



NSW GOVERNMENT
Department of Planning

Camden Gas Project: Gas Well and Gathering Line Modifications



Assessment Report
Section 96 (1A) and Section 96AA of the
Environmental Planning and Assessment Act 1979

June 2007

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1. BACKGROUND

AGL Gas Production (Camden) Pty Ltd and Sydney Gas (Camden) Operations Pty Ltd are jointly developing the Camden Gas Project (CGP), a major coal seam methane gas project located to the south of Camden, near Cawdor and Menangle, in the Camden, Wollondilly and Campbelltown local government areas (see Figure 1). The CGP involves the extraction of coal seam methane gas from the Illawarra Coal Measures in the central Southern Coalfield of the Sydney Basin. The treated gas is then sold and moved by pipeline to various gas wholesalers and end users in the Sydney market.

Stages 1 and 2 of the CGP were approved in 2002 and 2004, respectively. The Minister for Planning has subsequently approved 7 extensions (involving additional gas wells and associated gas gathering systems) of the CGP. Stage 1 is located in the Cawdor area and has 31 wells, a gas gathering system and a gas treatment plant. Stage 2 is located in the Menangle area and has 105 wells, a gas gathering system and a gas treatment plant.

The Minister has approved a number of modifications (for additional gas wells) to the various development consents for Stages 1 and 2 of the CGP.

