MAJOR PROJECT ASSESSMENT:
Brown's Creek to Orange Gas Pipeline Relocation, Orange, NSW
SSI 5570

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

May 2013

ABBREVIATIONS

CIV	Capital Investment Value
Department	Department of Planning & Infrastructure
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning & Infrastructure
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPI	Environmental Planning Instrument
Minister	Minister for Planning and Infrastructure
NOW	NSW Office of Water
PAC	Planning Assessment Commission
Part 5	Part 5 of the *Environmental Planning and Assessment Act 1979*
PEA	Preliminary Environmental Assessment
Proponent	East Australia Pipeline Pty Ltd
SSI	State Significant Infrastructure

Cover Photograph: Source Environmental Impact Statement GHD November 2012

Published May 2013
NSW Department of Planning & Infrastructure
www.planning.nsw.gov.au

EXECUTIVE SUMMARY

The Proponent, East Australian Pipeline Pty Ltd (a subsidiary of the APA Group), is proposing to relocate a 1.8 kilometre section of the Brown's Creek to Orange Natural Gas Pipeline and decommission a section of the existing pipeline (the project). The project location is to the west of Aerodrome Road, outside the perimeter of the existing Orange Aerodrome, approximately 15 kilometres south of the City of Orange, NSW. The project is located within the Orange City Council local government area.

The Brown's Creek to Orange Gas Pipeline is a high pressure natural gas pipeline branch of the Young to Lithgow Natural Gas Pipeline, which is generally located in the Central West region of New South Wales. The pipeline was commissioned in 1987 and operates under Pipeline Licence Number 22. The 100 millimetre diameter pipeline is buried to a depth of 800 to 1,200 millimetres along its length and operates at a maximum pressure of 9.93MPa.

Relocation of the pipeline section is required as a result of the current Orange Aerodrome Expansion proposed by Orange City Council. Relocation of the existing pipeline will provide land to enable future development and expansion of Orange Aerodrome. The project will take approximately 16 weeks to construct with a workforce of 16 personnel during the peak work period. The project is expected to cost approximately $1.7 to 2.0 million and would be entirely reimbursed by Orange City Council.

The project is State Significant Infrastructure (SSI) development under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it requires a licence under the *Pipelines Act 1967* (Clause 5 of Schedule 3 of *State Environmental Planning Policy (State and Regional Development) 2011*)). Under section 115W of the EP&A Act, the Minister for Planning and Infrastructure (or his delegate) is the approval authority for SSI projects.

The EIS was publicly exhibited from Friday 8 February until Monday 11 March 2013 (32 days) on the Department's website and at key locations. The Department also advertised the proposal in local newspapers and notified relevant State and local government authorities in writing. A total of four submissions were received from public agencies and no submissions were received from the general public.

The Department has considered all relevant documents in accordance with the objects of the EP&A Act and ecologically sustainable development. Key potential issues relating to the proposed construction and operation of the pipeline include flora and fauna, noise, traffic, and surface and ground water impacts. However based on the information provided, the Department considers the potential impacts to be minor and manageable with the implementation of the Proponent's mitigation measures. On balance, the Department considers the project to be justified and in the public interest. Furthermore, the Department considers that the Project would enable future development of Orange Aerodrome while ensuring the secure continuity of natural gas supply through this area. The Department has prepared a recommended instrument of approval incorporating stringent and comprehensive environmental mitigation and management requirements to enhance commitments made by the Proponent in its Compilation of Mitigation Measures in the EIS.

TABLE OF CONTENTS

1. BACKGROUND

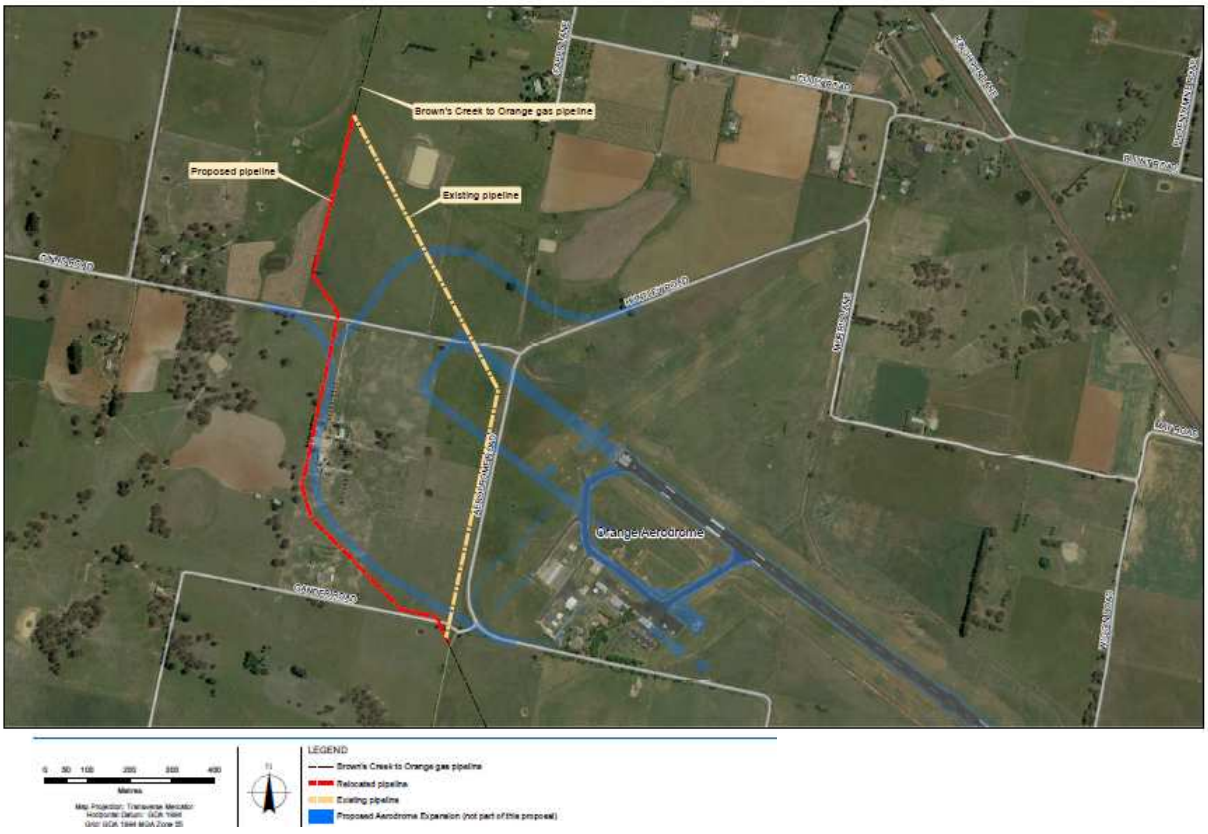
The Brown's Creek to Orange Gas Pipeline is a high pressure natural gas pipeline (containing approximately 90 precent methane) that operates at a maximum pressure of 9.93MPa. The 100 millimetre diameter pipeline is buried to a variable depth of 800 to 1,200 millimetres along its length. The Brown's Creek to Orange Pipeline is a branch of the Young to Lithgow Natural Gas Pipeline which runs approximately 23.8 kilometres from Brown's Creek (approximately 114 kilometres northeast of Young) to the Orange Meter Station (located on the outskirts of the City of Orange) in the Central West region of New South Wales. The pipeline was commissioned in 1987 and currently operates under Pipeline Licence Number 22. A location map is provided in Figure 1.

