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ENVIRONMENTAL ASSESSMENT

Newcastle Gas Storage Facility Project

Major Project Application Number 10-0133

Volume 4: Appendices 8 – 13

May 2011

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ENVIRONMENTAL ASSESSMENT

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May 2011

CR 6023_8_v3

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Appendix 10

Socio-economic Characterisation

Project director	Carolyn Balint		
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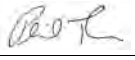
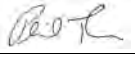
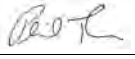
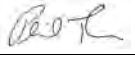
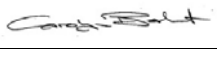
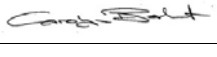
CR 6023_06_v2	Updated draft to AGL Energy Limited		10/11/10
CR 6023_06_v3	Final draft to AGL Energy Limited		5/1/11
CR 6023_06_v4	Final draft to AGL Energy Limited		11/1/11
CR 6023_06_v5	Final to AGL Energy Limited		24/1/11
CR 6023_06_v6	Updated Final to AGL Energy Limited		25/3/11
CR 6023_06_v7	Updated Final v2 to AGL Energy Limited		13/5/11

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EXECUTIVE SUMMARY

AGL Energy Limited (AGL) is proposing to develop the Newcastle Gas Storage Facility Project (the Project) at Tomago, New South Wales (NSW). The Project is necessary for meeting AGL's peak gas market requirements over winter and to provide additional security of supply during supply disruption events. The Project comprises a gas plant site in Tomago, a receiving station in Hexham and a pipeline connecting the receiving station and the gas plant site. Construction of the Project will require up to 300 people over a three year period. Once commissioned, the Project will employ approximately 15 people permanently.

The Project is located in an industrialised area and, as such, will be consistent with surrounding land uses. The Tomago area has been identified by several council and regional strategies as a major employment lands site and is therefore a strategic area for future industrial growth. The gas plant site, the major component of the Project, is immediately surrounded by vacant vegetated land owned by the Tomago Aluminium Company (TAC) and the Hunter Water Corporation. The gas plant site is north of the TAC smelter. The aluminium smelter is the eleventh largest globally and employs approximately 1,350 people. The Hunter Region Botanic Gardens are approximately 500 m northwest of the gas plant site. The nearest residences are approximately 1.3 km to the south. The receiving station is located in Hexham, an existing industrial precinct between the Pacific Highway and the Hunter River. The nearest residence to the receiving station is approximately 150 m to the east.

This characterisation analyses the potential impacts of the Project using three scales: the primary locality includes the suburbs of Tomago, Hexham and Heatherbrae; the secondary locality includes the Port Stephens and Newcastle local government areas (LGAs); and the tertiary locality is the state of NSW.

The social profile of the primary locality varies from both the Port Stephens and Newcastle LGAs and NSW. The primary locality has a low population of 728 (the population of Tomago is 95 people) and an older demographic. Employment is predominantly within industry, particularly manufacturing, construction, and transport and warehousing. The unemployment rate is high at 15.1%, more than double the average for the Port Stephens and Newcastle LGAs and almost three times greater than the NSW average. The proportion of the primary locality population with at least Year 12 equivalent qualifications is less than half the average for the Port Stephens and Newcastle LGAs and more than 2.5 times less than the NSW average. Median weekly household incomes are relatively low, 22% less than the average for Port Stephens and Newcastle LGAs and 36% less than the NSW average. While levels of home ownership are higher than those for the Port Stephens and Newcastle LGA and NSW, the housing composition of the primary locality contains a high concentration of caravan and cabin type dwellings.

The Project is expected to be of significant economic benefit at the local, regional and state levels. Economic benefits include securing the state's natural gas supply for both domestic and industrial consumers, stabilising and diversifying regional employment, generating government taxes and revenues and providing potential opportunities to local businesses.

The Project has potential to provide employment opportunities, particularly during construction when the workforce may reach 300. While the Project will contribute to the employment growth required to meet the demand for jobs identified in the Lower Hunter Regional Strategy (DoP,

2006), benefits will only be temporary, lasting for the duration of the construction period. Once commissioned, the Project workforce will reduce significantly to approximately 15 people, which is small compared to other industrial employees in the primary locality. Furthermore, since specialist contractors, sourced external to the primary locality, will be responsible for much of the Project construction, employment opportunities available to residents of the primary locality (particularly the unemployed) will be limited.

The primary locality has a low population base. The nearest residences are located 1.3 km south and 150 m east of the gas plant site and receiving station, respectively. Given the existing industrial character of the Project area, residents and employees in Tomago and Hexham will likely exhibit a low sensitivity to Project impacts. An assessment of accommodation within the greater Newcastle region identified that the temporary accommodation will be available for employees during construction.

All staff will be conversant with site plans and occupational health and safety requirements and working relationships will be established with relevant local medical and emergency services providers by AGL. The temporary accommodation of some employees during construction may slightly increase demand for general medical and health services.

No power or wastewater infrastructure exists at the gas plant site. During construction, power generation will be provided on-site, while wastewater will be transported from site for treatment. During operations, power may be brought to the gas plant site along the service line corridor adjacent to the access road. Re-routing of any current power infrastructure is not expected.

Recreational infrastructure within the primary locality includes bowling clubs and the Hunter Region Botanic Gardens. Recreational infrastructure is more widely available within the Port Stephens and Newcastle LGAs. Construction employees relocated to the region may intermittently use recreational infrastructure. Adverse impacts to availability, capacity or condition of such local and regional facilities are expected to be minimal. Some local business (e.g., bowling clubs) would benefit from more patrons.

Noise and vibration, visual, traffic and heritage impacts of the Project, particularly to sensitive receptors including nearby residences, employees of neighbouring businesses, and the Hunter Region Botanic Gardens, will be assessed separately as part of the Project environmental assessment.

1. INTRODUCTION

1.1 Overview

AGL Energy Limited (AGL) is proposing to develop the Newcastle Gas Storage Facility Project (the Project) at Tomago, New South Wales (NSW). The Project is necessary for meeting AGL's peak gas market requirements over winter and to provide additional security of supply during supply disruption events. This will involve the supply of natural gas to the Newcastle and greater Sydney regions, and to gas-fired electric power generation plants, and will therefore be of state significance.

The Project is estimated to have capital expenditure in excess of $300 million.

The gas plant site, the major component of the Project, is located approximately 13 km northwest of the Newcastle central business district (CBD), 8 km south of Raymond Terrace and 4 km northeast of the Hexham industrial area (Figure 1.1). Auxiliary infrastructure will include a receiving station in Hexham and a natural gas pipeline to connect the gas plant site to the receiving station. These Project components are described further in Section 1.2.1.

The Project is a 'Major Project' under Part 3A of the *Environmental Planning and Assessment Act 1979*, Major Project Application Number 10-0133.

1.2 Project Description

The Project consists of the construction and operation of a gas plant, a receiving station and a natural gas pipeline.

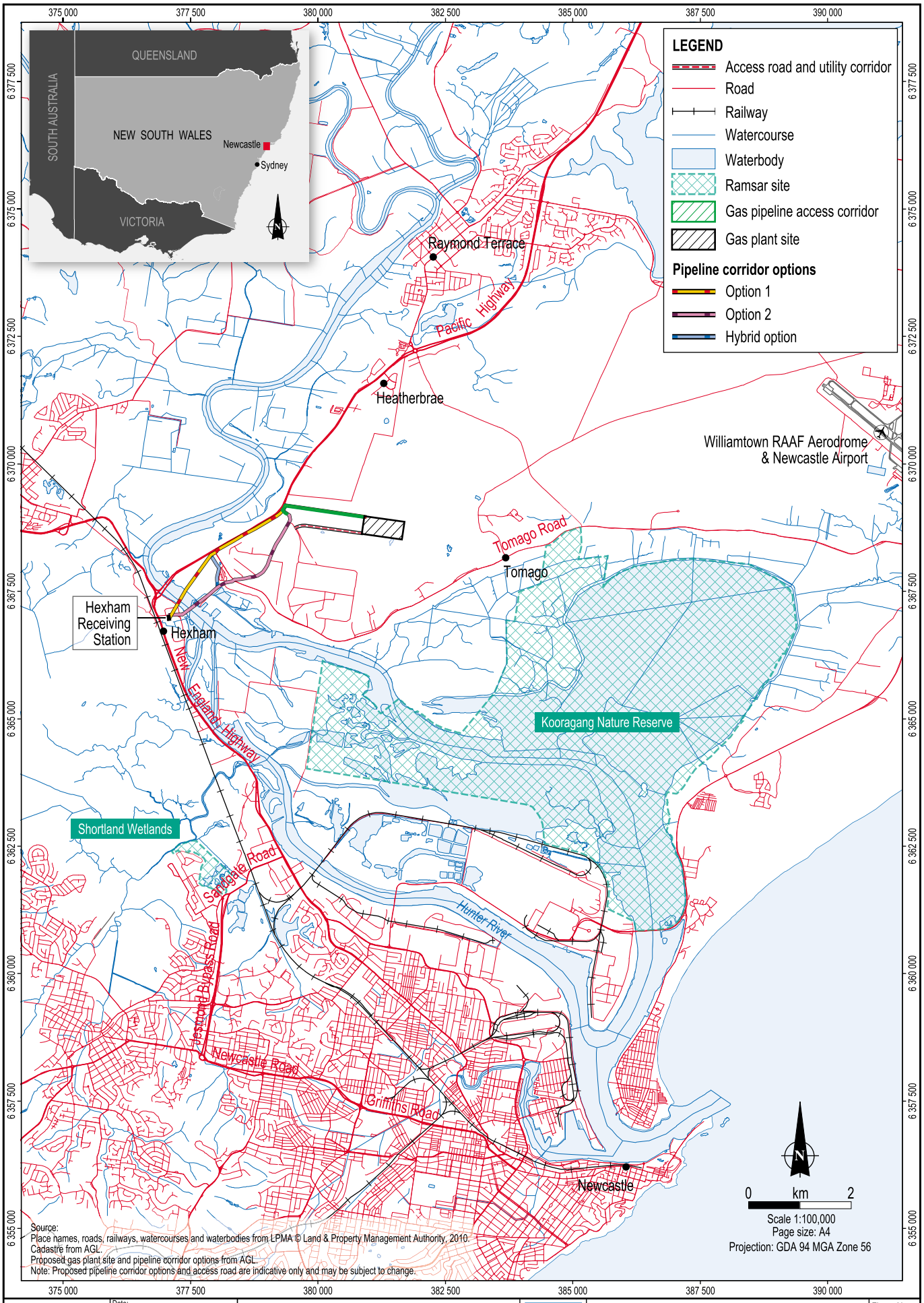
1.2.1 Gas Plant

The gas plant is the major component of the Project. It is to be constructed in the northeast corner of Lot 105 DP 1125747 within the Tomago industrial area of the Port Stephens Local Government Area (LGA). The land is zoned Industrial (4a) in the Port Stephens Local Environmental Plan (LEP). The site is north of the Tomago Aluminium Smelter on land currently owned by Tomago Aluminium Company (TAC). Immediately to the north and east of the site is vegetated land owned by Hunter Water Corporation.

Tomago is an area with a low and dispersed population base and highly industrial character. There are no residential neighbours to the gas plant site and the nearest residential dwelling is located 1.3 km south of the gas plant site.

The gas plant (Figure 1.2) will include:

- A processing plant that will treat the pipeline natural gas to remove impurities (mercury, carbon dioxide and water) and will convert the pipeline natural gas to liquefied natural gas (LNG) by cooling it to -162°C. It will be capable of liquefying up to 66,500 t of LNG per year.



