East Australian Pipeline Pty Ltd

Brown's Creek to Orange Gas Pipeline Relocation Environmental Impact Statement

January 2013

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Submission of Environmental Impact Statement

This Environmental Impact Statement has been prepared in accordance with Schedule 2 of the *NSW Environmental Planning and Assessment Act 1979*.

Environmental Impact Statement prepared by	Name	Sophy Townsend
	Qualifications	BEnvSci (Honours)
	Address	GHD Pty Ltd Level 15, 133 Castlereagh Street Sydney NSW 2000
	In respect of	Brown's Creek to Orange Gas Pipeline Relocation
Proposal	Applicant name	East Australian Pipeline Pty Ltd
	Applicant address	Suite 1, 60-62 Gladstone Road Fyshwick ACT 2609
	Land to be developed	As shown in the Environmental Impact Statement.
Environmental Impact Statement	An Environmental Impact Statement is attached.	
Certificate	I certify that I have prepared the contents of this Environmental Impact Statement and to the best of my knowledge: ◗ It is in accordance with Schedule 2 of the *NSW Environmental Planning and Assessment Act 1979*. ◗ It contains all available information that is relevant to the environmental assessment of the development. ◗ That the information contained in the Environmental Impact Statement is neither false nor misleading.	
	Signature	S. Townsend
	Name	Sophy Townsend
	Date	18/01/13

Executive summary

East Australian Pipeline Pty Ltd (EAPL), a subsidiary of APA Group, is proposing to relocate an approximate 1.8 kilometre section of the Brown's Creek to Orange Natural Gas Pipeline including decommissioning a section of the existing pipeline to accommodate a proposed westward expansion of Orange Aerodrome at Orange.

The proposal is considered State significant infrastructure and, as such, approval from the Minister for Planning and Infrastructure is required. This Environmental Impact Statement (EIS) has been prepared under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to address the requirements of the Director – General's Requirements (DGRs) dated 28 September 2012. The construction and operation of the proposal also requires a licence under Section 11 of the *Pipelines Act 1967*.

The existing pipeline is situated outside the perimeter of the existing Orange Aerodrome (on agricultural land) in a 20 metre wide easement controlled by APA Group. The proposed expansion of Orange Aerodrome by Orange City Council would require the acquisition of land on which the pipeline is currently situated. The extension of Runway 11/29, parallel taxiway and diversion of Huntley and Aerodrome Roads would pass over the existing pipeline resulting in the need to provide additional protection to ensure the integrity of the pipeline is maintained. While these measures would address potential operational concerns, leaving the pipeline in its current location would also reduce the area available for future additional hangar space. The existing gas pipeline is therefore proposed to be relocated.

The proposal would be designed, constructed and operated in accordance with the requirements of *Australian Standard 2885 Pipelines – Gas and Liquid Petroleum 2007* (AS2885) and the *Australian Pipeline Industry Association Code of Environmental Practice Onshore Pipelines 2009*. The pipe would be made of steel and have a nominal diameter of 100 millimetres. It would also be coated and include a cathodic protection system to mitigate corrosion and mechanical damage. The pipeline wall thickness would be approximately 6 millimetres increasing to 8.5 millimetres under roadways. It would generally be buried at a minimum depth of 1,200 millimetres increasing to 1,500 millimetres at the end of the proposed runway. Pipeline marker signs would be installed to ensure the pipeline is identified by any party undertaking an operation which may damage pipeline facilities. Plastic warning tape would also be buried directly above the pipeline.

The pipe would operate at a pressure of 8.5 MPa and with a maximum allowable pressure of 9.93 MPa similar to the existing pipeline. The pipeline would be subject to patrols by air or ground in accordance with the pipeline licence requirements and APA Group's operation and maintenance safety management procedures.

Environmental investigations were undertaken to assess the potential environmental impacts during both the construction and operation of the proposal. These included detailed assessments of hazard and risk, heritage and ecology. The potential environmental impacts of the proposal were identified along with mitigation and management measures to reduce potential impacts and to protect the environment.

The preliminary hazard assessment concluded that the main hazards associated with the gas pipeline were associated with external interference (due to excavation by external parties) with the potential to result in a fire or explosion. The consequence analysis showed that if a fire or explosion were to occur, unacceptable risks to people or structures would not result.

Based on the environmental impact assessment, the proposal would result in the following temporary and minor amenity-related impacts on the environment during construction:

- Dust nuisance.
- Construction noise.
- Traffic and access disruption.

Mitigation measures would be implemented to reduce these impacts. The environmental performance of the proposal would be managed through the implementation of the construction environmental management plan. This would also help to ensure compliance with relevant legislation and any conditions of approval. During operation, the relocated pipeline would be subject to EAPL's standard monitoring requirements as stipulated in the pipeline licence.

With the implementation of the mitigation measures provided in this EIS, potential impacts would be adequately reduced and would therefore not result in any significant impacts on the environment.

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Glossary of terms

Term	Definition
aerodrome	A landing area, especially for private aircraft, that is usually smaller than an airport.
Aquifer	Rock or soil formation containing groundwater in recoverable quantities.
Biodiversity	Variety and number of different species living in an ecosystem or a defined geographic area.
Catchment	The area drained by a stream, lake or other body of water.
Cumulative impact	An impact created by accumulation or successive additions of individual impacts.
Director-General's Requirements	Outlines the requirements for an environmental impact assessment in accordance with the *Environmental Planning and Assessment Act 1979.*
Emission	The release of material into the atmosphere (e.g. gas, noise).
Endangered Ecological Community	As defined on s. 4(1) of the *Threatened Species Conservation Act 1995* and any additional endangered ecological communities listed under Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999.*
Environmental management plan	A document setting out the management, control and monitoring measures to be implemented during construction (a construction environmental management plan) and /or operation (operational environmental management plan) of a development, to avoid or minimise the potential environmental impacts identified during an environmental assessment process.
Flora and fauna	Plants and animals.
groundwater	Water found below the surface, usually in porous rock or soil or in underground aquifers (natural underground formations that contains sufficient saturated, permeable material to yield significant quantities of water).
Hydrology	The science dealing with water on the land or under the surface, its properties and distribution.
Noise sensitive receiver	Noise sensitive receiver means any of the following: (a) A dwelling. (b) A library, childcare centre, kindergarten, school, college, university or other educational institution. (c) A hospital, surgery or other medical institution. (d) A protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest, under the *Nature Conservation Act 1992.*

Term	Definition
	(e) A marine park under the *Marine Parks Act 1982.* (f) A park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment.
particulate	Small particles, usually occurring in suspension.
rating background level	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.
residential receiver	A dwelling potentially affected by noise or vibration or dust.
runway	A defined area in an aerodrome site for the landing and take-off of aircraft.
spoil	Material removed from and under the ground during construction, usually as a result of excavation.
study area	The proposal site and adjacent areas which are likely to be affected, either directly or indirectly, by the proposal.
the proponent	East Australian Pipeline Pty Ltd (EAPL).
the proposal	The relocation of approximately 1.8 kilometres of the Brown's Creek to Orange Gas Pipeline along the realigned Aerodrome Road and the decommissioning of the existing section of the pipeline which would be located within the expanded aerodrome site.
the proposal site	For the purpose of this EIS, the proposal site covers a 20 metre wide corridor and a 900 square metre temporary construction compound.
threatened species	Species of animals or plants that are at risk of extinction (also known as 'endangered species') or becoming endangered within the next 25 years ('vulnerable species'), defined by the *Threatened Species Conservation Act 1995.*
waste	Discarded, rejected, unwanted, surplus or abandoned substance.
watercourse	A river, creek or other natural watercourse (whether modified or not) in which water is contained or flows (whether permanently or from time to time).

Abbreviations

AHIMS	Aboriginal Heritage Information Management System
APA	APA Group
APIA	Australian Pipeline Industry Association
AS	Australian Standard
CEMP	Construction Environmental Management Plan
Council	Orange City Council
DCVG	Direct Current Volt Gradient
DECC	NSW Department of Environment, Climate Change (then DECCW, now OEH)
DECCW	NSW Department of Environment, Climate Change and Water (now OEH)
DGRs	Director-General's Requirements
DIPNR	Department of Infrastructure, Planning and Natural Resources (now DP&I)
DP&I	NSW Department of Planning and Infrastructure
DPI	NSW Department of Primary Industries
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EAPL	East Australian Pipeline Pty Ltd, a wholly owned subsidiary of APA Group
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority - NSW
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Act Regulation 2000
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESCP	Erosion and Sedimentation Control Plan
GHD	GHD Pty Ltd
ICNG	*Interim Construction Noise Guideline* (DECC 2009)
kPa	Kilopascal

kPag	Kilopascal Gauge
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LFL	Lower Flammable Limit
LGA	Local Government Area
MPa	Megapascal
Navin Officer	Navin Officer Heritage Consultants Pty. Ltd
NES matters	Matters of National Environmental Significance
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
NV Act	*Native Vegetation Act 2003*
OEH	NSW Office of Environment and Heritage (formerly EPA, then DECC, then DECCW)
OHS	Occupational Health and Safety
POEO Act	*Protection of the Environment Operations Act 1997*
RMS	Roads and Maritime Services (formerly RTA)
Roads Act	*Roads Act 1993*
SEPP	State Environmental Planning Policy
SEPP (Infrastructure)	State Environmental Planning Policy (Infrastructure) 2007
State and Regional Development SEPP	State Environmental Planning Policy (State and Regional Development) 2011
TSC Act	*Threatened Species Conservation Act 1995*

1. Introduction

This chapter introduces the proposal and the proponent. It also provides a summary of the environmental impact assessment process and the consultation undertaken for the proposal. The purpose and structure of the environmental impact statement is also provided.

