

Phase 1 Environmental Site Assessment

Western Coal Services Project, Blackmans Flat, NSW



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Prepared for

Centennial Coal Pty Limited

Prepared by

AECOM Australia Pty Ltd

Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia

T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com

ABN 20 093 846 925

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Quality Information

Document Phase 1 Environmental Site Assessment

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Prepared by Christina Low

Reviewed by Debbie Midwinter

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Executive Summary

AECOM Australia Pty Ltd (AECOM) was engaged by Springvale Coal Pty Limited, a subsidiary of Centennial Coal Pty Ltd (Centennial) to complete a Phase 1 Environmental Site Assessment (ESA) for the Springvale Coal Services site and the new haul road link (the Site), which is part of the Centennial Western Coal Services Project, located at Blackmans Flat, near Wallerawang, NSW.. The location of the Site is shown on **Figure 1 of Appendix A**.

The objectives of this Phase 1 ESA are to evaluate the potential for soil, surface water, and/or groundwater contamination to be present at the Site and assess whether contamination (if present) is likely to be migrating from the Site, so that this information can be included in the Environmental Impact Statement (EIS) for the Centennial Western Coal Services Project.

AECOM understands that Centennial is proposing to upgrade the Site, which will involve building a new additional washery adjacent to the existing washery within the Springvale Coal Services site, linking the facility to the Angus Place Colliery via a new haul road link and separating the transport and logistics function of the facility away from the source mines.

The Director General Requirements (DGRs) were issued on 6 November 2012 and specified that the Key Issues which the EIS must address include the following:

- Land Resources – detailed assessment of impacts to land contamination; and
- Water Resources – detailed assessment of potential impacts on the quality and quantity of existing surface water and groundwater resources in accordance with the NSW Department of Primary Industries Office of Water – NSW Aquifer Interference Policy (September 2012).

The Phase 1 ESA was conducted through the following scope of works:

- Site history and background reviews, as follows:
 - Historic and current aerial photographs from across the Site (already available);
 - Land Titles Office records for each Lot;
 - Section 149 planning certificates for each Lot;
 - Relevant reports pertaining to the environmental status of the site (i.e. Consolidated Site Assessment (AECOM, 2010b) (which includes Lamberts Gully Mine), Phase 1 ESA of Lambert Gully Mine (AECOM, 2010a), environmental monitoring reports and Centennial Annual Environmental Management Report);
- Reviewed published soil, geology and topographic maps;
- Reviewed the NSW Environmental Protection Authority (NSW EPA) website for presence of nearby sites listed under the *Contaminated Land Management Act (1997)* (or, assess if subject sites are listed);
- Undertaken a search of registered groundwater bores in the vicinity of the site;
- Undertaken a search of WorkCover dangerous goods license records;
- Undertaken site inspection, to identify areas of potential contamination, 'ground-truth' background information, and to conduct any interviews with key personnel at the site;
- A qualitative risk assessment was conducted based on the findings of the desktop review and the site inspection; and
- Evaluation of data for inclusion into the Phase 1 Site Contamination Assessment report.

The scope of work did not include sampling of surface or subsurface soils or water.

The key findings are summarised as follows:

- Coal mining began at the Site (in the historical Lamberts Gully) in 1942, as part of the old Western Main Colliery area. Coal mining operations have recently ceased however coal processing, handling and reject disposal activities continue.
- The Site is currently owned by several entities including:

- Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited for the large proportion of the Site south of the highway, corresponding to the old Lamberts Gully mine area, current coal processing operations and small sections on the north and south flanks of the Castlereagh Highway;
 - Enhance Place Pty Limited for a portion of the Site containing the western portion of Pine Dale Mine, part of Wangcol Creek, and sections south and north of the Castlereagh Highway; and
 - The NSW Government, for Crown Land on the south-east portion of the Site that is part of Ben Bullen State Forest.
- The Yarraboldy Open Cut Mine is located to the immediate north of the Site, this area is considered to have a long history of disturbance, and has been left un-rehabilitated (Enhance Place, 2010).
 - Certificates 149 parts 2 and 5 for the Site indicated:
 - The land was not within an EPA investigation or remediation area, and not subject to any investigation or remediation orders or proposals.
 - The site was subject to Contributions Plans applying to coal related developments and to certain developments within 1(a) rural zonings with respect to Rural Roads and Rural Fire Services
 - The Site was on bush fire prone land.
 - Historical aerial photographs for the Site indicated coal mining operations have occurred in the vicinity of the Site since early 1950s.

The key findings derived from the historical environmental report and data review are presented as follows:

- Shallow or perched groundwater could potentially occur at the interface between soil/weathered bedrock interface and within alluvial sediments along drainage channels. Groundwater flow is expected to flow to the north and northeast towards Wangcol Creek, which crosses the northern part of the Site (western part of Pine Dale Mine).
- Past and current use of the Site for mining operations is likely to have resulted in potential soil, sediment and surface water contamination, and potentially groundwater impact in some areas of the Site, however, extensive contamination was not observed during the Site inspection. Potential contaminants of concern identified from the past and current activities at the Site include total petroleum hydrocarbons (TPH) associated with fuel storage; monocyclic aromatic hydrocarbons associated with fuel and solvent storage; polycyclic aromatic hydrocarbons (PAHs) associated with coal waste, lubricating oil and ash from adjacent power station; metals (As, Cd, Cr, Cu, Ni, Hg, Pb, Zn) associated with mine operations; polychlorinated biphenyls associated with historic use of electrical transformers; explosives associated with storage of explosives on site; and asbestos associated with fill material and demolition of former buildings on site.
- Potential off-site sources of contamination include impacts from the Mount Piper Power Station and Ash Emplacement Area located to the west of the Site, and from the un-rehabilitated mine workings to the north of the Site. The nature and extent of these potential impacts (if any) is presently unknown.
- Potential contamination observed at the Site was generally associated with fuel storage and handling, equipment storage and maintenance and surface water runoff from the tailing dams and general Site.
- An investigation in January 2010 reported that Wangcol Creek, located approximately 200 metres north of the Site, was impacted by current and historic mining in the area and that Lamberts Gully mine was also contributing to this impact (GHD 2010).
- Site Specific Trigger Values (SSTVs) were updated for assessment of selected compounds in surface water collected from upstream and downstream monitoring points (GHD 2012).
- The latest available Annual Environmental Management Report for the Lamberts Gully site reported there was no evidence of contaminated or polluted land on the Lambert's Gully Coal Mine (Springvale Coal, 2010).
- Surface water monitoring by Centennial indicated that discharge waters from the Site and in Wangcol Creek, both upgradient and down gradient of the Site, were impacted by metals, namely iron, manganese, zinc and nickel. GHD (2012) recommended continuing sampling at the upstream location for the abovementioned parameters on a monthly basis for two years to satisfy the requirements of ANZECC & ARMCAZ (2000) and so that the SSTVs can be reviewed. GHD also recommended that a new monitoring location (200 m downstream of the confluence of LDP006 and Wangcol Creek) be included to achieve an appropriate mixing

zone for surface water monitoring. GHD (2012) also identified that a further investigation should be conducted for parameters (Electrical conductivity (EC), aluminium, iron, manganese, nickel and zinc) that consistently exceed the SSTVs at the downstream monitoring locations. GHD indicated that the aim of the investigation would be to identify the source of the contaminants and determine whether the elevated concentrations are adversely impacting on the downstream waters of Wangcol Creek.

- The qualitative risk assessment indicated that potential contamination at the Site currently presents a low to moderate risk to human health and the environment.
- Previous investigations indicated that there was currently not enough information or evidence of contamination at Lambert Gully Mine to warrant notification pursuant to Section 60 of the Contaminated Land Management (CLM) Act. Further investigation was recommended to assess the presence of contamination, if any, and enable a determination to be made regarding Centennial's duty to report (AECOM, 2010b). As part of Centennial's general due diligence, a notification under Section 60 of the CLM Act was lodged with NSW Environment Protection Authority (EPA) on 2 February 2012. The NSW EPA responded to Centennial acknowledging receipt of the Duty to Report letter and Centennial's commitment for further investigations.

The Phase 1 ESA concludes that past and current use of the Site is likely to have resulted in potential soil, sediment and surface water contamination, and potentially groundwater impact in some areas of the Site, however, no significant contamination was identified during the recent Site inspection.

The Phase 1 ESA makes the following recommendations:

- A Phase 2 ESA should be conducted to target areas of potential contamination, where the risk is moderate. It is understood that a number of areas of potential contamination are overlain by sediment ponds and stockpiles of overburden. It is recommended that the Phase 2 ESA program would target areas of potential contamination that are accessible and assess the potential for off-site migration.

It is understood that Centennial are planning to undertake a number of Site upgrade works that may include disturbance of the Site surface, which may present a risk to site users by exposure to impacted soil or shallow groundwater. The Phase 2 investigation will be conducted in accordance with the schedule provided by Centennial to the NSW EPA in a letter dated 2 February 2012, which states that the works for low risk sites will be conducted by February 2015.

Glossary of Terms and Acronyms

General Terms	
AEMR	Annual Environmental Monitoring Review
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AST	Above ground Storage Tank
BTEX	Benzene, toluene, ethylbenzene and xylenes
CIRIA	Construction Industry Research and Information Association
CLM	Contaminated Land Management
CoPC	Contaminants of Potential Concern
DEC	Department of Environment and Conservation NSW (now NSW EPA)
DECC	Department of Environment and Climate Change NSW (now NSW EPA)
DECCW	Department of Environment, Climate Change and Water NSW (now NSW EPA)
DP	Deposited Plan
EA	Environmental Assessment
ESA	Environmental Site Assessment
EIL	Ecological Investigation Levels
EPA	Environment Protection Authority
IBC	Intermediate Bulk Container
LDP	Licensed Discharge Point
LOR	Limit of Reporting
LPG	Liquefied Petroleum Gas
m bgs	Metres below ground surface
NATA	National Association of Testing Authorities
NEHF	National Environmental Health Forum
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
OEH	Office of Environment and Heritage
QA/QC	Quality Assurance and Quality Control
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyls
ROM	Run of Mine
SSHSP	Site Specific Health and Safety Plan
SSTV	Site Specific Target Value

General Terms			
SWL	Standing Water level		
TPH	Total Petroleum Hydrocarbons		
TV	Trigger Value		
UPSS	Underground Petroleum Storage System		
UST	Underground Storage Tank		
VOC	Volatile Organic Compound		
Units			
cm	Centimetre	ppm	parts per million
Km	Kilometre	t	Tonne
M	Metre	µg/kg	micrograms/kilogram
mg/kg	milligrams/kilogram	µg/L	micrograms/litre
mg/L	milligrams/litre	µS/cm	Microsiemens/centimetre

1.0 Introduction

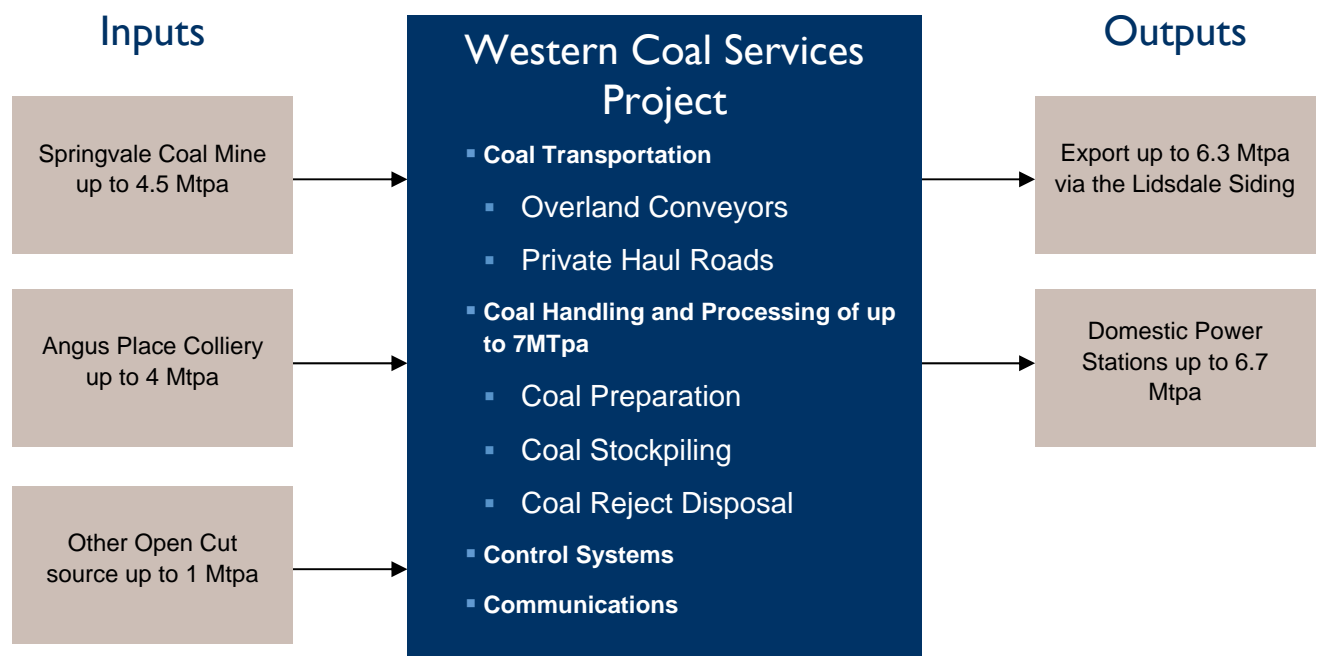
AECOM Australia Pty Ltd (AECOM) was engaged by Springvale Coal Pty Limited, a subsidiary of Centennial Coal Pty Ltd (Centennial) to complete a Phase 1 Environmental Site Assessment (ESA) for the Springvale Coal Services site and the new haul road link (the Site), which is part of the Centennial Western Coal Services Project, located at Blackmans Flat, near Wallerawang, NSW. The location of the Site is shown on **Figure 1 of Appendix A**.