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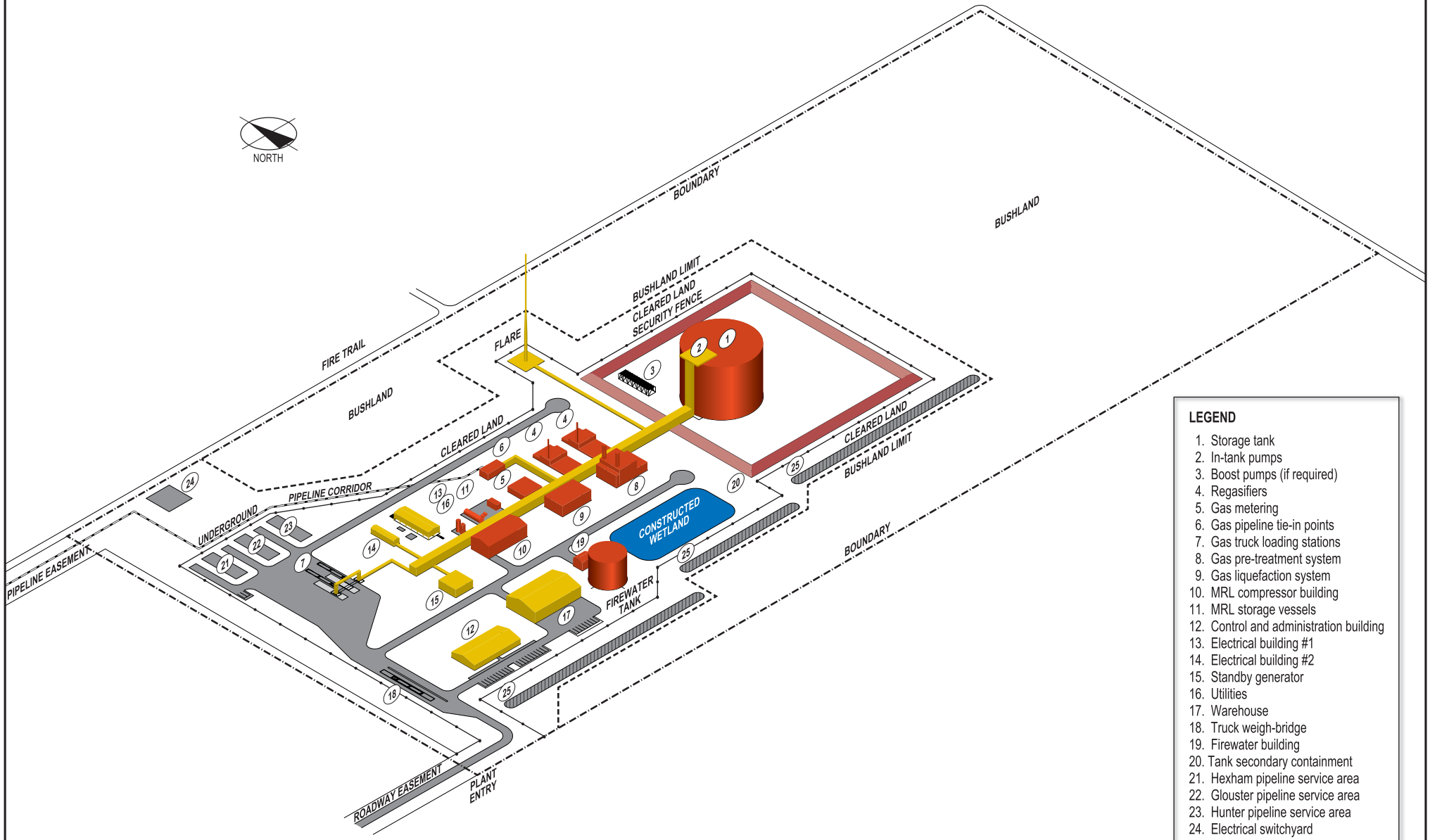
AGL Energy Limited

Newcastle Gas Storage Facility Project

AGL

Project location

Figure No: 1.1



LEGEND

1. Storage tank
2. In-tank pumps
3. Boost pumps (if required)
4. Regasifiers
5. Gas metering
6. Gas pipeline tie-in points
7. Gas truck loading stations
8. Gas pre-treatment system
9. Gas liquefaction system
10. MRL compressor building
11. MRL storage vessels
12. Control and administration building
13. Electrical building #1
14. Electrical building #2
15. Standby generator
16. Utilities
17. Warehouse
18. Truck weigh-bridge
19. Firewater building
20. Tank secondary containment
21. Hexham pipeline service area
22. Glouster pipeline service area
23. Hunter pipeline service area
24. Electrical switchyard
25. Infiltration areas

	coffey natural systems	Job No: 6023	AGL Energy Limited	AGL	Conceptual gas plant layout	Figure No: 1.2
		File Name: 6023_06_F01.02_HB	Newcastle Gas Storage Facility Project			

- An insulated non-pressurised LNG storage tank (capable of containing up to 30,000 t or 63,000 m^3 of LNG) and an associated containment bund to contain any potential spills or leaks. The tank will have a diameter of approximately 60 m and will be up to 56 m high. Without the presence of oxygen, stored LNG is not flammable.
- A re-gasification unit to convert the LNG in the storage tank back into natural gas for supply.
- A flare to combust hydrocarbons discharged from the liquefaction process or degasification process.
- A truck loading facility to allow the dispatch of up to 1,000 tankers of LNG per year.
- A new 1.4 km road to connect the gas plant site to the TAC Northern Access Road.
- Infrastructure and utility connections.
- An emergency access road.
- The subdivision of land (the main gas plant site will occupy approximately 28 ha, of which approximately 13.3 ha will be cleared).

1.2.2 Receiving Station

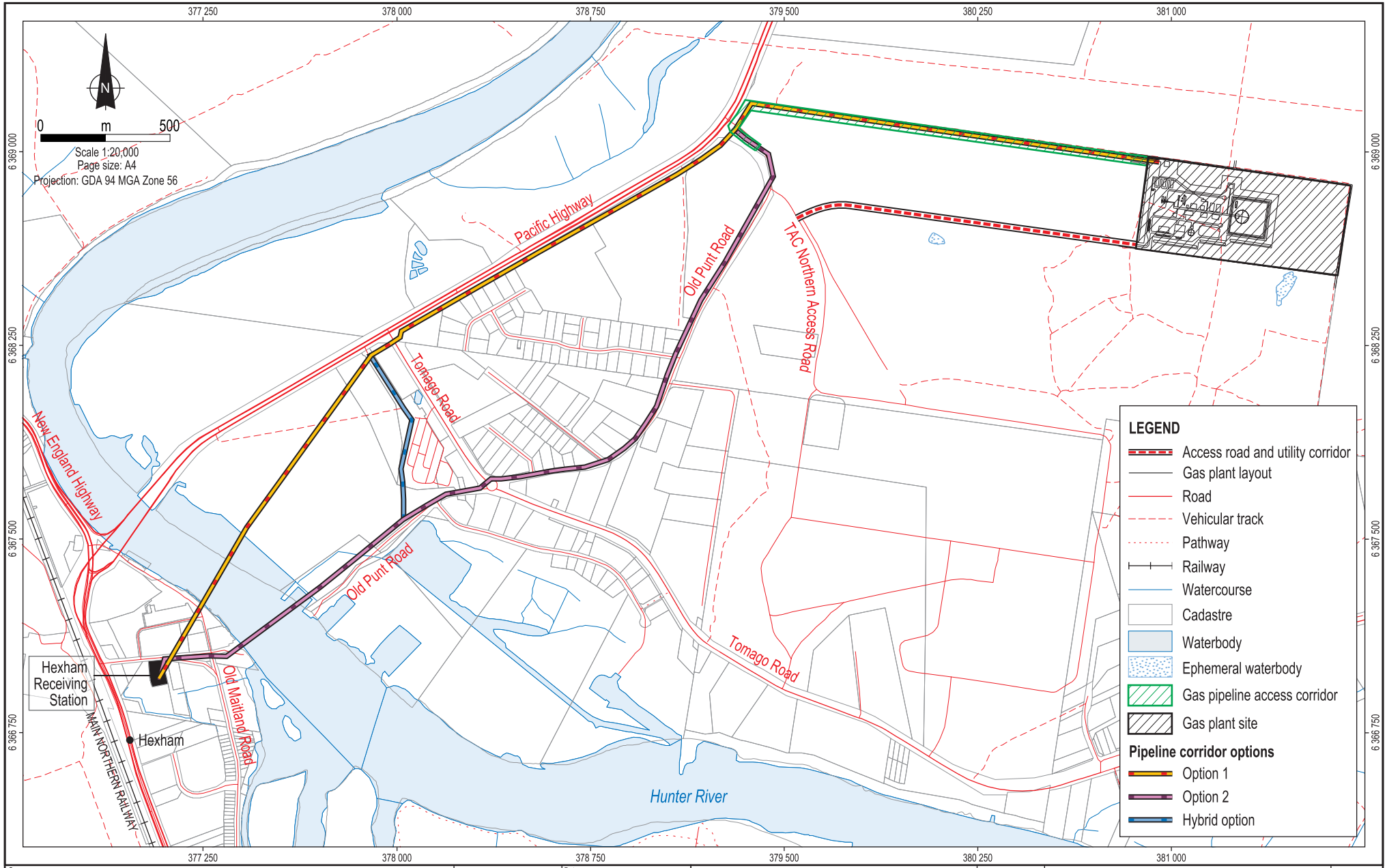
The receiving station will connect the Project into the NSW gas network via the existing Sydney to Newcastle pipeline. The receiving station will be within Hexham, an existing industrial precinct between the Pacific Highway and the Hunter River (Figure 1.3). It is proposed that the receiving station will be built on a site on Old Maitland Road adjacent to the existing Jemena Gate Station facility.

The nearest residence to the receiving station site is approximately 150 m east on Old Maitland Road. More residences are located approximately 300 m southeast of the receiving station site and are detached weatherboard dwellings.

1.2.3 Gas Pipeline

A natural gas pipeline will connect the gas plant site to the receiving station. AGL is considering two potential gas pipeline corridor options (plus a hybrid option) (Figure 1.3). All pipeline options will involve:

- Horizontal directional drilling, to run the pipeline underground up to 50 m below the Hunter River and associated wetlands.
- Conventional trenching, where the pipeline will be buried 0.75 to 2.5 m below the ground surface (depth of top of the pipe).



Source:
Place names, roads, railways, watercourses and waterbodies from LPMA © Land & Property Management Authority, 2010. Cadastre from AGL.
Proposed gas plant layout from Worley Parsons (December 2010).
Proposed gas plant site and pipeline corridor options from AGL.
Note: Proposed pipeline corridor options and access road are indicative only and may be subject to change.

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File Name: 6023_08_F01.03_GIS_HB

AGL Energy Limited

Newcastle Gas Storage Facility Project

Conceptual project layout

Figure No: **1.3**

2. PURPOSE OF THE SOCIO-ECONOMIC CHARACTERISATION REPORT

The socio-economic characterisation establishes a baseline of the current socio-economic conditions in the Project area, describes preliminary social and economic impacts that may arise as a result of the Project and provides potential mitigation measures where potential negative impacts have been identified.

This report provides:

- Definition of a framework through which impacts and benefits have been identified and assessed – Section 3.
- A description of the locality in which the Project is situated – Section 4.
- Demographic characterisation of the existing socio-economic context of the Lower Hunter regions (with emphasis on the local area within Port Stephens and Newcastle LGAs) – Section 5.
- Likely nature of social, lifestyle, employment, workforce, housing and health infrastructure impacts – Section 6.

3. FRAMEWORK OF THE SOCIO-ECONOMIC CHARACTERISATION REPORT

3.1 Rationale for the Assessment of Impacts

This report adopts three geographical scales for the analysis of impacts and benefits likely to result from development of the Project (Figure 3.1):

- Primary – Tomago, Hexham and Heatherbrae.
- Secondary – Port Stephens and Newcastle LGAs.
- Tertiary – New South Wales.

These scales reflect the need to account for local, regional and state social and economic conditions. Using these scales allows for a wide assessment of impacts and benefits of the Project.

The gas plant site component of the Project is located within an industrial area (zoned 4a) with lands to the north of the zone zoned for environmental protection (water catchment) (Figure 3.2). As such, the population base for the Tomago area is very small (less than 100 persons) and no detailed demographic data is available. Moreover, residents of Tomago do not live in the immediate vicinity of the gas plant site.

3.2 Primary Locality: Tomago, Hexham and Heatherbrae

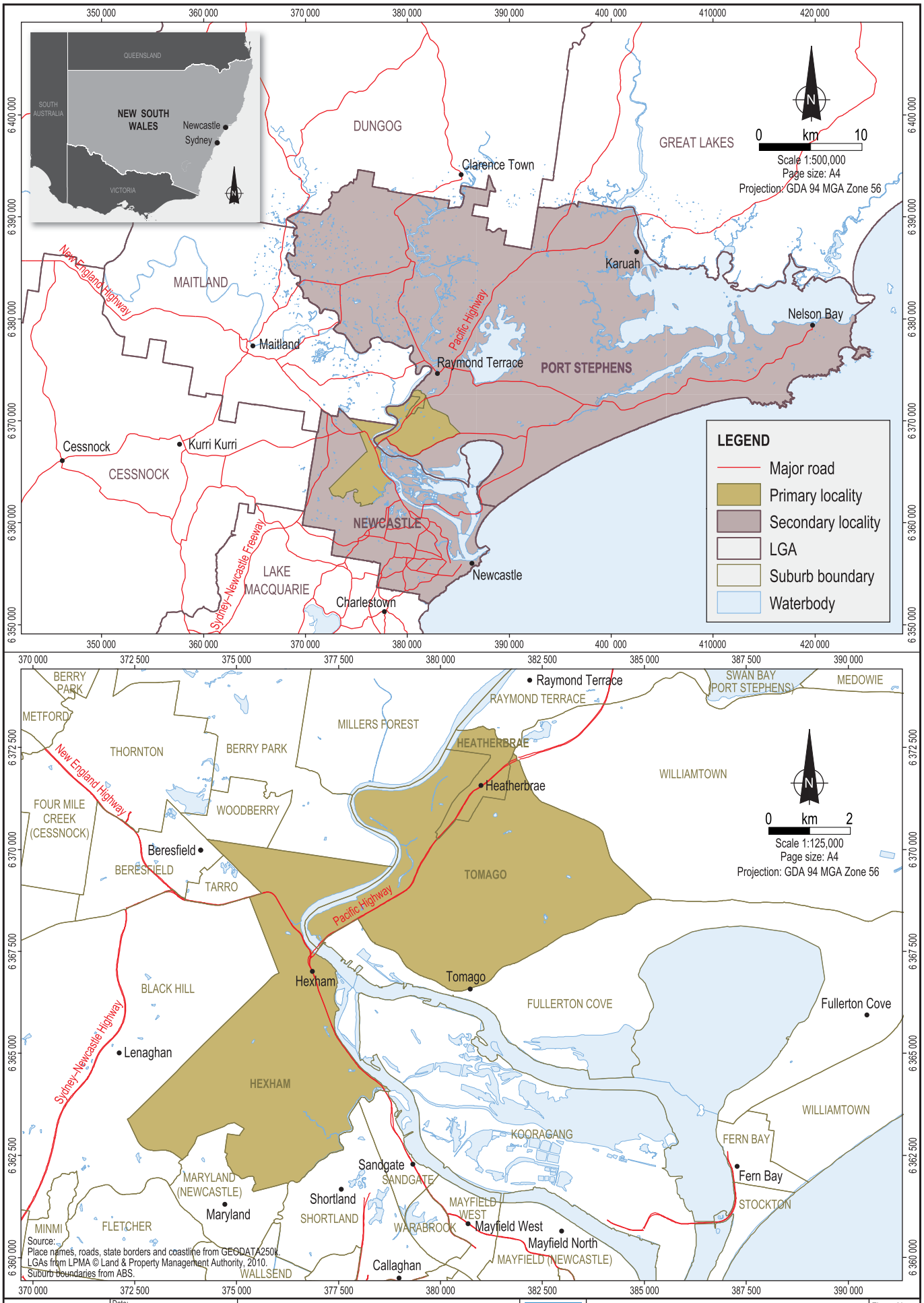
The primary locality is defined as the suburbs of Tomago, Hexham and Heatherbrae, the boundaries of which are defined by the ABS (Figure 3.1). Population centres for Tomago and Hexham are centralised despite existing within much larger suburb areas. The Hunter River flows through the primary locality, forming the western boundary of Tomago and Heatherbrae, and the eastern boundary of Hexham.