1.1 Overview

East Australian Pipeline Pty Ltd (EAPL), a wholly owned subsidiary of APA Group, is proposing to relocate an approximate 1.8 kilometre section of the Brown's Creek to Orange Natural Gas Pipeline (the relocated pipeline) and decommission a section of the existing pipeline to accommodate a proposed runway extension and new parallel taxiway at Orange Aerodrome.

The Brown's Creek to Orange Pipeline, a branch of the Young to Lithgow Natural Gas Pipeline, is a 100 millimetre diameter high pressure pipeline, which stretches approximately 23.8 kilometres commencing from its off take at Brown's Creek (located 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 (NSW). The pipeline was commissioned in 1987 and operates under Pipeline Licence Number 22.

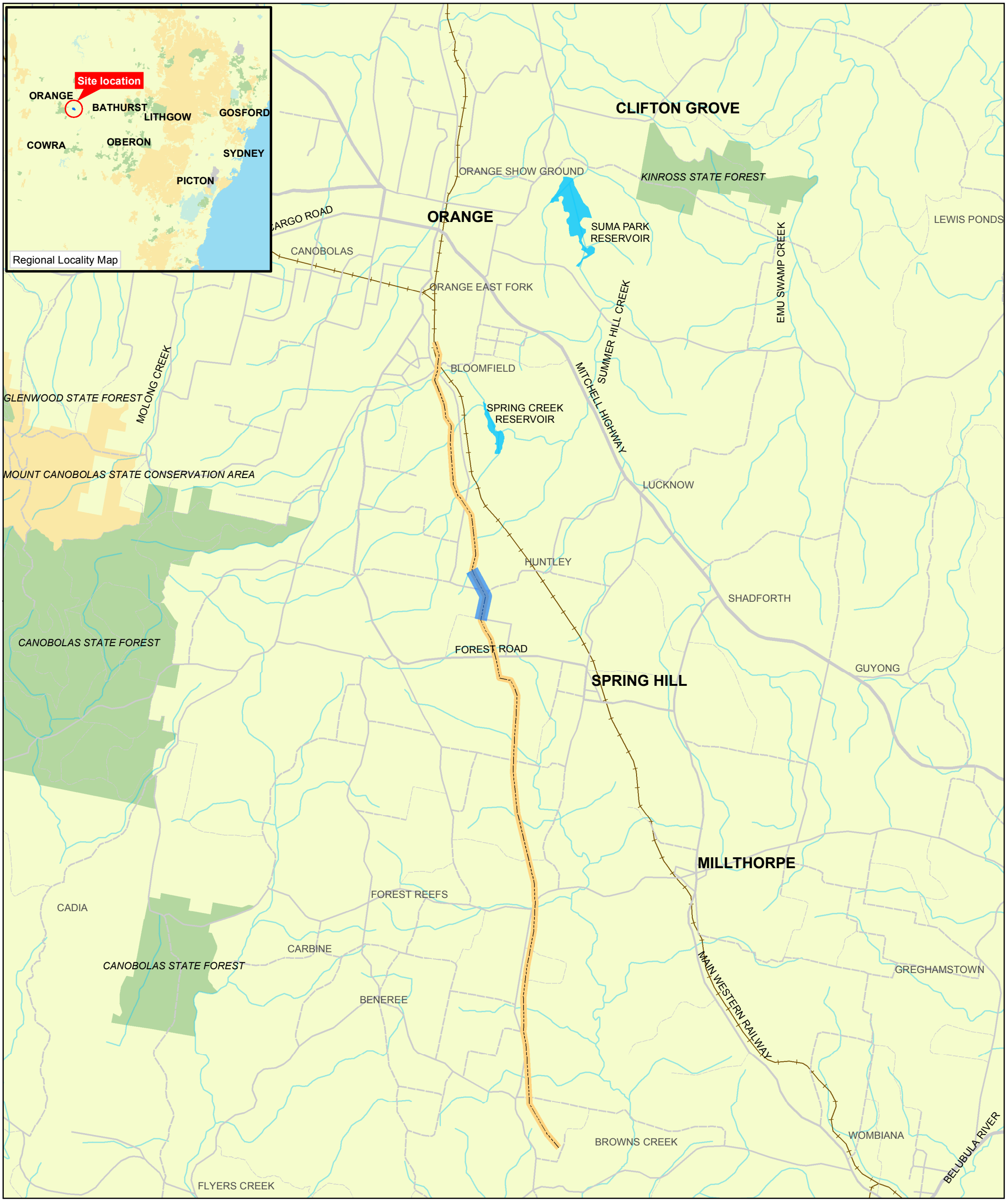
The section of pipeline requiring relocation (the existing pipeline) is situated to the west of Aerodrome Road, outside the perimeter of the existing Orange Aerodrome, approximately 15 kilometres south of the City of Orange as shown on Figure 1-1. The existing pipeline traverses agricultural land in a 20 metre wide easement controlled by APA Group.

The Orange Aerodrome Expansion, currently being progressed by Orange City Council, includes the expansion of the aerodrome site by approximately 80 hectares to the west for an extended runway, new parallel taxiway and associated infrastructure. Aerodrome Road and Huntley Road would also be realigned over a total length of approximately 2.2 kilometres to the west of the existing aerodrome. The Orange Aerodrome Expansion would require the acquisition of land on which the pipeline is currently situated. The proposed aerodrome works would result in the need for relocation of an approximate 1.8 kilometres of existing pipeline.

1.2 The proposal

The proposal involves the relocation of the existing gas pipeline along the realigned Aerodrome Road over approximately 1.8 kilometres and the decommissioning of the existing section of the pipeline which would be located within the expanded aerodrome boundary. Figure 1-2 shows the location of the existing and relocated gas pipelines. Details of the proposal are discussed further in Chapter 4.

The proposal is considered State significant infrastructure and, as such, approval from the Minister for Planning and Infrastructure is required. GHD Pty Ltd (GHD) has been commissioned to prepare an Environmental Impact Statement (EIS) for the proposal under Part 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This EIS has been prepared to address the requirements of the Director-General of the NSW Department of Planning and Infrastructure (DP&I) dated 28 September 2012 (refer to Attachment A) and other relevant legislation (refer to Chapter 4).



East Australian Pipeline Pty Ltd
Brown's Creek to Orange Gas
Pipeline Relocation EIS

Job Number 21-21326
Revision A
Date 14 Jan 2013

Regional location

Figure 1-1

N:\AU\Sydney\Projects\21\21326\GIS\Maps\MXD\21_21326_Z045_GasPipeline_Locality.mxd
Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

Data Source: Geoscience Australia, 250k Data, Jan 2011. Created by: BAHambly

0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Brown's Creek to Orange gas pipeline
- Relocated pipeline
- Existing pipeline
- Proposed Aerodrome Expansion (not part of this proposal)

East Australian Pipeline Pty Ltd
Brown's Creek to Orange Gas
Pipeline Relocation EIS

Job Number	21-21326
Revision	A
Date	19 Nov 2012

Existing & relocated pipeline Figure 1-2

G:\21\21326\GIS\Maps\MXD\21_21326_Z040_GasPipeline_TheProposal.mxd

Data source: Data Custodian, Data Set Name/Title, Version/Date. Orange City Council, Aerial Imagery, 2012. LPMA, Street Map, 2012. Created by:apmiller

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

1.3 The proponent

East Australian Pipeline Pty Ltd (EAPL), a wholly owned subsidiary of APA Group, is the proponent for the proposal.

APA Group, comprised of Australian Pipeline Trust and APT investment Trust, is a major Australian Securities Exchange listed energy transmission company in Australia with interests in almost 12,000 kilometres of natural gas pipeline infrastructure, and over 2,300 kilometres of gas distribution networks in Australia.

1.4 Environmental impact assessment process

The EP&A Act and EP&A Regulation 2000 (EP&A Regulation) provides the framework for the assessment of the environmental impact of development proposals in NSW and includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision making process.

The proposal is considered State significant infrastructure as it is development for the purposes of infrastructure that can be carried out without development consent under Part 4 of the EP&A Act and is declared to be so under *State Environmental Planning Policy (State and Regional Development) 2011*. As such the proposal is subject to assessment and determination under Part 5.1 of the EP&A Act and, in accordance with Section 115W of the EP&A Act, approval from Minister for Planning and Infrastructure is required.

The construction and operation of the proposal also requires a licence under Section 11 of the *Pipelines Act 1967*.

Following submission of a preliminary environmental assessment which broadly described the proposal and the potential environmental impacts, the Director-General of the DP&I issued Director-General's Requirements (DGRs) on 28 September 2012. This EIS has been prepared to address these requirements and a checklist of where each issue is addressed is provided in Chapter 4. An unabridged copy of the DGRs is included as Attachment A.

Further information on the assessment and approvals process for the proposal is provided in Chapter 4.

1.5 Consultation

Consultation letters were mailed to local and State government organisations and authorities as part of the EIS.

Consultation with one directly affected landowner has been undertaken (as part of the easement negotiations) through face to face meetings and letter notifications. No other properties will be directly impacted by the proposal. As part of APA Group's standard consultation procedures, the wider community will have an opportunity to review the proposal and provide comments during the exhibition of the EIS. A full description of consultation undertaken for the proposal is provided in Chapter 5.

1.6 Purpose and structure of the EIS

This EIS has been prepared in accordance with the EP&A Act and Regulation, the DGRs and other relevant legislation to support EAPL's application for approval. The principal objectives of this EIS are to:

- Provide the consent authority with sufficient information to make an informed decision with regard to the benefits of the proposal and an assessment of the potential key environmental impacts.
- Inform the community about the proposal.
- Provide measures to reduce the potential environmental impacts associated with the construction and operation of the proposal.