The Site comprises a main coal processing area, which lies within the original Western Main Colliery Holding, and includes part of the overland conveyor system linking the Springvale Mine pit top to Mount Piper Power Station, Wallerawang Power Station and Lidsdale Siding. The Site also includes the western portion of the Pine Dale Mine operation between the Castlereagh Highway and the Angus Place to Mount Piper Haul Road.

Centennial has developed a long term strategy for its future operations in the Western Coalfield. This strategy is in response to future marketing opportunities for both domestic and export coal sales. The strategy centres on the transport and processing of coal from both Springvale Coal Mine and Angus Place Colliery but also facilitates receipt of coal supplies from other Centennial operations. In line with the Centennial strategy the Project will involve building a new additional washery adjacent to the existing washery within the Springvale Coal Services site, linking the facility to the Angus Place Colliery via a new haul road link and separating the transport and logistics function of the facility away from the source mines.

Maximum coal that could be received by the Project is 9.5 million tonnes per annum (Mtpa) representing coal supplied from Springvale Coal Mine, Angus Place Colliery and other potential Centennial sources. The design of the Project enables up to 7.0 Mtpa to be washed with up to 6.3 Mtpa of export coal delivered to Lidsdale Siding via the existing overland conveyor system. An overview of the Project inputs and outputs has been provided in Figure F1 below.

Figure F1 - Overview of the Western Coal Services Project



Approximate site boundaries for the Western Coal Services project are illustrated in **Figure 2** and **Figure 3** of **Appendix A**. Proposed elements of the upgrade project including the approximate locations of the new Haul Road, new washery infrastructure, and proposed reject emplacement area, are indicated in the Proposed Site Layout plan, supplied as **Figure 5** of **Appendix A**.

As part of the Site upgrade, a Site Contamination Assessment is required for inclusion in the Environmental Impact Statement (EIS), currently being conducted for the project to support the development application. It is understood that Director General Requirements (DGRs) were issued on 6 November 2012 and specified that the Key Issues which the EIS must address include the following:

- Land Resources – detailed assessment of impacts to land contamination; and
- Water Resources – detailed assessment of potential impacts on the quality and quantity of existing surface water and groundwater resources in accordance with the NSW Department of Primary Industries Office of Water – NSW Aquifer Interference Policy (September 2012).

1.1 Background

The main processing area of the Site lies within a previous open cut mine, which was developed in the 1940's. The Site was also used as a coal processing area since the 1970's, processing coal produced from the adjacent underground operations of the Western Main Colliery. The underground mine also included a pit top area located where the current tailings dams are located, near the main entrance, south of the Castlereagh Highway. There are no remaining structures from this former pit top area in this part of the Site. In 1994, the overland conveyor from Springvale Mine to Mount Piper Power Station was constructed, which passed through the Site and involved establishing the main coal storage area. With a total of 70 years of open cut extraction, the last phase of extraction, known as the Lamberts Gully Mine, ceased in 2010.

The current site layout, shown on **Figure 3**, includes the main pit top workshop, fuel and oil storage area, washery area, equipment storage area, sediment control ponds, tailings and settling ponds, open cut pits and rehabilitation areas. The Site also extends north of Castlereagh Highway to the present western allotment of the Pine Dale Mine.

The infrastructure area, shown on **Figure 4** includes the crusher, the workshop, office and bathhouse, washery, and Run of Mine (ROM) and washed coal stockpiles.

AECOM conducted a Phase 1 ESA at the Lambert Gully Mine, Blackmans Flat, NSW in 2010 (AECOM, 2010a). The Phase 1 ESA comprised a desktop review of available information to assess the environmental setting and identify potential sources of contamination resulting from current and historical land use. An inspection of the Springvale Coal Services Site was also conducted as part of this investigation. Based on the information obtained during this assessment, it was considered likely that past and current use of the Springvale Coal Services Site, predominantly for mining purposes, may have resulted in potential soil, sediment and surface water contamination and potentially groundwater contamination in some areas. Potential contamination at the site was likely to be predominately associated with past and present fuel storage and handling and equipment storage and maintenance.

A qualitative risk assessment was conducted based on the findings of the desktop review and site inspection and indicated that contamination at the site presented a very low to moderate risk to human health and the environment. The risk assessment was undertaken with the assumption that foreseeable future land use would be either rehabilitated bushland (open space) or continued use as a coal mine. Based on the outcomes of the risk assessment, it was recommended that a Phase 2 ESA be undertaken to assess and characterise potential soil, sediment, surface water and groundwater contamination at Lambert Gully Mine and determine whether a duty to report, pursuant to Section 60 of the Contaminated Land Management (CLM) Act 1997, exists. Irrespective of this assessment, Centennial lodged a notification under Section 60 of the CLM Act with NSW EPA on 2 February 2012 (refer to **Appendix B**). This notification advised that the Springvale Coal Services property represents a low risk. The NSW EPA responded to Centennial, (refer to **Appendix B**) acknowledged receipt of the Duty to Report letter and Centennial's commitment for further investigations.

1.2 Objectives

The objectives of this Phase 1 ESA are to update the previous Phase 1 ESA for Lambert Gully Mine and include additional areas (western portion of Pine Dale Mine, portion of Castlereagh Highway and part of Wangcol Creek) to evaluate the potential for soil, surface water, and/or groundwater contamination to be present at the Site from current and historical activities and assess the potential for contamination (if present) to be migrating from the Site.

1.3 Scope of Work

The Phase 1 ESA was conducted in accordance with National Environment Protection Measure (NEPM) *Assessment of Site Contamination* (1999) with the scope of works comprising the following tasks:

- Prepared and implemented a site-specific Health and Safety Plan (SSHSP) and complete all necessary Site inductions;
- Undertaken Site history and background reviews, as follows:
 - historic and current aerial photographs from across the Site;
 - Land Titles Office records for each Lot within the Site;
 - Section 149 planning certificates for each Lot;
 - relevant reports pertaining to the environmental status of the Site (i.e. Consolidated Site Assessment (AECOM, 2010b), which included Lambert Gully Mine, Phase 1 ESA of Lambert Gully Mine (AECOM, 2010a), environmental monitoring reports, etc);
- Reviewed published soil, geology and topographic maps;
- Reviewed the NSW EPA¹ website to assess if the Site, or nearby sites have been notified to NSW EPA under the Section 60 or have been issued a notice under Section 58 or of the *Contaminated Land Management Act (1997)*;
- Undertaken a search of registered groundwater bores in the vicinity of the Site;
- Undertaken a search of WorkCover dangerous goods license records;
- Undertaken a Site inspection, to identify areas of potential contamination 'ground-truth' background information and undertake any interviews with key personnel at the Site;
- Qualitative risk assessment based on the desktop review and site inspection; and
- Evaluated data for inclusion into the Phase 1 ESA report

The above tasks are consistent with those stated in Centennial's study brief proposal letter provided to AECOM on 3 November 2011.

AECOM has undertaken the Phase 1 ESA in accordance with the following applicable standards and guidelines:

- NSW DECC, 2009. *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* – used to determine potential significant risk of harm issues associated with the Site, where required.
- NSW DECC, 2009. *NSW. Guidelines for Implementing the Protection of the Environment Operations (Underground Petrol Storage Systems) Regulation 2008* – considered for Underground Fuel Storage Systems.
- NSW DEC, 2006. *Guidelines for the Site Auditor Scheme (2nd Edition)* – used to apply the NSW EPA decision processes for assessing and redevelopment of urban sites.
- NEPC, 1999. *National Environment Protection (Assessment of Site Contamination) Measure (National Environment Protection Council)* – considered throughout the investigation.
- NSW EPA, 2011. *Guidelines for Consultants Reporting on Contaminated Sites* – followed throughout the investigation and during preparation of this report.
- NSW EPA. 1994. *Guidelines for Assessing Service Station Sites*. NSW Environment Protection Authority – used for establishing TPH and BTEX assessment criteria for soil for the Site.

¹The NSW Environment Protection Authority became a separate statutory body on 29 February 2012. Previously, the NSW EPA was encompassed within the Office of Environment and Heritage (OEH), formerly the Department of Environment, Climate Change and Water (DECCW), Department of Environment and Climate Change (DECC) and Department of Environment and Conservation (DEC)

2.0 Site Description

The Site is identified in **Table 1** below:

Table 1 Site Identification

Item	Description
Site Owner	GC Springvale Pty Limited and Samsung Development (Aust) Pty Limited for Lot 502 Deposited Plan (DP) 825541, Lot 1 DP 88503, Lot 42 DP 751636, Lot 13 DP 751651, Lot 357 DP 751651, Lot 67 DP 751636, Lot 501 DP 825541 and Lot 15 DP804929; Enhance Place Pty Limited for Lot 37 DP 827626; and NSW Government for Lots 1 and 2 DP 126483.
Site Address	Castlereagh Highway, Blackmans Flat, NSW
Legal Description ¹	Lot 37 DP 827626 Lots 1 and 2 DP 126483 Lot 502 DP 825541; Lot 1 DP 88503; Lot 42 DP 751636; Lot 13 DP 751651; Lot 357 DP 751651; Lot 67 DP 751636; Lot 501 DP 825541; and Lot 15 DP804929.
Local Government Authority	Lithgow City Council Parish of Lidsdale, County of Cook
Current Zoning ²	1 (A) General in accordance with Lithgow City Local Environmental Plan 1994
Current Land Use	Coal mining (open cut) and associated works.
Proposed Land Use	Ongoing use as coal handling and processing facility; increased coal processing and handling, reject disposal at the main reject emplacement area and construction of a private haul road link between the existing Angus Place and Mount Piper haul road and the Springvale Coal Services property
Site Elevation	950 m AHD (approximately)
Site Area (Total)	271 ha (approximately)
Site Location Plan	Figure 1, Figure 2
Site Layout – Wider Site	Figure 3
Site Layout - Pit Top Area	Figure 4

Notes:

¹ Title Search (included as **Appendix C** for Lot 37 DP 827626, Lots 1 and 2 DP 126483, and Lot 502 DP 825541), and in AECOM (2010a) for all remaining lot numbers.

² Section 149 Certificate (included as **Appendix D** for Lot 37 DP 827626, Lots 1 and 2 DP 126483, and Lot 502 DP 825541) and in AECOM (2010a) for all remaining lot numbers.

3.0 Site History

3.1 Certificates of Title

The historical certificates of title for the Site were obtained through Advance Legal Search Pty Limited to provide details of historical ownership and possible former uses of the Site. The information obtained from the certificates is summarised below and the documentation is contained in **Appendix C**.

The certificates of title indicate that the Site is currently identified as multiple lots and DPs, those relevant to this assessment are summarised in the table below.

Table 2 Summary of Title Information and Site Ownership History

Lot and DP	Date	Site Owner
Lot 37 DP 827626 Area containing the western portion of Pine Dale Mine and a section north of the Castlereagh Highway. Lot straddles Castlereagh Highway and a portion of Wangcol Creek.	2007 to date	Enhance Place Pty Limited
	1984-2007	Electricity Commission of New South Wales
	1979-1984	Western Mine Collieries Pty Limited
	1979	James Wright Brown.
	1971-1979	James Wright Brown, State Superintendent
	1952-1977	Lidsdale Reclamation Co Pty Limited
	1940-1952	Eliza Florence Charlotte Farrimond
	1929-1940	William Wolf Gardiner,
Auto Consol 8478-204 (Lots 1 and 2 DP 126483) 2 small lots flanking the southern and northern sides of the Castlereagh Highway.	1993 to date	Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd
	1993	Western Mine Collieries Pty Limited
	1962-1993	NSW Mining Company Pty Limited
	Prior- 1962	Crown Land
Lot 502 DP 825541 Lot 502 marks the south-eastern section of the Site.	1983-date	Crown Land – Ben Bullen State Forest No. 434 – No. 6 extension
	1927-1983	Crown Land – part of Forest Reserve 57273
Lot 42 DP 751636 Rehabilitated area and proposed Lithgow City Council Solid Waste landfill site	2002 – to date	Lithgow City Council
	Prior – 2002	Crown land
	1932 -1945	<i>Special lease 32/2 Orange to Walter Humphries for grazing</i>
Lot 13 DP 751651 and Lot 357 DP 751651 Washery Area	2000 to date	Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd
	1995 – 2000	Clutha Springvale Limited and Samsung Development (Aust) Pty Limited
	1980 -1995	Western Main Collieries Pty Limited
	1952-1980	Lidsdale Real Estate Pty Limited
	1952-1952	Arthur Humphries,
	1938-1952	Walter Humphries (Lot 13)
	1931-1952	Walter Humphries (Lot 357)

Lot and DP	Date	Site Owner
Lot 67 DP 751636 Sediment dam and northern area of the Site	2000 to date	Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd
	1995 – 2000	Clutha Springvale Limited and Samsung Development (Aust) Pty Limited
	1950-1995	Western Main Collieries Pty Limited
	1914-1950	Walter Humphries
	1895-1914	Frances Humphries
Lot 501 DP 825541 Open Cut and Rehabilitation Area	2003 – to date	Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd
	2000-2003	GC Springvale Pty Limited and Samsung Development (Aust) Pty Limited
	1993-2000	Clutha Springvale Limited and Samsung Development (Aust) Pty Limited
	1992 -1993	The Minister for Lands and Water Conservation
	Prior – 1992	Crown Land
Lot 15 DP 804929 Stockpile, conveyor, rehabilitation area and undeveloped area	2000 – to date	Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd
	1996 -2000	Clutha Springvale Limited and Samsung Development (Aust) Pty Limited
	1979-1996	Western Main Collieries Pty Limited
	1952-1979	Lidsdale Real Estate Pty Limited
	1924-1952	Arthur Humphries
	1922-1924	Henry Charles Humphries Arthur Humphries Edward Humphries, estate

Based on the historical titles it appears that coal mining activities have occurred at parts of the Site since the early 1940s. Prior to the 1940s it appears that the Site was used for agricultural purposes, namely grazing.