Figure 1: Project Location Source: GHD 2012

A section of the Brown's Creek to Orange Natural Gas Pipeline is situated outside the western perimeter of the existing Orange Aerodrome on agricultural land, as shown in Figure 2. This section is located in a 20 metre wide easement that is controlled by the APA Group. A current proposal to expand Orange Aerodrome by Orange City Council would necessitate acquisition of the land on which the pipeline is currently located.

The Proponent, East Australian Pipeline Pty Ltd (a subsidiary of the APA Group), is therefore proposing to relocate a 1.8 kilometre section of the Brown's Creek to Orange Natural Gas Pipeline and decommission the relocated section of the existing pipeline (the project). The section of existing pipeline requiring relocation is situated to the west of Aerodrome Road, outside the perimeter of the existing Orange Aerodrome, approximately 15 kilometres south of the City of Orange. The existing and proposed pipelines are shown in Figure 2.

Figure 2: Existing and proposed pipeline Source: GHD 2012



The Orange Aerodrome Expansion is the subject of a separate assessment by Orange City Council under Part 5 of the EP&A Act (currently in the EIS preparation stage). Relocation of the 1.8 km pipeline section is required in order to accommodate this proposed expansion of the Orange Aerodrome. Expansion of the aerodrome site by an area of approximately 80 hectares in a westerly direction would allow for an extended runway, new taxiway and associated infrastructure at the Aerodrome. In addition, realignment of Aerodrome Road and Huntley Road approximately 2.2 kilometres to the west of the existing aerodrome would be proposed as part of those expansion works.

The Aerodrome expansion work would pass over the existing gas pipeline resulting in the need to provide additional protection to maintain pipeline integrity. While installation of additional protection is possible to address potential operational concerns, leaving the pipeline in its current location would also reduce the area available for future additional hanger space. A section of the existing gas pipeline is therefore proposed to be relocated, comprising approximately 1.8 kilometres of the existing pipeline.

2. PROPOSED PROJECT

2.1. Project Description

East Australia Pipeline Pty Ltd (a subsidiary of the APA Group) is proposing to relocate 1.8 kilometres of an existing 100 millimetre diameter high pressure natural gas pipeline that is located on the western perimeter of the Orange Aerodrome. The pipeline section would be relocated approximately 400 metres to the west of its existing location, as shown in Figure 2.

The construction work is proposed to be undertaken within a 20 metre wide easement which mainly comprises open agricultural land. In addition, the relocated pipeline would cross two existing roads: Gander Road and Huntley Road. Gander Road would require partial diversions and remain open during construction, whereas Huntley Road is expected to be disused due to the Aerodrome Expansion work.

The new pipeline section would be designed, constructed and operated in accordance with *Australian Standard 2885 Pipelines – Gas and Liquid Petroleum 2007 (AS2885)* and the *Australian Pipeline Industry Association Code of Environmental Practice Onshore Pipelines 2009*. The 100 millimetre diameter new pipeline section would be constructed of steel, with a coating and a cathodic protection system. The pipeline wall thickness would be approximately 6 millimetres increasing to 8.5 millimetres under roadways. It would generally be buried to a depth of 1,200 millimetres and increasing to 1,500 millimetres at the end of the proposed extended runway. Marker signs and warning tape would be installed for pipeline identification.

Pipeline construction would be conducted by conventional trenching. A typical project layout is shown in Figure 3. The key components of the project are listed in Table 1.