The EIS is structured as follows:

- **Chapter 1 – Introduction.** This chapter introduces the proposal and the proponent. It also provides a summary of the environmental impact assessment process and the consultation undertaken for the proposal. The purpose and structure of the EIS is also provided.
- **Chapter 2 – Strategic justification and alternatives.** This chapter describes the need for the proposal and presents the design alternatives that were considered.
- **Chapter 3 – The proposal.** This chapter provides a detailed description of the proposal including the proposal site, construction methodology, a description of the construction equipment and materials required for the proposal and construction duration.
- **Chapter 4 – Statutory and planning context.** This chapter examines all relevant State and Commonwealth legislation relating to the proposal and identifies relevant licences, approvals and permits required for construction and operation of the proposal.
- **Chapter 5 – Consultation.** This chapter outlines the consultation activities undertaken during the EIS process. This chapter also summarises the issues raised during consultation with statutory and other relevant authorities, and directly affected landowner(s).
- **Chapter 6 – Environmental impact assessment**. This chapter describes the existing environment and examines the potential impacts associated with the proposal. Mitigation and management measures are provided to ameliorate potential impacts, where required.
- **Chapter 7 – Environmental management**. This chapter provides a summary of the recommended mitigation measures and environmental management and monitoring requirements for construction and operation of the proposal.
- **Chapter 8 – Summary and conclusion.** This chapter provides the justification for the proposal. It provides a summary of the benefits of the proposal and the consequences of not proceeding. The environmental, social and economic considerations are summarised. The suitability of the site is assessed, as is the public interest. The principles of ecologically sustainable development are considered. This chapter also provides the overall conclusion of the EIS.
- **Chapter 9 – References**. This chapter presents a list of references cited in the EIS.

The appendices contain information relating to the EIS including detailed technical reports of particular environmental issues.

2. Strategic justification and alternatives

This chapter describes the need for the proposal and presents the alternatives to the proposal that were considered.

2.1 Project need and justification

The Orange Aerodrome Expansion is being progressed by Orange City Council to resolve existing operational constraints at the aerodrome, significantly improving the capacity of the aerodrome and enabling larger jet aircraft to access the aerodrome in the future. The works involve the westward extension of Runway 11/29, the construction of a new parallel taxiway, and other works which would also require the realignment of the existing Huntley and Aerodrome Roads.

The extension of Runway 11/29, parallel taxiway and diverted Huntley and Aerodrome Roads would pass over the existing pipeline resulting in the need to provide additional protection measures to ensure the integrity of the pipeline is maintained. While these measures would address potential operational safety concerns, leaving the pipeline in its current location would also reduce the area available for future development by Orange City Council as additional hangar space.

A number of unacceptable risks to the pipeline may arise as a result of the construction and operation of the Orange Aerodrome Expansion including:

- Damage to the pipeline coating leading to corrosion leaks or other structural failure.
- Pipeline flattening as a result of excessive loading.
- Pipeline damage or rupture due to external interference/strike by construction machinery.
- Reduced access for maintenance or repairs.

The existing classification of the pipeline is zoned as R1 (rural) under the *Australian Standard 2885 Pipelines – Gas and Liquid Petroleum 2007* (AS 2885.1-2007), and as a result of the Orange Aerodrome Expansion would need to be increased to T1 (residential).

A risk assessment was undertaken by APA Group in September 2012 to determine the adequacy of the existing pipeline and consistency within its new surroundings. The risk assessment determined that the existing pipeline would not meet the minimum protection (thickness or depth of cover) requirements of the T1 (residential) classification under AS 2885.1-2007.

The appropriate protection for the T1 (residential) classification, according to the AS 2885.1-2007, includes a minimum pipe wall thickness of at least 6.02 millimetres (with a maximum wall thickness of 8.56 millimetre) and a minimum depth of cover of 1,200 millimetres.

The proposal is being progressed at the request of Orange City Council to ensure the Orange Aerodrome Expansion can progress safely without compromising the integrity of the pipeline and similarly that the pipeline does not pose unacceptable risks on safety or constraints on the future development of the aerodrome.

2.2 Alternatives

The following options were considered:

- Do nothing.
- Increase the protection of the existing pipeline.
- Relocate the pipeline (the proposal).

A summary of each option is provided below.

2.2.1 Do nothing

This option involves leaving the pipeline in situ without any alteration. As discussed in Section 2.1, modification of the pipeline is required to meet the minimum protection criteria stipulated by AS 2885.1-2007. The 'do nothing' option would result in unacceptable risks to the existing pipeline, and consequently unacceptable risks to the proposed aerodrome infrastructure, and the surrounding locality.

The 'do nothing' approach is therefore not considered feasible.

2.2.2 Increase the protection of the existing pipeline

This option would involve modifying the existing pipe's physical protection to meet the requirements of the T1 (residential) zone classification. The two types of protection applicable include increasing the pipe thickness and depth of cover. The minimum thickness for impact resistance for the T1 (residential) zone classification is 6.02 millimetres. The existing pipeline has a thickness of 4.8 millimetres and would therefore require the replacement of the section within the vicinity of the aerodrome with a heavier pipe.

The second means of protection provided under AS 2885.1-2007 is depth of cover. A minimum 1,200 millimetres is designated as appropriate for the T1 (residential) zone classification. The existing pipeline is at this depth for part of its length but not consistently. The existing pipeline would, therefore, need to be buried to 1,200 millimetres along the entire length within the vicinity of the aerodrome.

Covering the existing surface with a layer of concrete is a possible alternative, but for this to be implemented there are a number of other considerations that would need to be accounted for, including performing regular coating condition checks. This would make it a costly protective option.

The modification of the pipeline would be subject to a licence variation for the new T1 (residential) zone classification and would need to be undertaken prior to major earthworks associated with the Orange Aerodrome Expansion, which are scheduled to commence in mid-2013 (subject to planning approval). The option of increasing the depth of cover and pipe thickness while the service is active would be a lengthy and risky construction process that might also delay the Orange Aerodrome Expansion.

Providing additional protection to the pipeline in its existing location would also not resolve the constraints to surface development within the aerodrome which would remain as a result of the existing easement and the need to provide access as required for maintenance. This would reduce the area available for development at the aerodrome. For these reasons, leaving the pipeline in its existing location was not the preferred option.

2.2.3 Relocate the pipeline - The proposal

This option involves relocating the pipeline and easement to a new location away from the aerodrome infrastructure as described in Chapter 3.

In comparison to the alternatives, this option is preferred as it is the most reliable design in the long-term; would result in reduced risks to the pipeline during operation of the future aerodrome; would facilitate the maximum extent of development within the aerodrome and is the most cost effective.

3. The proposal

This chapter provides a description of the proposal including a description of the existing location, key design elements and proposed construction methodology.

3.1 Brown's Creek to Orange Gas Pipeline

The Brown's Creek to Orange Pipeline stretches approximately 23.8 kilometres commencing from its off take at 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 NSW. The pipeline was constructed as part of the Young to Lithgow Natural Gas Pipeline, which was commissioned in 1987 and was designed to comply with the requirements of *Australian Standard 1697-1981: Gas Transmission and Distribution Systems* (known as the SAA Gas Pipeline Code) applicable during 1987.

The Brown's Creek to Orange Gas Pipeline is a high pressure natural gas pipeline (approximately 90 per cent methane) that operates at a maximum pressure of 9,930 kPag and has the following characteristics:

- Nominal diameter of 100 millimetres (DN100).
- Outer diameter of 114.3 millimetres.
- Wall thickness of 4.8 millimetres in API - 5L Grade B pipe steel.
- Buried to a depth of between 800 and 1,200 millimetres along its length.

The section of the pipeline to be relocated (existing pipeline) is located within the Orange Local Government Area (LGA). The Cabonne LGA surrounds Orange LGA to the north, east and west and is located approximately 1.5 kilometres from the existing pipeline. The existing pipeline lies within the Macquarie River catchment which is managed by the Central West Catchment Management Authority (CWMA).

The existing pipeline is situated to the immediate west of Aerodrome Road, outside the perimeter of the existing Orange Aerodrome, approximately 15 kilometres south of the City of Orange as shown on Figure 1-1. The pipeline is located in agricultural/ open grazing land and traverses Lot 384 DP 1045095 and Lot 7 DP 559537 in a 20 metre wide easement currently held by APA Group.

The existing pipeline, in the vicinity of the aerodrome, was originally classified under AS 2885.1-2007 as R1 (rural), on the basis that it was located within a rural area used for grazing and/or agricultural purposes and at a safe distance from the aerodrome.

Figure 1-2 illustrates the location of the existing pipeline with respect to the aerodrome assets.

3.2 Proposal description

The proposal includes the relocation of approximately 1.8 kilometres of the Brown's Creek to Orange Gas Pipeline around the proposed Orange Aerodrome Expansion (the relocated pipeline). The proposal also includes decommissioning and abandoning the existing pipeline which may hinder the construction and operation of the Orange Aerodrome Expansion. The decommissioned pipeline would be abandoned and left in situ in accordance with AS 2885.1-2007 requirements and the *Australian Pipeline Industry Association (APIA) Code of Environmental Practice Onshore Pipelines 2009* (refer to Section 3.4.3).

The relocated pipeline would be installed prior to the diversion of Huntley and Aerodrome Roads and would cross two existing roads: Gander Road and Huntley Road. Gander Road would remain accessible during construction with partial diversions established, if required. Huntley Road is expected to be disused (as a result of the Aerodrome Expansion) at the time of pipeline construction and would therefore not require any full road closures.