3.2 Section 149 Certificate Information

Copies of the Section 149 certificates Parts 2 and 5 (S.149) for the Site were obtained from Lithgow City Council under the NSW Environmental Planning and Assessment Act (EPA Act) 1979.

The S.149 certificates for the large proportion of the Site were obtained for AECOM (2010a), the details of which are considered for this assessment also.

The S.149 certificates for areas of the Springvale Coal Services Site not included in the Lamberts Gully assessment are included in **Appendix D** of this report. This includes sections of the Site adjacent to the Castlereagh Highway (Lot 1 and 2 DP 126483), including the western section of Pine Dale Mine (Lot 37, DP 827626).

In summarising issues of environmental significance, the S.149 certificates indicated that the land:

- Is not identified as being subject to matters arising under the Contaminated Land Management Act 1997;
- The land was not within an investigation area or remediation area;
- The land was not the subject of an investigation order or remediation order;
- The land was not the subject of a voluntary investigation or remediation proposal; and
- The land to which the certificate relates is not the subject of a site audit.

Council has adopted by resolution a policy on contaminated land. The policy is triggered when rezoning or land use changes are proposed on lands which have previously been used for certain purposes which could have involved the use of contaminants.

Other information contained within the certificate stated the following:

- The site is not affected by Sections 38 or 39 of the Coastal Protection Act, 1979;
- Is not affected by restrictions due to hazards associated with tidal inundation;
- Is not affected by flood related policies or controls;
- The site is not affected by Section 15 of the Mine Subsidence Compensation Act, 1961, proclaiming land to be a Mine Subsidence District;
- The site is not affected by a Tree Preservation Order;
- It is not known whether roads may be affected by Council proposals for road widening and/or realignment, as the main road(s) within the Site area are Roads and Traffic Authority (State Government) controlled roads;
- The site is subject to Contributions Plans applying to coal related developments and to certain developments within 1(a) rural zonings with respect to Rural Roads and Rural Fire Services;
- The site is not identified as being environmentally sensitive or within an ecologically sensitive area;
- The site is not identified within a conservation area;
- The site is not affected by restrictions due to hazards associated with landslip and acid sulphate soils;
- The site does not contain an item of environmental heritage, namely aboriginal heritage;
- The site does not comprise critical habitat;
- The site is identified as being bush fire prone land;
- The site is not within an area of high aboriginal cultural significance;
- The site is not affected by property vegetation plans created under the Native Vegetation Act 2003;
- The site is not subject to orders made out under the *Trees (Disputes Between Neighbours) Act 2006*; and
- The site is subject to a direction pursuant of Part 3A of the EP&A Act 1979.

S.149 Certificates were not available for all Lot and DPs, however the environmental issues are not expected to be significantly different to those listed above.

A copy of the available S.149 certificates is included in **Appendix D**.

3.3 Historical Aerial Photograph review

The following information was derived from reviewing historical aerial photographs for the Site and the surrounding area. The photographs were obtained from the NSW Department of Lands. Enlarged sections of selected aerial photographs detailing the Site location are included in **Figure 6 to Figure 11** in **Appendix A**,

Table 3 Aerial Photograph Review

Photograph Details	Description
January 1950 Wallerawang Run 4 Black and White (Figure 6)	<p>Site south of highway: The Site was predominantly cleared. A farm dam and at least two small farm buildings or homes were visible on the northern end of the Site, facing the southern side of Castlereagh Highway. To the east of the Site is an open cut mine. The rail line used to transport coal crossing Castlereagh Highway and into the Site is also evident in the photograph. Anecdotal evidence (pers comm Robert Byrnes) indicated that the “farm buildings or homes” south of the highway are where they loaded the coal trains to travel north past the former Wallerawang Colliery.</p> <p>Site north of highway: The Site located to the immediate north of the highway comprised cleared farm land, with a road, followed by uncleared land (bushland). Wangcol Creek line was clearly visible running northwest-southeast across the centre of the cleared area.</p> <p>Surrounds: A Pit Top Area was visible on the north side of the highway, to the immediate east of the Site. The main road and surrounding paddocks have been cleared. Several farm buildings and homes were visible. The greater surrounding area was uncleared and wooded with agricultural allotments largely followed the main road.</p>
May 1969 Wallerawang Run 3W Black and White (Figure 7)	<p>Site south of highway: The Pit Top Area was visible. Surface relief suggested excavation work and the presence of long pits were consistent with open cut mining.</p> <p>Site north of the highway: Coal stockpiles, a possible dam, and surface disturbance associated with likely colliery activity were visible across the surface of the Site. Vegetated areas to the north of this area have been cleared for likely coal mining operations.</p> <p>Surrounds: East of the Site (present day Pine Dale Mine allotment), a number of small dams and buildings were located adjacent to the creek line. Infrastructure and coal stockpiles were visible in this area also. The greater area remained the same.</p>
November 1970 Wallerawang Run 3 Black and White (Figure 8)	<p>Site south of highway: Existing features on the Site appeared the same as in 1969, although it was difficult to confirm this due to the poor resolution of the photograph. The open cut extends up each valley and both underground operations have commenced</p> <p>Site north of the highway: Further areas to the north have been cleared. Coal holding areas appear to have expanded in this area.</p> <p>Surrounds: Much of the greater surrounding area remained the same.</p>
March 1984 Wallerawang Run 10 Black and White (Figure 9)	<p>Site south of highway: The Site features largely remained the same. On the eastern end of the Site, a track led to a small new clearing. The two tracks leading eastward had been formalised and covered with coal reject.</p> <p>Site north of the highway: Site was mostly cleared; the southern section partially covered in revegetated scrub, with some portions used for coal storage. A small dam was visible on the western end of this Site area. The northern section hosted larger areas of what appeared to be an open pit coal mine.</p> <p>Surrounds: New coal mine pits, holding areas and dams were visible to the immediate north of the Site. Buildings associated with the coal mine were visible to the northeast and east of the Site, on the northern side of the highway. To the west, a portion of land had been cleared, and was occupied by a construction site for the future Mount Piper Station. A coal holding area was located between the Site and the power station footprint. Two trajectories of bushland had been cleared to the far south of the Site, to accommodate power lines extending south-east from the power station. To the northeast of the Site, coal holding areas had changed in configuration compared to previous years.</p>

Photograph Details	Description
September 1991 Wallerawang Run 10 Colour (Figure 10)	<p>Site south of highway: The pit top area was still located at the entry of the Site (south side of Castlereagh Highway).</p> <p>The large proportion of the Site surface indicated disturbed ground characteristic of an open pit mine. The eastern triangular portion of the Site did not include the same disturbance, and significant re-vegetation has occurred here. Additional asphalted tracks were visible across this portion of the Site, which opened onto small cleared (possible dumping) areas. Coal stockpiling areas were visible on the southern portion of this area.</p> <p>Site north of the highway: the far western half of this area appeared to have had significant disturbance or reworking of the surface and new track was visible since 1984. One new dam was visible on the Site, as was one shed or building in the centre of this part of the Site.</p> <p>Surrounds: The colliery buildings to the east of the Site (north of the highway) remained similar to previous years, although there appeared to be fewer buildings visible. The Mount Piper Power Station site contained two new smoke stacks and a number of buildings. Bushland to the south of the Site had a number of new tracks running through it.</p>
October 2006 Wallerawang Run 10 Colour (Figure 11)	<p>Site south of highway: The Pit Top Area at the northern entry to the Site has been demolished</p> <p>The Site surface largely consisted of what appeared to be mine overburden with variable relief. Several water bodies were visible on-site. The DML Dam and Cooks Dam appeared as two large silted water bodies to the north of the Site. The Sediment Ponds and Retention Pond are also visible on the north-eastern corner of the Site. A hardstand covered work area was located on the eastern portion of the Site, connected by road to the coal processing areas to the south (off-site).</p> <p>Site north of the highway: The shed on the centre of this section has been removed.</p> <p>An earthen bund had been constructed north of the creek line, within which the new workshop building and smaller aboveground storage tanks (AST) were visible. Areas containing stockpiles were visible to the west and south of the bunded area. A new dam was visible on the western tip of the Site, below the present day haul road.</p> <p>The creek line appeared to be more heavily vegetated although new tracks were visible at the northern end of the gully. A new road (the present day haul road) ran north of and parallel to Mudgee Road/Castlereagh Highway, across the gully clearing and the potential mine allotment east of the Site. The potential mine allotment south east of the Site contained a number of on-site detention basins.</p> <p>Surrounds: To the north of the highway and east of the Site, a new earthen bunded area extended east, containing a number of stockpiles and raised earthen areas. A small building was visible to the south of this earthen bunded area.</p> <p>The Mount Piper Power Station site contained a considerable number of new buildings, coal holding areas, dams and a power grid to the south of that area.</p> <p>Bushland to the far south of the Site has been cleared.</p>

Excluding general mining activities on and in the vicinity of the Site and the neighbouring Mount Piper Power Station, no evidence of specific potentially contaminating activities were identified on the aerial photographs.

3.4 Dangerous Goods

Search of the Stored Chemical Information Database (SCID) maintained by WorkCover NSW indicated that records pertaining to the Site identified licenses for the following storages.

Tank ID / Type	Product Type / Comments	Quantity
Depot 2/ Detonator Magazine	Class 1.1b Non Electrical Detonators (Nonel Detonators)/ located to the west of the washery facilities	2,000 kg
Depot 2 (former) / Flammable Liquid Underground Storage Tank (UST)	Class 3 Petrol (Petrol) / UST located south of the former office building, on former pit top area.	5,000 L

The Site holds a Dangerous Goods License 35/022735 for explosives and detonator storages. Records from 1994 indicated the depots were located to the west of the washery facilities. It is not known if these depots are presently being used, however the Lamberts Gully 2009 Annual Environmental Management Report (AEMR, Springvale Coal 2010) stated that no explosives were stored on the Lamberts Gully Site.

Records indicated one UST was located on the former pit top area, approximately three metres south of a former office building. This tank was reported to be removed in May 1992. This area, formerly housing the UST and offices, is now occupied by the co-disposal reject area.

The 2009 AEMR (Springvale Coal, 2010) reported there are two ASTs (27,000 L and 40,000 L) housed in the 'same bunded area'. The AEMR did not specify where this area was.

The WorkCover Dangerous Goods Search results are included as **Appendix F** to this report.

3.5 NSW EPA Records

Review of the NSW EPA website was conducted to evaluate if the Site or surrounding properties were listed under Section 60 or Section 58 of the CLM Act 1997. However, no listings for the Site or properties in the immediate area were indicated.

Search results are included as **Appendix F** to this report.

3.6 Site History Summary

The key findings derived from the Site History review are presented as follows:

- Coal mining began at the Site (in the historical Lambert Gully Mine) in 1942, as part of the old Western Main Colliery area. Coal mining operations continue to occur across the Site.
- The Site is currently owned by several entities including:
 - Centennial Springvale Pty Limited and Springvale SK Kores Pty Ltd for the large proportion of the Site south of the highway, corresponding to the old Lambert Gully Mine and small sections on the north and south flanks of the Castlereagh Highway.
 - Enhance Place Pty Limited for a portion of the Site containing the western portion of Pine Dale Mine, part of Wangcol Creek, and sections south and north of the Castlereagh Highway.
 - The NSW Government, for Crown Land on the south-east portion of the Site that is part of Ben Bullen State Forest.
- The Yarraboldy Open Cut Mine is located to the immediate north of the Site. This area is considered to have a long history of disturbance, and has been left un-rehabilitated (Enhance Place, 2010).
- S. 149 certificates for the Site indicated:
 - The land was not within an EPA investigation or remediation area, and not subject to any investigation or remediation orders or proposals.
 - The Site was on bush fire prone land.
- Historical aerial photographs for the Site indicated coal mining operations have occurred in the vicinity of the Site since early 1950s.