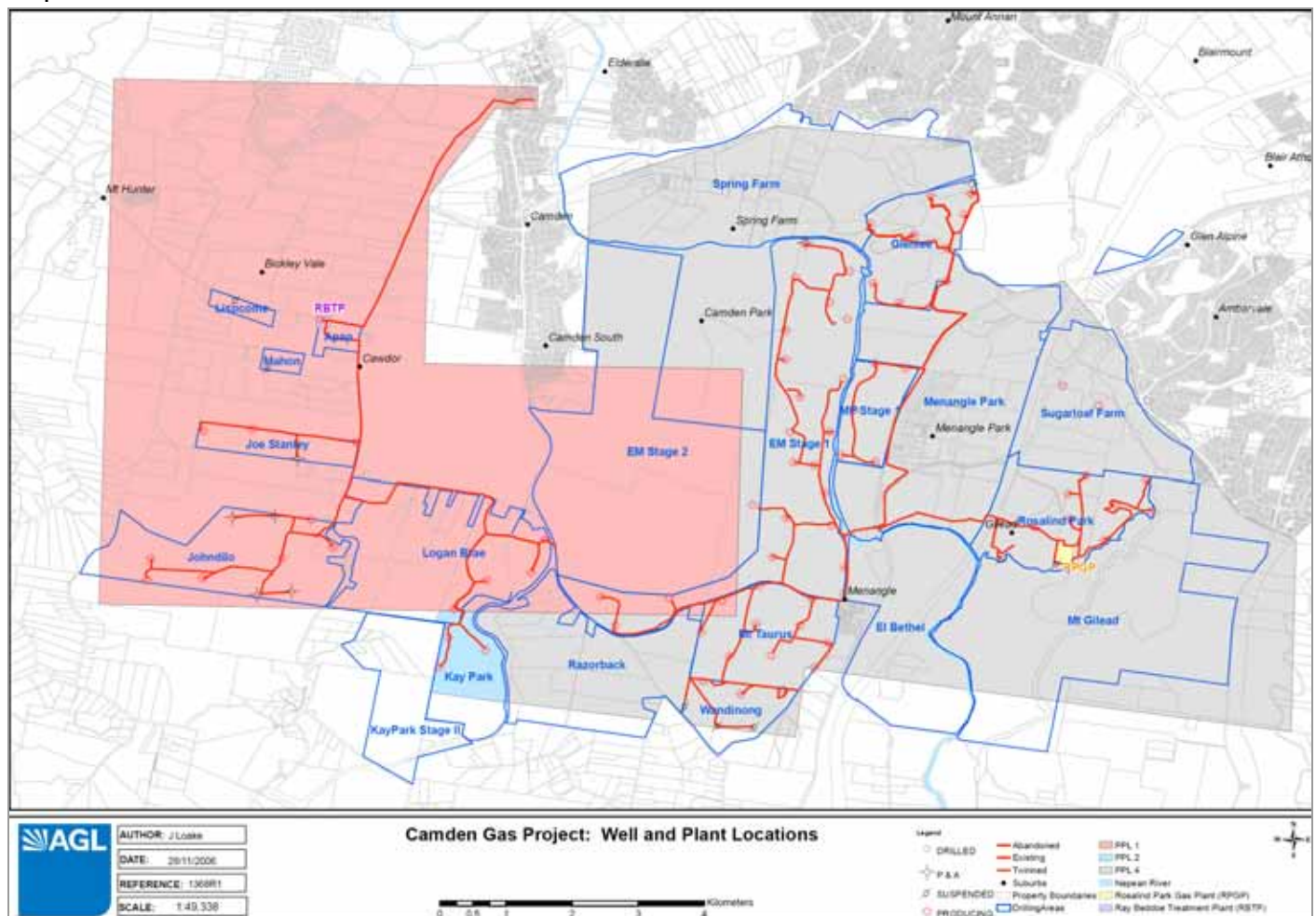


Figure 1 – Camden Gas Project Location Plan

The land uses in the CGP area are generally rural on the larger properties (livestock grazing, dairy farms) or rural residential and grazing on the smaller properties. Other land uses in the area include extractive industries, mining related facilities and waste disposal, and industrial uses such as the CGP's gas treatment plants.

AGL now proposes to further modify the CGP by constructing and operating additional wells and upgrading sections of the gas gathering systems. On 14 March 2007, AGL lodged 6 applications and a Statement of Environmental Effects (Appendix E) to modify various development consents for Stages 1 and 2 of the CGP.

2. PROPOSED MODIFICATIONS

The proposed modifications, under section 96(1A) and section 96AA of the *Environmental Planning and Assessment Act 1979* (EP&A Act), involve the construction and drilling of 8 additional coal seam methane gas wells (surface to in-seam (SIS) type wells) at existing well sites, connection of the wells to the existing gas gathering system and production of methane gas from the new wells, and upgrading (twinning) sections of the existing gas gathering lines. The details of each application are shown in Table 1, and collectively in Figure 2.

Modification Number	Development Consent	Original Approval	Proposal
Modification 1 – MOD 24-3-2007	DA 15-1-2002-i dated 23 July 2002	25 wells, gas gathering system and gas treatment plant (Stage 1 consent)	Construct 2 SIS wells (AP02 and AP03) at an existing well (AP01), connect the new wells to the existing gas gathering system and produce methane gas
Modification 2 – MOD 25-3-2007	DA 246-8-2002-i dated 20 September 2002	3 wells and gas gathering system (Stage 1 extension – Kay Park wells)	Construct 2 SIS wells (KP05 and KP06) at an existing well (KP01), connect the new wells to the existing gas gathering system and produce methane gas
Modification 3 – MOD 26-3-2007	DA 282-6-2003-i dated 16 June 2004	43 wells, gas gathering system and a gas treatment plant (Stage 2 consent)	Construct 1 SIS well (EM38) at an existing well (EM20), connect the new well to the existing gas gathering system and produce methane gas, and upgrade (twin) existing sections of the gas gathering system
Modification 4 – MOD 27-3-2007	DA 183-8-2004-i dated 16 December 2004	15 wells and gas gathering system (Stage 2 extension – Mt Taurus and Harness Racing Club wells)	Construct 1 SIS well (MP30) at an existing well (MP13), connect the new well to the existing gas gathering system and produce methane gas, and upgrade (twin) existing sections of the gas gathering system
Modification 5 – MOD 28-3-2007	DA 9-1-2005 dated 26 May 2005	6 wells and gas gathering system (Stage 2 extension – Glenlee wells)	Upgrade (twin) existing sections of the gas gathering system
Modification 6 – MOD 29-3-2007	DA 75-4-2005 dated 7 October 2005	7 wells and gas gathering system (Stage 2 extension – Sugarloaf Farm wells)	Construct 2 SIS wells (SL08 and SL09), connect the new wells to the existing gas gathering system and produce methane gas

Table 1 – Proposed Modifications of Development Consents

An SIS well is drilled vertically for about 150m and then directionally drilled at an angle of about 78 degrees to the horizontal, until the shaft intersects with the coal seam. A smaller diameter hole is then drilled horizontally within the coal seam for a distance of about 1500m. SIS wells do not require fracture stimulation (i.e. the injection of a sand and water mixture at high pressure to fracture the coal seam, commonly referred to as fracking) as drilling through the coal seam acts to stimulate the flow of methane gas. However, once the drill enters the coal seam, drilling must be continuous (i.e. 24 hours a day) for about 10 days.