The Project is located a considerable distance from broader residential areas. While there are scattered residences (including a caravan park) in the area of Tomago the nearest residential areas are Hexham (whose population centre is approximately 4 km south of the gas plant site) and Heatherbrae (whose population centre is approximately 3 km north of the gas plant site). Heatherbrae and Hexham are approximately 6.5 km apart but share a similar socio-demographic character, with relatively older population profiles, lower rates of cultural and language diversity, and a high proportion of Australian-born residents. Both suburbs also demonstrate specific economic needs, with relatively high unemployment and low school completion rates.

3.3 Secondary Locality: Port Stephens and Newcastle

The secondary locality is defined as the Port Stephens and the Newcastle LGAs.

The secondary locality provides an important scale for the analysis of impacts and benefits of the Project. The primary location has a low population base and a predominantly industrial character, and therefore is not representative of the region. Social and economic impacts to be considered in the context of the secondary locality include:



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File Name: 6023_08_F03.01_GIS_HB

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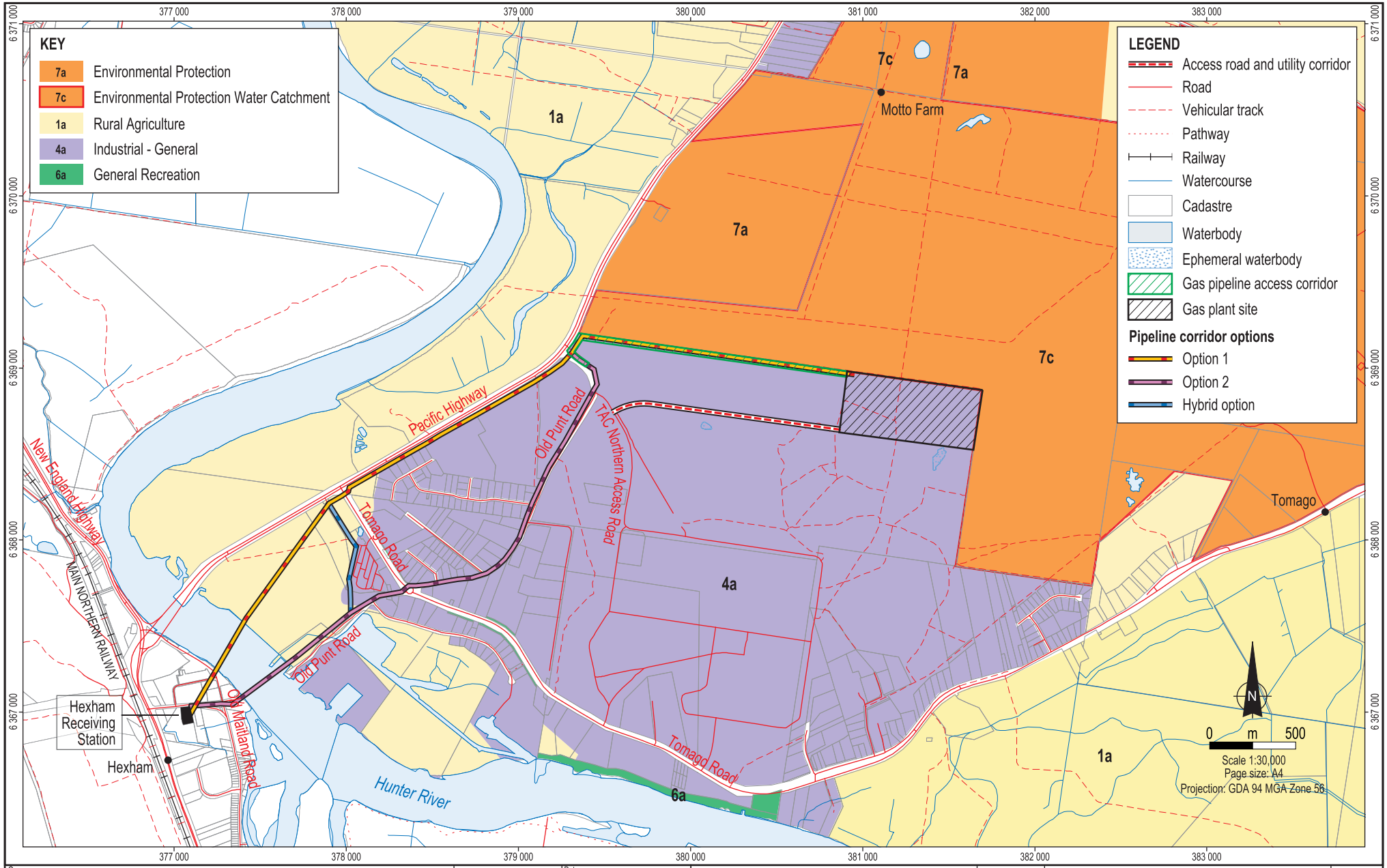
Newcastle Gas Storage Facility Project

Scales of socio-economic assessment

Figure No: **3.1**



Source:
Place names, roads, railways, watercourses and waterbodies from LPMA © Land & Property Management Authority, 2010.
Cadastre from AGL.
Proposed gas plant site and pipeline corridor options from AGL.
Note: Proposed pipeline corridor options and access road are indicative only and may be subject to change.

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AGL Energy Limited

Newcastle Gas Storage Facility Project

Port Stephens Council
Local Environmental Plan

Figure No: 3.2

- Employment.
- Local economy (e.g., local business opportunities).
- Infrastructure availability (e.g., access to gas and power supply).
- Social infrastructure (e.g., housing services during construction).
- Health infrastructure (e.g., emergency services and risk of industrial accidents).

3.4 Tertiary Locality: New South Wales

The tertiary locality is defined as the state of New South Wales.

The tertiary locality will accrue some of the benefits of the Project, particularly concerning security of gas supply.

4. LOCATION OF THE NEWCASTLE GAS STORAGE FACILITY PROJECT

The major component of the Project, the gas plant, is located within Tomago, an industrial suburb within the Port Stephens LGA. Nearby population centres include Hexham and Heatherbrae, which are up to 4.9 km north and 3.9 km southwest of the gas plant site, respectively. While Heatherbrae is also in the Port Stephens LGA, Hexham is within the Newcastle LGA. Newcastle CBD is located approximately 12 km southeast of the gas plant site. The northwestern Newcastle residential suburbs of Warabrook and Shortland are approximately 8 km south of the gas plant site.

4.1 Primary Locality: Tomago, Hexham and Heatherbrae

4.1.1 Tomago

Tomago has a total population of 95 people (52.6% male and 47.4% female) with only 28 dwellings (plus three unoccupied dwellings) (ABS, 2007). The suburb is predominantly industrial in character, accommodating a small residential population. Some residences are located south and southeast of the gas plant site on School Drive and Tomago Road, respectively. The closest of these residences is located approximately 1.3 km away. A single residence is also located at 1902 Pacific Highway, Tomago, 2 km west of the gas plant site. A caravan park, Tomago Village Van Park, exists approximately 2.8 km southwest of the gas plant site and approximately 400 m southeast of the intersection of the Pacific Highway and Tomago Road. The caravan park provides short-term accommodation, including cabins, vans and tented sites. A single residence neighbours the southern boundary of the caravan park. Two residences on larger properties are also located on opposite sides of the Pacific Highway, between 2.0 and 2.5 km west of the gas plant site.

While Tomago has a very small resident population, in excess of 2,500 people are employed in the suburb across a number of industrial sectors, including manufacturing, transport and storage, and construction. Manufacturing is the primary industry in Tomago, employing 2,164 people. TAC is the largest single employer with 1,350 employees.

Other major employers located within the Tomago area include Ampcontrol (300 employees), Sandvik (160), Rutherford Group (100), AJ Mayr Engineering (60) and Perfab Engineering (42).

4.1.2 Hexham

Hexham has a population of 152 persons (ABS, 2007). The area has mixed industrial and residential land uses, with most residential development being located on Old Maitland Road. The closest residence to the receiving station is located approximately 150 m to the east on Old Maitland Road. More residences are located approximately 300 m southeast of the receiving station site. Major businesses in Hexham include two caravan retailers, the Northern NSW Soccer Federation, a large industrial galvanizing plant, a homebuilding group, and a heavy truck retailer.

4.1.3 Heatherbrae

Heatherbrae has a population of 480 (ABS, 2007) and accommodates a mix of industrial, residential and commercial uses, with the area south and east of the Pacific Highway having a relatively greater concentration of industrial and commercial uses. After Tomago, Heatherbrae has the second largest concentration of employment lands in the Port Stephens LGA (PSC, 2007).

Other prominent businesses located in Heatherbrae include the Newcastle Dangerous Goods Training Centre, Civcon Water Services, MetalCorp Steel, the Motto Farm Motel, and Basix Plastics. The area also accommodates a self-storage centre and several vehicle and boating sale yards.

5. SOCIO-ECONOMIC CHARACTERISATION

The primary locality (Tomago, Hexham and Heatherbrae) has a population of 727 residents, of which 95 live in the suburb of Tomago (ABS, 2007). However, given the very low population of Tomago, the ABS has withheld the publication of detailed demographic data for the suburb. Available data is limited to the suburb population and basic gender and housing statistics. The population of Tomago is concentrated to the east and southeast of the industrial area, which is closer to the suburbs of Heatherbrae to the north and Hexham to the south.

Given the absence of adequate demographic data for Tomago, the demographic data for the adjacent suburbs of Hexham and Heatherbrae has been used to characterise the demographics of the Project area.

5.1 Overview of Social and Economic Conditions

As described in detail below, the primary locality has (ABS, 2007):

- An older than average adult population, with approximately one third (35.8%) of the population aged between 45 and 65 years, compared to 24.6% for the Port Stephens and Newcastle LGAs.
- High local unemployment (15.1%).
- Low weekly household incomes ($665).
- High rate of employment in industry, including manufacturing, construction, transport and warehousing.
- Low rate of Year 12 completion (16.3%).
- Relatively low cultural and linguistic diversity.
- A high proportion of residents living in caravan and cabin type dwellings, with approximately half of all dwellings being in this form. However, a relatively high proportion of dwellings (46.9%) in the primary locality are fully owned by their occupants.

The primary locality is characterised by large areas of industrial land and areas of vacant land. Future residential development in the primary locality is unlikely given the following constraints:

- Further industrialisation of the primary locality. Both Heatherbrae (the largest residential area in the primary locality) and Tomago have been identified as areas for future industrial and manufacturing development (PSC, 2007). No further residential development is planned for Hexham, having recently been excluded from the Newcastle Urban Strategy (NCC, 2009).
- Existing patterns of land ownership.
- Conservation easements associated with Kooragang Nature Reserve.

Groundwater conservation easements also affect large areas of land to the north of the existing Tomago industrial area.

Therefore, the primary locality is likely to increase its importance as a key employment area.

5.2 Local Socio-economic Profile – Population

The age profile of the primary locality features:

- A large proportion of 'baby boomers' (adults aged 50 to 65 years), who comprise approximately one quarter of the population (24.2%), compared to 17.5% of the population in the Port Stephens and Newcastle LGAs, and 17.4% of the population in NSW.
- A relative high concentration of other older population groups, including adults aged 75 to 79 years who comprise 5.1% of the population in the primary locality compared to 3.4% for the Port Stephens and Newcastle LGAs, and 2.9% for NSW.
- A low proportion (17.5%) of adults of early working age (20 to 39 years) living in the locality.