- The WorkCover Dangerous Goods search indicated the Site holds one current license to store dangerous goods (explosives and detonators) on-site, as listed on the Stored Chemical Information Database (SCID).

4.0 Previous Environmental Investigations

A number of environmental investigations have been conducted at the Site since the previous Phase 1 ESA in 2010 (AECOM, 2010a), and are detailed in the reports listed below:

- AECOM 2010b. *Consolidated Contamination Assessment Report for NSW Operational Sites*. Report prepared for Centennial Coal Company Limited, December 2010.
- GHD 2010. *Lamberts Gully LDP006 Surface Water Quality Baseline Study*. Report prepared for Centennial Coal Company Limited, January 2010.
- GHD 2012. *Draft Coal Services Water Quality Assessment LDP006 ANZECC Assessment*. Report prepared for Centennial Coal Company Limited, November 2012.

The results, conclusions and recommendations of the previous environmental investigations conducted at the Site are summarised in following sections.

4.1 AECOM Consolidated Contamination Assessment Report (December 2010)

AECOM conducted a consolidated review of contamination status at Centennial's fifteen (15) Operational Sites in NSW (AECOM, 2010b). The objective of the review was to ascertain contamination status at each site, and then to assess at which of these sites Centennial has a duty to report contamination pursuant to the amended CLM Act (1997). The report included assessment of the Lambert Gully Mine, which is part of the current Site.

A desktop review was undertaken using available information to provide a preliminary assessment, and/or to determine where additional investigation was required.

AECOM concluded in the assessment that there was currently not enough information or evidence of contamination at Lambert Gully Mine to warrant notification pursuant to Section 60 of the CLM Act. Further investigation was recommended to assess the presence of contamination, if any, and enable a determination to be made regarding Centennial's duty to report. As part of Centennial's general due diligence, a notification under Section 60 of the CLM Act was lodged with NSW Environment Protection Authority (EPA) on 2 February 2012 (**Appendix B**). The NSW EPA responded to Centennial acknowledging receipt of the Duty to Report letter and Centennial's commitment for further investigations.

4.2 Draft GHD Coal Services Water Quality Assessment – LDP006 ANZECC Assessment (Nov, 2012)

AECOM was provided with a Draft report by GHD which outlined a review of water quality data for the Site. GHD's objective was to review the current water quality monitoring program, develop updated site specific trigger values (SSTVs), and quantify improvement in water quality leaving the site as a result of the implementation of significant water management works (GHD, 2012).

Surface water data (Monitoring locations - NSW Office of Water (NOW) upstream, upstream, LDP006, downstream and far downstream) was obtained from Springvale Coal Services. The Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000) were used to review the water quality data collected from upstream, downstream and at licence discharge point (LDP) 006.

Updated SSTVs were developed against the full historic dataset using the methodology described in ANZECC & ARMCANZ (2000) and incorporating feedback from the NSW EPA regarding derivation of SSTVs. The water quality conditions at Neubecks Creek NOW Upstream, Neubecks Creek Upstream, LDP006, Neubecks Creek Downstream and Neubecks Creek Far Downstream monitoring locations were compared with the SSTVs to assess the impact of Springvale Coal Services operations on Wangcol Creek and to identify any parameters requiring further investigation to assess the impact on aquatic ecology. Water quality trends at LDP006 over the last two years were also reviewed to identify any water quality improvements since implementation of changed water management practices on site.

Given the highly disturbed nature of the system, GHD applied the 95% protection levels of the ANZECC & ARMCANZ (2000) water quality guidelines.

The comparison of the downstream surface water data with the developed SSTVs for the Springvale Coal Services site indicated that electrical conductivity (EC), and dissolved metals (aluminium, iron, manganese, nickel and zinc) consistently exceeded the updated SSTVs.

Based on the assessment of the water quality at the upstream and downstream monitoring points of the Springvale Coal Services site, GHD recommended that Springvale Coal Services considered reducing the monitoring frequency for the parameters (pH [to online], EC [to fortnightly], total suspended solids (TSS) [to monthly], oil and grease, total nitrogen, total phosphorous, sulphate [to fortnightly], dissolved metals [aluminium (to monthly), cadmium, iron, manganese, nickel and zinc (to fortnightly)]), which would maintain compliance with the environment protection licence. GHD also recommended continuing sampling at the Neubecks NOW upstream location for the abovementioned parameters on a monthly basis for two years to satisfy the requirements of ANZECC & ARMCANZ (2000) and to enable review of the SSTVs. GHD also recommended that a new monitoring location (200 m downstream of the confluence of LDP006 and Wangcol Creek) be included to achieve an appropriate mixing zone for surface water monitoring.

GHS stated that further investigation should also be conducted for parameters (EC, aluminium, iron, manganese, nickel and zinc) that consistently exceeded the SSTVs at the downstream monitoring locations, with the aim of the investigation being to identify the source of the contaminants and determine if the elevated concentrations are adversely impacting on the downstream waters in Wangcol Creek.

4.3 Internet and Other Published Information Search

AECOM undertook a search for relevant Site information using publicly accessible resources. The following articles were accessed and reviewed from the internet on 22 February 2012:

- Springvale Coal 2010. *Lamberts Gully Open Cut 2009 Annual Environmental Management Report (AEMR)*, January 2009 to December 2009. This report is relevant for the larger proportion of the Springvale Coal Services Site to the south of Castlereagh Highway. AECOM noted this was the most recent AEMR publically available for review.
- R.W. Corkery & Co. 2010. *Environmental Assessment for the Pine Dale Coal Mine Yarraboldly Extension*. Prepared for Enhance Place Pty Limited, August 2010. This report is relevant for the section of the Springvale Coal Services Site to the north of Castlereagh Highway.
- NSW EPA 2012. Environment Protection License 3607. POEO Public Register. <http://www.environment.nsw.gov.au/prpoeoapp/>. This license applies to discharge from both the Springvale and former Lambert Gully Mine, and was valid at the time of preparation of this report.

4.3.1 Springvale Coal Annual Environment Management Report 2009 for Lamberts Gully (2012)

The following information relating to potential Site contamination and contamination pathways was ascertained from the Lamberts Gully AEMR

- Coal Mining began at the Springvale Coal Services site in 1942, as part of the old Western Main Colliery area.
- At the time of the AEMR publication, Springvale Pty Ltd (a subsidiary of Centennial Coal Limited) held the Environmental Protection Licence (EPL) 3607 under the POEO 1997 Act, which allows for eight discharge points and five dust monitoring points across the Springvale Colliery and the Springvale Coal Services site. AECOM notes that the licence was active at the time of preparation of this report (March 2013), and that LDP006, LDP007 and dust gauges (D1, D2 and D3) are located within the Springvale Coal Services Site boundaries. Overflow from Cooks Dam discharges directly into LDP006, which discharges into Neubecks Creek. LDP007 is a sump at the overland conveyor transfer point and only rarely discharges. It did not discharge during the reporting period.
- Average annual LDP monitoring results are provided in **Table 4**. The annual averages for TSS and Filterable Iron at LDP006 increased during the reporting period. The annual average for pH was similar to the previous reporting period at LDP006. The annual averages for Total Zinc, EC and Filterable Manganese decreased during the reporting period at LDP006.

Table 4 Average Annual LDP Monitoring Results at LDP006

	2007	2008	2009	2010	2011	2012
Zinc (mg/L)	0.10	0.09	0.2	0.25	0.3	0.188
pH	6.86	6.87	7.0	6.7	6.7	6.65
EC (µS/cm)	1224	1149	1730	1694	2092	1558
TSS (mg/L)	12.08	4.08	4.2	14.5	8.8	20
Filterable Manganese (mg/L)	2.82	2.52	3.6	2.04	10.3	3.2
Filterable Iron (mg/L)	0.94	0.96	0.3	0.24	1.13	1.74
Oil and Grease (mg/L)	1.17	6	<5	9.5	<5	<5

- Monthly depositional dust monitoring results from Springvale Coal Services operations in 2012 (from dust gauges D1, D2 and D3) were all below the nominated guidelines of 4.0g/m²/month.
- High Volume Air Samplers (HVAS) Total Suspended Particulate (TSP) results for the 12 month period exceeded the EPA 24 hour PM₁₀ criteria of 50 µg/m³ on three occasions.
- The AEMR reported there was no evidence of contaminated or polluted land on the Springvale Coal Services Site.

4.3.2 Enhance Place Environmental Assessment Report 2009 for Yarraboldy Extension (August 2010)

The following information considered relevant to potential Site contamination and contamination pathways was from the EA report for the Yarraboldy extension:

- The EA was prepared for the proposal to extend Pine Dale Mine coal mining operations north of the Angus Place – Wallerawang Power Station Haul Road. This proposed area is immediately adjacent to the northern end of the Site.
- The Yarraboldy Extension area is reported to incorporate the former Yarraboldy Open Cut Mine, which was considered to have a long history of disturbance, and left un-rehabilitated.
- The main aquifer underlying the Yarraboldy Extension area is reported to be the Lithgow Seam, which has secondary permeability due to fracturing of the coal seam. All other adjacent coal seams are also described as aquifers, however their groundwater potential is considered to be lower than that of the Lithgow Seam. Overlying Triassic sediments are also reported to have high permeability where they are fractured, and may therefore contain groundwater.
- No adverse impacts were predicted on adjacent licensed groundwater users or basic landholder rights, as a consequence of proposed groundwater drawdown and dewatering operations at Yarraboldy.

4.3.3 NSW EPA Environment Protection License 3607 (valid 2013)

The conditions of the EPL are discussed in the previous section.

EPL Discharge Limits for the Site from the Springvale Coal Services site are indicated in **Table 5**.

Table 5 EPL Discharge Limits for Springvale Coal Services site

Parameter	Discharge Limit
pH	6.5 – 8.5
Total Suspended Solids (TSS)	30 mg/L
Oil and Grease	10 mg/L

4.4 Monthly Surface Water Monitoring Results (2009 to 2011)

4.4.1 Background

Centennial provided AECOM with monthly water quality monitoring data collected from Springvale Coal Services Site monitoring locations, situated on-site, and for Wangcol Creek monitoring locations upstream, downstream and further downstream of LDP006. The data set extended from January 2000 to December 2011. For the purpose of the present investigation, the most recent water quality results (from 2009 onward) were reviewed and assessed against adopted water quality screening criteria as described in **Section 4.4.2**.

No laboratory certificates and/or quality assurance/quality control monitoring data were provided with the historical results. As a consequence it was not possible to review the accuracy and precision of the received data.

- Units of measurement were not specified for all monitored parameters. AECOM has assumed parameters were measured in mg/L concentration, except where specified.
- Wangcol Creek is referred to in the historical monitoring as Neubecks Creek and Blackmans Flat Creek. Neubecks and Blackmans Flat Creek monitoring locations retain their names for the water quality monitoring assessment.

Data from the following monitoring locations were reviewed:

- **LDP006** – Licensed Discharge Point 6, located on-site.
- **Neubecks Creek NOW u/s** – newly established water quality monitoring location, located approximately 620 m upstream of the confluence of Springvale Coal Services discharge point and Wangcol Creek. This monitoring location was selected to provide data to be used as an appropriate background site for Wangcol Creek.
- **Neubecks Creek u/s** – an off-site monitoring location on Wangcol Creek upstream of the confluence from the Site discharge outflow point.
- **Neubecks Creek d/s** – an off-site monitoring location on Wangcol Creek, downstream and down-hydraulic gradient of Site discharge outflow point and LDP006.
- **Neubecks Creek Far Downstream** – an off-site monitoring location on Wangcol Creek passing Blackman's Flat village, approximately 1 km from the Site.

The monitoring locations excluding '**Neubecks Creek Far Downstream**' are indicated on **Figure 3** of **Appendix A**. The water quality monitoring data is presented in **Table E-1** in **Appendix E** of this report.

4.4.2 Adopted Water Quality Screening Objectives

Monthly water quality results were screened against the following guidelines:

- ANZECC Trigger Values for Freshwater, for a 95% species protection level (ANZECC & ARMCANZ, 2000)
- ANZECC Trigger Values for Freshwater, for a 99% species protection level (ANZECC & ARMCANZ, 2000) for bioaccumulative compounds Mercury, Selenium and PCBs.
- Updated Site Specific Trigger Values (GHD 2012), and
- EPL Discharge Limits for the Site.

ANZECC Criteria

ANZECC & ARMCANZ (2000) provides criteria that are informed by the condition of the receiving water body relative to the Site. The Site is located on the Upper Cox's River catchment. Ground water and surface water flows into Wangcol Creek, which joins the Upper Cox's River approximately 2 km the east of the Site. The Upper Cox's River is considered to be impacted by many users although the main inflow to the river is groundwater discharged from other coal mines along the river. The Upper Cox's River flows south into Lake Wallace (approximately 9 km southeast of the Site) and then Lake Lyell (approximately 20 km south of the Site), before flowing into Warragamba Dam, which is a storage facility for Sydney's water supply.

