensitive receivers. By incorporating the Department's recommendations into a construction noise and vibration management plan, the Department considers that construction noise resulting from the project can be appropriately managed.

6. RECOMMENDATION

The Department has assessed the Proponent's Environmental Assessment, Submissions Report and Statement of Commitments on the Young to Wellington Gas Pipeline. The Department has also assessed submissions received from public agencies and the community in relation to this project.

The pipeline is proposed to be constructed along an easement that is highly modified such that few areas of contiguous vegetation remain. The route has been chosen to avoid, as far as practicable, significant areas of vegetation, endangered ecological communities, known subterranean voids, known heritage sites as well as towns and villages.

The key potential impacts associated with the Project relate to flora and fauna, heritage, construction noise and hazards and safety.

Potential land use conflict has been found to be for the most part short-term and confined to construction, and most agricultural practices can be returned to normal following the end of the construction period.

The Department considers the project to be, on balance, justified given the derived benefits to the broader community of providing direct access for the Wellington Gas-Fired Power Station to the Moomba Sydney Pipeline. These include:

- A reliable gas supply to the power station;
- Reduction of the State's dependence on coal-fired electricity;
- The expansion of the gas pipeline network potentially connecting with the separately proposed Narrabri to Wellington Gas Pipeline that draws on alternative coal seam gas supplies; and
- Reducing pressure on existing gas pipeline infrastructure.

Based on its assessment the Department is satisfied that the Proponent has provided a robust and conservative assessment of potential impacts and that the project warrants approval.

Accordingly, the Department has drafted a recommended instrument of approval incorporating stringent and comprehensive environmental mitigation and management requirements that will serve to mitigate potential environmental impacts and enhance commitments made by the Proponent in its finalised Statement of Commitments.

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