The relocated pipeline would be designed, constructed and operated in accordance with the T1 (residential) zone classification requirements of AS2885.1-2007 and the APIA Code of Environmental Practice Onshore Pipelines 2009. The pipeline would have the following characteristics:

- A wall thickness of 6.02 millimetres and 8.56 millimetres under road crossings.
- The pipeline would be buried to at least 1,200 millimetres. In areas where additional activity is likely to take place, at the end of the extended runway, the pipeline will be buried to a greater depth of 1,500 millimetres.
- The pipeline would have a nominal diameter of 100 millimetres (DN100) in API - 5L X 42 PSL2 steel pipe.
- The pipeline would have an outer diameter of 114.3 millimetres.
- The pipe would operate at a pressure of 8.5 MPa and with a maximum allowable pressure of 9.93 MPa similar to the existing pipeline.

The pipeline would have current cathodic protection system to mitigate corrosion and mechanical damage. The pipeline would be externally coated with a multilayer thermoplastic coating consisting of three layers of polyethylene coating (3LPE Trilaminate) designed to provide maximum long-term corrosion resistance and mechanical protection to the steel pipe. The relocated pipeline would be protected by the following procedural measures:

- **Marking** – Pipeline marker signs would be installed to ensure the pipeline is identified by any party undertaking an operation which may damage pipeline facilities.
- **Landowner, occupier and public liaison** – Protection of the pipeline route would be maintained by the landowner/ occupier in accordance with the requirements of AS2885.3.
- **External intrusion detection** – The pipeline would be subject to patrols by air or ground in accordance with the pipeline licence requirements and APA Group's operation and maintenance safety management procedures.

Operation and maintenance of the relocated pipeline is described further in Section 3.9

The following additional measures of protection would be established under road crossings:

- **Greater pipeline wall thickness –** the pipe wall thickness would be 8.56 millimetres under road crossings.
- **Buried marker tape** – Plastic warning tape would be located at least 300 millimetres directly above the pipeline to enable external parties to identify that they are digging near a high pressure gas pipeline.

3.3 Proposal location

Figure 3-1 shows the existing and relocated pipeline alignments with respect to land ownership. The relocated pipeline would be constructed along the proposed western boundary of the expanded aerodrome site boundary between the fence line and the relocated Aerodrome Road and across Lot 1 DP 219587, Lot 7 DP 559537 and Lot 384 DP 1045095. Lot 7 DP 559537 and Lot 384 DP 1045095 are being acquired by Orange City Council as part of the Orange Aerodrome Expansion and Lot 1 DP 219587 is privately owned. A new 15 to 20 metre wide easement would be acquired by APA Group along the length of the relocated pipeline.

0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Brown's Creek to Orange gas pipeline
- Relocated pipeline
- Existing pipeline
- Cadastre

East Australian Pipeline Pty Ltd
Brown's Creek to Orange Gas
Pipeline Relocation EIS

Job Number	21-21326
Revision	A
Date	19 Nov 2012

Land ownership

Figure 3-1

G:\21\21326\GIS\Maps\MXD\21_21326_Z046_GasPipeline_LandOwnership.mxd

Data source: Data Custodian, Data Set Name/Title, Version/Date. Orange City Council, Aerial Imagery, 2012. LPMA, Street Map, 2012. NSW LPI, Cadastre, March 2012. Created by:apmiller

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

3.4 Construction methodology

Construction of the relocated pipeline would involve the following key activities:

- Pipeline construction.
- Testing and commissioning of the relocated pipeline.
- Decommissioning of the existing pipeline.
- Site restoration.

Details of the construction methodology are described below.

3.4.1 Pipeline construction

Pipeline construction would be undertaken using conventional trenching. Trench dimensions would generally be 400 millimetres in width and 1,200 millimetres in depth for the length of the pipeline (approximately 1.8 kilometres). Construction of the pipeline would require a corridor of approximately 15 to 20 metres in width to enable access of machinery and equipment and the temporary storage of materials.

The sequence of construction activities associated with the pipeline construction would include:

- Establishment of erosion and sediment controls.
- Site preparation including vegetation removal along the length of the pipeline (15 metre to 20 metre wide corridor). Large mature trees would be preserved wherever practicable.
- Grading of topsoil, where required, and stockpiling separately for reuse during rehabilitation.
- Excavation of trenches utilising a wheel trencher or excavator to dig the trench in which the pipe would be laid. The length of trench left open at any given time would be the minimum practicable.
- Stringing of pipe. Pipe would be transported to site in 12 metre lengths and laid out adjacent to the trench (within the construction corridor). Pipe would be held off the ground on skids (typically wooden blocks) that protect the pipe coating from damage.
- Aligning and welding of pipe. Once the pipe has been strung a line-up crew would position the pipe using side boom tractors and internal line-up clamps. Pipes would be welded in several segments, called pipe strings.
- Radiography. Each weld would be subjected to a 100 per cent non-destructive test inspection to check for compliance to the specification, thus ensuring the integrity of each weld.
- Installation of pipe and backfilling. If the trench bottom does not contain any rocks or other material that may damage the pipe coating the pipe would be laid directly on the trench bottom. However, if rocks or other debris are present, sandbags or foam pillows would be placed on the trench bottom to support the pipe. Soft material, typically sifted spoil, would be placed around the pipe. The pipe would then be lifted off the skids and lowered into the trench using side-boom tractors. The trench would be backfilled, ensuring that topsoil is replaced last, and soil packed down to minimise the potential for subsidence.

3.4.2 Testing and commissioning

The pipeline would be hydrostatically tested for strength and potential leaks by being filled with water and increasing the pressure to a minimum of 125 per cent of the Maximum Allowable Operating Pressure (MAOP) in accordance with AS2885.

Approximately 15,000 litres of water would be required for the hydrostatic test, which would be provided by a water tanker (one tanker). The area of exposed pipe during the test would be kept to a minimum and barriers installed to isolate any open trench. After testing, water would be drained back to the tanker and disposed of at an appropriately licensed disposal facility.

The pipeline would be dried after a successful hydrostatic test and tied into the existing pipeline. Hot tapping and stopple technique would be employed to disconnect the existing pipeline and connect the new section of the pipeline. Safety would be maintained in accordance with APA Group's standard safety procedures.

3.4.3 Decommissioning of existing pipeline

In accordance with AS 2885.1-2007 and the APIA Code of Environmental Practice, the existing pipeline would be decommissioned and abandoned in situ. The pipeline would be purged clear of flammable fluids, cut and left without cathodic protection to corrode. Consideration by APA Group would be given to blocking cut ends with cement slurry or steel plates.

3.4.4 Restoration

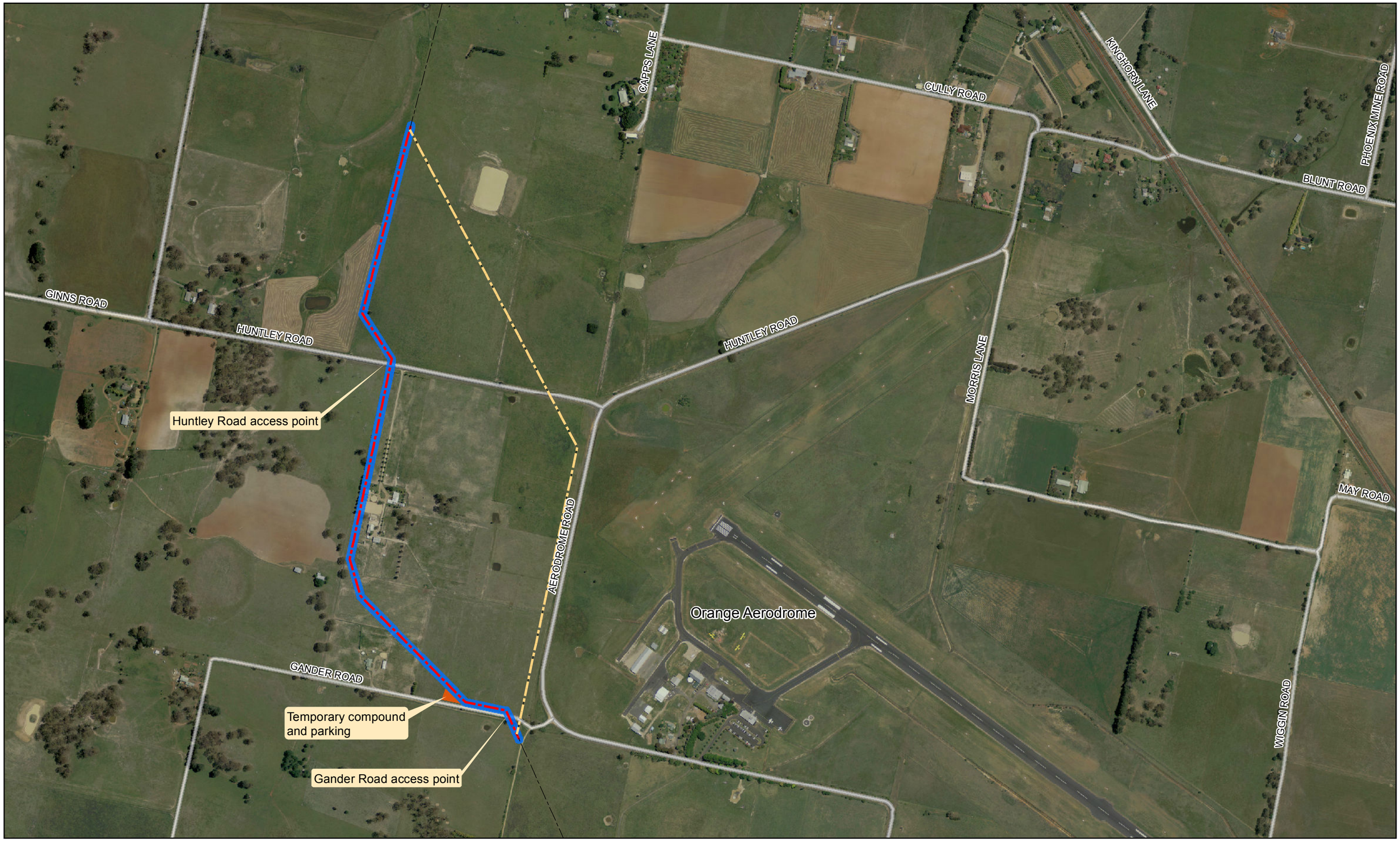
Restoration and clean-up of the areas disturbed during construction would be undertaken as soon as possible following construction to ensure the sites are suitably stabilised and restored to their pre-works condition. Restoration would involve the removal of foreign material (construction material and waste), surface contouring, respreading topsoil, respreading vegetation and reseeding/revegetating (typically with native grass or other approved species). Restoration would be undertaken in accordance with the APIA Code of Environmental Practice and would ensure that:

- Topsoil cover is re-established and any land and waterways disturbed during construction activities are returned to a stable condition as soon as possible.
- Stable landforms are re-established to the original topographic contours.
- Natural drainage patterns are reinstated.
- Erosion control measures (e.g. contour banks, filter strips) are installed in erosion prone areas.
- Any disturbed habitats are recreated.