Approximately 86.3% of residents in the primary locality were Australian-born, with approximately 93% of residents holding Australian citizenship. The proportion of Australian-born residents in the primary area is higher than that for the Port Stephens and Newcastle LGAs (82.4%) and NSW (69.0%) (ABS, 2007). The primary locality includes a larger proportion of Indigenous Australians (3.6%) than average when compared to the Port Stephens and Newcastle LGAs (2.4%) and NSW (2.1%) (ABS, 2007).

The majority of residents in the primary locality were born in English speaking countries, namely Australia (86.3%, 628 persons), the United Kingdom (3.4%, 20 persons) and New Zealand (1.8%, 11 persons). A small number of residents were born in countries where English was not a primary language, including the Philippines (1.2%, 7 persons) and Germany (0.7%, 4 persons). Linguistic diversity in the primary locality is therefore relatively low with only 3.6% of residents in the primary locality speaking a language other than English at home (24 persons), compared to 7.2% in the Port Stephens and Newcastle LGAs, and 26.0% in NSW.

No individual language other than English was spoken by more than five inhabitants in the primary locality.

The primary locality is less culturally and linguistically diverse than both the Port Stephens and Newcastle LGAs and NSW. While the primary locality has a small number of residents who speak languages other than English, no residents reported being unable to speak English. Similarly, no residents reported being able to speak English at a poor level (ABS, 2007).

5.3 Local Socio-economic Profile – Employment

The employment profile for residents in the primary locality shows relatively low levels of employment diversity, high levels of unemployment and high levels of part-time workforce participation when compared to averages for the Port Stephens and Newcastle LGAs and NSW. In 2006, unemployment in the primary locality (15.1%) was more than double the average for the Port Stephens and Newcastle LGAs (7.2%) and approximately three times the NSW average (5.9%).

Industries including manufacturing (17.3%), retail trade (12.6%), construction (11.8%) and transport (9.8%) are relatively over-represented as areas of employment by residents living in the primary locality (Figure 5.1).

Employment of residents in the Port Stephens and Newcastle LGAs is characterised by greater diversity, with a decreasing number of persons employed in manufacturing (from 13.8% in 1996 to 10.0% in 2006), which was originally the pre-eminent industry of employment in the region (ABS, 2000, 2003, 2007) (Figure 5.1).

The employment profile for residents of the primary locality between 1996 and 2006 showed a reliance on employment sectors including manufacturing, construction and transport. Development of employment capacity within these sectors could potentially improve local access to the labour market with the provision of additional and alternative employment opportunities.

5.4 Local Socio-economic Profile – Industry

While the primary locality has a residential population of 727 people (ABS, 2007), it accommodates approximately 4,200 jobs (PSC, 2007) – equivalent to 24% of all employment in the Port Stephens LGA (ABS, 2007).

Though manufacturing has declined from the highest to the fourth-highest industry of employment in the Port Stephens and Newcastle LGAs (Figure 5.1), manufacturing remains the predominant employer in the primary locality, reflecting the largely industrial land uses of the area. Employment trends in the primary locality have retained characteristics associated with the Port Stephens and Newcastle LGAs in the 1996 census (ABS, 2007), with relatively high rates of local employment in manufacturing and other manual trades, namely construction and transport.

Employment in the manufacturing industry accounts for approximately half of all jobs (51.5%, 2,164 jobs) in the primary locality, almost three-quarters of jobs in the Port Stephens LGA (73.5%) and almost one-quarter of all jobs in the Port Stephens and Newcastle LGAs combined.

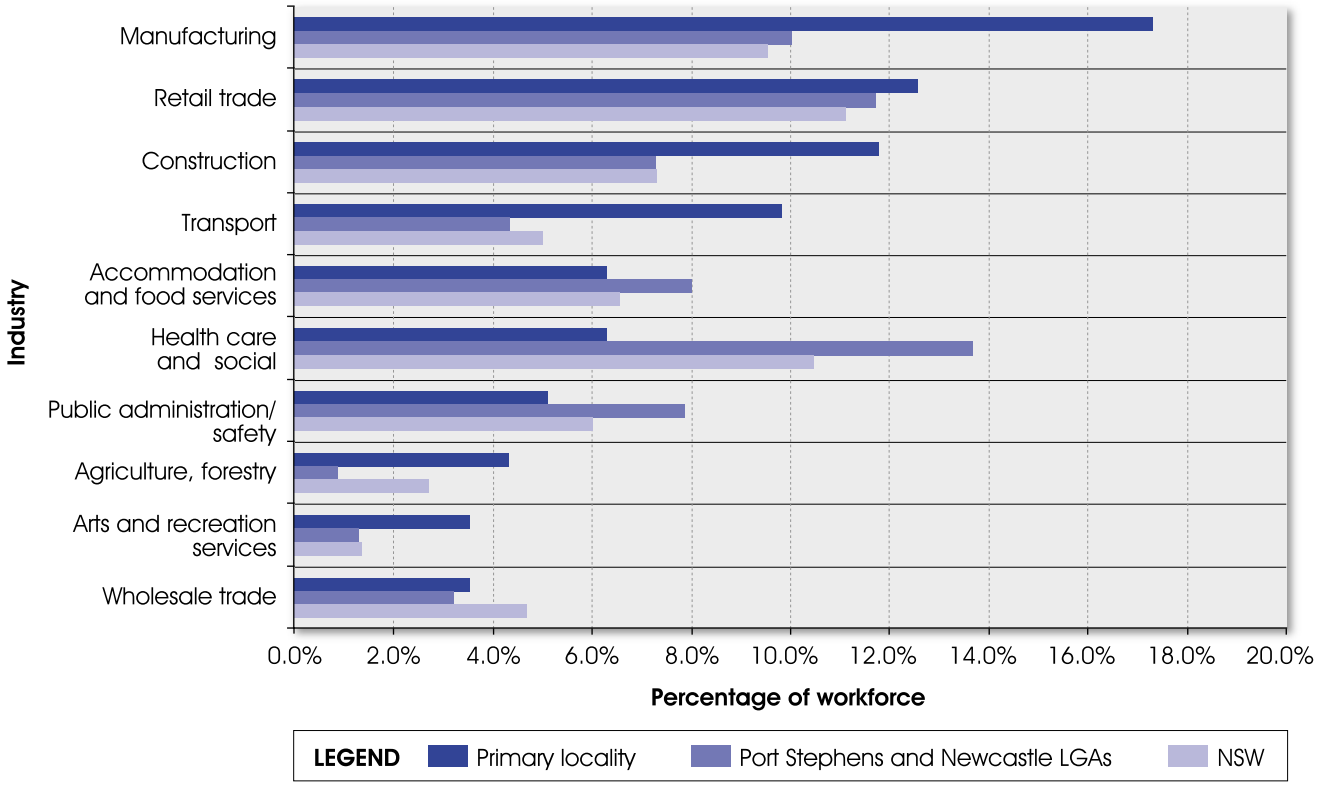
The primary locality has a heavily industrial base, accommodating the region's largest aluminium smelter (the world's eleventh largest aluminium smelter), which alone provides an economic contribution of more than $750 million in Australia, $450 million of which is spent in the Hunter region (Hunter Valley Research Foundation, 2009).

The major employers in Tomago are summarised in Table 5.1.

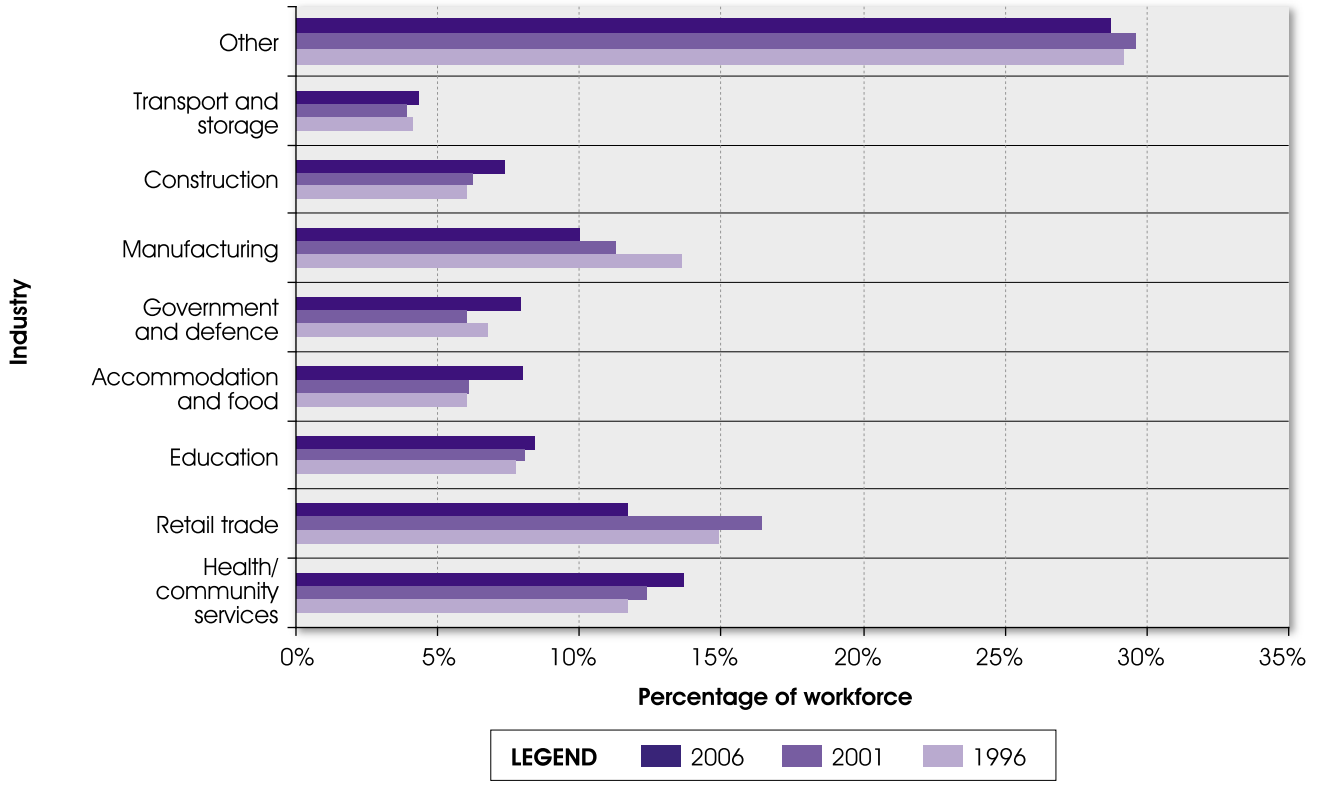
Table 5.1 Major Employers in Tomago (2007)

Employer	Estimated employment	Industry	Production Areas
Tomago Smelter	1,350	Manufacturing	Aluminium.
Westrac/Caterpillar	400 (expected)	Distribution	State headquarters.
Ampcontrol	300	Manufacturing	Electrical equipment.
Sandvik	160	Manufacturing	Mining and construction.
Rutherford Group	100	Manufacturing	Mining, tunnelling and power generation.

Industries of employment



Employment trends for selected industries in the Port Stephens and Newcastle LGAs, 1996 to 2006



Source: Based on 2006 census data (ABS, 2007).

coffey natural systems	Job No: 6023 File Name: 6023_06_F05.01_HB	AGL Energy Limited Newcastle Gas Storage Facility Project	AGL	Employment	Figure No: 5.1

Table 5.1 Major Employers in Tomago (2007) (cont.)

Employer	Estimated employment	Industry	Production Areas
AJ Mayr	60	Manufacturing	Engineering fabrication and construction products.
Perifab Engineering	40	Manufacturing	Port related.
Milltech Proprietary Alloys	40	Manufacturing	Metallurgy.
Goldsmith Frame and Trusses	40	Manufacturing	Manufacturing.
SBS Steel Building Systems	40	Manufacturing	Building equipment.
Pyrosteel	40	Manufacturing	Heat-treated alloys.
Redispan Conveyors	32	Manufacturing	Conveyors.
Tyton Conveyors	30	Manufacturing	Conveyors.
Forgacs Shipyard	Unknown	Shipbuilding	Aluminium hull vessels. Site of the Australian Air Warfare Destroyer build contract.
Volgren	Unknown	Manufacturing	Bus manufacturing.

Source: PSC (2007).

An expansion of employment generating lands is planned for Tomago and surrounding areas (PSC, 2007). This includes areas close to the primary locality, such as Newcastle Port and Beresfield (Table 5.2).

Table 5.2 Proposed Industrial Parks in the Port Stephens and Newcastle LGAs

Industrial park	Location (LGA)	Size	Description	Developer
Tomago Industrial Park	Tomago (Port Stephens)	545 ha	To be developed on former rural lands, expected to be suitable for light and heavy industry uses.	Hunter Development Corporation
Kooragang Island Industrial Park	Kooragang (Newcastle)	400 ha	Suited for coal loading and other industrial capacity, Newcastle Coal Infrastructure Group to lease 136 ha.	Hunter Development Corporation
Intertrade Industrial Park	Port of Newcastle (Newcastle)	150 ha	Site remediation completed, expected for general industry, freight and commercial uses.	Buildev
Freeway Business Park	Beresfield (Newcastle)	110 ha	Planned expansion of current 30 ha area.	Hunter Land

Source: PSC (2007).