The upgrading of existing sections of the gas gathering line involves the digging of a trench between 750mm and 1200mm in depth, generally over previously or currently disturbed land, and the laying of gas pipes ranging in size from 90mm to 315mm diameter. The upgraded lines cross a number of creek and drainage lines, and also an underbore of the Glenlee rail spur line.

The new SIS wells would be co-located at existing well sites (5-6m separation distance between the new and existing well) to minimise disturbance to the land. The wells and gas gathering lines would be constructed and operated in accordance with the existing construction and operational conditions of the various development consents. Aerial photos of each of the well sites are contained in Appendix B.

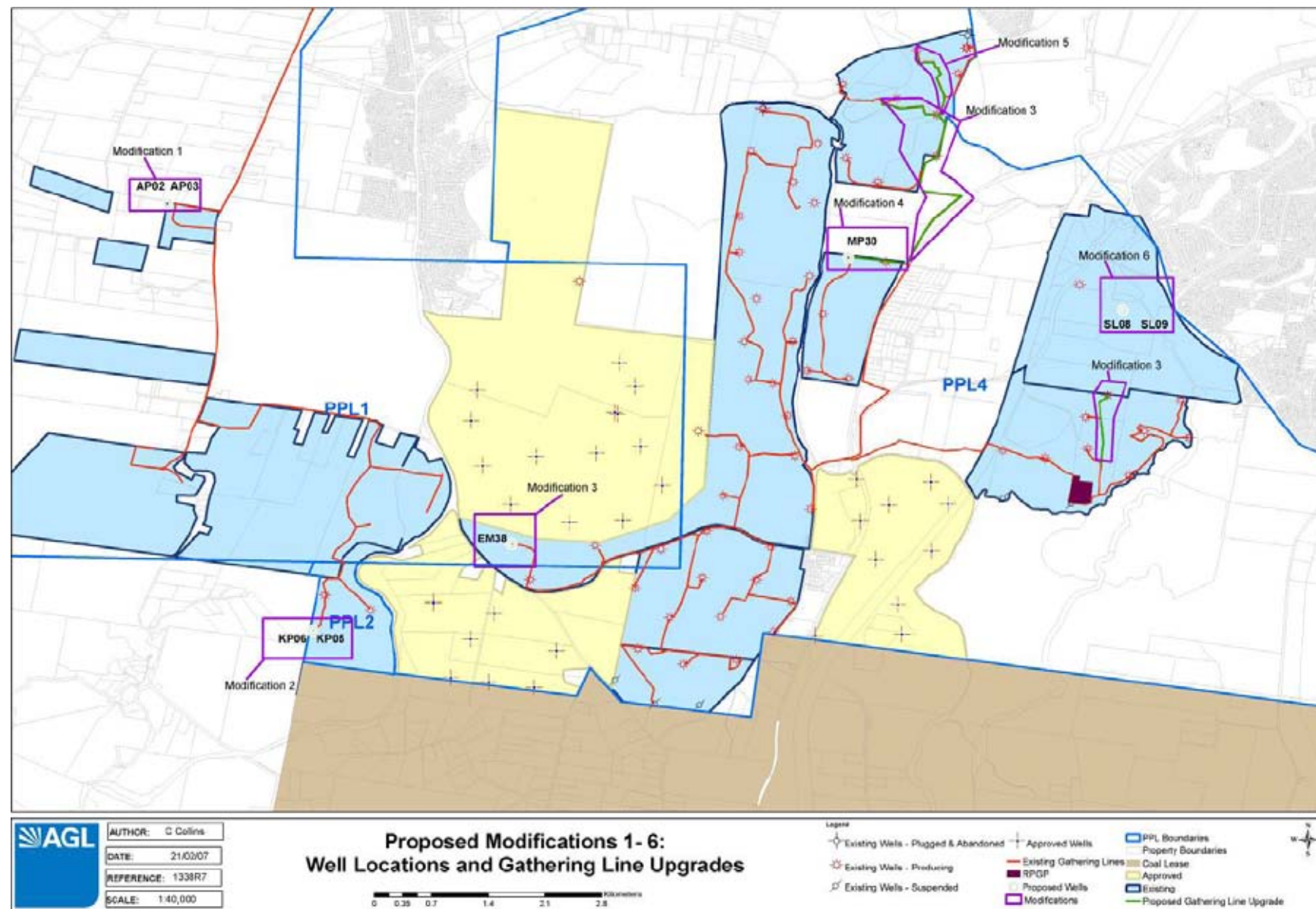


Figure 2 – Well Locations and Gas Gathering Line Upgrade

A full description of the land use in the vicinity of each proposed modification appears in Table 2 below.