3.5 Temporary facilities and access

A temporary site compound would be required during construction for the storage of equipment and materials. An area of approximately 900 square metres off Gander Road is proposed to be utilised during construction. Access to the work area during construction would be restricted to existing roadways and within the construction corridor as far as practicable to minimise disturbance to the surrounding areas.

For the purpose of this EIS, the 'proposal site' covers a 20 metre wide construction corridor (10 metres either side of the centreline of the relocated pipeline) and the temporary site compound as shown in Figure 3-2.



0 50 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Brown's Creek to Orange gas pipeline
- Relocated pipeline
- Existing pipeline
- Construction corridor
- Temporary compound and parking

East Australian Pipeline Pty Ltd
Brown's Creek to Orange Gas Pipeline Relocation EIS

Job Number	21-21326
Revision	A
Date	09 Jan 2013

The proposal site

Figure 3-2

G:\21\21326\GIS\Maps\MXD\21_21326_Z047_GasPipeline_TheProposalSite.mxd

Data source: Data Custodian, Data Set Name/Title, Version/Date. Orange City Council, Aerial Imagery, 2012. LPMA, Street Map, 2012. Created by:apmiller

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

3.6 Construction machinery, equipment and materials

3.6.1 Machinery and equipment

Typical machinery, equipment and vehicles used during construction would include:

- Two welding machines.
- Two excavators.
- One grader.
- One side-boom crane.
- One compactor.
- Five heavy vehicles for material haulage.
- Nine light vehicles for personnel.

3.6.2 Materials

Materials required for the construction of the proposal include:

- Approximately 1.8 kilometres of pipe (pipe specification of API 5L X42).
- Miscellaneous pipe fittings.
- Field joint coating material.
- Approximately 15 litres of paint primer (in four litre containers).
- Approximately 1,000 litres of diesel fuel.

3.7 Construction duration, program and cost

Construction of the proposal would be completed in approximately 16 weeks. A breakdown of the construction activities is provided in Table 3-1.

Table 3-1 Construction duration

Activity	Estimated duration
Construction of pipeline	8 weeks
Restoration and decommissioning of existing pipeline	4 weeks
Hot tap and stopple	4 weeks

The proposal is expected to cost approximately $1.7 to 2.0 million. The cost would be entirely reimbursed by Orange City Council.

3.8 Workforce and working hours

The proposal would have a workforce of approximately 16 personnel during peak work periods. The crew would be mainly sourced from local townships; however, some specialist tasks would require the recruitment of specialists from other areas. Accommodation of crew would be provided in the local townships.

Construction of the proposal would be undertaken during the following working hours:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturday.
- No works on Sundays or public holidays.

These working hours are consistent with the construction hours recommended by the *Interim Construction Noise Guideline* (ICNG) (DECC 2009), Extended working hours, outside the construction hours recommended by the ICNG, may be required to ensure the proposal is completed to meet the Orange Aerodrome Expansion program. If required, extended hours would be limited to 8 am to 1 pm on Sundays with a small working crew.

3.9 Operation and long-term management of the pipeline

APA Group undertakes all maintenance, inspection, testing and modification of its pipelines in accordance with all relevant codes and standards. In keeping with the basic principal of pro-active maintenance, APA Group has several preventative maintenance initiatives in place. The existing maintenance program for the pipeline includes fortnightly aerial patrols.

Vegetation growth would be restricted within the pipeline easement and trimming and grass cutting would be undertaken on an as-needed basis following receipt of reports from the regular aerial and ground patrols and surveys. Access to the relocated pipeline for inspections and maintenance would be carried out from Gander Road and along the pipeline easement.

A brief description of the routine inspections and maintenance measures that are currently undertaken for the Brown's Creek to Orange pipeline are provided below. Operation of the relocated pipeline would be as per the existing pipeline. Inspection of the relocated pipeline, by air or ground would continue on a regular basis in association with the current regular fortnightly patrols stipulated under Pipeline Licence Number 22, and the pipeline would be managed in accordance with APIA Code of Environmental Practice and APA Group's operation and maintenance safety management procedures.

Aerial patrol

Aerial surveillance is undertaken for the entire pipeline on a fortnightly basis by fixed wing aircrafts utilising high resolution GPS photography. Predefined incursions are immediately reported to APA Group's Young Control Centre.

Ground surveys

Scheduled ground surveys are carried out as necessary for the pipeline following landowner contact, air surveillance reports and work crew reports.

Cathodic protection system surveillance

Cathodic protection would be installed on the relocated pipeline in the form of impressed current which would be continuously monitored. Potential Surveys are carried out annually in accordance with AS2832 to ensure that the units are running satisfactorily.

Landowners contact

APA Group maintains a comprehensive landowner liaison program that includes:

- Annual landowner scheduled visits to deliver an information package with safety, emergency contact details and other relevant information.
- Visiting the landowner from time to time on an as-needed basis and maintaining a landowner database along the pipeline easement.

- Landowners are encouraged to phone APA Group if they wish to ask any questions with regard to what to do and what not to do along the pipeline easement.
- Local Councils' Land Development Departments are also contacted at least once a year and are encouraged to contact APA Group if any developments occur in the vicinity of the pipeline easement.

Gas awareness

APA Group runs Gas Awareness courses approximately every two years for local emergency services (e.g. earthmoving contractors, councils, electricity authorities, ambulance, police, state emergency service, bush fire brigades, rural fire brigades, Work Cover, and Environment Protection Authority (EPA) located near the pipeline. Local councils and landowners also attend the presentation. The courses are to familiarise the emergency services personnel with the location of the pipeline and the possible effects of an event occurring on or near the pipeline and what precautions should be taken.

Dial Before You Dig:

The pipeline is registered with "Dial before You Dig". This service requires all parties working on or near the pipeline to contact the "Dial Before You Dig" service. Advice is then returned to the parties if the pipeline is in the vicinity of where they will be working. The service arranges contacts for the pipeline location and supervision, as required. The relocated pipeline would be registered with Dial Before You Dig following construction.

APA Group also has a 24 hour 1800 telephone contact number that is the first point of contact for pipeline field information. Requests for pipeline crossings or stand-by work are received and dispatched by the Control Centre at Young. This number is written on the pipeline markers and is also articulated in all the information packages provided to landowners, local councils and emergency services.

Leak surveys

Site leakage surveys are carried out as part of routine maintenance. Easement leakage surveys are not normally utilised, however, when safety management studies indicate that a survey is necessary, it is performed using laser equipment fitted to a helicopter.

Direct current volt gradient surveys

Direct current volt gradient (DCVG) surveys are carried out as part of the integrity management process to locate any coating defect on the pipeline. DCVG surveys are generally scheduled every 5 years.

4. Statutory and planning context

This chapter provides a description of the approval process for the proposal. It includes consideration of the permissibility of the proposal under relevant environmental planning instruments and the requirements of relevant environmental legislation and other planning instruments.

4.1 The Environmental Planning and Assessment Act 1979

The EP&A Act forms the statutory basis for planning and environmental assessment in NSW. The Minister for Planning and Infrastructure, statutory authorities and local councils are responsible for implementing the EP&A Act. The EP&A Act provides the framework for environmental planning and development approvals and includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision making process.

The need or otherwise for development consent is generally set out in environmental planning instruments, namely State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs) or Local Environmental Plans (LEPs).

Part 5.1 of the EP&A Act establishes an assessment and approval regime for 'State significant infrastructure'. Part 5.1 applies to development that is declared to be State significant infrastructure by a SEPP.

Under Section 115U(3) of the EP&A Act, development that may be declared to be State significant infrastructure is development that a SEPP permits to be carried out without development consent under Part 4, comprising:

(a) infrastructure

(b) other development that (but for this Part and within the meaning of Part 5) would be an activity for which the proponent is also the determining authority and would, in the opinion of the proponent, require an environmental impact statement to be obtained under Part 5.

The definition for 'infrastructure' included in Section 115T of the Act includes 'pipelines'.

As described in Section 4.2.1, the proposal is considered State significant infrastructure as it is development for the purposes of infrastructure that can be carried out without development consent under Part 4 of the EP&A Act and is declared to be so under *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional SEPP). In accordance with Section 115W of the EP&A Act, approval from Minister for Planning and Infrastructure is required.

4.2 Environmental planning instruments

Environmental Planning instruments, including SEPPs and LEPs that are relevant to the proposal and the study area are considered below.

4.2.1 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP) identifies development:

- To which the State significant development assessment and approval process under Part 4 of the Act applies.