It is understood that the NSW EPA policy is that the trigger values for the protection of 95% of aquatic ecosystems are used except where contaminants are potentially bio-accumulative in which case the trigger values for the protection of 99 % of species should be used. Therefore AECOM has compared the data to the ANZECC trigger

values for the protection of 95% of fresh water species for all contaminant compounds and the 99% trigger values for compounds with the potential to bio-accumulate (mercury, selenium and PCBs).

SSTVs and EPL Discharge Limits

In addition to the ANZECC & ARMICANZ (2000) guidelines, this assessment screened the monitoring data against the SSTVs developed by GHD (2012), and the EPL License Discharge Limits for the Site for pH, TDS and Oil and Grease (refer to **Sections 4.3.2** and **4.3.3** of this report, respectively).

The following conditions were noted in application of the screening criteria to the data:

- Selenium and mercury water quality results could not be compared to the ANZECC 99% guideline as the indicated limit of reporting was higher than the criterion.
- Hexavalent chromium water quality results could not be compared to the ANZECC 95% guideline as the indicated limit of reporting was higher than the criterion.
- SSTVs are stated to require two years of monthly data (i.e. at least 24 data entries), to calculate a median value to compare with the SSTV. It was therefore not always possible to obtain median values for all parameters. Due to paucity of result data, generation of median values was not always possible, thus individual results have been compared with the SSTVs, but for comparison purposes only.
- The EPL Discharge Limits are intended for application to LDP006 only, however all data was screened against these limits, for comparative purposes only.

4.4.3 Assessment of Water Quality Data

Observations made for LDP006 data indicated:

- Total Petroleum Hydrocarbons were analysed at selected periods during 2010, and all results were reported at concentrations below the limits of reporting.
- A small number of exceedances of the EPL for pH, TSS and Oil and Grease were observed during 2010, but no exceedances were reported in 2011.
- Several exceedances of the ANZECC 95% guideline for Boron, Cadmium, Copper, Manganese and Zinc were reported over 2010 and 2011 monitoring programs.
- The median value for EC for years 2009 to 2011 was greater than the SSTV. Individual results consistently exceeded the SSTV of 445 $\mu\text{S}/\text{cm}$. Average EC results for 2011 (2244 $\mu\text{S}/\text{cm}$) were higher than average results for 2010 (1696 $\mu\text{S}/\text{cm}$) and 2009 (1631 $\mu\text{S}/\text{cm}$).
- Median values for Iron, Manganese and Nickel for years 2009 to 2011 exceeded the SSTVs. Individual results consistently exceeded the SSTV of 0.1096 mg/L Zinc, 1.9 mg/L Manganese and 0.0836 mg/L Nickel for 2011.
- Average Zinc results for 2010 (0.3 mg/L) and 2011 (0.3 mg/L) were higher than the 2009 average Zinc result (0.02 mg/L). Similarly, average manganese levels in 2010 (2.089 mg/L) were slightly lower to 2009 concentrations (3.0 mg/L), but slightly raised in 2011 (with 4.933 mg/L).
- Average pH results for 2010 (pH 6.9) and 2011 (pH 6.9) results were consistent with the 2009 average result (pH 7).
- Average TSS ranged from 14.45 mg/L in 2010 to 6.94 mg/L in 2011. These averages were above the 2009 average of 4.2 mg/L. All results were below the EPL discharge limit.
- Average Total Oil and Grease concentrations for 2010 and 2011 continued to be below detection levels, and below the EPL discharge limit.

General observations made for other water quality monitoring data collected over 2010 to 2011 indicated:

- Several individual results exceeded the SSTV for Electrical Conductivity at Neubecks Creek downstream monitoring locations.
- Several individual results for Boron, Nickel, and Zinc were reported in exceedance of the ANZECC criteria, at upstream and downstream locations.

4.5 Environmental Report Review Summary

The key findings derived from the historical environmental reports and data review are presented as follows:

- The Springvale Coal Services Site is covered by the Springvale Mine Environmental Protection License (EPL 3607), allowing for eight discharge points and five dust monitoring points, covering both the Springvale Colliery and the Springvale Coal Services site. LDP006, LDP007 and three dust monitoring points cover the Springvale Coal Services site.
- Past and current activities at areas within the boundaries of the present Site, which are predominantly for mining purposes, are considered to have resulted in possible soil, sediment, surface water contamination and potentially groundwater contamination in some areas of the Site (AECOM 2010a).
- Insufficient information was available to warrant notification pursuant to Section 60 of the CLM Act. Further investigations were recommended to assess the presence of contamination, if any, and enable a determination to be made regarding Centennial's duty to report (AECOM, 2010b). As part of Centennial's general due diligence, a notification under Section 60 of the CLM Act was lodged with NSW Environment Protection Authority (EPA) on 2 February 2012 (**Appendix B**). The NSW EPA responded to Centennial acknowledging receipt of the Duty to Report letter and Centennial's commitment for further investigations.
- SSTVs have been updated for assessment of selected compounds in surface water collected from upstream and downstream monitoring points of Wangcol Creek (GHD 2012).
- Assessment of the latest water quality monitoring data collected from Wangcol Creek monitoring points upstream and downstream of LDP006, indicated water quality is impacted by discharge from LDP006. This is evidenced by elevated metals (iron, manganese, nickel and zinc) and EC readings at monitoring points down hydraulic gradient of the Site.
- At LDP006, the 2009 to 2011 data for several parameters such as EC, Iron, Manganese and Nickel was found to be above the SSTVs, based on median values. Several exceedances of the ANZECC Trigger Values were also reported for metals, for individual results. Recent (2012) EC, zinc and TSS concentrations were on average higher than that reported in previous years.

GHD (2012) recommended continuing sampling at the upstream location for the abovementioned parameters on a monthly basis for two years to satisfy the requirements of ANZECC & ARMICANZ (2000) and so that the SSTVs can be reviewed. GHD also recommended that a new monitoring location (200 m downstream of the confluence of LDP006 and Wangcol Creek) be included to achieve an appropriate mixing zone for surface water monitoring. GHD further recommended that further investigation should be conducted for parameters (EC, aluminium, iron, manganese, nickel and zinc) that consistently exceeded the SSTVs at the downstream monitoring locations, with the aim of the investigation being to identify the source of the contaminants and determine whether the elevated concentrations are adversely impacting on the downstream waters of Wangcol Creek.

On the basis of the historical review, the Contaminants of Potential Concern (COPC) are considered to include but not be limited to metals in discharge and surface waters.

5.0 Site Condition and Surrounding Environment

5.1 Overview

Information contained in this section was obtained from a Site inspection of the Springvale Coal Services property carried out by Orla Ferguson of AECOM on 19 December 2011. A further Site inspection of the Site comprising the western portion of the Pine Dale Mine was carried out by Orla Ferguson of AECOM on 8 February 2012.

Photographs taken during the Site inspection are provided in **Appendix H** of this report.

5.2 Current Land Use

At the time of preparation of this ESA (March 2012), the majority of the Site was occupied by Springvale Pty Ltd (Springvale Coal), containing a completed open cut coal mine and coal washery with associated infrastructure.

The proposed haul road link crosses land owned by Enhance Place Pty Limited, comprising the western portion of Pine Dale Mine, and contained a workshop building, a bunded Above Ground Fuel Storage Tank (AST) area and associated infrastructure. A section of Wangcol Creek also flowed through part of the Pine Dale Mine portion of the Site.

5.3 Surrounding Land Use

Current land use surrounding the Site was:

- North: Angus Place to Mount Piper Haul Road, followed by former coal mine workings and then bushland.
- South: Ben Bullen State Forest followed by Pipers Flat Creek 1.1 km to the south.
- East: The village of Blackmans Flat (residential properties), located approximately 100 m east of the Site entry.
- West: DML Dam and the proposed Lithgow Council landfill are located on the north western boundary. Mount Piper Power Station and Ash Emplacement Area is located on the western boundary of the Site.

Based on the surrounding land uses, the potential for impact to the Site from the areas immediately surrounding the Site is considered to be low, with the exception of Mount Piper Power Station and the Ash Emplacement area. There may be potential for on-site migration of contaminants via groundwater from these features.

5.4 Topography and Drainage

The Site is elevated at approximately 940 m above sea level (Lithgow 1:25000 Topographic Map Sheet 8931-3-S) and is located on the north slope of a hill crest that has a general slope to the north – northeast. The topography of the Pine Dale Mine has been extensively modified by previous mining activities, with elevations ranging from approximately 900 m AHD adjacent to Wangcol Creek to 920 m AHD adjacent to the Haul Road.

The Site drainage varies across the Pit Top Area and the wider area of the Springvale Coal Services Site and is summarised below:

- A clean water dam and sediment control ponds are located in the upper sub-catchment of the wider Site area, in the southern most portion of the Site;
- Drainage from the southern portion of the Site flows to the northeast along drainage lines that lead to sediment control/water supply dams at the northern end and entrance of the Springvale Coal Services property at Castlereagh Highway; and
- The northwest portion of the wider Site area drains to two pollution dams (DML Dam and Cooks Dam) located on the northern boundary of the Springvale Coal Services property.

As the Site is predominantly unsealed, water is expected to infiltrate into soils rather than runoff under low rainfall conditions. Discharge of surface water from the Site to Wangcol Creek occurs via a licensed discharge point (LDP006) located down-gradient of the sediment control dams located near the entry of the Site.

Wangcol Creek flows eastward to join the Upper Cox's River, approximately 2 km south east from the Site. Flows from the Upper Cox's River enters Lake Wallace (approximately 9 km southeast of the Site) and onto Lake Lyell (approximately 20 km south of the Site).

The run-off at the western portion of the Pine Dale Mine drains towards the dam in this part of the Site, which subsequently drains into the underground workings. Run-off in the workshop area is contained as the area is surrounded by an earthen bund. The licensed discharge point of the Pine Dale Mine is further downstream.

The locations of Wangcol Creek, on-site dams and monitoring locations are indicated in **Figure 3 in Appendix A**,

5.5 Surface Water and Flood Potential

During the Site inspection, a number of surface water bodies were inspected which are indicated on **Figure 3 in Appendix A**. The following surface water bodies were observed at the Site:

- Clean water dam and sediment control pond in the southern portion of the Site;
- Sediment control dams near the entry in the north eastern portion of the Springvale Coal Services property;
- Two dams (DML and Cooks Dam) located on the northern boundary of the Site;
- Two dams on the western part of the Pine Dale Mine; and
- A section of Wangcol Creek running across the western part of Pine Dale Mine.

The S.149 Certificates stated that the Site was not affected by any flood prone development controls (refer to **Section 3.2** and AECOM, 2010a). Based on this information, the potential for flooding under normal rainfall conditions is considered to be low.

5.6 Regional Meteorology

The Site is located at Blackmans Flat in the Lithgow region of NSW. The region experiences warm summers and cold winters with average maximum temperatures in summer (December to February) of 24.9°C. Average minimum temperatures in winter (June to August) are 1.3°C. The region experiences low to moderate rainfall, with an annual average of approximately 858.5 mm. On average rainfall is somewhat unevenly distributed throughout the year, with higher precipitation throughout the summer months (Bureau of Meteorology – Lithgow Weather Station).

5.7 Geology

Information obtained from the Department of Mineral Resources – Western Coalfields (Southern Part) (1:100 000 Sheet, Yoo 1992) indicated that the Site is underlain by the Illawarra Coal Measures (claystone, coal, shale, sandstone, mudstone, oil shale, conglomerate) with areas of Narrabeen Group (quartzose sandstone, shale, claystone).

Information obtained from the NSW Department of Land and Water Conservation – Soil Landscapes of Wallerawang (1:100 000 Sheet) indicated that the Site falls within land classified as disturbed terrain.

5.8 Hydrogeology

Registered groundwater bore information within a 2 km radius of the Site was obtained from the NSW Natural Resource Atlas, via the NSW EPA website.

The database search indicated

- Eighteen registered bores were located within a 2 km radius of the Site.
- Four bores were located in the previous Lambert Gully Mine area of the Site, however no further information was available regarding these bores.

The registered bore details are summarised in **Table 6** below. A location map of the bores and groundwater works summaries for each bore are provided in **Appendix I**.

Table 6 Summary of Registered Bore Information

Bore ID	Depth of Bore (m bgs)	Standing Water Level (m bgs)	Approximate Distance from Site	Purpose
GW110157	9	nd	1.0 km E	Monitoring
GW110158	9	nd	1.3 km E	Monitoring
GW110159	10.3	nd	1.5 km E	Monitoring
GW101340	26.9	2.55	0.8 km NW	Monitoring
GW101341	30.6	18.49	0.8 km NW	Monitoring
GW101342	28.7	27.2	0.9 km NW	Monitoring
GW106737	Nd	nd	2 km SE	Domestic
GW110158	9.00	nd	1.4 km E	Monitoring
GW110159	10.30	nd	1.5 km E	Monitoring
GW110861	24.00	nd	1.0 km E	Monitoring
GW111027	24.00	nd	1.0 km E	Monitoring
GW111028	24.00	nd	1.0 km E	Monitoring
GW111029	24.00	nd	1.0 km E	Monitoring
GW111030	24.00	nd	1.0 km E	Monitoring
GW111205	87.00	nd	1.1 km NE	Monitoring
GW111206	38.94	nd	1.4 km NE	Monitoring
GW111207	50.00	nd	1.4 km NW	Monitoring
GW111334	12.00	5.00	1.4 km E	Test Bore
GW111471	24.00	nd	1.0 km E	Monitoring
GW111472	23.90	nd	1.0 km E	Monitoring
GW111473	80.8	nd	1.3 km E	Monitoring

Note: ND – not defined

Based on the above registered bore data, the local groundwater is expected to occur from depths ranging between approximately 2.5 and 27 m bgs. It is noted that one bore was registered for domestic use and is located approximately 2 km southeast of the Site.