Location	Surrounding land uses
Modification 1 – AP01 (Apap)	Rural (grazing) and rural residential. Adjacent to the Ray Beddoe Treatment Plant which is to be decommissioned (mid 2007) and the site rehabilitated for rural uses.
Modification 2 – KP01 (Kay Park)	Rural – grazing.
Modification 3 – EM20 (EMAI), Glenlee and Rosalind Park	Elizabeth Macarthur Agricultural Institute (EMAI) – plant and animal research institute. Adjoins rural (grazing) and rural residential to the south. Rosalind Park – rural (grazing and cropping), sandstone quarry and Rosalind Park Gas Plant. Glenlee - industrial uses (Glenlee coal washery plant and Jacks Gully Waste Depot) and rural – grazing.
Modification 4 – MP30 and Menangle Park	Rural (grazing) and industrial (NSW Harness Racing Club practice track and sand mining).
Modification 5 – Glenlee North	Industrial land (Glenlee coal washery plant and Jacks Gully Waste Depot).
Modification 6 – SL03 (Sugarloaf Farm)	Rural (horse agistment/riding school) and urban (Broughton College to the west and the Glen Alpine residential area to the east).

Table 2 – Surrounding Land Uses

3. STATUTORY CONTEXT

Consent Authority

The Minister was the consent authority for the original development applications for five of the six existing consents: Stage 1 (DA15-1-2002-i), Kay Park Wells (DA 246-8-2002-i), Mt Taurus/HRC Wells (DA 183-8-2004-i), Glenlee Wells (DA 9-1-2005), and Sugarloaf Farm Wells (DA 74-5-2005), and consequently is the consent authority for the applications to modify these development consents.

The development consent for Stage 2 of the Camden Gas Project was granted by the Land and Environment Court (DA 282-6-2003-i). Under section 96AA of the EP&A Act, the Minister may modify a consent granted by the Court.

Section 96(1A)

Under section 96(1A) of the EP&A Act, a consent authority may modify a development consent if it is satisfied that:

- (a) *the proposed modification is of minimal environmental impact; and*
- (b) *the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all) ...*

Based on its assessment (see Section 5) the Department is satisfied that the proposed modifications would be of minimal environmental impact and that the developments, as modified, would be substantially the same development for which consent was originally granted.

Section 96AA

Under section 96AA(1) of the EP&A Act, a consent authority may modify a development consent granted by the Court if:

- (a) *it is satisfied that the development to which the consent relates is substantially the same development as the development for which consent was originally granted;*
- (b) *it has notified the application in accordance with*
 - i) the regulations, if the regulations so require, ...*
- (c) *it has notified ... each person who made a submission .. on the development application of the proposed modification by... written notice ...*

(d) *it has considered any submissions made concerning the proposed modification ...*

In regards to these four requirements:

- the Department is satisfied that the proposal would be substantially the same development as that for which consent was originally granted;
- there is no requirement under the *Environmental Planning and Assessment Regulation 2000* to notify the proposal;
- the Department's legal advice is that if the proposal is of minimal environmental impact, then the requirement to notify each person who made a submission on the original development application does not apply. The Department believes the proposal for an additional well (EM38) at an existing well site (EM20) and upgrading (twinning) sections of the existing gas gathering lines are of minimal environmental impact, and is consequently satisfied that there is no requirement to notify the proposal. Notwithstanding this view, the Department notified the integrated development authorities and relevant public authorities; and
- the Department has considered all the relevant issues raised by the submissions received on the proposal (see section 5).

On 5 April 2006, the Minister delegated his powers and functions as a consent authority to modify consents under sections 96 and 96AA of the EP&A Act to the Executive Director, Major Project Assessment. Consequently, the Executive Director may determine the applications under delegated authority.

Integrated Development

The proposals to modify the development consent for Stage 2 of the Camden Gas Project (DA 282-6-2003-i) and the Sugarloaf Farm wells (DA74-5-2005) would require additional approvals under section 91 of the EP&A Act. These are:

- Modification 3 - *National Parks and Wildlife Act 1974, Rivers and Foreshores Improvement Act 1948 and Heritage Act 1977.*
- Modification 6 - *Heritage Act 1977*

Environmental Planning Instruments

The following environmental planning instruments are relevant to the proposals:

- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*
- *State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007;*
- *Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River;*
- *Wollondilly Local Environment Plan 1991;*
- *Campbelltown Local Environment Plan (Urban Areas) 2002;*
- *Campbelltown Interim Development Order No.15; and*
- *Camden Local Environmental Plan No.46.*

The Department has assessed the proposals against the relevant provisions in these instruments (see Appendix F) and is satisfied that the proposals are consistent with the relevant aims and objectives.