- That is State significant infrastructure and critical State significant infrastructure. Approval process under Part 5.1

Development that is specified in Schedule 3 or Schedule 4 is declared to be State significant infrastructure. Clause 5 of Schedule 3 states:

> *Development for the purpose of a pipeline in respect of which:*
>
> *(a) a licence is required under the* Pipelines Act 1967*, or*
>
> *(b) an application for a licence is made under that Act on or after the commencement of this clause, or*
>
> *(c) a licence was granted under that Act before the commencement of this clause.*

The proposal is for the relocation of a pipeline that requires a licence under the *Pipelines Act 1967* (Pipelines Act). As discussed further in Section 4.3.2, an application for a licence under the Pipelines Act will be made concurrently with the relocation of the pipeline.

The proposal is therefore State significant infrastructure and would require assessment and determination under Part 5.1 of the EP&A Act.

4.2.2 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across NSW.

Clause 53(1) of the Infrastructure SEPP permits development for the purposes of a pipeline to be carried out by any person without consent on any land if the pipeline is subject to a licence under the Pipelines Act.

However as described in Section 4.1.1, Section 115U(3) of the EP&A Act states that development for the purposes of infrastructure that can be carried out without development consent under Part 4 of the EP&A Act may be declared as State significant infrastructure.

As the proposal is declared to be State significant infrastructure under the State and Regional SEPP (refer to Section 4.2.1), the consent provisions of the Infrastructure SEPP are overridden.

Clause 55(1) requires that prior to determining an application for a development adjacent to a gas pipeline corridor, the consent authority must be satisfied that the potential safety risks or risks to the integrity of the gas pipeline within the corridor have be identified and taken into consideration. The gas pipeline corridor includes any land within a 20 metre radius of the centreline of a pipeline within the Moomba to Sydney System. The proposal is within this system and potential risks are discussed in further detail in Section 6.2.

4.2.3 Orange Local Environmental Plan 2011

The proposal is located in the LGA of Orange, and is subject to the Orange LEP. Under the Orange LEP the site is zoned ‘E3 Environmental Management’.

The proposal would be defined as a ‘public utility undertaking’ which is defined under the Orange LEP as:

> *“any of the following undertakings carried on or permitted to be carried on by or by authority of any Government Department or under the authority of or in pursuance of any Commonwealth or State Act:*
>
> *(a) railway, road transport, water transport, air transport, wharf or river undertakings,*
>
> *(b) undertakings for the supply of water, hydraulic power, electricity or gas or the provision of sewerage or drainage services,*

and a reference to a person carrying on a public utility undertaking includes a reference to a council, electricity supply authority, Government Department, corporation, firm or authority carrying on the undertaking"

Development for the purposes of 'public utility undertakings' are prohibited in the E3 Environmental Management zone.

However as discussed in Section 4.2.1, the proposal is identified as State significant infrastructure under the State and Regional Development SEPP which overrides the provisions of the Orange LEP.

4.3 Other relevant legislation

4.3.1 NSW legislation – other approvals for State significant infrastructure

Approvals that do not apply

Section 115ZG(1) of the EP&A Act specifies certain authorisations which are not required for approved State significant infrastructure. These included the following authorisations, which may otherwise have been relevant to the proposal:

- *Heritage Act 1977* – approval to disturb an item or an excavation permit.
- *National Parks and Wildlife Act 1974* – an Aboriginal heritage impact permit under Section 90.
- *Native Vegetation Act 2003* – consent to clearing native vegetation.
- *Rural Fires Act 1997* – a bush fire safety authority under Section 100B.
- *Water Management Act 2000* – water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91.

These approvals would not be required if the Minister for Planning and Infrastructure grants approval to carry out the proposal.

Approvals that may apply

Under Section 115ZH (1) of the EP&A Act, the following authorisations cannot be refused if necessary for the carrying out of 'approved State significant infrastructure and are to be substantially consistent with an approval to carry out the project given under Part 5.1:

- *Protection of the Environment Operations Act 1997* – An environment protection licence under Chapter 3 of the Act.
- *Roads Act 1993* - A permit under s138 to impact on public roads.
- *Pipelines Act 1967* – A licence for the construction and or operation of a pipeline.

4.3.2 Consideration of requirements under other NSW legislation

Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) establishes, amongst other things, the procedures for issuing of licences for environmental protection on aspects such as waste, air, water and noise pollution control. Environment protection licences are generally issued for scheduled activities or scheduled development work.

The proposal is not specifically defined as either a scheduled activity or as scheduled work by the Act, and would not require an environmental protection licence.

Roads Act 1993

The *Roads Act 1993* is administered by the Roads and Maritime Services (RMS), councils or the Department of Primary Industries (Crown Lands Division). RMS has jurisdiction over major roads, councils over minor roads and the Department of Primary Industries (Crown Lands Division) over road reserves or Crown roads.

Under Section 138, part 9, division 3 of the *Roads Act 1993,* a person must not impact or carry out work on or over a public road otherwise than with the consent of the appropriate roads authority.

Aerodrome Road and Huntley Road are proposed to be realigned as part of the Orange Aerodrome Expansion. The proposal would be constructed within the new alignment of these roads. The Orange Aerodrome Expansion is part of a separate application before Orange City Council for consideration. Approval to carry out works on these roads would be sought from Council as part of the development application process for the Orange Aerodrome Expansion.

EAPL would work concurrently with Orange City Council to undertake the proposal along Aerodrome and Huntley Roads.

It is noted that under Section 115ZH(1) of the EP&A Act, a permit under Section 138 of the Roads Act cannot be refused if necessary for the carrying out of an approved State significant infrastructure and is to be substantially consistent with an approval to carry out the proposal under Part 5.1.

Pipelines Act 1967

The Pipelines Act provides legislative requirements for licencing of cross country pipelines within the state of NSW.

Section 11 of the *Pipelines Act 1967* (Pipelines Act) outlines licensing requirements for pipelines. Under Section 11 a licence is required to:

- Commence, or continue, the construction of a pipeline.
- Alter or reconstruct a pipeline.
- Operate a pipeline.

Therefore a licence under the Pipelines Act would be required for the construction and operation of the proposal.

4.3.3 Consideration of requirements under relevant Commonwealth legislation

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any 'actions' which are likely to have a significant impact on matters of national environmental significance ('NES matters'), or a significant impact on Commonwealth land, require approval from the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities Environment and Heritage. A search of the EPBC Act protected matters online search tool was undertaken on 17 October 2012 for an area within a 10 kilometre radius of the site. The report indicated that:

- There are no world heritage properties in the vicinity of the study area.
- There are no national heritage places in the vicinity of the study area.
- The study area is within the catchment of three wetlands of international significance (Ramsar listed wetlands).
- There are no Commonwealth marine areas in the vicinity of the study area.

- There is the potential for one threatened ecological community to occur in the vicinity of the study area.
- There is the potential for 14 threatened species to occur in the vicinity of the study area.
- There is the potential for 13 migratory species to occur in the vicinity of the study area.

The report also indicated that there are three Commonwealth lands in the vicinity of the proposal. Of the three identified Commonwealth lands, two were not in the immediate vicinity of the site and would not be impacted by the proposal. However a small parcel of Commonwealth land controlled by Airservices Australia is located adjacent to the site, opposite the main entrance to the aerodrome on the southern side of Aerodrome Road. This site contains a non-directional beacon and would not be impacted by the proposal.

The potential impacts on the Ramsar listed wetlands, endangered ecological community, threatened species and migratory species have been considered in the flora and fauna impact assessment included as Attachment E and summarised in Section 6.10. The assessment concluded that as there would be no predicted impacts on any NES matters, approval under the EPBC Act would not be required.

4.4 The application and assessment process

4.4.1 Director-General's requirements

Under clause 115Y of the EP&A Act, the Director-General is required to prepare and issue a proponent with requirements for undertaking the environmental assessment. These identify key issues to be addressed and the level of assessment required. The Director-General's requirements for the proposal were issued on 28 September 2012. A copy of the requirements is included as Attachment A. The matters raised by the Director-General for consideration, and the section of the environmental assessment that addresses them, are summarised in Table 4-1.

4.4.2 Exhibition and submissions

If the environmental assessment is considered to meet the requirements, DP&I would place it on public exhibition for at least 30 days. During the exhibition period, submissions would be invited from relevant agencies and members of the public.

DP&I would provide EAPL with a copy of the submissions or a summary of the issues raised. EAPL would be asked to respond to the issues and may modify the proposal and the draft statement of commitments to minimise impacts on the environment, if required. If the proposal or statement of commitments are modified in response to issues raised, a preferred project report would be prepared to describe the scope of the revised proposal. The Director-General would make this report public.

Table 4-1 Director-General's requirements

Issue category	Requirement	Document reference
General requirements	A summary of the environmental impact statement.	Executive summary.
	A statement of the objectives of the project, including a description of the strategic need, justification, objectives and outcomes.	Chapter 2 and Chapter 8.

Issue category	Requirement	Document reference
	An analysis of feasible alternatives to carrying out the project, including an analysis of options considered having regard to the project objectives (including an assessment of the environmental costs and benefits of the project relative to the alternatives and the consequences of not carrying out the project), the suitability of the chosen option and whether or not the project is in the public interest.	Chapter 2, Section 2.2 and Chapter 8.
	An analysis of the project, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of schedule 2 of the EP&A Regulation (where relevant).	Throughout EIS
	An identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters, such as relevant water sharing plans and state water environmental management plans) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/mitigation measures.	Chapter 2 and Chapter 4.
	A compilation of the measures proposed to mitigate any adverse effects of the project on the environment.	Chapter 7.
	A justification for the preferred project taking into consideration the objects of the *Environmental Planning and Assessment Act 1979*.	Chapter 8.
	Detailing how principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the project.	Chapter 8.
Key issues	**Flora and Fauna -** The EIS must include a flora and fauna impact assessment fully describing the existing environment to be impacted and justify the need for clearing vegetation. Where offsets are proposed, the EIS must detail offset outcomes consistent with 'maintain or improve' principles.	Chapter 6, Section 6.10 and Attachment E.
	Indigenous Heritage – The EIS must include an assessment of the indigenous heritage values of the site (archaeological and cultural).	Chapter 6, Section 6.7 and Attachment D.
	Non-indigenous Heritage – the EIS must include an assessment of non-indigenous heritage values, and where required a Statement of Heritage Impact for areas that may be impacted.	Chapter 6, Section 6.7 and Attachment D.
	Noise – The EIS must include an assessment of construction noise impacts on sensitive receivers and a framework for mitigation, management and monitoring of noise impacts during construction.	Chapter 6, Section 6.3.