Figure 3: Typical layout for pipeline construction by trenching

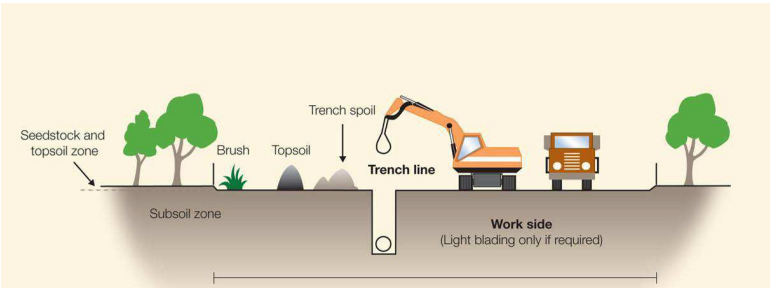


Table 1: Key Project Components

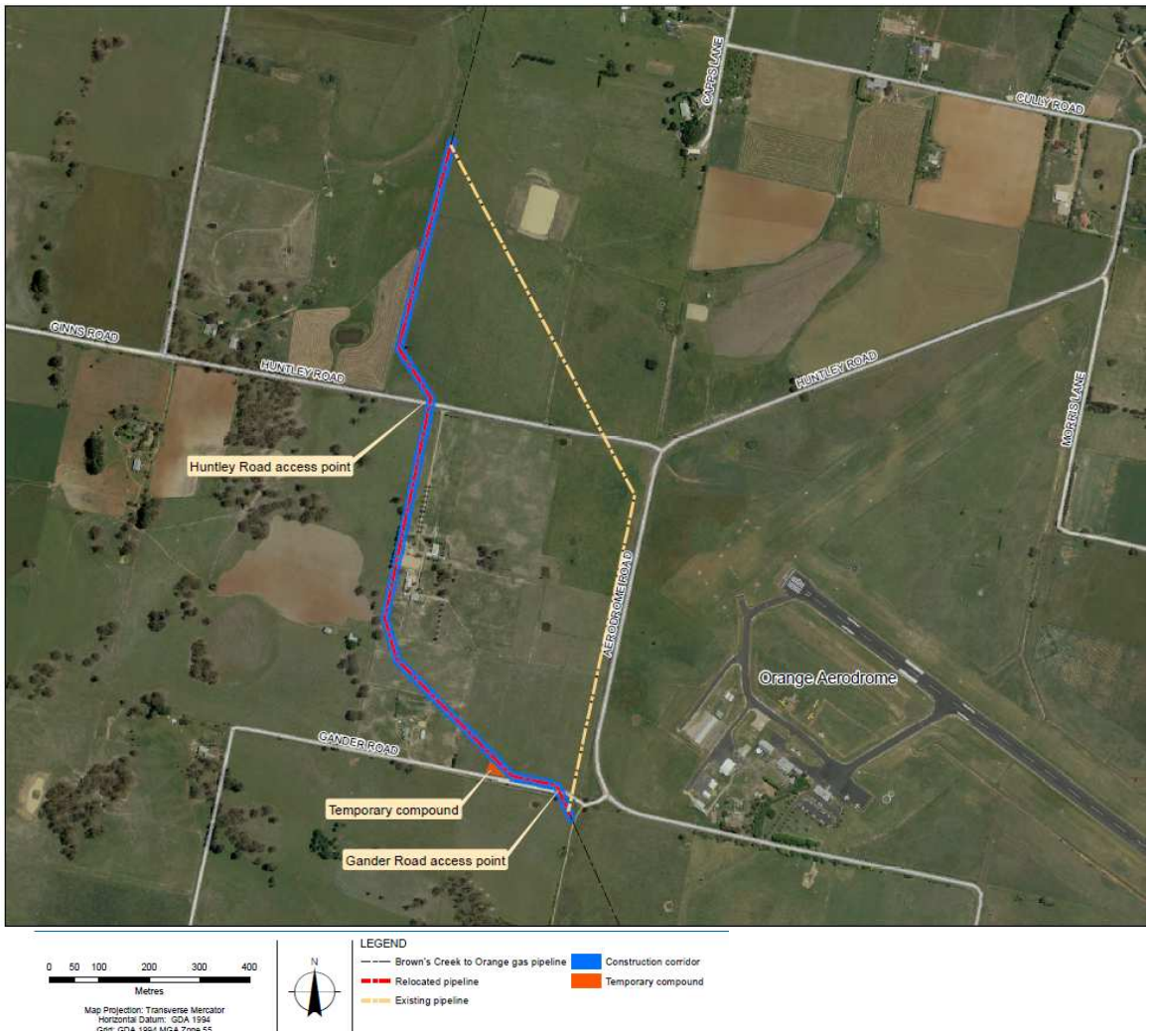
Aspect	*Description*
Project Summary	• **Construction and operation of a new 100 millimetre diameter high pressure natural gas pipeline section, 1.8 km in length located 400m west of Orange Aerodrome and decommissioning of an existing (relocated) pipeline section located on the western perimeter of Orange Aerodrome;** • **20 metre ROW for construction and operational purposes primarily on agricultural land. Trench dimensions generally 400 millimetre in width and 1,200mm in depth for the 1.8km length of the new pipeline section;** • **Typical construction equipment: material haulage vehicles, graders, side-boom crane, compactor, excavators, welding units and light vehicles;**

Aspect	*Description*
	• **Construction workforce of 16 individuals for the peak construction period;** • **Overall construction period of 16 weeks (comprising 8 weeks pipeline construction; 4 weeks decommissioning of existing pipeline; 4 weeks hot taps and stopple to disconnect the existing pipeline and connect the new section of the pipeline); and** • **Proposed construction hours of 7am to 6pm Monday to Friday; 8am to 1pm Saturday and no work on Sundays or public holidays. Extended hours may be required to meet the Orange Aerodrome Expansion Program.**
Construction	
Temporary facilities	Construction would require a temporary site compound for the storage of equipment and materials. This would require an area of approximately 900m^2 and would be located off Gander Road.
Clearing and grading	Vegetation removal would occur along the length of the pipeline within the 20 metre wide easement and would disturb approximately 0.12 hectares of native vegetation. Grading of topsoil would be conducted where required and topsoil would be stockpiled for reuse during rehabilitation.
Trenching	Trenching would be conducted using a wheel trencher or excavator.
Stringing	The pipe would be transported to the site in 12 metre lengths and would be laid out adjacent to the trench on skids in preparation for welding.
Aligning and Welding	The pipe would be positioned using side-boom tractors and internal line-up clamps. The 12 metre pipe lengths would be welded in several segments.
Inspection	100% Non-Destructive Testing to ensure the integrity of each weld.
Installation and backfilling	Where necessary sandbags or foam pillows would be placed on the trench bottom to ensure there is no damage to the pipe. Soft material such as sifted spoil would be placed around the pipe. Side-boom tractors would be used to lift the pipe off the skids and lower the pipe into the trench. The backfill would be compacted to minimise the potential for subsidence.
Testing and Commissioning	Hydrostatic testing would be conducted for strength and potential for leaks. Approximately 15,000 litres of water would be required for the hydrostatic test. The water would be provided by a water tanker. Following the test, the water would be drained back to the tanker and disposed of at an appropriate licensed disposal facility.
Decommissioning of existing pipeline	The existing (relocated) pipeline section would be decommissioned in accordance with *AS 2885.1-2007* and the *APIA Code of Environmental Practice*. The pipeline would be purged clear of flammable fluids, cut and left without cathodic protection to corrode. Note that the site area is not affected by mine subsidence.
Restoration	Restoration and clean up of disturbed areas would commence as soon as possible following construction to restore the site to its pre-works condition. Restoration would include the removal of foreign material, surface contouring including the reuse of topsoil and revegetating the site (most likely with grasses).
Operation	
Operation	Operate the pipeline at a pressure of 8.5MPa and with a maximum allowable pressure of 9.93MPa consistent with the existing pipeline and in accordance with Pipeline Licence 22 requirements and APA Group's procedures
Maintenance	Maintenance and repair as required for the life of the pipeline in accordance with APA Group's established maintenance regime. Inspection of the relocated pipeline would occur via air or ground on a regular basis in association with the current regular fortnightly patrols stipulated under

Aspect	*Description*
	Pipeline Licence Number 22. Potential cathodic protection surveys would be carried out annually in accordance with *AS 2832*.

The proposed project layout, including the location of access points and temporary facilities is shown in Figure 4.

Figure 4 Proposed Project Layout Source: GHD 2012



2.2. Project Need and Justification

The Orange Aerodrome Expansion, being progressed by Orange City Council under a separate assessment, is required due to existing operational constraints at the aerodrome. The expansion would significantly improve the capacity of the airport and enable larger jet aircraft access. The extension of Runway 11/29 and parallel taxiway would traverse the existing gas pipeline. Leaving the gas pipeline in its current location may lead to a number of risks such as:

- Damage of the pipeline coating leading to corrosion, leaks or structural failure;
- Flattening of the pipeline due to excessive loading;
- Pipeline rupture or damage due to aerodrome expansion construction machinery; and
- Reduced access for maintenance.