Shallow or perched groundwater could potentially occur at the interface between soil/weathered bedrock interface and within alluvial sediments along drainage channels. Aquifers are expected associated with the coal seams and some water bearing zones are also likely to occur in fractures within interburden and overburden sequences.

Groundwater flow is expected to flow to the north and northeast towards Wangcol Creek, which crosses the northern part of the Site (western part of Pine Dale Mine).

5.9 Site Inspection

5.9.1 Overview

An inspection of the Springvale Coal Services Site was undertaken by Orla Ferguson of AECOM, accompanied by Robert Byrnes (International Environmental Consultants (IEC)) on behalf of Centennial, on 19 December 2011 and of the western portion of Pine Dale Mine on 8 February 2012. The inspection consisted of a Site walkover/tour and conversations with Robert Byrnes and Rob Hunt (Centennial).

An inspection of the western portion of Pine Dale Mine was undertaken by Orla Ferguson of AECOM, accompanied by Robert Byrnes (IEC) on behalf of Centennial and Mr Hilton Goldfinch (Manager Mining Engineering of Pine Dale Mine) on February 2012.

The layout of the Site and locations of facilities are shown in **Figure 3** and **Figure 4**.

The majority of the Pit Top Area was observed to be unsealed with the exception of a few areas noted during the inspection.

Photographs taken during the Site inspection are provided as **Appendix H** to this report.

5.9.2 Site Operations

Site entry to the Springvale Coal Services property is off the Castlereagh Highway at Blackmans Flat. The layout of the Site is shown in **Figure 3**. Current surface operations include:

- Open cut mining (currently in the southwest portion of the Site);
- Coal washery (receiving coal via overhead conveyor from Springvale Mine), located in the central-east portion of the Site;
- Pit Top Area– workshops, storage, offices and other general pit top facilities, located in the central-east portion of the Site;
- Overhead conveyor to Mount Piper Power Station; and
- Rehabilitation of land in the southern portion of the Site and part of the northeast portion of the Site.

5.9.3 Pit Top Area

The Site features observed during the Site inspection are summarised below.

5.9.3.1 Springvale Coal Services Workshop Area (Refer to Area 2 on Figure 4)

The Springvale Coal Services Workshop Area located to the southeast side of the temporary offices and to the north of the coal transfer tower, comprised workshop and storage sheds, Oil and Grease Shed and a scrap metal storage area. The oil and grease shed had a concrete slab floor and contained 20 L oil drums. There was widespread oil staining on the surface of the concrete

Overflow from Cooks dam discharges to LDP006, however water from Cooks dam is also pumped back to the washery for coal processing and dust suppression purposes.

Approximately 12 x 20 L oil drums were stored outside the Oil and Grease Shed on the unsealed ground surface. There was evidence of an oil spill beneath and immediately in the vicinity of the drums.

On the eastern side of the Oil and Grease Shed, there was a bunded area including two IBCs which were used for the storage of waste oil. Evidence of staining was observed external of the bund area (refer to **Plate 2** in **Appendix H**).

In the scrap metal storage area adjacent to the workshop, waste batteries were observed in an unsealed area (refer to **Plate 3** in **Appendix H**).

The workshop was also inspected, and had a concrete floor. No evidence of contamination was observed in the workshop.

5.9.3.2 ROM Coal Stockpile Area (Refer to Figure 4)

The run of mine (ROM) coal stockpile was located in the central portion of the Site. A portable crusher was located to the east of the stockpile and the Site office and temporary bathhouses were located to the southeast of the crusher. It is understood that Transformers were located within a shipping container in this area during a previous site inspection (AECOM, 2010a), of which no apparent indicators of soil contamination were observed. The transformers were not observed in this area during the Site inspection.

5.9.3.3 Washery (Refer to Area 6 on Figure 4)

The coal washery was located to the southeast of the ROM stockpile and office area. The clean coal stockpile was located to the south of the washery. Runoff from the area drained to the northeast through drainage lines that lead to the sediment control dams.

Infrastructure associated with the washery included water tanks, conveyors and transfer towers.

An equipment storage area is located to the east of the washery. No evidence of contamination was observed in this area.

5.9.3.4 Main Pit Top Workshop (Refer to Area 4 in Figure 3 for Approximate Area)

The AECOM (2010a) ESA site inspection reported the following observations at the Main Pit Top Workshop:

The Main Pit Top workshop for the mining contractors, Big Rim, was located at the northern end of the Pit Top Area and utilised as a mine vehicle servicing area. The workshop was constructed of shipping containers and other demountable/temporary structures. The central vehicle servicing area was unsealed compacted earth. The undercover workshop area was located on a concrete slab. Patches of oil staining was observed on the unsealed vehicle servicing area.

Oil drums (20 L) were stored in a small shed on a concrete slab at the rear of the workshop. No staining was observed on the surrounding ground surface. Spill kits were located in the workshop area.

It is noted that the workshop was previously located in another portion of the Site which has now been mined.

The Main Pit Top Workshop was not observed during the December 2011 Site inspection. It is understood that stockpiles of overburden now overlay these areas and the exact location of the pit-top workshop was not determined (refer to **Plate 4** in **Appendix H**).

5.9.3.5 Former Fuel and Oil Storage AST Area (Refer to Area 3 in Figure 3)

The AECOM (2010a) ESA site inspection reported the following observations at the Fuel and Storage Area:

The fuel and oil storage areas are used and maintained by Big Rim and were located to the south of the Main Pit Top Workshop. The ASTs were located within an earth bunded area. Fuel and oil storage comprised:

- 27 000 L steel diesel AST;
- 40 000 L steel diesel AST;
- ~15 000 L steel waste oil AST (within a steel bund with roof);
- Four 200 L unleaded petrol (ULP) and Five 200 L grease drums within concrete floored shelter with spill tray beneath the ULP dispensing drum; and
- Approximately 15 x 1000L waste oil and oil Intermediate Bulk Containers (IBCs) were located to the south of the ASTs.

Waste oil was disposed of into an empty IBC which fed, by gravity, to the waste oil AST. Localised oil staining was observed on the ground surface next to the IBC.

Localised diesel staining was observed on the ground surface below the directed fill points of the diesel ASTs.

It is noted that the fuel and oil storage area and workshop was previously located in another portion of the Site (west of the main stockpile) which has now been mined. It has been in its current location since approximately May 2009 and is planned to be moved to another location on the Site in May 2010.

Two ASTs were also previously located in an earth bund to the north of the ROM stockpile.

The Fuel and Oil Storage Area was not observed during December 2011 Site inspection. It is understood that stockpiles of overburden now overlay these areas. The exact location of the original Western Main pit-top ASTs was not determined

5.9.3.6 Former AST Location (Refer to Area 2 in Figure 3)

The former open cut contractor's Workshop and AST Area was located on the west side of the ROM Stockpile before it was relocated to the current location to allow open cut mining activities to occur in that area of the Site.

5.9.4 Wider Site

The Wider Site is the area external to the Coal Washery Pit Top Area. An inspection of the wider Site was conducted to include the following areas:

- Cooks Dam;
- Sediment Control Ponds;
- Tailings and Settling Ponds;
- Open Cut and Rehabilitation Areas;
- Former Pit Top Area;
- Former Pit Top Workshop;
- Former Workshop and ASTs; and
- The western portion of Pine Dale Mine, including Wangcol Creek.

5.9.4.1 Cooks Dam (Refer to Figure 3)

Cooks Dam receives surface water runoff from upstream catchment areas. Water is transferred from the DML dam to Cooks dam via an existing coal seam. Overflow from Cooks Dam discharges to LDP006 and water is pumped from Cooks dam to the washery for dust suppression purposes.

5.9.4.2 Sediment Control Ponds (Refer to Figure 3)

Two sediment control ponds are located near the Springvale Coal Services property entrance. The ponds receive Site runoff. The former Pit Top Area of the original mine was located beneath the current location of these ponds.

There was no evidence of the former pit top area in this part of the Site (refer to **Figure 3**), which is similar to the observations made during AECOM (2010a). The former Pit Top area may have contained former workshop areas, USTs and ASTs (AECOM, 2010a). Portions of the area were observed as being rehabilitated and sediment and pollution ponds/dams constructed at the surface. There were no buildings or structures observed in the area.

5.9.4.3 Tailings and Settling Ponds (Refer to Figure 3)

Tailings and settling ponds were located to the southeast of the sediment control ponds, in the vicinity of the former Pit Top Area.

5.9.4.4 Open Cut and Rehabilitation Areas

The majority of the wider Site (areas outside the pit top) has been formerly mined and reinstated with overburden. A vast area of the south and southwest portion of the wider Site has undergone or was undergoing rehabilitation. Areas previously mined and filled and areas rehabilitated are shown on **Figure 2**.

Current open cut mining was occurring in the southwest and western portions of the Site. Explosives are used for blasting overburden and are not stored on the Site. The explosives (currently Throwmax, Softload and Anfo explosives) are brought onto the Site by the blasting contractor at the time of blasting. There were 54 blasts in the 2008 AEMR reporting period, and 55 blasts reported in the 2009 AEMR reporting period.

5.9.4.5 Western portion of the Pine Dale Mine (refer Figure 3)

The western part of the Pine Dale Mine was observed to comprise a portion of the workshop area surrounded by an earthen bund, with run-off from the workshop area contained. There were two self bunded 15,000 L ASTs in this area (refer to **Plate 5 in Appendix H**). No evidence of contamination was observed.

A number of 20 L oil drums were stored in the workshop (refer to **Plate 6 in Appendix H**). No evidence of contamination was observed.

Stockpiles of fly-ash and wood chip from a timber company in Oberon, were stored on the western portion of the Pine Dale Mine (refer to **Plate 7 in Appendix H**). No evidence of contamination was observed from these stockpiles.

A dam surrounded by an earthen wall was located adjacent to the stockpiles of wood chip. It is understood from site management that run-off from the Site drains to the dams and onto the underground workings. The licensed discharge point for the Pine Dale Mine is located downstream of the mine site.

Wangcol Creek was observed to flow across the Pine Dale Mine portion of the Site (refer to **Plate 8** in **Appendix H**). The channel was found to be unlined and overgrown with riparian vegetation including reeds. An internal access road crossed above the creek over a concrete bridge.

6.0 Preliminary Conceptual Site Model

Based on review of available information and the observations made during the Site inspections, a preliminary conceptual site model (CSM) has been prepared. A CSM is a qualitative description of the plausible mechanisms by which receptors may be exposed to site-related contamination via defined set of routes or pathways. The CSM is developed to improve the conceptual understanding of the source, nature, migration and exposure of contamination at the Site.

6.1 Potential Areas of Concern

Identified potential areas of concern on the Site are summarised in **Table 7** below.

Table 7 Areas of Potential Concern

Area	Potentially Contaminating Activities	Observations / Anecdotal Information
Springvale Coal Services Workshop and Oil & Grease Shed – Refer to Area 2 and 3 on Figure 4	Storage and use of oil and solvents	The AECOM Site inspection noted: <ul style="list-style-type: none"> - Oil drums stored outside Oil and Grease Shed on unsealed surface. - Oil staining on hardstand surface, and externals of the bunded area. AECOM (2010a) noted: <ul style="list-style-type: none"> - Leaking 20 L oil drums (less than 10 drums) observed on unsealed surface.
ROM Coal Stockpile refer to Figure 4	Potential contamination from transformers historically located in this part of the Site	No observations of contamination, or transformers stored on Site were noted.
Washery, Conveyors and Transfer Towers – Area 5 and 6 on Figure 4	Use of oils and grease in transfer towers Former explosives magazine in the vicinity of the Washery.	No observations of contamination were noted.
Former Main Pit Top Workshop Area – Refer Area 4 in Figure 3	Use and storage of oils and solvents Spills	The Main Workshop Area was not identified during the recent Site inspections; these areas were observed to be covered with stockpiles of overburden material. AECOM (2010a) made the following observations for the Main Pit Top Workshop: <ul style="list-style-type: none"> - Vehicle service area unsealed - Minor staining on unsealed surfaces - Temporary location (12 months duration)
Fuel and Oil Storage Area ('Big Rim') – Refer Area 2 in Figure 3 .	Storage and handling of diesel, petrol, oil and waste oil Potential spills	The Fuel and Oil Storage Area was not identified during the recent Site inspection; these areas were observed to be covered with stockpiles of overburden material. AECOM (2010a) made the following observations for the Fuel and Oil Storage Area: <ul style="list-style-type: none"> - ASTs within an earth bund - Filling and refueling areas unsealed - Localised staining around filling points - Temporary location (12 months duration)
Former AST Areas – location shown in Area 3 on Figure 3	Storage and handling of diesel Potential diesel spills	ASTs were not identified during the recent Site inspections; this area was observed to be covered with stockpiles of overburden material. AECOM (2010a) reported no structures remain on the area. ASTs were located within an earthen bund.