Issue category	Requirement	Document reference
	Traffic and Transport – the EIS must include a construction traffic assessment, considering impacts on the local and regional road network and any site access or road upgrade requirements.	Chapter 6, Section 6.5.
	Soil and Water – The EIS must include an assessment of water quality impacts, surface and groundwater, including from erosion, sedimentation and drainage and the use and disposal of hydrostatic test water.	Chapter 6, Section 6.8 and 6.9.
	Air Quality – The EIS must include an assessment of construction air quality impacts on sensitive receiver locations (dust and odour). The assessment must consider measures to mitigate, minimise, or manage the identified impacts.	Chapter 6, Section 6.6.
	Infrastructure Impacts – the EIS must include an assessment of impacts on infrastructure, including roads and other utility servicing infrastructure.	Chapter 6, Section 6.14.
	Long Term Management – the EIS must include an assessment of impacts associated with the operation and maintenance of the deviated section of the pipeline, including access and inspection arrangements; and measures to ensure the integrity of the extended pipeline area, including subsidence and waterflow management.	Chapter 3, Section 3.9 and Chapter 6.
	Hazards and Risk – The EIS must include an assessment of hazards and risks associated with the proposal including details of hazardous materials used or kept onsite.	Chapter 6, Section 6.2 and Attachment A.
Environmental Risk Analysis	The EIS must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. An appropriately detailed impact assessment of key environmental impacts must be included in the EIS.	Chapter 6, Section 6.1.

Issue category	Requirement	Document reference
Consultation	Undertake an appropriate justified level of consultation with relevant parties during the preparation of the EIS, including but not limited to: • Local, state and Commonwealth government authorities, including the: – Department of Primary industries. – Heritage Council of NSW. – NSW Office of Water. – Office of Environment and Heritage. – NSW EPA. – Roads and Maritime Services. – Orange City Council. • Specialist interest groups, including Local Aboriginal Councils and Aboriginal stakeholders • Utilities and service providers; and • The public, including community groups and adjoining and effected landowners. The EIS must describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues.	Chapter 5 and Attachment B and Attachment D.

4.4.3 Assessment and determination

Following the exhibition period DP&I would, on behalf of the Minister of Planning and Infrastructure, review the EIS and any submissions received. Once the DP&I has completed its assessment, a draft assessment report would be prepared for the Director-General. This report may include recommended conditions of approval. The recommended conditions would refer to the summary of mitigation measures provided in Chapter 7, and may modify them and/or add additional provisions.

The assessment report would then be submitted to the Minister of Planning and Infrastructure for determination. The Minister may refuse the proposal, or approve it with any conditions considered appropriate. The Minister's determination and the Director-General's report would be published on DP&I's website immediately following determination.

5. Consultation

This chapter provides a description of the government and community consultation activities undertaken for the proposal.

5.1 Government consultation

5.1.1 Formal procedures for consultation

This EIS has been prepared in accordance with Part 5.1 of the EP&A Act and Schedule 2 of the EP&A Regulation 2000. In preparing this EIS, the requirements of the Director-General of the DP&I were sought as required by Part 2 of Schedule 2 of the EP&A Regulation 2000. Each of the issues raised by the Director-General for consideration in the EIS is outlined in Table 4-1. An unabridged copy of the DGRs can be found in Attachment A.

5.1.2 Consultation with statutory agencies

In September 2012, agencies were contacted by letter and provided with a description of the proposal and an invitation to comment. The following agencies were contacted:

- NSW Department of Primary Industries, including the following divisions:
  - NSW Office of Water.
  - Fisheries NSW.
  - Agriculture NSW.
  - Forests NSW.
  - Catchments and Lands.
- Heritage Council of NSW.
- NSW Office of Environment and Heritage.
- NSW EPA.
- NSW Roads and Maritime Services.
- Orange City Council.
- NSW Trade and Investment - Division of Resources and Energy.

Canobolas Local Area Command (NSW Police Force) and NSW Trade and Investment - Division of Resources and Energy provided comments on the proposal as part of the Orange Aerodrome Expansion. The issues raised have been included in this EIS.

5.1.3 Key issues raised by the statutory agencies

Each of the issues raised by statutory agencies is provided in Table 5-1, together with the relevant section of the EIS which addresses that issue.

Table 5-1 Issues raised by statutory agencies

Agency	Issues raised	Location in EIS
Department of Primary Industries (DPI) ***(Letter received from the DPI included comments from the NSW Office of Water and Fisheries* NSW)**	Adequate and secure water supply for the proposal. Confirmation that water supplies for construction, testing and operation of the pipeline and associated activities are sourced from an appropriately authorised and reliable supply.	Chapter 3, Section 3.4.2.
	Identification of water demands, water sources (surface and groundwater), water disposal methods and water storage in the form of a water balance. This is to also include details of any water reticulation infrastructure/vehicles that supply water to the site and water quality structures proposed to manage runoff from disturbed areas along the pipeline route.	Chapter 3, Section 3.4.2.
	Location and operation details of the proposed infrastructure.	Chapter 3, Sections 3.2 and 3.3.
	That existing and proposed water licensing requirements are in accordance with the *Water Act 1912* and/or the *Water Management Act 2000* (whichever is relevant) and relevant Water Sharing Plans where gazetted.	No water extraction is required.
	An assessment of watercourses to be crossed and selection of appropriate techniques and mitigating measures to minimise impact.	Not applicable.
	Requirements to intercept groundwater and impacts to Groundwater Dependent Ecosystems and groundwater users, predicted dewatering volumes, time periods of dewatering, water quality and disposal/retention methods.	Not applicable.
	Adequate mitigating, monitoring and contingency requirements to address surface and groundwater impacts.	Chapter 6, Section 6.9.
Department of Primary Industries (DPI) - NSW Office of Water ***(Separate letter received)***	Under clause 40 of the *Water Management (General) Regulation 2011*, a network operator or pipeline licensee is exempt from Section 91E (1) of the *Water Management Act 2000.*	Noted.
	The works are required to be consistent with requirements of the *Water Management Act 2000* and if negative impacts on waterfront land occur due to the activities, the proponent is the responsible party for any rehabilitation/remediation required by the NSW Office of Water, under the *Water Management Act 2000*.	Noted.

Agency	Issues raised	Location in EIS
	The Office of Water should be notified if the proposal is varied in any way.	Noted.
	Any water extracted for purposes such as dust suppression will require the relevant licence or permit under the *Water Act 1912* or the *Water Management Act 2000.*	Chapter 4.
	The assessment is required to take into account the objectives and requirements of the following legislation (administered by NSW Office of Water), as applicable: • *Water Act 1912* • *Water Management Act 2000 (WMA)*	Chapter 4.
	Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users.	Chapter 6, Section 6.9.
	All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in the proposal and an approval obtained from NSW Office of Water prior to their installation.	Noted.
	The assessment is required to identify any impacts on GDEs.	Chapter 6, Section 6.9.
	Rehabilitation of the site must ensure the stabilisation of the development area to minimise soil erosion. Soil erosion and sediment control structures must remain in place until the site is fully rehabilitated. Revegetation must emulate the native vegetation communities in the area.	Chapter 6, Section 6.8.
Department of Primary Industries – Agriculture NSW	No issues raised.	Not applicable.
Department of Primary Industries – Forests NSW	No response received.	Not applicable.
Department of Primary Industries – Catchments and Lands	No response received.	Not applicable.

Agency	Issues raised	Location in EIS
Heritage Council of NSW	The heritage significance of the site and any impacts the development may have should be addressed.	Chapter 6, Section 6.7 and Attachment D.
	The State Heritage Inventory, along with heritage items maintained by the National Trust, EPBC Act and local council should be accessed to identify items of heritage significance in the area affected by the proposal.	
	Non-Aboriginal items affected by the proposal should be identified by field survey. A statement of significance and an assessment of the impact (in accordance with NSW Heritage Manual) of the proposal should be undertaken.	
	Where the proposal is likely to impact Aboriginal heritage, adequate community consultation should take place.	
NSW Office of Environment and Heritage	No issues raised (refer to DGRs).	Not applicable.
NSW Environment Protection Authority	No response received.	Not applicable.
Roads and Maritime Services	The proposal would not cross or be located in any classified road reserves. The traffic impact study should be prepared in accordance with the methodology set out in Section 2 of the RTA Guide to Traffic Generating Developments, including but not limited to: • Travel routes to the site for personnel during the construction phase (vehicle types, volumes, movements, parking) • Material clarification (length of pipes to be transported). • Sight distances at affected intersections and suitability of intersections to accommodate large articulated vehicles. • Consideration of local school bus routes and times.	Noted. Chapter 6, Section 6.5.
Orange City Council	Suggests the aboriginal heritage consultation component of the Aerodrome EIS could streamline the assessment rather than duplicating the assessment.	Noted.
NSW Trade and Investment	The proposed relocation of the existing Young to Lithgow natural gas pipeline will require an	Chapter 4, Section 4.3.2.