The existing classification of the pipeline is R1 (rural) under the *Australian Standard 2885 Pipelines – Gas Liquid Petroleum 2007 (AS 2885.1-2007)*. The potential impacts that the Orange Aerodrome Expansion would have on the existing gas pipeline would mean the classification would need to be increased to T1 (residential). However, the Proponent conducted a risk assessment which determined that the existing pipeline would not meet the minimum protection requirements of T1 (residential) classification under *AS 2885.1 2007*. Relocating the pipeline would result in a reduced risk to the pipeline during operation of the future aerodrome.

The alternative option of providing additional protection to the pipeline in its existing location by increasing the depth of cover and pipe thickness was considered during preparation of the EIS. The existing pipeline is not consistently buried to 1200 millimetre in accordance with *AS 2885.1* and therefore would need to be reburied to 1200 millimetre depth along the entire length. Covering the existing surface with a layer of concrete was considered as a possible alternative, however this would make maintenance and regular coating condition checks a very costly option. Overall, implementation of both of these measures would not resolve the constraints to future surface development of the Orange Aerodrome which would remain because access to the existing easement would always be required for pipeline maintenance purposes. This would reduce the area available for future development at Orange Aerodrome. For these reasons, leaving the pipeline in its existing location is not the preferred option.

The Department considers the relocation of the pipeline to be the safest and most viable option to ensure that the Orange Aerodrome Expansion can proceed without impacting infrastructure, while ensuring the security of a major natural gas supply line in NSW. The project would also allow for further development of Orange Aerodrome in the future.

3. STATUTORY CONTEXT

3.1. Major Project

The project is State Significant Infrastructure (SSI) development under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it requires a licence under the *Pipelines Act 1967* (Clause 5 of Schedule 3 of *State Environmental Planning Policy (State and Regional Development) 2011*)). Under section 115W the Minister for Planning and Infrastructure is the approval authority for SSI projects.

On the 27 February 2013, the Minister delegated his functions to determine SSI applications to nominated staff of the department where:

- the relevant local council has not made an objection, and
- there are less than 25 public submissions objecting to the proposed development, and
- a political disclosure statement has not been made in relation to the application.

The subject application complies with the above criteria. Consequently, the Executive Director, Development Assessment Systems and Approvals, may determine the application under delegated authority.

3.2. Permissibility

The project is considered permissible without consent under Section 53 of the *State Environmental Planning Policy (Infrastructure) 2007* because it is development for the purpose of a pipeline on any land where the pipeline is subject to a licence under the *Pipelines Act 1967*. However, the proposal is identified as SSI under the *State and Regional Development SEPP* (see Section 3.1) and therefore an EIS has been prepared.

The project is located within Orange City Council and under the *Orange Local Environmental Plan (LEP)* is zoned as "E3-Environmental Management". The proposal would be defined as a 'public utility undertaking' as defined under the *Orange LEP* because it is an undertaking for the supply of gas being carried out in pursuance of a State Act. Development for the purposes of 'public utility undertakings' are prohibited in the "E3-Environmental Management" zone. Therefore the project is not permissible under the Orange LEP.

However, according to section 36 of the EP&A Act, the *State Environmental Planning Policy (Infrastructure) 2007* overrides the provisions of the *Orange LEP,* and therefore the project is permissible.

Land owner consent for the proposal was provided by the landowner of 173 Aerodrome Road, Huntley. The Department notes that the remaining easement is Council land and land owner consent was granted.

3.3. Environmental Planning Instruments

The Department has considered a range of planning instruments: *State Environmental Planning Policy (Infrastructure) 2007* and *State Environmental Planning Policy (State and Regional Development) 2011* which are relevant to the project as they enable the project to be considered as SSI. The Department is satisfied that there are no other environmental planning instruments, other then the Orange LEP considered in section 3.2 above, that substantially govern the carrying out of the project. The Department is satisfied that the proposal is consistent with all relevant EPIs.

3.4. Objects of the EP&A Act

The Minister should consider the objects of the EP&A Act when making decisions under the Act. The objects most relevant to the Minister's decision on whether or not to approve the project are found in Section 5(a) (ii), (iii), (iv) and (vii). They are to encourage:

(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; and
(vii) ecologically sustainable development.

The Department is satisfied that the project is consistent with the objects of the Act. The project encourages the orderly and economic use of land, and protection of utility services, particularly as the project enables current and future development and expansion of the Orange Aerodrome. The landuse will be partially for gas supply which is

in the public interest. With respect to ecologically sustainable development (ESD), the Act adopts the definition in the *Protection of the Environment Administration Act 1991*. This is discussed further in section 3.5.

3.5. 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 notes that the Proponent undertook a range of environmental investigations to ensure that the potential impacts are understood and mitigated;
- the proposed project would enable the construction of the Orange Aerodrome Expansion to proceed safely and provide efficient landuse for the benefit of future generations;
- the Department's assessment of the biodiversity impacts of the project (section 5.1) is based on a conservative and rigorous assessment of the likely extent of ecological impacts and has considered the requirement for appropriate contingency strategies to ensure that appropriate and adequate measures are put in place to offset impacts and 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 notes the project would not have a significant impact on biodiversity;
- the proposed development along an easement within a generally developed agricultural landscape as opposed to development of undisturbed land is generally consistent with the principle of the conservation of biological diversity and ecological integrity; and
- the Department's assessment of key issues (section 5) has considered the requirement for appropriate contingency strategies to offset impacts in relation to flora and fauna, noise, traffic and water which are consistent with the precautionary principle.

On the basis of the assessed impacts on the environment and their ability to be managed, it is considered that the development would be ecologically sustainable within the context of the above principles. If approved, the Project would continue to ensure a reliable natural gas supply for future generations.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 115Z of the EP&A Act, the Director-General is required to make the EIS of an application publicly available for at least 30 days. After accepting the EIS,

the Department publicly exhibited it from Friday 8 February until Monday 11 March (32 days) on the Department's website, and at the following locations:

- Department of Planning & Infrastructure, Information Centre, 23-33 Bridge Street, Sydney;
- Nature Conservation Council, Level 2, 5 Wilson Street, Newtown, NSW, 2042;
- Orange Civic Centre, Corner Byng St & Lords Place, Orange, NSW, 2800; and
- Orange City Library, Civic Square, 147 Byng St, Orange, NSW, 2800.

The Department also advertised the public exhibition in the Orange Mid-State Observer and the Orange Western Daily on Thursday 7 February 2013 and notified relevant State and local government authorities in writing.