Area	Potentially Contaminating Activities	Observations / Anecdotal Information
Tailings and Settling Ponds	Accumulation of potential contaminants from site runoff and coal fines.	No observations of contamination were noted within on-site water bodies, however heavy metals impacts were noted during a review of monitoring data at Wangcol Creek (monitoring locations upstream and downstream and LDP006). AECOM (2010a) reported elevated heavy metals concentrations historically reported for Wangcol Creek.
Sediment Control Ponds	Accumulation of potential contaminants from Site runoff	No observations of contamination were noted.
Open Cut and Rehabilitation Areas	Residual explosives compounds from ongoing blasting.	No observations of contamination were noted.
Former Pit Top Area, containing former workshop and ASTs – Refer to Area 1 in Figure 3	Storage and handling of petroleum hydrocarbons. Former 5000 L UST(s) and Workshop(s). Potential former transformers. Former building materials of unknown origin. Use and storage of oils and solvents. Potential spills. Storage and handling of diesel Potential diesel spills.	No observations of contamination were noted. No structures aside from sediment and retention ponds were observed. AECOM (2010a) noted: <ul style="list-style-type: none"> - No above-ground structures remain; - Anecdotal information that polychlorinated biphenyls (PCBs) were formerly used at the Site and possibly handled carelessly; - USTs likely to have been removed to accommodate for construction of ponds/dams; - ASTs within an earth bund ; and - Anecdotal information suggests former workshop areas have been mined and reinstated with overburden.
Western Portion of Pine Dale Mine – Refer to northern part of Site in Figure 3	Potential spills and leaks from two 15,000 L ASTs in bunded area & 20 L drums stored in the workshop. Leaching from fly ash and woodchip stockpiles.	No evidence of contamination was observed from stockpiles, ASTs or oil drums.
LDP006 waters and Wangcol Creek waters down hydraulic gradient of discharge point – Refer to Figure 3	Discharge waters entering Wangcol Creek	No evidence of contamination was observed during Site inspections. Water quality monitoring data indicated metals impact in discharge and creek waters.
General Site	Use of explosives for blasting within open cut areas. Former storage of explosives in the western portion of the Site.	Blasting is currently undertaken at the Site. Similar observations were made in AECOM (2010a).

It is also noted that there is potential for contaminants to migrate onto the Site from the Mount Piper Power Station and Ash Emplacement Area which are located to the west of the Site, and from the unrehabilitated mine workings to the north of the Site.

6.2 Potential Contaminants of Concern

Based on the available historical information relating to the Site and observation made during the Site inspection, contaminants of potential concern (CoPC) related to the activities conducted at the Site include:

- Petroleum Hydrocarbons - which occur in fuels, solvents and oils etc. Petroleum hydrocarbons are generally quantified by analytical laboratories as total petroleum hydrocarbons (TPH), and as four fractions of hydrocarbons grouped into ranges of volatility;

- Monocyclic Aromatic Hydrocarbons - including benzene, toluene, ethylbenzene and xylenes (BTEX) are also found in fuels and used as solvents;
- Polycyclic Aromatic Hydrocarbons (PAHs) - related to some petroleum hydrocarbon use, coal waste, lubricating oils and from ash from adjacent power station;
- Heavy Metals - which may occur as a result of general mine operations. Common metal contaminants include arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.
- Solvents – chlorinated solvents have potentially been used at the Site at vehicle / equipment degreasing locations.
- PCBs – potentially present beneath electrical transformers and capacitors. PCBs were used in old electrical switchgear because of its insulating properties but were phased out in the 1980s. Anecdotal information suggests there may have been spills of oil containing PCBs at the former pit top area.
- Explosives - Nitro aromatics (TNT, DNT, MNT), RDX (cyclotrimethylenetrinitramine), Nitro-glycerine, Tetryl (2,4,6- trinitrophenylmethylnitramine), Nitro-glycerine and Nitrate. Explosive compounds are generally of low solubility. RDX partitions strongly to water and can be found at high concentrations in plants, where RDX soil contamination is present. Explosives persistent in the environment - susceptibility to breakdown dependant on environmental conditions; and
- Asbestos – which may occur in fill and demolishing of former buildings constructed of fibro and former asbestos containing materials that may have been used on the Site.

A summary of potential contaminants of concern for each area of concern identified in **Section 6.1** is presented in **Table 8**.

Table 8 Summary of Potential Areas and Contaminants of Concern

Potential Areas of Environmental Concern	Potential Contaminants of Concern
Pit Top Locations	
Springvale Coal Services Workshop and Oil & Grease Shed	TPH/BTEX, PAHs, VOCs and Heavy Metals
Washery and Transfer towers	TPH/BTEX, PAHs and Heavy Metals
Former Main Pit Top Workshop	TPH/BTEX, PAHs, Heavy Metals, PCBs and VOCs
Former Fuel and Oil Storage Area	TPH/BTEX, PAHs and Heavy Metals
Former AST location	TPH/BTEX, PAHs, and Heavy Metals
Site Wide Locations	
Sediment Control Ponds / Former Pit Top Area	TPH/BTEX, PAHs, Heavy Metals, VOCs, PCBs and explosives
Tailings Ponds	TPH/BTEX, PAHs and Heavy Metals
Open Cut and Rehabilitation Areas	Explosives compounds
General Site	Explosives compounds
Western Portion of Pine Dale Mine (AST and stockpiles of fly ash) including Wangcol Creek	TPH/BTEX, VOCs, PAHs, Heavy Metals, OCPs and OPPs,

6.3 Potential Pathways

Potential contamination migration pathways identified at the Site are:

- Direct dermal contact, inhalation or ingestion of impacted soil, dust, surface water;
- Leaching from soils to groundwater;
- Leaching from stockpiled material to soils and groundwater;
- Groundwater migration to surface water;
- Surface water runoff and migration; and

- Vapour migration from soil and groundwater.

6.4 Potential Receptors

Potential receptors identified on- and off-site include:

- On-site:
 - Site users including Site workers and visitors;
 - Ecological receptors (flora and fauna) of surface water bodies including Wangcol Creek
- Off-site:
 - Residential properties, the closest being present less than 100 m east of the northeast corner of the Site (former Pit Top area);
 - Off-site users of drinking water supply (general public), from Lake Lyell and beyond, down hydraulic gradient of the Site; and
 - Ecological receptors (flora and fauna) of surface water bodies including Wangcol Creek and Upper Cox's River.

7.0 Risk Assessment Methodology

The following section provides a preliminary evaluation of the potential for the Site to pose a risk of harm to human health or to the environment by consideration of the potential sources, contaminants, pathways and receptors.

7.1 Risk Assessment Methodology

A qualitative risk assessment, based on the Construction Industry Research and Information Association (CIRIA) *Contaminated Land Risk Assessment - A Guide to Good*, D J *et al*, 2001), has been conducted, in order to quantify risk at the Phase 1 stage. This will determine an overall risk category which will be used to identify required actions. This methodology uses non-quantitative descriptors and therefore is a qualitative approach. For a risk to exist there must be some mechanism (pathway) by which contamination from a given source can reach a given receptor. A complete 'source-pathway-receptor' relationship is generally referred to as a 'pollution linkage'.

The risk assessment has been undertaken with the assumption that foreseeable future land use at the Site will be either rehabilitated bushland (open space) or continued use as a coal mine.

The methodology requires the classification of:

- The magnitude of the consequence of a risk occurring; and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risk occurring at this Site have been classified in accordance with **Table 9** below.

Table 9 Classification of Consequence

Classification	Definition of Consequence
Severe	Irreversible damage to human health. Substantial pollution of sensitive water resource. Significant change to the number of one or more species or ecosystems Irreparable damage to crops, buildings, structures or the environment.
Medium	Non-permanent human health effects. Substantial pollution of non-sensitive water resources. Changes to population densities of non-sensitive species or ecosystems. Significant damage to crops, buildings, structures or the environment (on or off-site). Contamination of off-site soils or groundwater.
Mild	Easily preventable, short term human health effects. Contamination of on-site soils and groundwater. Limited pollution of non-sensitive water resources. Some changes to population densities with no negative effects on the function of the eco-system. Localised, easily repairable damage to crops, buildings, structure or the environment (on or off-site)
Minor	No measurable effects to human health. Minor, low-level and localised contamination of on-site soils, surface water or groundwater. No off-site impacts. Non-structural damage or cosmetic harm to building or structures.

The probability of contamination risks occurring at this Site has been classified in accordance with

Table 10 below. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table 10 Classification of Probability

Classification	Definition of Probability
High Likelihood	Circumstances are such that an event appears very likely in the short-term or almost inevitable in the long-term, or there is already evidence that such an event has occurred
Likely	Circumstances are such that such an event is not inevitable, but it is possible in the short-term and is likely over the long-term
Low Likelihood	Circumstances are such that it is by no means certain that an event would occur even over a longer period, and it is less likely in the short-term
Unlikely	Circumstances are such that it is improbable that an event would occur even in the very long-term

For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated as presented in **Table 12**.

Table 11 Contamination Risk Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
	Likely	High Risk	Moderate Risk	Moderate Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate Risk	Low Risk	Very Low Risk
	Unlikely	Low Risk	Low Risk	Very Low Risk	Very Low Risk

The qualitative risk assessment for the Site is presented in **Table 12**.

Table 12 Qualitative Risk Assessment and Preliminary Risk Ratings For Site Areas

Potential Source Area	Potential Contaminants	Critical Receptor/s (pathway)	Consequence	Likelihood	Risk Ranking
Springvale Coal Services Workshop and Oil & Grease Shed	TPH/BTEX, PAHs, VOCs and Heavy Metals	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to Surface water bodies) 	Medium	Likely	Moderate
ROM Coal Stockpile Area	TPH/BTEX, PAHs , Heavy Metals, PCBs	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to groundwaters) 	Mild	Likely	Low
Washery and Transfer towers	TPH/BTEX, PAHs and Heavy Metals	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to Surface water bodies) 	Mild	Low likelihood	Very Low
Former Main Pit Top Workshop (buried)	TPH/BTEX, PAHs, Heavy Metals and VOCs	<ul style="list-style-type: none"> - Site users (exposure to subsurface soil) - Construction users (exposure to subsurface soil) - Site users and ecological receptors (exposure to surface water) 	Mild	Low for human health Likely for ecological	Low
Former Fuel and Oil Storage Area (buried)	TPH/BTEX, PAHs and Heavy Metals	<ul style="list-style-type: none"> - Site users (exposure to subsurface soil) - Site users and ecological receptors (exposure to Surface water bodies and groundwater) 	Medium	Likely	Moderate
Former AST Area (buried)	TPH/BTEX, PAHs and Heavy Metals	<ul style="list-style-type: none"> - Site users (exposure to subsurface soils) - Site users and ecological receptors (exposure to groundwaters) 	Medium	Likely	Moderate
Sediment Control Ponds/Former Pit top Area	TPH/BTEX, PAHs, Heavy Metals and explosives	<ul style="list-style-type: none"> - Site users (exposure to soil and subsurface soils) - Construction users (exposure to subsurface soil) - Site users and ecological receptors (exposure to Surface water bodies and groundwater) 	Medium	Low for human health Likely for ecological	Moderate
Tailings Ponds	TPH/BTEX, PAHs and Heavy Metals	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to Surface water bodies) 	Medium	Likely	Moderate
General Site	Explosives	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to Surface water bodies) 	Mild	Likely	Low
Open Cut and Rehabilitation Areas	Explosives	<ul style="list-style-type: none"> - Site users (exposure to soil) - Site users and ecological receptors (exposure to Surface water bodies) 	Mild	Likely	Low
Former Pit Top Areas	TPH/BTEX, PAHs, Heavy Metals and VOCs, Asbestos	<ul style="list-style-type: none"> - Site users (exposure to subsurface soil) - Site users and ecological receptors (exposure to groundwaters) 	Medium	Low likelihood	Moderate
Western Portion of Pine Dale Mine (ASTs and stockpiles of fly ash)	TPH/BTEX, VOCs, PAHs, Heavy Metals, OCPs and OPPs	<ul style="list-style-type: none"> - Site users (exposure to soil and stockpiled materials from off-site origin) - Site users and ecological receptors (exposure to Surface water bodies and groundwater) 	Medium	Likely	Moderate
Mine Discharge Waters from LDP006 and Wangcol Creek Waters	Heavy Metals, acidity	<ul style="list-style-type: none"> - Site users and ecological receptors (exposure to surface waters) - Off-site recreational users down hydraulic gradient of site (exposure to surface waters) - Off-site residents (drinking water) - Off-Site Ecological Receptors down hydraulic gradient of site (exposure to surface waters) 	Medium	Likely	Moderate

7.2 Summary of Risk

The results of the qualitative risk assessment indicate that based on the information currently available, the potential contamination at the Site presents a very low to moderate risk to human health and the environment.