Agency	Issues raised	Location in EIS
	application for a variation to licence under Section 18 of the *Pipelines Act 1967* (the Act).	
	This pipeline is Pipeline Licence No 22 from Brown's Creek to Orange.	Noted.
	The pipeline was originally constructed in 1987 by The Pipeline Authority, a Federal Government agency.	Noted.
	The pipeline became a NSW licensed pipeline in 1997 under Section 12 (3) of the Act.	Noted.
	The pipeline has never been subject to a Permit under the Act.	Noted.
	Because of the provisions of clause 6 (1) of Schedule 1 of the Act, the Minister for Resources and Energy is unable to consider an application for a variation without the proposed relocation being considered by the Department of Planning and Infrastructure under the State Significant Infrastructure (Part 5) provisions of the Environmental Planning and Assessment Act 1979.	Noted.
	Separately, the proponent is reminded of certain obligations of the consent authority under Section 55 (1) of the State Environmental Planning Policy (Infrastructure) 2007; this pipeline being one of those prescribed under Section 55 (2) (b) (i).	Noted.
Canobolas Local Area Command (NSW Police Force)	The proposed extension of the main aerodrome runway would require the re-location of the main gas line and/or outlet to a location well away from the proposed runway extension to reduce the risk of an aerodrome accident impacting this gas line and outlet.	Noted.

5.2 Community consultation

Consultation with the directly affected landowner(s) at has been undertaken by EAPL as part of the easement negotiations. Consultation included face to face meetings and telephone discussions. No other properties would be directly impacted by the proposal. As part of APA Group's standard consultation procedures, the wider community will have an opportunity to review the proposal and provide comments during the exhibition of the EIS.

Consultation with Aboriginal community groups was undertaken by Navin Officer Heritage Consultants (Navin Officer) as part of the cultural heritage assessment for the proposal. Consultation was undertaken in accordance with the requirements of the OEH guidelines *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a). Further information on the consultation with local Aboriginal groups is provided in Chapter 6, Section 6.7 and Attachment D.

6. Environmental impact assessment

This chapter provides an assessment of the potential impacts of the proposal on the environment, focussing on the matters specified in the Director-General's requirements. It summarises the results of assessment reports, provides information on potential environmental impacts, and specifies mitigation measures.

6.1 Environmental risk assessment

6.1.1 Overview

This section presents the environmental risk assessment undertaken to consider the risks to the environment as part of the environmental impact assessment. The assessment was undertaken qualitatively to broadly assess the potential environmental risks that may arise as a result of the proposal.

The risk assessment for the proposal involved:

- Identifying potential environmental issues.
- Identifying potential key risks (or impacts) associated with each of these issues.
- Evaluating the likelihood of occurrence and consequence of each risk.
- Assessing the potential inherent risk without applying any mitigation measures.
- Assessing the potential residual risk after applying mitigation measures and controls.

The inherent and residual risks were assigned a risk rating based on the assessment of likelihood and consequence of each risk occurring.

Likelihood of occurrence was evaluated as one the following:

- Potential to occur.
- Likely to occur.
- Unlikely to occur.

Consequence of impacts was categorised as:

- *High*: Potential for significant adverse environmental change; inter-regional implications; serious or long-term cumulative impacts.
- *Medium*: Potential for moderate adverse environmental change; regional implications; modest or medium term cumulative impacts.
- *Low*: Potential for insignificant to minor environmental change; localised implications; imperceptible or short-term cumulative impacts.

After the consequence and likelihood was determined, the matrix shown in Table 6-1 was used to identify the potential inherent and residual environmental risks as either Category A, B or C, (high, medium or low).

Table 6-1 Environmental risk matrix

	Consequence		
Likelihood	High	Medium	Low
Likely	**A**	**A**	**B**
Potential	**A**	**B**	**C**
Unlikely	**B**	**C**	**C**
Level of risk	**High**	**Medium**	**Low**

6.1.2 Assessment results

The key findings of the risk assessment are provided in Table 6-2 and are further discussed in subsequent sections. Section 6.2 summarises the results of the hazards and risk assessment undertaken for the operation of the proposal and, therefore, operational risks have not been included in this section.

Table 6-2 Environmental risk assessment

Aspect	Potential impact	Inherent risk rating (without mitigation measures)	Mitigation measures	Residual risk (following application of mitigation measures)
Hazards and risk	Potential damage to existing pipeline during connection works.	A (high)	Section 6.2	B (medium)
Noise	Increased noise emissions from site activities during construction.	B (medium)	Section 6.3	C (low)
Land use and property	Changes to land use of the site or surrounds.	C (low)	Section 6.4	C (low)
Traffic and access	Impacts on local traffic during construction.	C (low)	Section 6.5	C (low)
	Impacts on local access tracks.	C (low)	Section 6.5	C (low)
Air quality	Dust emissions from construction activities causing nuisance to nearby sensitive receivers.	C (low)	Section 6.6 and Section 6.9	C (low)
	Generation of greenhouse gases during construction.	C (low)	Section 6.6	C (low)

Aspect	Potential impact	Inherent risk rating (without mitigation measures)	Mitigation measures	Residual risk (following application of mitigation measures)
Heritage	Uncover and disturb potential unregistered heritage items during construction.	C (low)	Section 6.7	C (low)
Surface water quality and groundwater	Contamination of surface water or ground water.	C (low)	Section 6.9	C (low)
	Spills and leaks of machinery during construction resulting in contamination.	C (low)	Section 6.9	C (low)
Ecology	Effects on threatened or vulnerable species through removal of vegetation and destruction of habitat.	C (low)	Section 6.10	C (low)
Visual amenity	Impacts on visual amenity during construction and operation.	C (low)	Section 6.11	C (low)
Waste	Waste generation during construction.	C (low)	Section 6.12	C (low)
Social	Impacts on surrounding sensitive receivers as a result of hazards and risks, noise, dust and reduced visual amenity during construction.	B (medium)	Sections 6.2 - 6.15	C (low)
Utilities and infrastructure	Impacts on existing infrastructure.	C (low)	Section 6.14	C (low)
Cumulative impacts	Increased noise, dust, traffic as a result of construction occurring at the same time as Aerodrome Expansion works.	C (low)	Section 6.15	C (low)

Based on the risk assessment, the key potential environmental and community risks were considered to be: hazards and risk, construction noise and consequent impacts on the local community. However, following the implementation of mitigation measures, the residual risk for all aspects was deemed to be low.

6.2 Hazards and risk

This section includes a summary of the *Brown's Creek to Orange Gas Pipeline Relocation Preliminary Hazard Analysis* (GHD 2012a) undertaken for the proposal. Potential hazards and risks associated with the proposal are identified in terms of accidental loss scenarios and their potential for hazardous incidents. Mitigation measures are recommended where required. A full copy of the study is included as Attachment C.

6.2.1 Assessment approach and methodology

The DGRs require an assessment of the hazards and risks of the proposal to be evaluated with reference to the DP&I guideline *Applying SEPP 33* (DUAP, 1994). The pipeline does not fall within the definition of a potentially hazardous industry or a hazardous storage established by SEPP 33. The pipeline does, however, classify as potentially hazardous due to the hazardous nature of natural gas. Therefore, a Preliminary Hazard Analysis (PHA) has been undertaken for the proposal in accordance with the requirements of *Hazardous Industry Planning Advisory Paper* (HIPAP) No 6 and the risk evaluated and compared with the risk criteria specified in HIPAP No 4 (refer to Section 6.2.2).

The primary objective of the PHA is to assess whether there are any safety concerns to the community or surrounding infrastructure.

The following approach was undertaken to conduct the PHA:

- Identification of potential hazards associated with the pipeline.
- Analysis of design safeguards.
- Consequence analysis of the identified hazards to assess their effect on people and the surrounding infrastructure and environment.
- Identification of risk reduction measures, if required.

Hazard identification

Hazard identification included a comprehensive identification of possible causes of incidents and their consequences to public safety and the environment, as well as an outline of the proposed operational and organisational safety controls required to mitigate the likelihood of the hazardous events from occurring. The findings of a risk assessment workshop undertaken by APA Group in May 2009 were used for the hazard identification process.

Fire and explosion analysis

A fire and explosion consequence analysis was conducted as an extension of the hazard identification process to provide a better understanding of the consequences of the potential pipeline hazards and to provide recommendations for the elimination of hazards or the reduction of the consequences, if required.

The release, dispersion and subsequent fire and explosion effect calculations were performed using the software Process Hazard Analysis Software Tool (PHAST v 6.7).

Vapour cloud explosion modelling

Vapour Cloud Explosion (VCE) events may result from a flammable vapour cloud engulfing a confined or congested area in the presence of an ignition source.

The VCE was modelled using the Multi Energy (ME) explosion model within PHAST.

The results from the consequence modelling were compared against criteria in HIPAP No 4 to determine whether the pipeline would present unacceptable safety risks to people or infrastructure.

6.2.2 Existing environment

The surrounding land is generally flat and open with low bushes and grasses. The land is largely cleared, however some mature trees exist. There are no sensitive populations (such as hospitals or schools) in proximity to the proposed relocated pipeline. Three private dwellings are located within close vicinity to the relocated pipeline (refer to Figure 6-1).

Figure 6-1 shows the locations of the three properties, the aerodrome and main roads that are within proximity to the relocated pipeline. These identified sensitive receivers have been assessed in the consequence analysis. House 3 is within an allotment that has been acquired by Orange City Council for the Orange Aerodrome Expansion. Table 6-3 provides the approximate offset to each sensitive receiver to the pipeline.

Table 6-3 Offset from sensitive receivers to the relocated pipeline

House	Offset to nearest point along the pipeline (metres)
House 1	60
House 2	75
House 3	45