It is expected that the primary locality will continue to accommodate a similar range of employment types into the future. Port Stephens Council (2007) has identified the future importance of the area to large-scale manufacturing, engineering and related support services (e.g., transport).

Constraints to industrial growth and the expansion of employment lands in the Port Stephens and Newcastle LGAs include biophysical factors (e.g., flood prone areas), existing development and conservation requirements. Approximately two-thirds of all land in the Port Stephens LGA is

classified as a protected area by Council, State and/or Commonwealth government. It is expected that the current use of employment lands in Tomago will expand in line with regional policy (PSC, 2007; NCC, 2009).

The proposed gas plant site will not represent a departure from current industrial land uses in Tomago. It will contribute to expansion of existing regional industry by improving energy infrastructure and supply.

5.5 Local Socio-economic Profile – Income

Household income considers the total number of income earners in the house, while family income considers the total income of family members living within the house. Relatively low family and household incomes occur in the primary locality (Table 5.3 and Figure 5.2).

Table 5.3 Comparative Median Weekly Income (2006)

Locality	Median Individual Income ($/weekly)	Median Family Income ($/weekly)	Median Household Income ($/weekly)
Primary locality	353	809	665
Port Stephens and Newcastle LGAs	399	1,081	858
New South Wales	461	1,181	1,036

Source: ABS (2007).

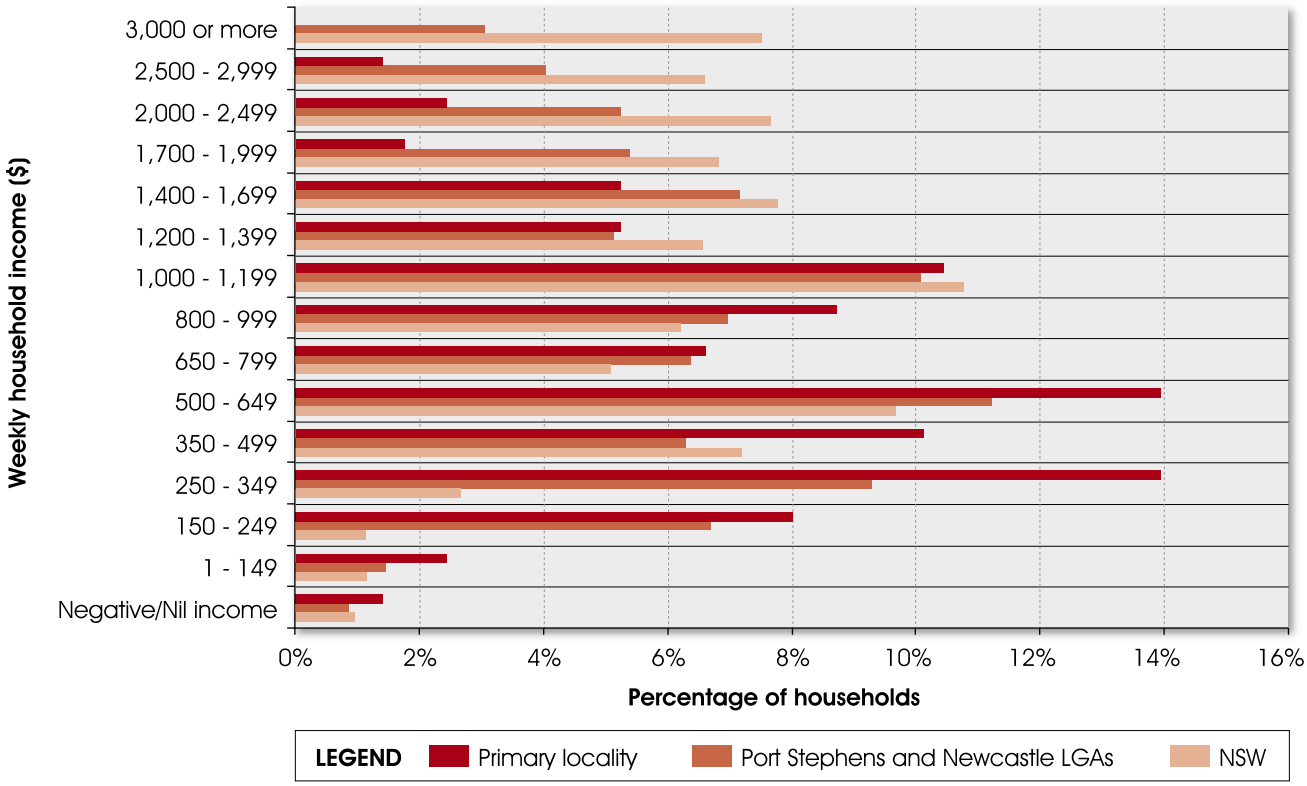
Household income for residents in the primary locality is skewed toward lower income brackets compared to the Port Stephens and Newcastle LGAs and NSW, with approximately half of all residents in the primary locality having a weekly household income of less than $650 per week (49.6%).

Differences in household income between the primary locality and the Port Stephens and Newcastle LGAs may be attributed to:

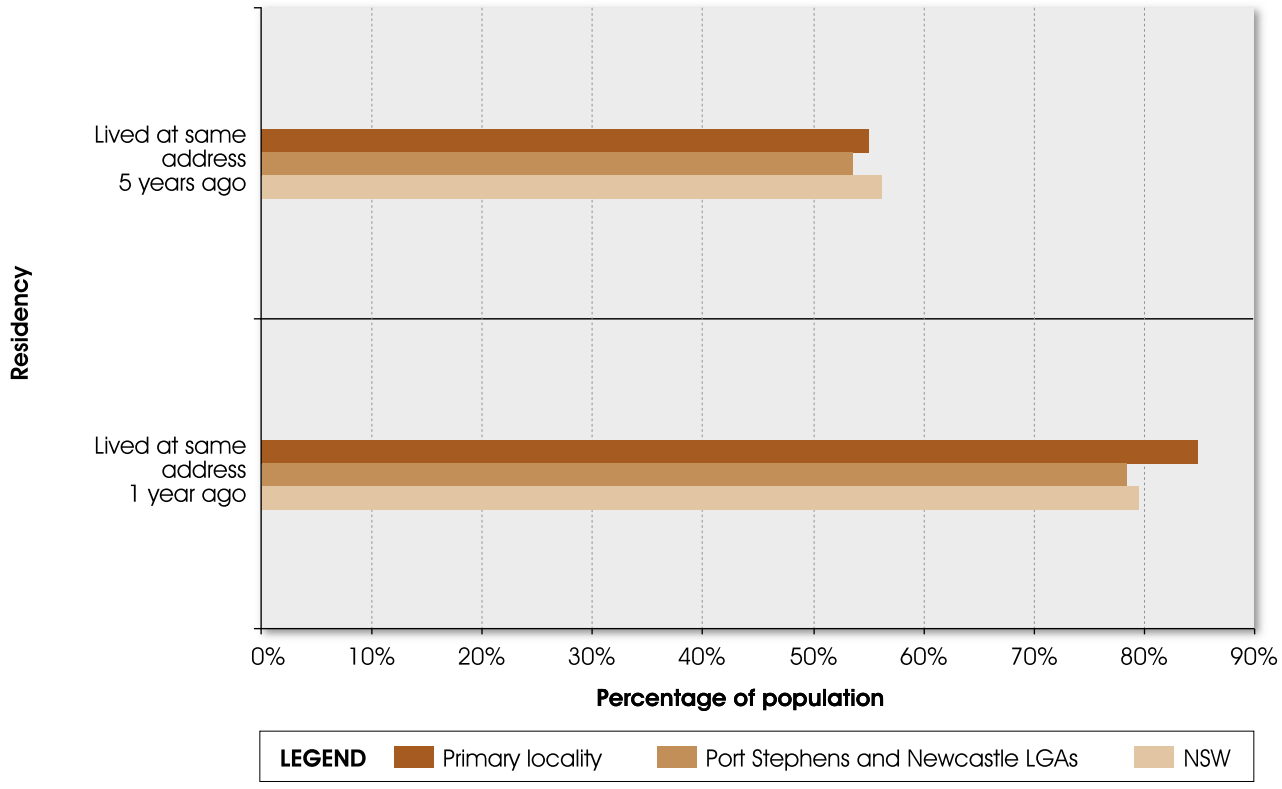
- A higher concentration of adults of working age and higher levels of full-time employment in the Port Stephens and Newcastle LGAs.
- A higher concentration of professional, technical and scientific services employees across suburbs located in the Port Stephens and Newcastle LGAs.
- A larger, and therefore more diverse, retail base.

As the proposed gas plant site is expected to create up to 300 short-term jobs in construction and approximately 15 permanent jobs when commissioned, there are unlikely to be social impacts for the primary locality associated with the introduction of a large and potentially higher paid workforce (e.g., risk of increased housing demand) due to the proximity of a number of population centres. In order to address issues of income disparity, such as the low household income of residents in the primary locality compared to residents of the Port Stephens and Newcastle LGAs, AGL will seek local procurement and employment where appropriate.

Household income



Migration trends



Source: Based on 2006 census data (ABS, 2007).

coffey natural systems	Job No: 6023	AGL Energy Limited	AGL	Income and migration trends	Figure No: 5.2
	File Name: 6023_06_F05.02_HB	Newcastle Gas Storage Facility Project			

5.6 Local Socio-economic Profile – Housing and Tenure

Residents of the primary locality were less likely to have lived at a different residential address one year ago than those in the Port Stephens and Newcastle LGAs and in NSW (Figure 5.2).

However, the migration rate for residents at the five year interval for residents in the primary locality closely mirrors the average for both the Port Stephens and Newcastle LGAs and NSW. Lower than average rates of migration over a one-year period are likely to reflect the tenure profile of the primary locality, which has no state housing authority dwellings and relatively high levels of home ownership (48.9%) when compared to the Port Stephens and Newcastle LGAs (36.0%) and NSW (33.2%) (Figure 5.3).

Income, median rents and monthly housing loan repayments in the localities of interest are summarised in Table 5.4.

Table 5.4 Comparative Median Housing Costs (2006)

Locality	Median Individual Income ($/week)	Median Rent ($/week)	Median Housing Loan Repayment ($/month)	Number of Dwellings
Primary locality	353	150	1,090	286
Port Stephens and Newcastle LGAs	399	188	1,300	78,126
New South Wales	461	210	1,517	2,238,317

Source: ABS (2007).

The primary locality has a high concentration of caravan or cabin dwelling types (Figure 5.3). While high levels of home ownership imply higher levels of financial security, the lower value of caravan and cabin type dwellings reflect lower median incomes.

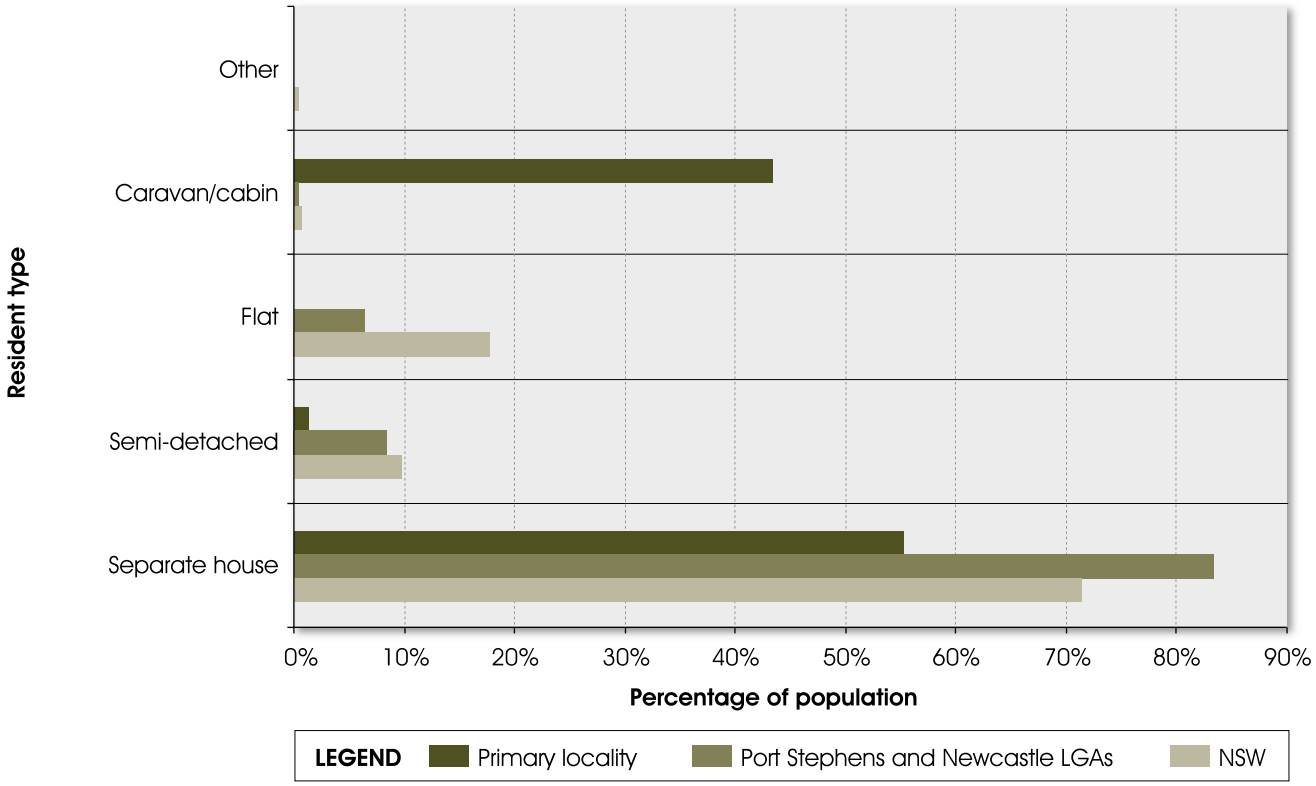
Housing demand resulting in increased housing prices can make it difficult for low-income earners to secure or maintain accommodation and for new industry to find appropriate housing for its workforce. Given the relatively small number of persons who will be employed to operate the Project (approximately 15 persons), housing demand is unlikely to be affected by the Project.