4.2. Public Authority Submissions

Four submissions were received from public authorities. The submissions were received from Orange City Council, Office of Environment and Heritage (OEH), the Department of Primary Industries (DPI) and the Department of Trade and Investment (DTI) – Resources & Energy. The submissions raised specific issues to be addressed. No submissions raised objection to the Project.

Orange City Council (Council's Development Services Division) raised the need for traffic management measures due to the potential conflict of construction vehicles with other road users including cyclists and motorists in the area, Cadia-mine related traffic and airport commuters.

The **Office of Environment and Heritage** raised issues regarding biodiversity. While the majority of the easement lies in agricultural land and exotic grasslands, a small-scale disturbance of 0.12 hectares of an Endangered Ecological Community (EEC) may occur. However, OEH considers that this is unlikely to be a significant impact given the small-scale of the project and it will not result in additional fragmentation of the EECs. OEH supports the Proponent's biodiversity mitigation measures provided in the EIS. OEH also stated that there are no known Aboriginal artefacts or known areas of archaeological potential in the project area.

The **Department of Primary Industries** raised issues regarding water resources in the proposal area. The NSW Office of Water (NOW) identified that the primary water use in the area surrounding the project is for basic landholder rights and irrigation, and the catchment area drains to a reservoir which provides town water supplies. NOW provided detailed comments on water licence requirements and recommended conditions of approval. In DPI's submission, no issues were raised by Fisheries NSW and Agriculture NSW regarding the project.

The **Department of Trade and Investment – Resources & Energy** did not raise any issues with regard to mineral resources relating to the project.

4.3. Public Submissions

No submissions were received from the public.

4.4. Proponent's Response to Submissions

The Department considered that all issued raised in the four submissions received from agencies were adequately considered in the EIS. Therefore, the Proponent was not required to prepare a response to the issues raised in submissions.

5. ASSESSMENT

The Department has identified the following key environmental issues associated with the Project:

- Biodiversity;
- Noise;
- Traffic; and
- Surface and Ground Water.

All other issues (including air quality impacts due to dust generation, and risks and hazards) are considered to be adequately addressed by the Proponent's EIS report and Compilation of Mitigation Measures, as detailed in Section 5.4 and Table 4 below.

5.1. Biodiversity

The site is comprised of mainly cleared agricultural lands and small patches of highly modified remnant native vegetation. The site is dominated by introduced flora species.

The Proponent conducted a desktop assessment and field surveys in March 2012 in preparation for the related Orange Aerodrome Expansion EIS (GHD 2012) which included the area for the proposed gas pipeline relocation.

No threatened flora species were recorded at the site. Blackberry (Rubus sp), a Class 4 noxious weed, listed under the *Noxious Weed Act 1993* for the Orange City Council was recorded onsite during the survey.

A small patch of native woodland is located within the site, the vegetation community is classified as *Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland,* an Endangered Ecological Community (EEC) listed under the *Threatened Species Conservation Act 1999 (TSC Act).* The EEC is considered to be highly modified and fragmented and in poor condition.

The fauna survey identified 27 bird species (including three introduced species), twelve mammal species (including three introduced species), one reptile species and five frog species. The Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis)* listed as vulnerable under the TSC Act along with seven other microchiropteran bats were recorded during field survey. The diversity of fauna species is considered low.

An assessment on habitat was also considered. The habitat assessment identified the Superb Parrot (*Polytelis swainsonii*) and the Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis)* as having a moderate to high likelihood of occurring within the area. Both species are listed as vulnerable under the TSC Act. However, both species are mobile and wide-ranging limiting the extent of nesting habitat in the study area.

The site is located within a previously cleared area and therefore the site provides very limited habitat, foraging, shelter and resources for native fauna species.

The proposal would require clearing of approximately 0.12 hectares of native vegetation which is classified as the above mentioned EEC and two mature hollow bearing trees. As the majority of the site is located within cleared agricultural land, the primary species impacted by the proposal would be exotic grasslands.

There would be no significant impacts to flora and fauna during operation of the relocated pipeline.

In response to the above mentioned potential construction impacts, the Proponent has considered a number of mitigation measures such as:

- providing environmental inductions to construction personnel;
- fencing off retained trees;
- placing stockpiles in cleared areas;
- covering open trenches at night;
- minimising clearing; and
- providing a qualified ecologist during the removal of hollow bearing trees to assist in the rescue of fauna if required.

Given the proposal would result in minimal impact to flora and fauna, no offsets have been proposed. The OEH agreed with this approach and strongly supported the following mitigation measure:

- The clearing of mature and hollow-bearing trees and stags should be minimised and or avoided where possible.

Consideration

The Department has considered the Proponent's biodiversity assessment and is satisfied that the level of assessment undertaken is sufficient to enable the Department to form a view on the existing biodiversity values on the site and likely extent of impacts associated with the project.

As the proposal is to be carried out in an area that has previously been cleared and the primary species to be impacted is exotic grasslands, the Department does not consider the impacts on biodiversity to be significant. The Department recommends the Proponent prepares a Construction Environmental Management Plan (CEMP) to manage all proposed mitigation measures including the removal of hollow bearing trees and weeds.

The Department considers that impacts to native vegetation and biodiversity are manageable with the implantation of proposed mitigation measures. Furthermore, the Department considers that reinstatement and replanting of the site at the completion of construction works using native grass species would be appropriate.

5.2. Noise

The Proponent prepared a noise assessment for the pipeline relocation based on the DECC *Interim Construction Noise Guideline July 2009* (ICNG). Noise would be generated from the use of excavators, compactors, graders, trucks, light vehicle, generators and a side boom crane.

Current noise in the study area is typical of a rural setting. Noise sources include traffic on local roads, agricultural activities and intermittent air traffic associated with Orange Aerodrome. Background noise levels were measured for the preparation of the Orange Aerodrome Expansion EIS at a monitoring location (1 Cully Road, Huntley) that is considered to be representative of the background noise environment for the project area. The results indicated the day (7am to 6pm) to be the quietest period as follows:

- Rating background Level: 31 dB(A)
- LA eq (period): 41 dB(A)

Based on the INCG the construction noise management levels are provided in Table 2 at the same monitoring location being 1 Cully Road, Huntley.

Table 2: Construction noise management levels Source: GHD 2012

Location	Construction noise management level $L_{Aeq\ (15min)}$ in dBA		Highly affected noise level $L_{Aeq\ (15min)}$ in dBA
	During standard construction hours	Outside standard construction hours	
1 Cully Road, Huntley	41	36	75

Sensitive receivers located near the proposed gas pipeline easement comprise six residents, as shown in Figure 5. The predicted noise levels at these nearest sensitive receivers are demonstrated in Table 3.