4. CONSULTATION

The Department received 4 submissions from public authorities (copy of the submissions is contained in Appendix D).

Department of Environment and Climate Change

The Department of Environment and Climate Change (DECC) advised it is able to issue General Terms of Approval for the proposed well (EM38) at the EMAI in relation to Aboriginal cultural heritage matters under section 90 of the *National Parks and Wildlife Act 1974*.

Department of Water and Energy

The Department of Water and Energy (DWE) advised that only the proposal involving watercourses was of direct interest. DWE advised that, if the proposed watercourse crossings are of a similar nature and effect as those in a previously approved (now lapsed) Part 3A Permit, then the proposal would be satisfactory.

Department of Primary Industries

The Department of Primary Industries (DPI) did not object to the proposals.

NSW Heritage Office

The NSW Heritage Office considered the proposals would have minor impacts on the heritage significance of the EMAI and Sugarloaf Farm, which are listed on the State Heritage Register. The proposals meet the requirements of minor activities with no adverse impact on heritage significance, which are exempt from the need for an approval under the *Heritage Act 1977*. The Heritage Office recommended a condition on all the consents which require AGL to stop work if archaeological relics are disturbed by the works.

5. ASSESSMENT

Noise

The Department has assessed the environmental impacts of the proposals and considers the key issue to be noise.

Construction

AGL has undertaken an assessment of construction noise generated by the drilling of the SIS wells (see Table 3).

Receiver/ Well Location	Weekday (7.00am-6.00pm) Saturday (7.00am-1.00pm)			Saturday (1.00pm-6.00pm) Sunday (7.00am-6.00pm)			Evening (6.00pm-10.00pm)			Night (10.00pm-7.00am)		
	Op1	Op2	PSNL	Op1	Op2	PSNL	Op1	Op2	PSNL	Op1	Op2	PSNL
AP02/AP03 Receiver A1	50	✓	45	50	45	40	50	45	40	50	45	35
Receiver A2, A3, A4	45	✓	45	45	40	40	45	40	40	45	40	35
KP05/KP06	40	36	53	40	36	48	40	36	41	41	37	35
EM38	49	40	54	49	40	39	49	40	39	50	40	35
MP30	48	42	57	48	42	42	48	42	42	49	42	40
SL08/SL09	45	40	54	49	40	44	45	40	47	46	40	41

Table 3 – Construction Noise Criteria in dB(A)

The assessment is based on two construction scenarios:

- typical daytime with normal operations (**Op1**) - two mud pumps operating under calm weather conditions; and
- typical night-time with noise mitigated operations (**Op2**) – one mud pump operating (partially enclosed) under temperature inversion weather conditions.

The noise assessment concluded that **normal operations** would comply with the DECC's construction noise criteria during the daytime period (weekdays 7.00am-6.00pm and Saturday mornings 7.00am-1.00pm) at all receiver locations, except the residence closest to well AP01. The drilling of AP02/AP03 adjacent to AP01 would exceed the daytime noise criteria by 5 dB(A) at receiver A1, which is located 320m to the west.

Drilling of wells under **noise mitigated operations** would comply with the construction noise criteria at all receivers during the daytime period, and at all receivers, except receiver A1 and the residence closest to EM20 (adjacent to proposed EM38), on Saturday afternoons and Sundays. The exceedances are 5 dB(A) and 1 dB(A), respectively.

However, the noise assessment also concluded that drilling under **normal operations** would exceed the construction noise criteria at all locations during the night time period (10.00pm-7.00am, 7 days a week). The exceedances range from 5 dB(A) at the residence near SL05 (adjacent to proposed wells SL08/SL09) to 15 dB(A) at receiver A1 and the receiver closest to EM20. Under **noise mitigated operations**, drilling would exceed the construction noise criteria at all receivers except that closest to SL05, ranging from 2 dB(A) to 10 dB(A). The noise assessment states that further noise mitigation could be achieved by orientation of the mud pumps air intake louvre away from the residences (3 dB(A) reduction) and the provision of noise barriers (5-10 dB(A) reduction). With the implementation of these additional mitigation measures,

compliance with the DECC's construction noise criteria is anticipated to be achieved at all residences during night time construction works.