The construction workforce will be 300 persons. Most of this workforce will be sourced external to the primary locality, but within commuting distance. Short-term accommodation in the primary locality is relatively plentiful, including motels, hotels and two large caravan parks located within short driving distance of the gas plant site. Short-term accommodation will be required for up to approximately 150 members of the construction workforce that are unable to commute to the site. These are likely to be workers with specialist skills, qualifications or experience.

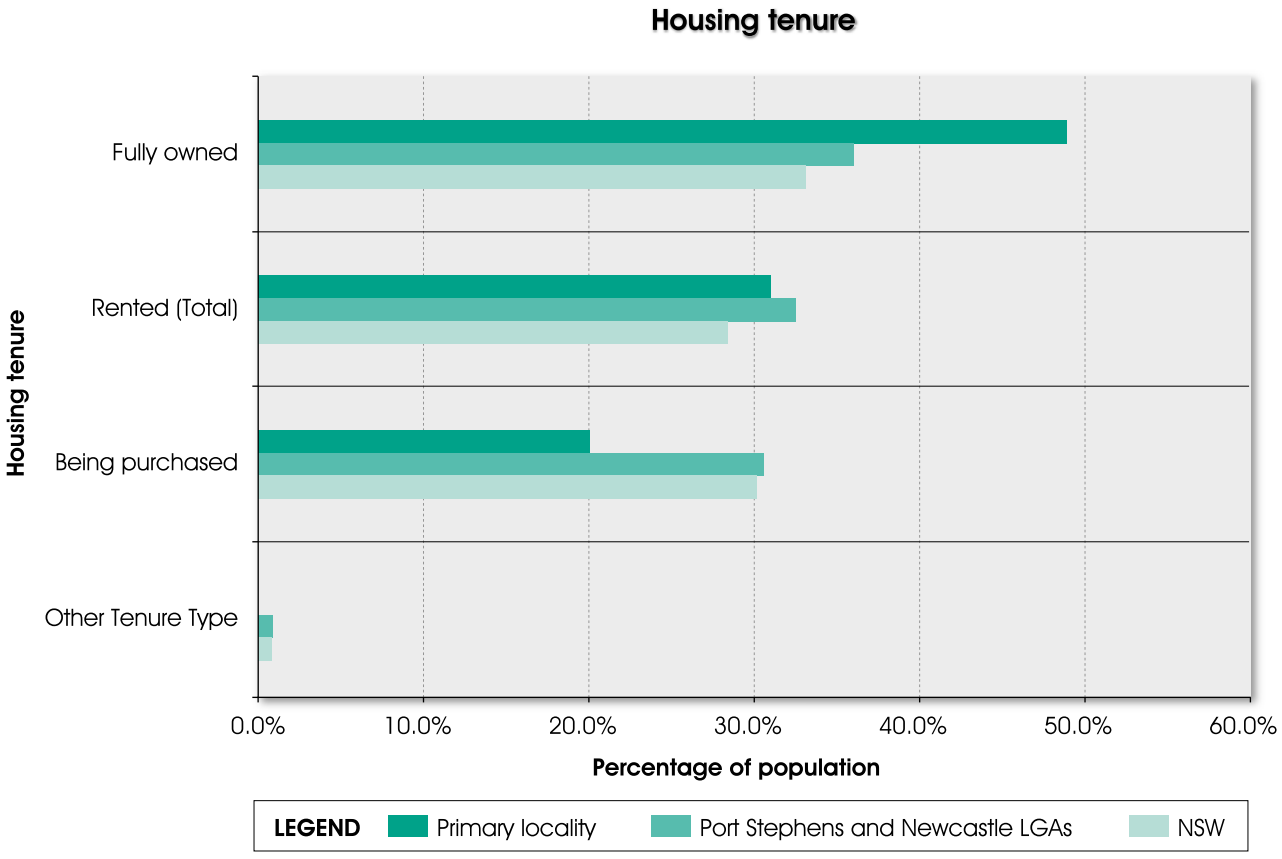
5.7 Local Socio-economic Profile – Education

The majority of residents in the primary locality have not completed a Year 12 equivalent education (Table 5.5). This is well below the average for both the Port Stephens and Newcastle LGAs and NSW (Figure 5.4).

Housing stock



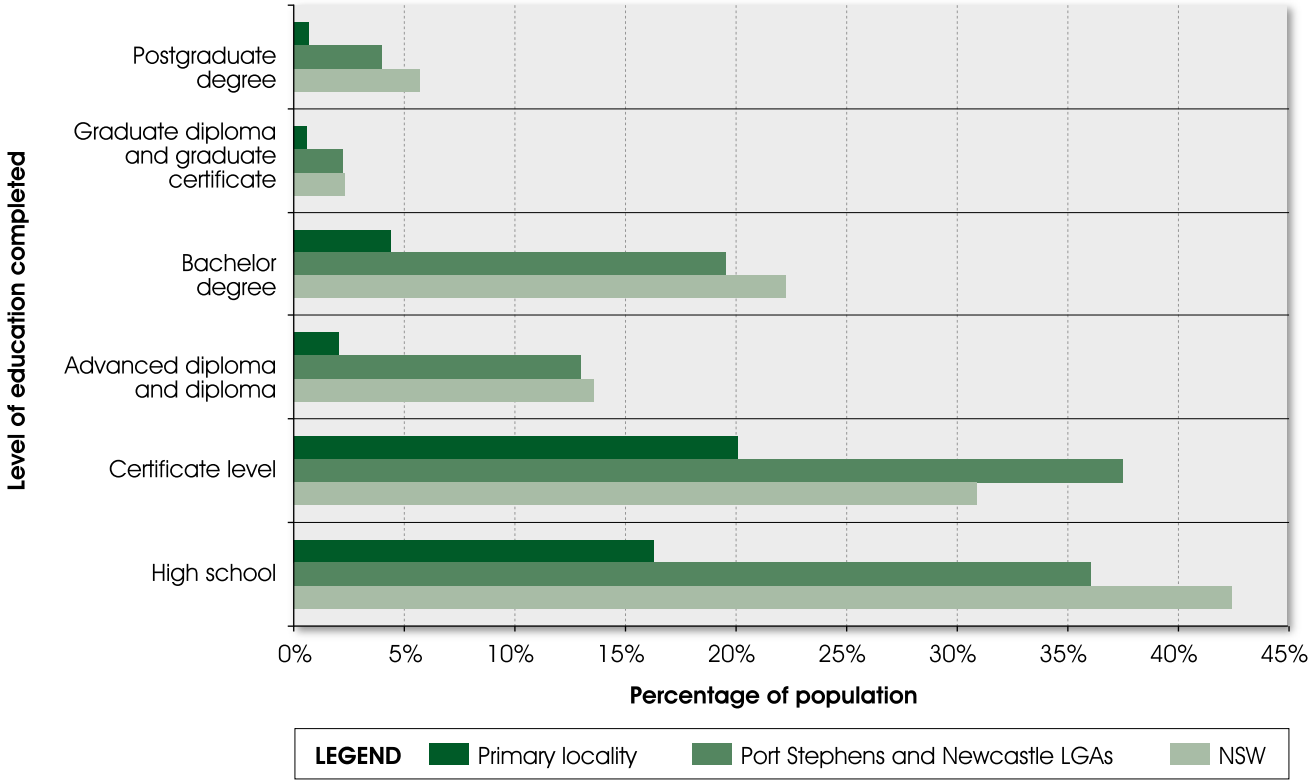
Housing tenure



Source: Based on 2006 census data (ABS, 2007).

coffey natural systems	Job No: 6023	AGL Energy Limited	AGL	Housing	Figure No: 5.3
	File Name: 6023_06_F05.03_HB	Newcastle Gas Storage Facility Project			

Education profile



Source: Based on 2006 census data (ABS, 2007).

coffey natural systems	Job No: 6023	AGL Energy Limited	AGL	Education	Figure No: 5.4
	File Name: 6023_06_F05.04_HB	Newcastle Gas Storage Facility Project			

Table 5.5 Proportion of Population with Year 12 Equivalent Qualifications

Locality	Completed year 12 (% of population)
Primary locality	16.3
Port Stephens and Newcastle LGAs	36.0
New South Wales	42.4

Source: ABS (2007).

The only education facility within the primary locality is Raymond Terrace High School, located near the northern boundary of Heatherbrae. Raymond Terrace, located within the Port Stephens LGA though outside the primary locality, contains the nearest preparatory and primary schools (three) and an additional high school. The nearest university and TAFE campuses are located in the Newcastle LGA at Callaghan.

Residents in the Port Stephens and Newcastle LGAs were more likely to hold certificate-level (trade and para-professional) than their counterparts in NSW (Figure 5.4).

The proposed gas plant site is expected to create up to 300 short-term jobs in construction and approximately 15 permanent positions during operations. Construction will require a workforce with trade and para-professional qualifications. Employment opportunities for residents of the Port Stephens and Newcastle LGAs may therefore result given the higher than average number of residents in the Port Stephens and Newcastle LGAs with such qualifications.

5.8 Local Development Priorities

Tomago is identified as an area of importance to employment futures in both local and state area strategies:

- NSW Government Department of Planning – Lower Hunter Regional Strategy (DoP, 2006).
- Port Stephens Council – Economic Development Strategy Report (PSC, 2007).
- Port Stephens Futures Strategy (PSC, 2009).
- Newcastle City Council – Industrial Lands Review, Economic Development Strategy (NCC, 2009).
- Hunter Development Corporation – Hunter Region Employment Lands (HDC, 2010)

5.8.1 NSW Government

The NSW Government's Lower Hunter Regional Strategy (DoP, 2006) provides a key impetus for future regional and economic planning in the Lower Hunter region, outlining future population and employment growth targets. The strategy also identifies state and federal government funding commitments to the development of key infrastructure across the Lower Hunter region, helping to support realisation of population and employment growth targets.

The strategy targets a population increase of 160,000 new residents by 2031, with residential development set to occur across major centres (Newcastle) and a number of regional centres, of which Raymond Terrace is nearest to the primary locality. Raymond Terrace is expected to

accommodate 300 additional dwellings, with no residential development being outlined for Tomago, Hexham or Heatherbrae.

A high employment growth target of 66,000 jobs is set for the region, with one quarter of all new jobs (16,500) being targeted for designated employment lands (Tomago and Williamtown), and the remainder distributed between town centres (65%) and other areas (15%). There are 1,600 new jobs are targeted for Raymond Terrace, near the primary locality.

The strategy anticipates that the 16,500 jobs in major employment land sites will occupy approximately 825 ha of employment land. A total of 503 ha of zoned but vacant employment land is currently available for development. An additional 1,000 ha of new employment land has been identified in the strategy for Tomago, Black Hill and West Wallsend. Of this 1,000 ha, 322 ha will be required to meet the employment targets for this strategy. A further 1,200 ha of vacant 'special purpose' employment land has been designated to remain available for port- and airport-related needs. An overview of the key residential and employment growth directions outlined in the strategy, and their implication for activities and future uses of land in the primary locality is provided in Table 5.6.

Table 5.6 Directions of the Lower Hunter Regional Strategy

Direction	Implications
Regional population increase: 160,000 by 2031	No residential growth is targeted for areas in the primary locality. Modest residential growth (300 dwellings) is targeted for North Raymond Terrace (nearest location).
Regional jobs increase: 66,000 by 2031 Target 25% of new jobs (16,500) in employment lands	Increased energy supply requirements generated by employment growth. Development of 503 ha of existing zoned but vacant employment lands. Zoning of a further 1,000 ha of new employment land at Tomago and other locations (Black Hill, West Wallsend), including 322 ha to meet the requirements presented in the strategy (825 ha). Additional 1,200 ha of vacant 'special purpose' employment land to remain available for port- and airport-related needs. Increasing characterisation of northwest Newcastle and southwest Port Stephens sub-region as a regional employment zone, containing current port and airport lands, and largest employment zones.
Targeted jobs growth in other specialised centres outside but near Tomago	Increased energy supply requirements. 3,000 jobs targeted for Williamtown Airport precinct. 1,600 jobs targeted for Raymond Terrace, development of Raymond Terrace into regional retail/services centre. Increasing characterisation of northwest Newcastle and southwest Port Stephens as a regional employment zone.