Figure 5: Location of sensitive receivers Source: GHD 2012

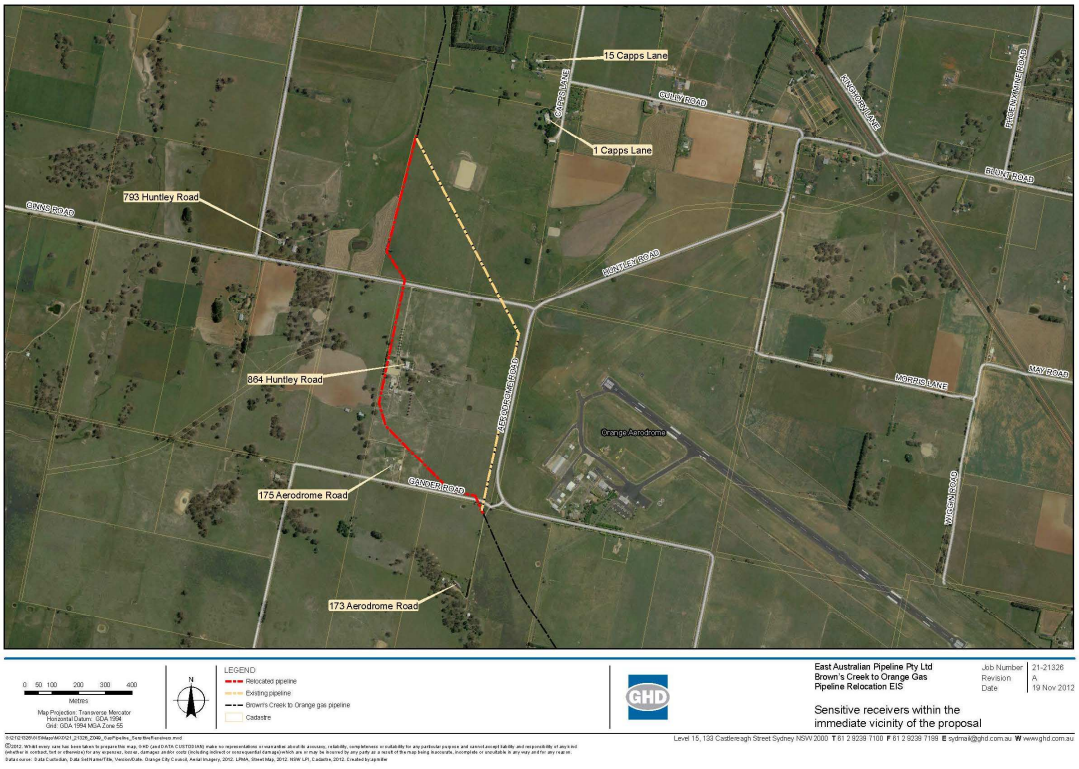


Table 3: Predicted noise levels at the nearest sensitive receiver

Location	Predicted noise level range (dB(A)
173 Aerodrome Road	36 to 49
175 Aerodrome Road	45 to 58
864 Huntly Road	52 to 65
793 Huntly Road	32 to 45
1 Capps Lane	30 to 43
15 Lapps Lane	30 to 43

According to information provided in the EIS, another property is located immediately east of the proposal, however this property (known as Lot 384 DP 1045095) would be vacant during the construction period.

As demonstrated above the noise levels are expected to exceed the construction noise criteria at the six residential receivers which are located approximately 60-600 metres from the construction works. The predicted noise levels are typical for construction activities. However, predicted noise levels are expected to be below the 75 dBA for highly affected construction noise levels.

The predicted noise levels are based on all equipment operating simultaneously without the implementation of any noise mitigation measures, which is a worst case scenario. The noise generated from construction traffic transporting machinery and equipment is not expected to be significant.

The construction timeframe is 16 weeks. The Proponent has stated that night works would be not required. However extended working hours may be required to ensure the project is completed in time to meet the Orange Aerodrome Expansion program. Construction is progressive such that any impact to sensitive noise receptors along the pipeline easement would be short-term.

Minor vibration may result from trenching works. The nearest sensitive receiver is located approximately 60 metres from the proposed pipeline. The vibration levels recommended in *DIN 4150-3 1999: Structural Vibration – Part 3: Effects of vibration on structures* apply to sensitive receivers within 50 metres of the proposal site. Therefore, vibration levels are not expected to have a significant impact on surrounding infrastructure, residents or environment and are not anticipated to exceed the vibration levels recommended in the vibration guideline.

To minimise construction noise impact, the Proponent has considered the following noise management measures:

- The site compound would be arranged in a manner that the primary noise sources are located at a maximum distance from residences, with solid structures being placed between residences and noise sources;
- Equipment would be fitted with appropriate silencers;
- Site inductions would include appropriate behaviour on site to minimise disruptive noise (for example no shouting, slamming doors etc);
- Consultation would be conducted with affected receivers; and
- Response to any noise complaints would occur immediately.

The relocated gas pipeline would not result in any operational noise or vibration impacts.

Consideration

The Department is satisfied that the Proponent's noise assessment has been undertaken in accordance with the ICNG. The works would be progressive along the route and therefore exposure to construction noise by any receiver would be temporary.

The Department considers the exposure of dwellings to a noise affected level to be acceptable provided that the noise mitigation measures identified in the EIS are implemented to minimise noise impacts where possible. Furthermore, given the short duration and finite nature of impacts (total construction period of 16 weeks) the Department is satisfied that the construction noise generated by the project would not result in an unacceptable noise impact to surrounding receivers and land uses. It is noted in the EIS that no noise or vibration impacts would occur during operation of the relocated pipeline. The Department has recommended that mitigation measures are incorporated into the CEMP for the proposed construction works.

The Department has recommended a condition that requires the Proponent to seek approval from the Director-General for any construction works outside the Department's recommended construction hours. This would also enable the Proponent to seek approval for unforseen out-of-hours work. Each request would be considered on a case by case basis, accompanied by details.

5.3. Traffic and Access

The project area comprises a local road network, comprising sealed and unsealed roads and including two main sealed collector roads with 100km/h speed limits (Aerodrome Road and Huntley Road). The existing pipeline crosses Gander Road at the southern end and Huntley Road to the north. There are no pedestrian/bicycle lanes or bus networks in the vicinity of the proposal.

Huntley Road and Aerodrome Road are proposed to be relocated as part of the Orange Aerodrome Expansion (as part of a separate assessment by Orange City Council). A section of the relocated pipeline would be constructed along the relocated Aerodrome Road and would cross both new roadways. As construction of the relocated pipeline would occur before relocation of these roads, impacts are expected to be minimal, particularly in the case of Huntley Road where road closures would not be required.