The noise assessment made a number of recommendations to manage construction noise at each well site (see Table 4). AGL proposes to implement these noise mitigation measures in constructing the new wells.

Well Location	Day Time Construction	Night Time Construction	Additional Mitigation
AP02/AP03	Normal operating condition, with extra mitigation	Noise mitigated condition, with extra mitigation	Mud pump louvre orientation to north and shielding to east and west of the site
KP05/KP06	Normal operating condition	Noise mitigated condition, with extra mitigation	Mud pump louvre orientation to south of the site
EM38	Normal operating condition	Noise mitigated condition, with extra mitigation	Mud pump louvre orientation to east and shielding to north-west of the site
MP30	Normal operating condition	Noise mitigated condition, with extra mitigation	Mud pump orientation to north-west of the site
SL08/SL09	Normal operating condition	Normal operating condition, with extra mitigation	Mud pump louvre orientation to east and shielding to west of the site

Table 4 – Proposed Construction Operation Conditions

In addition, AGL would update the existing Construction Noise Management Plan to:

- provide a detailed description of the measures that would be implemented to achieve the construction noise goals for each site;
- provide community notification for the proposed works; and
- provide details of responsibility for monitoring, reviewing and implementing the plan.

Operation

The co-location of wells has the potential to increase noise at an existing well location. AGL states that previous experience in the operation of the CGP has shown that noise has not adversely impacted surrounding receivers. Operational wells have a sound power level range of between 49-87 dB(A). AGL predicts that the noise level generated by a well operating at the maximum sound power level would be about 25 dB(A) at the nearest residential receiver (distance of 320m), which is 10 dB(A) lower than the night-time noise criteria of 35 dB(A).

AGL has previously assessed the impact of locating an additional well at an existing well site. The assessment predicted that noise emissions could increase by 3 dB(A) at a receiver located about 350m from the well. The nearest receivers are located about 300m to 400m from the proposed well sites. Although the proposals could increase operational noise levels by up to 3 dB(A), AGL considers the overall noise levels would still be below the operational noise criteria. However, should monitoring indicate that noise mitigation is required, AGL could implement a number of measures to reduce noise, including:

- adjusting pipe and fitting diameters to reduce velocities;
- cladding well head pipe work and fittings; and
- installation of unobtrusive temporary barriers.

Conclusion

The Department is satisfied that an adequate level of noise assessment has been undertaken, and with the implementation of noise mitigation measures, the construction of the proposed wells would comply with the relevant DECC noise criteria. The Department notes that existing conditions of consent would adequately manage any residual noise impacts.

Other Impacts

The Department's assessment of other potential impacts of the proposed modifications is summarised in the table below.

Impact	Consideration
<i>Heritage - Aboriginal</i>	AGL has undertaken an Aboriginal cultural heritage assessment of the proposed well sites and gas gathering line routes. The assessment was conducted in conjunction with the Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title