Source: DoP (2006).

Infrastructure projects prioritised by government for the primary locality to support the growth requirements of the Lower Hunter Regional Strategy (DoP, 2006) are summarised in Table 5.7.

Table 5.7 Proposed Infrastructure Projects (Lower Hunter Regional Strategy)

Provision area	Proposed project	Relationship to Project
Electricity	Tomago-Stroud 132 kV new transmission line.	Energy distribution enhancements.
	Tomago 330 kV new transformer.	Energy distribution enhancements.

Roads	Pacific Highway F3 to Raymond Terrace/Hexham.	Site and transport accessibility.

Source: DoP (2006).

5.8.2 Port Stephens Council

The Port Stephens Futures Strategy (PSC, 2009) identifies retention of the civilian and military aeronautical industry at Williamtown and continued diversification of the regional economy, as important activities in ensuring the competitiveness of Port Stephens with Sydney and other regions for specialist workers. The Futures Strategy specifically identifies the need for Council to progress the following activities to support employment development in the region:

- Completion of the Industrial Lands Strategy for Tomago and Williamtown within the short-term, to enable rezoning of land for future industrial development.
- Development of an industrial hierarchy to support existing major industrial centres at Tomago and Heatherbrae, including further development of the airport zone and development of local industrial parks on the peninsula.
- Planning for and promotion of future infrastructure requirements for the airport zone and Tomago industrial area, ensuring that local infrastructure requirements are given priority by government agencies and utility providers.

Council's Economic Development Strategy Report (PSC, 2007) outlines a number of key directions for the future development of employment lands, with the following potential implications for future planning and development of the Tomago lands (Table 5.8).

Table 5.8 Directions of the Port Stephens Economic Development Strategy Report

Direction	Implications
Inadequacies in infrastructure (particularly power/energy, roads and services) in industrial estates defined as a major threat to future growth prospects.	• Council to identify infrastructure needs and costs, and secure funding for key infrastructure to support development of employment lands (Airport Zone and Tomago) identified as a short-term action by Council. • Development of the industrial lands is recognised as requiring action on constraints including road networks, sewer services, power and water services, and securing funding for these requirements.
Tomago industrial land identified as having capacity to generate in excess of 3,000 new jobs. Newcastle Airport/Defence Zone (Williamtown) identified as having capacity to generate up to 5,600 new jobs.	• Development of Tomago as the major industrial area by providing additional zoned land identified as one of several key strategic projects for Council likely to have largest potential economic impact. • Continuing the development of high value manufacturing in the Tomago area and in Heatherbrae, and encouraging the development of associated support industries and services identified as a medium-term action by Council. • Developing defence and aviation cluster around the airport; developing freight and logistics functions associated with the airport.
Creating employment opportunities for population growth generated by new town developments (Medowie and North Raymond Terrace) identified as a key challenge.	• Development of Raymond Terrace as the LGAs primary regional services centre, with improvements in retail and higher level services and consolidation of office accommodation identified as a medium term action by Council.

Source: PSC (2007).

5.8.3 Newcastle City Council

Newcastle City Council's Industrial Lands Review (NCC, 2009) highlights that the only major opportunities for significant industrial development exist outside the Newcastle LGA, specifically in industrial lands within the Port Stephens, Cessnock and Maitland LGAs. Very limited opportunities for additional industrial rezoning currently exist within the Newcastle LGA, and there are pressures for retail and residential use of some existing industrial sites (Table 5.9).

Table 5.9 Directions of the Newcastle Industrial Lands Review (2009)

Direction	Implications
All major opportunities for significant industrial development exist outside the Newcastle LGA, specifically in industrial lands within the Port Stephens LGA, and in the Beresfield investigation area. Pressure to rezone industrial land for residential uses is building, particularly in water front areas, potentially affecting scarce supply. Retail uses of industrial lands also limit growth capacity.	The review recommends that Council: • Recognise there are very limited opportunities for additional industrial rezoning within the Newcastle LGA. • Retain existing industrial zoning or zonings that permit light industrial uses. • Limit residential development of industrial land (excluding waterfront sites in Tighes Hill and Maryville). • Avoid retail uses within industrial lands, unless the retail functions are directly associated with a site's industrial use.

Source: Wakefield Planning (2009).

5.8.4 Hunter Development Corporation

The Hunter Region Employment Lands Study (HDC, 2010) undertook a whole of region appraisal of employment lands in 2010. The study highlights:

- A holistic approach to infrastructure planning and provisions is required for the Hunter region.
- Difficulties in procuring adequate services (sewer, water and power supply) are often a significant constraint to the viability of the development of employment lands.
- Developing low constraint land in close proximity to infrastructure has potential benefits including reduced development costs, optimum sales prices and stronger take-up rates.

The study identifies infrastructure development and upgrades will open up further opportunities for existing and new industries to take up employment lands in the Hunter region.

6. SOCIO-ECONOMIC IMPACTS

This section describes the potential social and economic impacts associated with the Project. These were identified by assessing the planned design and implementation of the Project against the social and economic context described by the baseline characterisation (Section 5).

The potential impacts of the Project on noise, vibration, visual amenity, air quality and traffic for residents and other users of the primary locality are described elsewhere within the Project environmental assessment and are not discussed further below.

6.1 Economic Impacts

6.1.1 Gas Supply

The NSW natural gas network supplies gas to more than one million gas consumers via approximately 24,000 km of mains operating at a number of different pressure levels. The current capacity of the state's gas pipeline network is 688 TJ/day; only 16 TJ/day is sourced from locally produced coal seam gas. The majority of gas however, is imported from interstate:

- Cooper-Eromanga Basin (South Australia-Queensland), along the Moomba to Sydney Pipeline (delivering up to 420 TJ/day).
- Gippsland Basin (Victoria), along the Eastern Gas Pipeline (delivering up to 268 TJ/day).
- Bowen-Surat Basin (Queensland), along the South West Queensland Pipeline, the QSN Link and ultimately the Moomba to Sydney Pipeline.

Shortfalls in the supply of gas to NSW from South Australia, Victoria and Queensland may occur as a result of the failure of gas infrastructure or as a result of increased gas demand in these states leaving insufficient gas to supply NSW requirements.

Infrastructure Failures

Since January 2004, there have been 10 instances of partial or full gas supply interruption at the Moomba gas production facilities affecting supply of gas into NSW.

During the first seven months of 2010, there have been two separate infrastructure failures at the Moomba production facility affecting availability of gas supply into NSW. During the second infrastructure failure, the need to curtail gas supply to large industrial and commercial customers in NSW was narrowly avoided. All available alternative gas supply options and operational pipeline 'line pack' (i.e., gas effectively stored in the pipelines) had been exhausted by the time the infrastructure failure was remedied.

In 2008, NSW experienced a gas supply shortfall resulting from an infrastructure failure at the Moomba gas production facility in South Australia. Gas supplies to large industrial and commercial customers in NSW were curtailed for approximately 24 hours.

There have also been instances in other states of severe gas supply disruptions including major shortfalls over several weeks to Victorian gas supplies following the 1998 Longford gas explosion

and a 30% cut to Western Australian gas supplies following the 2008 gas explosion at Varanus Island.

Increased Gas Demand in Other States

In 2007, NSW experienced a gas supply shortfall resulting from coincident gas demand peaks in NSW, South Australia and Victoria. Gas supplies to large industrial and commercial customers were curtailed to maintain the integrity and safe operation of the NSW gas distribution network. The economic cost of the loss of supply over this period was of the order of two days lost production for 30 to 40% of the largest industrial and commercial gas users in NSW.

There have been previous incidents in South Australia and Victoria where gas produced in these states was sequestered under emergency supply legislation. This was to ensure that indigenous gas was directed to the citizens of these states in priority to distributing the gas in the national network. This left AGL and its NSW customers with a shortfall of gas supplies normally sourced from these states. These incidents required AGL to procure alternative gas supply to make up the shortfall.

Benefits of the Project

The Project will:

- Provide a reserve of gas to ensure continuity of gas supply to customers during periods of maximum hourly and daily demand, which are generally expected to occur on cold winter days or when gas-fired electricity demands peak. It is forecast that winter peak gas demand will exceed existing pipeline capacity by 2014.
- Improve gas supply security to NSW by providing an alternative gas source independent of gas field production facilities with ageing infrastructure in South Australia, Victoria and Queensland and independent of pipeline capacity constraints. This is of particular benefit to industrial and commercial gas users in the greater Hunter and Newcastle area who are furthest from the gas fields.
- Improve gas supply security to NSW by providing an alternative supply if the South Australian, Victorian or Queensland governments use their legislative powers to sequester gas to supply their own states, leaving NSW with insufficient gas.
- Support and promote the efficient use of AGL’s coal seam gas resources that are currently being explored and planned for development in the Hunter and Gloucester regions. Unlike most conventional gas fields where over much of the field’s life gas production can be adjusted over short periods to meet peak demand; coal seam gas is most efficiently recovered if the flow of gas from the field is held steady. The Project will be able to store coal seam gas produced over summer months to feed back into the gas network over winter when gas is in short supply.
- Create flow-on economic benefits for NSW and the region (including the provision of a substantial investment in regional NSW). The Project will create up to 300 jobs during the construction and commissioning and 15 full-time jobs during operations.

6.1.2 Employment

The Lower Hunter, which includes the Port Stephens and Newcastle LGAs, has a high level of employment self sufficiency and potential for continued strong employment growth. According to

the Lower Hunter Regional Strategy 2006-31 (DoP, 2006), an extra 66,000 jobs will need to be created by 2031 to sustain the growing population of the region. It is expected that 25% of the 66,000 new jobs required (16,500 jobs) will need to locate in major employment land sites, including land at Tomago. Both the Port Stephens Economic Development Strategy (PSC, 2007) and the Port Stephens Futures Strategy (PSC, 2009) similarly identify the Tomago area as a strategic area for industrial growth that will benefit both regional employment and economy.

The Project will contribute to the growth demand for jobs identified in the Lower Hunter Regional Strategy by ensuring regional energy security. The Project will contribute to increased diversification, and therefore stabilisation, of the local labour market by supporting the energy requirements of future employment growth. The Project has the potential to improve labour market conditions of the primary locality, particularly during construction, as the centres of Tomago, Heatherbrae and Hexham have considerably high levels of unemployment compared to the Port Stephens and Newcastle LGAs and NSW.

The Project will employ up to 300 people over a three year construction period at an approximate cost of $5,800,000[1]. Approximate workforce sizes throughout the construction period are identified in Table 6.1.

Table 6.1 Activity construction schedule

Component	Activity	Approximate Duration (months)	Approximate Workforce
Gas Plant Construction	Site preparation	3	20
	Bulk earthworks	6	20
	Structural works	21	250
	Commissioning	6	30
	Rehabilitation and landscaping	6	20
Pipeline construction	Construction	9	50
Access road and utility corridor construction	Construction	3	50
Hexham receiving station	Construction	9	25

During operations, approximately 15 people will be employed full-time at the gas plant site at a cost of approximately $650,000[2] annually. The receiving station at Hexham and the pipeline will require no additional employees during operations, except for periodic maintenance.

[1] Figure based on construction worker salary averaged at CW3 grade (intermediate), with provision for work over a six-day week (Monday to Saturday). Additional rates of pay will apply, including (if applicable) casual loadings, and various penalties and allowances. Income tax rate assumes the Tax Free Threshold is claimed, and that Medicare levy, levy surcharge and HECS/SFSS contributions are not claimed.

[2] Figure based on the NSW award rate (weekly) for Level Electrical, Electronic and Communications Contracting Industry (State) Award (180) at Grade 8 using 2010 figures.

The Project will therefore contribute to the:

- Employment growth required to meet the future demand for jobs.
- Increased diversification and stabilisation of the Lower Hunter labour market and economy.
- Further industrialisation of the Tomago area.

The benefits of the first two contributions listed above will primarily only be felt temporarily during Project construction given the small workforce required for operations. The construction and operation of the Project though, will create momentum for further industrial development within the primary locality and particularly Tomago.

Flow-on economic benefits may include government taxes and revenues and the creation of employment and business opportunities resulting from the expenditure of incomes earned from the Project.

The social impacts of employment resulting from the Project are discussed in Section 6.2.1.

6.1.3 Government Taxes and Revenues

The Project is expected to provide approximately $1,000,000[3] in tax contributions from those employed during construction and approximately $100,000 annually by those employed full-time during operations.

In addition to income tax levied by the Commonwealth Government, State Government revenues will also increase as a result of land and payroll tax and accommodation rent. Land tax contributions from the 28 ha property are expected to provide an indicative annual contribution of approximately $470,000. During construction, payroll tax contributions will be approximately $320,000, however, will decrease substantially when the number of employees is reduced during operations to 15.