However, installation of the pipeline under Gander Road would require partial diversions to ensure Gander Road remains accessible during construction. Gander Road is an unsealed road that provides access to local properties including 173 and 175 Aerodrome Road. The pipeline is proposed to be installed by conventional trenching techniques.

Potential temporary increases in local traffic volumes on the road network in the vicinity of the project during general construction would be due to:

- A total of 18 heavy vehicle movements overall are expected to be required during the 16 week construction period for the delivery of materials and equipment to the site. This would include delivery of pipe sections, which would occur after the morning peak hour on alternate days for a total of four days. Access by delivery vehicles to the construction compound would be off Gander Road. Vehicles

would exit the compound onto Huntley Road to return to the road network. No additional access routes would be required; and
- Movement of the workforce (at a peak of 16 personnel) daily to the construction site. It is expected that the workforce will be sourced from Orange and will drive to the construction site daily.

According to the EIS, the additional local traffic resulting from construction of the project would be minimal and short term.

To minimise construction traffic impact, the Proponent has proposed the following management measures:
- Access to private properties would be maintained during construction. One detour for access to a property (173 Aerodrome Road) may be required and would be conducted in consultation with the affected property owner;
- Traffic management control plans prepared in consultation with RMS and in accordance with *AS 1742.3 – 1996 Traffic Control Devices for Works on Roads;*
- Reduced speed limits of 80 km/h on Aerodrome Road in the vicinity of Gander Road during the construction period;
- Notification to residents via letter box drops; and
- Restoration of all areas to their pre-works condition after construction.

One submission from Orange City Council noted that the proposal area is heavily trafficked by cyclists and motorists, including Cadia mine-related traffic and airport commuters, requiring close attention in the traffic impact assessment.

Consideration

The Department considers that the traffic impact assessment conducted for the EIS adequately addresses traffic-related issues. Given the short total length of the new pipeline (1.8 kilometres) and the single site access point during construction along the easement, the Department considers that traffic impacts would be minor and temporary.

A main contributor to traffic impacts would be site access for delivery of materials and equipment. The Department considers traffic impacts due to this activity would be reduced because delivery of the pipe sections is expected to occur outside peak traffic times.

Regarding construction of road crossings, potential traffic impacts would be limited to Gander Road, which is an unsealed road. Partial diversions would be required during conventional trenching activities for this road crossing. However, given the short-term nature of construction activities and current traffic volumes on Gander Road, the Department considers impacts at this location are likely to be minor and manageable. No changes to property access arrangements are anticipated to be required. The Department considers this to be appropriate given the level of traffic and existing use of Gander Road. The Department considers that construction of the other road crossings (Huntley Road and Aerodrome Road) would not result in traffic impacts due to proposed construction prior to the separate proposed road realignment work by Orange City Council at these locations. This eliminates the need for road closures for construction of the Huntley Road and Aerodrome Road crossings.

The Department is satisfied that the traffic impacts can be appropriately managed via the recommended conditions of approval that incorporate the Proponent's mitigation measures which would assist in maintaining traffic flow, safety, efficiency and standard of maintenance along the existing road network during construction and operation of the Project. Furthermore, the Department considers that traffic impacts due to general construction activities would be minor, temporary and local in nature.

5.4. Surface and Ground Water

The proposal is located in the Summer Hill Creek catchment of the Macquarie River. The study area generally drains through Summer Hill Creek to Suma Park Dam which supplies water to Orange. The proposal area is zoned as a drinking water catchment, however according to information in the EIS, the proposal would not impact Summer Hill Creek or Suma Park Dam, which are located more then 5 km from the proposed works.

Information provided by NOW indicates that the proposed site is located within two water sharing plan areas as follows:

- The Summerhill Creek Water Source under the *Water Sharing Plan for the Macquarie Bogan Unregulated and Alluvial Water Sources 2012*; and
- The Orange Basalt Groundwater Source under the *Water Sharing Plan for the Murray Darling Basin Fractured Rock Groundwater Sources 2011*.

Accordingly, water licence requirements under the *Water Management Act 2000* are relevant to the proposal. Furthermore, some provisions of the *Water Act 1912* related to water licence requirements remain relevant to the proposal.

While the proposal would not directly intercept any watercourses, potential impacts to surface water may include:

- Sediment runoff from soil disturbance activities and stockpiles;
- Spills of fuels, oil and chemicals; and
- Temporary redirection of surface water flows during trenching and excavation activities.

According to the EIS, minimal vegetation clearing would be required. The flat topography of the project area would limit sediment entry into nearby drainage lines during construction. Furthermore, flooding is unlikely to be an issue due to the location of the project area at the top of the catchment.

According to the EIS, groundwater bores located within 6km of the proposal are used for stock, domestic and irrigation purposes and the proposal is within an area of 'groundwater vulnerability'. The majority of bores indicate a depth to groundwater of 5 metres or more below ground level (bgl). Bores nearest the Orange Aerodrome indicate water levels between 3.7 metres and 8 metres bgl due to seasonal and temporal variations. Trenching required for the relocated pipeline would be to a depth of 1,500 millimetres which is shallower then standing groundwater levels in 98% of bores within 6 km of the proposal. Therefore groundwater is unlikely to be encountered during construction and impacts on groundwater quality and quantity are not expected. However, protective measures have been included as part of the CEMP in the unlikely case of groundwater impact including the preparation of a groundwater management plan identifying trigger levels for investigating any potentially adverse groundwater impacts.

Potential impacts to surface and groundwater quality during operation of the pipeline are considered minimal as no chemicals would be used or generated.

The Proponent has committed to a range of mitigation measures to protect water quality and flow regime impact during construction of the pipeline including:

- use of erosion and sediment control measures established in an Erosion and Sediment Control Plan, as part of the CEMP;
- stockpile locations and plant wash down locations away from drainage lines;
- maintenance of on-site chemical storage areas with secure bunding and located away from drainage lines;
- diversion of clean water around the construction site;
- prompt and thorough restoration of disturbed areas including soil stabilisation; and
- maintain plant and equipment in good working order with no leakages and immediate repair of any leaks.

One submission was received from NOW regarding use of water resources in the vicinity of the project. This identified that the catchment area drains to a reservoir which provides town water supplies. NOW provided water licence requirements and recommended conditions of approval in their submission.

It is noted by NOW that any dewatering of the excavation undertaken in the course of construction of the new pipeline must be authorised by a water access licence under the *Water Management Act 2000*. Also any taking of water from a surface or groundwater source (for dust suppression or wash down areas) must be authorised by a water access licence under the *Water Management Act 2000*.