	Claimants Aboriginal Corporation. The survey of the proposed additional well sites discovered two previously unrecorded flaked stone artefacts on the surface of the disturbed soil within the existing EM20 well site. No other artefacts or relics were discovered on any of the other well sites or along the route of the proposed gas gathering lines. The wells and gas gathering lines are located on land that has been previously or currently disturbed by agricultural activities or the CGP. Although work may be carried out close to several recorded relic sites (near GL10 and south and south-west of SL03), the proposals do not impact on any existing recorded sites. The assessment recommended measures such as temporary fencing to protect known relic sites from construction vehicles and construction activities. AGL proposes to collect and relocate the two artefacts on the EM38 well site. Both items were located on highly disturbed soil and were likely to have been disturbed by construction and grading activities undertaken during the construction of the existing well. The assessment considered that as the site has been highly disturbed, its cultural significance is considered to be minor and relocation of the artefacts is recommended. The assessment concluded the removal of the artefacts would have no significant adverse impact on the Aboriginal cultural heritage values of the EMAI. The DECC has advised it is able to issue general terms of approval for the proposed relocation of relics at the EM38 well site under section 90 of the <i>National Parks and Wildlife Act 1974</i>. The DECC and the Department are satisfied with the Aboriginal heritage assessment of the proposals. Existing conditions of consent would adequately manage any potential impacts on relics that are recovered during the construction works.
Heritage – Non Aboriginal	AGL has considered the impacts of the proposals on heritage items in the area and apart from the wells on EMAI and Sugarloaf Farm, the proposals do not impact on any heritage items in the area. Two existing well sites are located on land listed under the State Heritage Register (SHR): • EM20 (adjacent to the proposed EM38) on the EMAI property. The EMAI was listed on the SHR in December 2006 as the Camden Park Estate and Belgenny Farm. • SL03 (adjacent to proposed wells SL08 and SL09) on Sugarloaf Farm. Sugarloaf Farm was listed on the SHR in April 1999. AGL states that heritage studies were undertaken for the works proposed under the original development applications for EM20 and SL03. The original heritage study of the EMAI site concluded that previously listed heritage items and archaeological sites and the significance of the rural landscape character and heritage significance of the EMAI site would not be modified by the proposed works. AGL considers that the proposed EM38 well has no impact on the existing heritage items or the landscape context of the EMAI area. The original heritage study of the Sugarloaf Farm development recommended a minor relocation of proposed well SL03 from a prominent ridgeline to reduce the visual impact of the work on the surrounding area. The proposed SL08/SL09 wells would be located adjacent to SL03 and apart from the temporary construction impacts, AGL considers that the new wells have no adverse impact on the heritage of Sugarloaf Farm. The NSW Heritage Office considers the co-location of the new wells at the existing well sites would consolidate the potential impacts to an area already hosting an intrusive landscape element. The two proposals would have minor impact on the heritage significance of the SHR listed sites and meet the requirement for works which may be exempted for an approval under the <i>Heritage Act 1977</i>. The NSW Heritage Office recommended the conditioning of the works to require work to stop should an archaeological relic be disturbed by construction. A number of the

	development consents include a condition relating to the discovery of relics during construction works. However, as several consents do not include this provision, it is recommended that this requirement be incorporated as a condition of consent. The Department accepts there would be short term impacts from construction vehicles and equipment around the well sites. However, following rehabilitation of the construction sites, the Department considers the proposals would have minimal impact on the heritage values and landscape character of the SHR-listed EMAI and Sugarloaf Farm.
<i>Air Quality</i>	The potential air quality impacts are likely to be generated by construction activities, such as: • dust generated by earthmoving works (construction of drill pads/pits and excavation of the gas gathering lines); • dust generated by vehicle movements; • emissions from generators and vehicles; and • emissions from drilling operations (odours/venting of natural gas and/or coal seam gas). During construction activities there may be minor temporary air quality impacts from dust generation and vehicle/equipment exhausts. AGL considers these are only temporary and short term impacts, and with the implementation of mitigation measures no significant adverse environmental effects are expected. The Department is satisfied that the proposals would not result in any significant air quality impacts, and existing consent conditions would adequately manage potential dust impacts.
<i>Flora and fauna</i>	A flora and fauna assessment was carried out for the proposed well sites and the routes of the gas gathering lines. The existing vegetation of the CGP area largely consists of open pasture with stands of shrubs/trees and pockets of more densely wooded areas, generally following watercourses. The land has been extensively cleared for agriculture (grazing and cropping) and as a result the remnant vegetation has been modified through historic and current land uses. The proposed well sites have no vegetation of significance which would be affected by the construction works. Some of the wells are located adjacent to areas of revegetation or remnant woodland, however, these areas are not affected by the proposals. The proposed upgrade of the gas gathering lines involves the twinning of sections of existing lines, which generally traverse cleared grazing land or are adjacent to existing tracks/roads which pass through or are adjacent to modified woodland areas. Apart from the clearing of pasture grass and introduced weeds, no trees are required to be cleared by the proposals. Some of the well sites and gas gathering lines are adjacent to or traverse potential habitat of the Cumberland Land Snail. A targeted survey of the well sites and gas gathering route was undertaken for this species, however, no snails were recorded within or adjacent to the proposed sites. A raptor was observed to the east of EM38 in a well known raptor breeding area. The proposed works are outside the raptor zones and the raptor buffer area on the EMAI. However, construction vehicles are likely to pass through the raptor areas on existing access roads. AGL states that the construction areas would be rehabilitated and planted with pasture grasses following completion of the works. The DECC recommended conditions to ensure that impacts on threatened species are minimised by implementing the recommendations of the flora and fauna assessment and ensuring boundaries of endangered ecological communities and other threatened species are marked and avoided by the works.