Port Stephens Council's revenues will include local land rates and the Hunter-Central Rivers Catchment Management Authority Catchment Contribution. Council land taxes will be payable at base rate of $1,220 with an ad valorem rate of approximately $95,200 (calculated at 0.60 cents per dollar). The Hunter-Central Rivers Catchment Management Authority Catchment Contribution will also be payable at the ad valorem rate of $2,520 (calculated at 0.0105 cents per dollar).

Newcastle City Council’s revenues will include local land rates and the Hunter-Central Rivers Catchment Management Authority Catchment Contribution. Council land taxes for the receiving station would be payable at an ad valorem rate of $5,653 (calculated at 1.09 cents per dollar), with a Hunter-Central Rivers Catchment Management Authority Catchment Contribution payable at the ad valorem rate of $543 (calculated at 0.011 cents per dollar). This assumes a land value of approximately $500,000 for the Hexham site.

[3] Employment of 300 construction workers (CW3 grade) employed over a 150 day period.

6.1.4 Local Business

AGL expect to engage local businesses where possible to service the Project both during construction and operations. Detailed advanced notices of goods and services required by the Project will be issued to assist local businesses meet the needs of the Project. This will contribute towards maintaining local economic stability.

Once operating, the Project will secure gas supply for the Newcastle region, including local businesses and industry. This may include the proposed Macquarie Generation base-load combined cycle gas-fired power station to be located approximately 2 km west of the gas plant site. Major industrial gas users in the region include those of the Hunter Gas Users Group (HUG) (Table 6.2).

Table 6.2 Hunter Gas Users Group (HUG) members

Company	Location	Industry
Tomago Aluminium	Tomago	Aluminium production
Milltech	Tomago	Treated alloy bar production
Industrial Galvinisers	Hexham	Steel galvanizing
Orica Mining Services	Kooragang Island	Ammonia production
OneSteel	Mayfield	Steel manufacture and distribution
Lovells Springs	Carrington	Spring coiling plant
Weston Aluminium	Kurri Kurri	Aluminium production
Hydro Aluminium	Kurri Kurri	Aluminium production
The Treloar Group	Rutherford	Non-ferrous foundry

It is anticipated that the Project will contribute momentum towards the further development of general industry in the primary locality. The Project may also serve as an impetus for an appreciation in land value stimulated by increased local employment and business activity.

6.2 Social impacts

6.2.1 Employment

Employment within the primary locality of Tomago, Hexham and Heatherbrae is predominantly within the manufacturing, retail trade and construction industries. Unemployment in the primary locality however, is double the average unemployment rate of the Port Stephens and Newcastle LGAs and almost three times the NSW average (based on 2006 census data). Current employment trends are discussed in detail in Section 5.3.

Construction

Construction of the Project will require a workforce of up to 300 people over a three year period (see Table 6.1).

The Project has potential to provide employment opportunities for the region, particularly during construction. However, since specialist contractors, sourced external to the primary locality, will be responsible for much of the Project construction, employment opportunities available to residents of the primary locality (particularly the unemployed) will be limited. As stated in

Section 7.2.3, AGL will also seek to use local businesses, where possible, to service the Project both during construction and operations.

While the Project will contribute to the employment growth required to meet the demand for jobs identified in the Lower Hunter Regional Strategy (DoP, 2006), benefits will be temporary, lasting for the duration of the construction period.

Operations

The Project will require approximately 15 full-time staff during operations. As the gas plant site will operate 24 hours a day, at least four people will be employed for the afternoon (3.00 p.m. to 11.00 p.m.) and night (11.00 p.m. to 7.00 a.m.) shifts. The Hexham receiving station and the pipeline will require no additional employees during operations, except for periodic maintenance.

Relative to other major industrial employees in the primary locality (see Table 5.1), including TAC (1,350 employees), Ampcontrol (300 employees), Sandvik (160 employees), Rutherford Group (100 employees), AJ Mayr Engineering (60 employees) and Perfab Engineering (40 employees), the Project's contribution of 15 employees to local employment during operations is small.

6.2.2 Housing

Residential land use within the primary locality is discussed in Section 4.1.

Construction

Generally, the impact of construction activities of the Project to residential properties will be minimal. A noise and vibration impact assessment and a traffic impact assessment will be undertaken as part of the Project environmental assessment. Both will consider the impact of Project construction to sensitive receptors, including local residences.

Some residential properties may be impacted by the construction of the pipeline between the gas plant site and the receiving station in Hexham. Potential pipeline corridor options are presented in Figure 1.3. Laying of the pipeline will require a 25 to 30 m corridor, cleared of vegetation. Pipeline corridor option 1 will require construction through up to 13 private properties along the Pacific Highway – four properties are zoned rural agriculture and nine are zoned general industrial under the Port Stephens LEP. Only one of these properties however, has a residence – the rest are vacant and predominantly cleared. In addition to running parallel with the Pacific Highway, as with pipeline corridor option 1, the hybrid option also runs along the west margin of the Tomago Village Caravan Park. Pipeline corridor option 2 will not cross any private residential properties.

Some activities that will not be able to be undertaken on or adjacent to the pipeline corridor easements without prior approval from the pipeline operator. These activities include:

- Trenching, grading, digging and drilling.
- Construction.
- Land leveling or contouring.
- Use of vibrating machinery.
- Stockpiling materials and equipment.

Operations

The Project will be located within predominantly industrialised areas (i.e., Tomago and Hexham) and will therefore be consistent with surrounding land uses, both current and proposed. Hence, existing residences and employees in the Tomago area will likely exhibit low sensitivity to impacts of the Project. The nearest residences to the gas plant site are approximately 1.3 km to the south. The receiving station will be located in an existing industrial precinct in Hexham. The nearest residence to the receiving station is approximately 150 m east, on Old Maitland Road. Any future residential development in the area will be focused on urban greenfield localities such as North Raymond Terrace, and these are located some distance from the proposed gas plant site.

A noise and vibration impact assessment, traffic impact assessment and visual impact assessment will be undertaken as part of the Project environmental assessment. All three assessments will consider the impact of Project operations to sensitive receptors, including local residences.

The facility will employ approximately 15 people during operations. Long-term housing demand in the primary locality or in neighbouring areas is unlikely to be affected by the Project.

6.2.3 Accommodation

Construction

The Project's construction workforce will comprise of employees who reside in the region as well as employees (particularly specialist contractors) who may require temporary accommodation Short-term accommodation will be required for approximately 100 members of the construction workforce that are unable to commute to the site. Approximately 2,000 accommodation rooms are available within 60 minutes drive of the Newcastle CBD (Newcastle Visitor Centre, 2009). This does not include all backpacker, bed and breakfast, and caravan park accommodation in the region. Therefore, there will be ample accommodation for temporary construction workers from outside of the region.

Operations

During operations the Project will employ 15 people full-time. As these employees will reside permanently in the region, temporary accommodation will not be required.

6.2.4 Medical and Emergency Services

There are numerous large hospitals and health service centres located within 15 km of Tomago (see Table 6.3). The nearest ambulance, fire and police services are located at Raymond Terrace, approximately 8 km from the gas plant site.

Table 6.3 Major health facilities within the Port Stephens and Newcastle LGAs

Facility	Location	Beds	Notes
John Hunter Hospital	Lookout Road, New Lambton.	550	Trauma and emergency medicine.
Calvary Mater Newcastle	Edith Street, Waratah.	187	Emergency, general medical and surgical care.
Royal Newcastle Centre	Lookout Road, New Lambton.	84	Day surgery procedures, allied health services.

Table 6.3 Major health facilities within the Port Stephens and Newcastle LGAs (cont.)

Facility	Location	Beds	Notes
Raymond Terrace Community Health Centre	59 Port Stephens Street, Raymond Terrace.	Nil	Allied health services.
Beresfield Community Health Centre	Lawson Avenue, Beresfield.	Nil	Community health, nursing.
West Newcastle Community Health Centre	15 Nash Street, Wallsend.	Nil	Allied health services.

Construction

Pressure on local community health infrastructure will be minimised through the implementation of preventative occupational health and safety measures and awareness programs. All staff, contractors and site visitors will undergo site inductions, be conversant with the construction safety management plan and the emergency management plan, as well as occupational health and safety requirements as specified by specialist contractors, professional bodies and unions.

However, in the event of an incident during Project construction, first aid facilities will be provided at the gas plant site. On-site medical facilities will ensure prompt response to any industrial accidents and emergencies. AGL will ensure that at least two suitably qualified first aid officers will be on duty at all times during construction activities associated with the gas plant site, the receiving station in Hexham and the pipeline corridor.

A zero-tolerance on-site drug and alcohol policy will be enforced.

The temporary accommodation of some employees in the region during Project construction may slightly increase the demand for general medical and health services.

Operations

The Project is likely to be classified as a Major Hazard Facility and therefore will need to comply with the requirements for hazard and risk management under the National Standard for the Control of Major Hazard Facilities (administered by NSW WorkCover). This includes the requirement to prepare a safety case report, to ensure that controls are provided to ensure adequate separation between major hazard facilities and surrounding land uses, and that off-site and on-site risks are managed adequately. The National Standard for the Control of Major Hazard Facilities also requires that relevant community and employee groups be consulted.

In addition to these requirements, AGL will develop working relationships with local area emergency services providers, including Raymond Terrace Police, Ambulance and Fire services, and regional hospitals to advise on risks relating to on-site work and prepare for emergencies. This process will begin prior to construction.

Prior to operation of the Project, a safety management system will be implemented, which will include an emergency response plan.

Suitably qualified first aid officers and basic medical facilities will be present on-site during operations.

Project design will provide sufficient open space for emergency vehicles and equipment including fire fighting and rescue.

6.2.5 Utilities

Currently there is no power or wastewater and sewerage infrastructure available at the gas plant site.

Tomago has been identified as a strategic area for industrial growth that will benefit both regional employment and economy, as discussed in Section 5.8. The Port Stephens Economic Development Strategy (PSC, 2007) identifies that a major constraint to economic development in Port Stephens LGA are the infrastructure gaps (including energy and services in industrial areas such as Tomago). The Port Stephens Futures Strategy (PSC, 2009) proposes as a short-term priority the development of support infrastructure for the Tomago industrial area by government agency and utilities. The further development of the Tomago industrial area in future years by both the Project and other developments, will therefore create an impetus for such infrastructure gaps to be filled.

Construction

Power during construction is likely to be supplied by on-site diesel generator sets. Wastewater and sewage generated during construction will be treated on-site in an Environment Protection Authority (EPA)-approved wastewater collection system or removed for off-site treatment and disposal.

Operations

The gas plant will require a permanent electricity supply of up to 10 MW during operations. However, as power is currently not available at the gas plant site, it is expected that power will be brought to the gas plant site along the service line corridor adjacent to the access road. The Project is not expected to require re-routing of any current power infrastructure.

Options for the treatment and discharge of process water and sewage during operations are described elsewhere in the environmental assessment. It is not proposed that a new sewer be constructed to service the Project.

6.2.6 Recreational Infrastructure

Recreational and sporting facilities in the primary locality are summarised in see Table 6.4.

Table 6.4 Recreational and sporting facilities within the primary locality

Name	Address
Hexham Bowling Club	290 Old Maitland Road, Hexham.
Hexham Park	Maitland Road, Hexham.
Tomago Bowling and Sports Club	Tomago Road, Tomago.
Hunter Region Botanic Gardens	Pacific Highway, Heatherbrae

The Hunter Region Botanic Gardens are located approximately 500 m northwest of the gas plant site. The Gardens cover approximately 133 ha of land under lease from the Hunter Water Corporation, the Gardens are run by a not-for-profit public company, largely operated by

volunteers (BGANZ, 2010). The botanic collection (i.e., displays of Australian and introduced species) occupies approximately 30 ha, with conservation bushland accounting for the remainder of the Gardens. The Gardens are frequently used for guided tours, educational excursions for school groups as well as weddings and other functions. The Gardens include a visitors centre, gift shop, reference library and café, and are open daily from 9.00 a.m. to 4.00 p.m. (closed Christmas Day and Good Friday) (HGBR, 2010).

Construction

Some of the construction workforce will temporarily relocate to the region and as such may intermittently use recreational and sporting facilities within the Port Stephens and Newcastle LGAs during leisure times. Impacts to the availability, capacity or condition of local and regional recreational and sporting infrastructure are expected to be minimal. Some local businesses (e.g., bowling clubs) may benefit from additional patrons during construction.

Operations

Any impact to local or regional recreational or sporting infrastructure is expected to be negligible as the Project will only employ approximately 15 people during operations.

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8. GLOSSARY

8.1 Units and Symbols

^{o}C	Degrees Celsius
%	Percent
ha	Hectare
km	Kilometres
kV	Kilovolt
m	Metres
m^3	Cubic metres
MW	Megawatt
t	Metric tonne
TJ/day	Terajoule per day

8.2 Abbreviation

ABS	Australian Bureau of Statistics
AGL	AGL Energy Limited
CBD	Central business district
DECCW	Department for Environment, Climate Change and Water
DEWHA	Department of Environment, Water, Heritage and the Arts
DoP	Department of Planning
EPA	Environment Protection Authority (part of NSW Department of Environmental, Climate Change and Water)
LALC	Local Aboriginal Land Council
LEP	Local environmental plan
LGA	Local government area
LNG	Liquefied natural gas

NSW	New South Wales
TAC	Tomago Aluminium Company