The submission from NOW recommended a range of conditions of approval, including the preparation of a Water Management Plan which must be developed in consultation with NOW and include site water, surface water and ground water management plans.

Consideration

The Department is satisfied that surface water issues can be managed appropriately through the CEMP and conditions of approval. Likewise, the Department is satisfied that groundwater impact is unlikely as evidenced by information provided in the EIS. In accordance with recommendations made by NOW during the Department's assessment of the EIS, the Department has provided in the conditions of approval for the preparation of a Water Management Plan as part of the CEMP comprising site water, surface water and ground water management mechanisms. Specifically, the Department has recommended that the Proponent prepares an Erosion and Sediment Control Plan and Spill Response Plan as part of the CEMP, detailing mitigation measures to reduce the likelihood of any impact to surface water and groundwater during construction of the project.

5.5. Other Issues

The Department has recommended conditions of approval addressing the following issues:

- Dust generation during construction; and

- Risk and hazard management in accordance with relevant Australian Standards and State policies that ensure pipeline safety and the safety of surrounding residents.

The recommended conditions of approval also provide for regular auditing, compliance tracking, complaints response and the maintenance of publicly available information about the project. The Department is satisfied that all other matters have been adequately addressed in the Proponent's EIS and Compilation of Mitigation Measures.

Table 4 Consideration of Other Issues

Issue	Department's consideration
Air Quality/Dust Management	Dust would be generated during topsoil removal, trenching, vehicle movements along unsealed areas and stockpiling of soils. Exhaust emissions may occur from construction plant and equipment. Dust and exhaust generation would impact on the amenity of the surrounding areas if appropriate controls are not implemented. Some existing dust impacts occur in this area from aerodrome operations and vehicles along unsealed roads. Potential receptors sensitive to air quality impacts are low density rural residential properties. The nearest sensitive receiver to the proposal is a residential rural property located approximately 60 metres south west. Another property is located immediately east of the proposal, however this property (known as Lot 384 DP 1045095) would be vacant during the construction period. Furthermore, the scale of construction in terms of the volume and intensity of earthworks (one excavator and side-boom) is considered to be minor. Therefore short-term adverse impacts from dust and exhaust generated during construction would be minimal. The Proponent has committed to implement a range of dust management measures including the use of dust suppression controls, covering of haulage vehicles, 15km/hr speed limits along unsealed roads, maintenance of plant in good working order, prevention of idling vehicles and prompt reinstatement of disturbed areas. Silt and other materials would be removed from erosion control structures following rain to ensure deposits do not become a dust source. Operation of the project would have negligible impact on air quality in the locality due to the underground location of the pipeline and passive maintenance requirements. Ventilation systems would comply with the relevant Australian Standards. <u>Consideration</u> The Department is satisfied that dust can be managed appropriately through the CEMP and conditions of approval. The Department has recommended in the conditions that the Proponent provide mitigation measures to reduce dust and exhaust generated during construction activities and a reactive management program detailing how and when construction operations are to be modified to minimise the potential for dust emissions, should there be significant emissions.
Risk/Hazards	A Preliminary Hazard Analysis (PHA) was conducted as part of the EIS in accordance with the Department's *Hazardous Industry Planning Advisory*

	Paper No. 6 as required by the DGRs. This considered the potentially hazardous nature of natural gas in the pipeline. The pipeline would be designed and built in accordance with *AS 2885 – Pipelines – Gas and Petroleum, APIA Code of Environmental Practice Onshore Pipelines 2009* and the pipeline licence. The main potential hazards identified were loss of pressure in the pipeline, loss of containment and subsequent ignition, resulting in a flash fire or vapour cloud explosion during commissioning or operation. Further potential hazards associated with the pipeline location such as the risk of aircraft or heavy vehicle crash, damage to the pipeline through vandalism and neighbouring bush fire were also considered. The PHA undertaken in the EIS has quantified the risks from potential hazardous incidents presented the results as risk transects. The PHA indicates that the risks associated with the pipeline are very low and would not impact any houses in the surrounding area. No submissions were received regarding the issue of risk/hazard. <u>Consideration</u> The Department is satisfied that the PHA results show that likely worst case consequence incidents (fire and explosion) associated with the Project are of low likelihood and would not impact any houses in the surrounding area. The proposal would not increase the risk of potential releases due to the short length of pipeline being relocated and operated under the same conditions as the original pipeline section. The Department has recommended hazard-related conditions of approval for this proposal that confirm the construction and operation of the pipeline is conducted within the appropriate standards. The Department has also recommended the preparation of a pre-construction safety risk assessment to identify any construction hazards and risks and associated controls to be implemented. Furthermore, the Department notes that the Proponent would need to abide by the conditions of Pipeline Licence No. 22 granted under the *Pipelines Act 1967*, which includes a pipeline monitoring regime and dedicated real time telemetry monitoring in accordance with *AS 2885.3 – 2001*.

6. RECOMMENDATION

The Department has assessed the agency submissions and EIS including the Compilation of Mitigation Measures for the Brown's Creek to Orange Gas Pipeline Relocation Project. The Department notes that a Response to Submissions (RtS) Report was not required to be prepared for this project due to the low number of submissions received, the relatively minor nature of the project and the nature of the issues raised. The Brown's Creek to Orange Gas Pipeline Relocation Project is proposed to relocate a section of the high pressure natural gas pipeline a distance of 400m to the west to allow for the expansion of the Orange Aerodrome by Orange City Council. The 20 metre wide easement comprises agricultural land and road crossings. The Department considers that the additional impacts associated with construction and operation of the pipeline section within this partially disturbed context would not be significant.

Based on its assessment, the Department is satisfied that the Proponent has provided a robust and conservative assessment of potential impacts. On balance, the Department considers the project to be justified given its benefits to the broader community in securing future gas supply for NSW and enabling current and future expansion of the Orange Aerodrome. The Department is confident any adverse impacts identified in this report can be mitigated to acceptable levels with the mitigation measures proposed in the EIS and implementation of the recommended conditions of approval. The Department therefore recommends the approval of this project subject to the Department's recommended conditions.

Prepared by
Joanne Glass
Environmental Planning Officer

Endorsed by:

T Philp 1/5/13

A/Team Leader
Infrastructure Projects

Approved by:

1.5.13

Chris Wilson
Executive Director,
Development Assessment Systems and Approvals

APPENDIX A ENVIRONMENTAL IMPACT STATEMENT

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5570

APPENDIX B SUBMISSIONS

See the Department's website at http://majorprojects.planning.nsw.gov.au/index.pl?action=list_submissions&job_id=5570

APPENDIX C RECOMMENDED CONDITIONS OF APPROVAL