	The Department and DECC are satisfied with the flora and fauna assessment of the proposals. The proposals are unlikely to have any significant adverse flora and fauna impacts, as the works are located on land which has been previously cleared and subject to a history of agricultural disturbance or works associated with the CGP.
Water	The construction of the wells would involve the excavation of a shallow drill pit for the storage of drill cuttings and formation waters. The wells would also be linked to the existing water transport lines for the transfer of excess water to central storage facilities for re-use elsewhere in the CGP or for disposal to licensed wastewater disposal facilities. The potential impacts on surface water quality include: • erosion from stockpiles and cover material that has been temporarily moved from the construction sites; • erosion from exposed subsoils from the gas gathering line trenches; • erosion from access tracks and vehicle areas; • spillages of fuel, oil or chemicals from construction vehicles and equipment; and • spillage of drill waters from the drill pits. The drilling of the wells also has the potential to cross-contaminate groundwater aquifers. AGL states that surface water runoff can be managed to ensure that there is no impact on local surface water quality. The potential for cross contamination of the aquifers is avoided by casing and cementing the well shaft. AGL considers the excavation of the trenches for the installation of the gas gathering lines would have minimal impact on ground water given the shallow depth of the excavations (between 750mm and 1200mm). The gas gathering lines cross a number of creeks and watercourses. AGL would construct creek crossings in accordance with DWE requirements. AGL would renew its Part 3A Permit for water course crossings under the <i>River and Foreshores Improvement Act 1948</i>. The DWE has advised that as long as the watercourse crossings are of a similar nature and effect to the works approved under the previous Part 3A Permit for the original Stage 2 development consent, then the proposal would be satisfactory. To minimise the impacts of the proposal on local watercourses and drainage lines, AGL would: • update and adopt the Soil and Water Management Plans for the Camden Gas Project for the construction of the new wells and installation of the gas gathering lines; • undertake continuous monitoring of the levels and quality of the water in the drill pits; and • audit all infrastructure following any flooding event to ensure all elements are operating effectively and necessary rehabilitation works are carried out immediately. The Department is satisfied that the proposals would have minimal impact on water quality in the locality. Existing consent conditions would adequately manage any residual impacts of the proposals.
Visual	Temporary lighting is required to be erected around the well construction sites for night-time drilling activities. Light spillage from the night time work may impact on nearby residences. AGL states that night time lighting typically comprises two 6000 watt directional lighting towers (four lights mounted on an 8m high telescopic arm) to illuminate the area around the drilling rigs. Light spillage is minimal due to the focused nature of the lighting arrangements, with the illumination reducing to less than 10% outside an area of 60m x 30m from the lighting tower. AGL considers the offsite impacts are minimal

	due to the distance to the nearest residences and the temporary nature of the construction activities (about 10 days for 24-hour operations). Screening vegetation has been planted around EM20 and SL03 to minimise impacts on heritage items. AGL states that additional screen planting is not required for the new wells. There are likely to be short term impacts during the construction period associated with construction equipment and vehicles. There is very little that could be done to mitigate visual impacts during construction, however, they are only expected to occur for a short period and would diminish significantly over time as the construction areas are rehabilitated and the vegetation screening grows. The Department is satisfied that the proposals, apart from some short term impacts, would have no significant long term adverse impacts on the visual amenity of the surrounding area.
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6. CONCLUSION

The Department has assessed the applications and SEE in accordance with section 79C and the objects of the EP&A Act, and is satisfied that the Applicant has adequately assessed the environmental impacts of the proposed modifications. The Department considers the associated environmental impacts remain substantially unchanged from those of the approved development and that existing consent conditions would manage any residual impacts.

The assessment found that the proposed modifications would have minimal impacts on the environment of the sites and the amenity of nearby residences.

The proposals would allow AGL to obtain additional coal seam methane gas resources for the Camden Gas Project, which provides economic and social benefits for the State and the region.

Consequently, the Department considers that the proposed modifications are in the public interest, and should be approved, subject to conditions of consent (see Tag B). The Applicant has been provided with a copy of the recommended conditions of consent and has indicated that it has no objections.

7. RECOMMENDATION

It is RECOMMENDED that the Executive Director, Major Project Assessment, exercise the powers and functions delegated to him in the Instrument of Delegation from the Minister for Planning dated 5 April 2006, and:

- i) consider the findings and recommendations of this report;
- ii) determine that the developments to which the consents, as modified, relate, are substantially the same development as the development for which the consents were originally granted;
- iii) approve the proposed modifications under section 96(1A) and section 96AA of the *Environmental Planning and Assessment Act 1979*; and
- iv) sign the attached notices of modification (Tag C).

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