A summary of the risk ranking outcomes is provided in the following table.

Table 13 Summary of Risk Rankings

Risk Ranking	Potential Source Area
MODERATE RISK	Fuel and Oil Storage Area (buried)
	Former AST Area (buried)
	Former Pit Top Area (buried)
	Springvale Coal Services Workshop
	Sediment Control Ponds / Former Pit Top Workshop Areas
	Tailings Ponds
	Western Portion of Pine Dale Mine
	Mine discharge waters including Wangcol Creek
LOW RISK	Main Pit Top Workshop (buried)
	General site
	Rehabilitated Areas and Open Areas
VERY LOW RISK	Washery and Transfer towers

Uncontrolled exposure may pose a minor but measurable risk to workers and visitors to the Site, however, this risk may be readily managed through conventional occupational health and safety (OH&S) protocols that prevent or minimise direct contact between the contaminated areas and the workers. Such OH&S measures include avoidance of exposure through removal of the contamination, minimisation of exposure through the use of appropriate PPE, and prevention of exposure by modification of procedures to prevent future contamination from occurring.

Concentrations of the potential contaminants of concern at LDP006 and a Wangcol Creek downstream monitoring location, were identified at concentrations greater than the adopted site assessment criteria, posing a measurable potential risk to environmental receptors of Wangcol Creek.

There is potential for sources at the Site to impact soil, sediment, surface water and groundwater through leaching from unsurfaced materials, including cracks in concrete and asphalt, via drains, pollution dams, discharge points and pipes, and through surface water and groundwater flow. Contaminants may be transported via groundwater and surface water to nearby receptors.

Table 15 presents the indicative actions that may be necessary in for each of the risk categories.

Table 14 Definition of Risk and Likely Actions Required

Risk Category	Definition and Likely Actions Required
Very High	Sever harm to a defined receptor is very likely, or has already occurred. The risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) is likely to be required. Urgent remediation is likely to be required.
High	Harm to a defined receptor is likely. The risk, if realised, may result in substantial liability. Urgent investigation (if not already undertaken) is likely to be required. Remediation is likely to be required in the long term, possibly sooner.
Moderate	Harm to a defined receptor is possible, but severe harm is unlikely. Investigation is likely to be required to clarify the level of potential liability and risk. Some remediation may be required in the long term.
Low	Harm to a defined receptor is possible, but is likely to be mild at worst. Liabilities could theoretically arise, but are unlikely. Further investigation is not required at this stage. Remediation is unlikely to be required.
Very Low	Harm to a defined receptor is unlikely, and would be minor at worst. No liabilities are likely to arise. Further investigation is not required at this stage. Remediation is very unlikely to be required.

8.0 Conclusions and Recommendations

8.1 Summary

This Phase 1 ESA applied the following assumptions in reaching the presented conclusions and recommendations:

- No review of Site groundwater, soil or fill material analytical results was undertaken; all findings in respect to soil and groundwater contamination at the Site were based on desktop review of available historical data, and Site inspections.
- AECOM has listed a number of uncertainties and assumptions pertaining to interpretation of the historical monitoring data used in this report, and assessed selected monitoring locations only.
- The location of the (Former) Main Pit Top Workshop, the (Former) Pit Top Fuel and Storage Area was noted to be covered by overburden stockpiles at the time of preparation of this report.

The findings of the Phase 1 ESA are summarised as follows:

- Shallow or perched groundwater could potentially occur at the interface between soil/weathered bedrock interface and within alluvial sediments along drainage channels. Groundwater flow is expected to flow to the north and northeast towards Wangcol Creek, which crosses the northern part of the Site (western part of Pine Dale Mine).
- Past and current use of the Site for mining operations is likely to have resulted in potential soil, sediment and surface water contamination, and potentially groundwater impact in some areas of the Site, however, extensive contamination was not observed during the Site inspection. Potential contaminants of concern identified from the past and current activities at the Site include total petroleum hydrocarbons (TPH) associated with fuel storage; monocyclic aromatic hydrocarbons associated with fuel and solvent storage; polycyclic aromatic hydrocarbons (PAHs) associated with coal waste, lubricating oil and ash from adjacent power station; metals (As, Cd, Cr, Cu, Ni, Hg, Pb, Zn) associated with mine operations; polychlorinated biphenyls associated with historic use of electrical transformers; explosives associated with storage of explosives on site; and asbestos associated with fill material and demolition of former buildings on site.
- Potential off-site sources of contamination include impacts from Mount Piper Power Station and Ash Emplacement Area located to the west of the Site, and from the un-rehabilitated mine workings to the north of the Site. The nature and extent of these potential impacts (if any) is presently unknown.
- Potential contamination observed at the Site was generally associated with fuel storage and handling, equipment storage and maintenance and surface water runoff from the tailing dams and general Site.
- Site Specific Trigger Values (SSTVs) were updated for assessment of selected compounds in surface water collected from upstream and downstream monitoring points (GHD 2012).
- The latest available Annual Environmental Management Report for the Springvale Coal Services Site reported there was no evidence of contaminated or polluted land on the Springvale Coal Services Site (Springvale Coal, 2013).
- Surface water monitoring by Centennial indicated that discharge waters from the Site and in Wangcol Creek both upgradient and down gradient of the Site were impacted by metals, namely iron, manganese, zinc and nickel. GHD (2012) recommended continuing sampling at the upstream location for the abovementioned parameters on a monthly basis for two years to satisfy the requirements of ANZECC & ARM CANZ (2000) and so that the SSTVs can be reviewed. GHD also recommended inclusion of a new monitoring location (200 m downstream of the confluence of LDP006 and Wangcol Creek) to achieve an appropriate mixing zone for surface water monitoring. GHD (2012) also identified that a further investigation should be conducted for parameters (EC, aluminium, iron, manganese, nickel and zinc) that consistently exceed the SSTVs at the downstream monitoring locations, with the aim of the investigation being to identify the source of the contaminants and determine whether the elevated concentrations are adversely impacting on the downstream waters of Wangcol Creek.
- The qualitative risk assessment indicated that potential contamination at the Site currently presents a low to moderate risk to human health and the environment.
- Previous investigations indicated that there was currently not enough information or evidence of contamination at Lambert Gully Mine to warrant notification pursuant to Section 60 of the Contaminated Land Management (CLM) Act. Further investigation was recommended to assess the presence of

contamination, if any, and enable a determination to be made regarding Centennial's duty to report (AECOM, 2010b). As part of Centennial's general due diligence, a notification under Section 60 of the CLM Act was lodged with NSW Environment Protection Authority (EPA) on 2 February 2012. The NSW EPA responded to Centennial acknowledging receipt of the Duty to Report letter and Centennial's commitment for further investigations.

8.2 Conclusions

The Phase 1 ESA concludes that: past and current use of the Site for mining operations is likely to have resulted in potential soil, sediment and surface water contamination, and potentially shallow groundwater impact in some areas of the Site, however, no significant contamination was identified during the site inspection.

8.3 Recommendations

The Phase 1 ESA makes the following recommendations:

- A Phase 2 ESA should be conducted to target areas of potential contamination, where the risk is moderate. It is understood that a number of areas of potential contamination are overlain by sediment ponds and stockpiles of overburden. It is recommended that the Phase 2 ESA program would target areas of potential contamination that are accessible and assess the potential for off-site migration.

It is understood that Centennial are planning to undertake a number of site upgrade works that may include disturbance of the Site surface, which may present a risk to site users by exposure to impacted soil or groundwater. The Phase 2 investigation will be conducted in accordance with the schedule provided by Centennial to the NSW EPA in a letter dated 2 February 2012, which states that the works for low risk sites will be conducted by February 2015.

9.0 References

Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. AECOM 2010a. *Phase 1 Environmental Site Assessment, Lamberts Gully, Blackmans Flat*. Report prepared for Centennial Coal, April 2010.

AECOM 2010b. *Consolidated Contamination Assessment Report for NSW Operational Sites*. Report prepared for Centennial Coal, December 2010.

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NSW DECC, 2009. *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* – used to determine potential significant risk of harm issues associated with the site, where required.

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NSW DEC, 2006. *Guidelines for the Site Auditor Scheme (2nd Edition)* – used to apply the NSW EPA decision processes for assessing and redevelopment of urban sites.

NSW Department of Lands, 2006. *Lithgow 1:25000 Topographic Map Sheet 8931-3-S*. 2nd Edition. NSW Department of Lands, Bathurst NSW.

NSW Department of Primary Industries Office of Water, 2012 *NSW Aquifer Interference Policy: NSW Government policy for the assessment of aquifer interference activities*. September 2012
NEPC, 1999. *National Environment Protection (Assessment of Site Contamination) Measure (National Environment Protection Council)* – considered throughout the investigation.

NSW EPA, 1997. *Guidelines for Consultants Reporting on Contaminated Sites* – followed throughout the investigation and during preparation of this report.

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Bureau of Meteorology – *Lithgow Weather Station*. Available at: <http://www.bom.gov.au/climate/averages>

NSW DECCW – Contaminated Land Records Database Search -

<http://www.environment.nsw.gov.au/clmapp/searchregister.aspx>

NSW EPA – Water Works Groundwater Well Database - <http://www.nratlas.nsw.gov.au/>

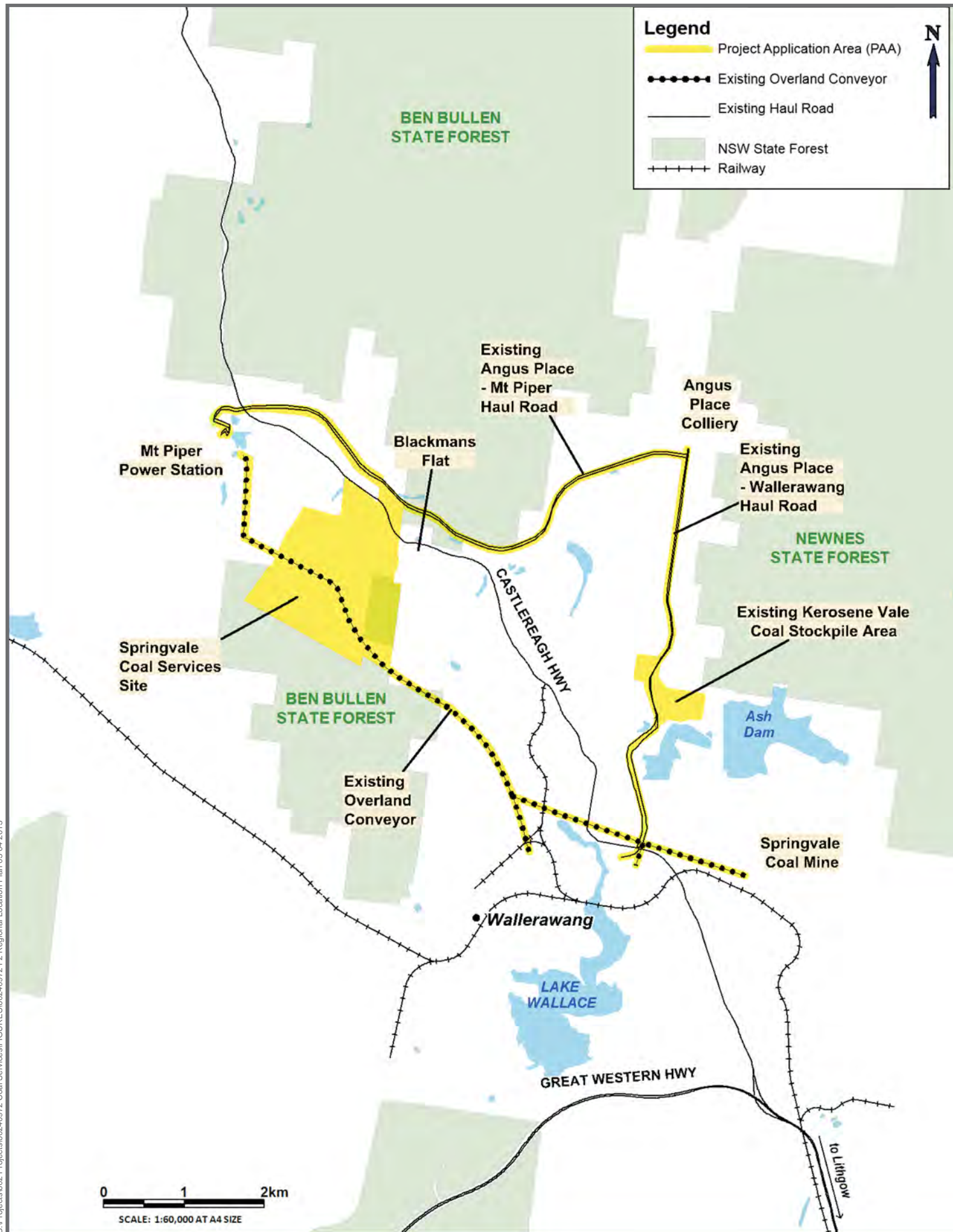
Appendix A

Figures



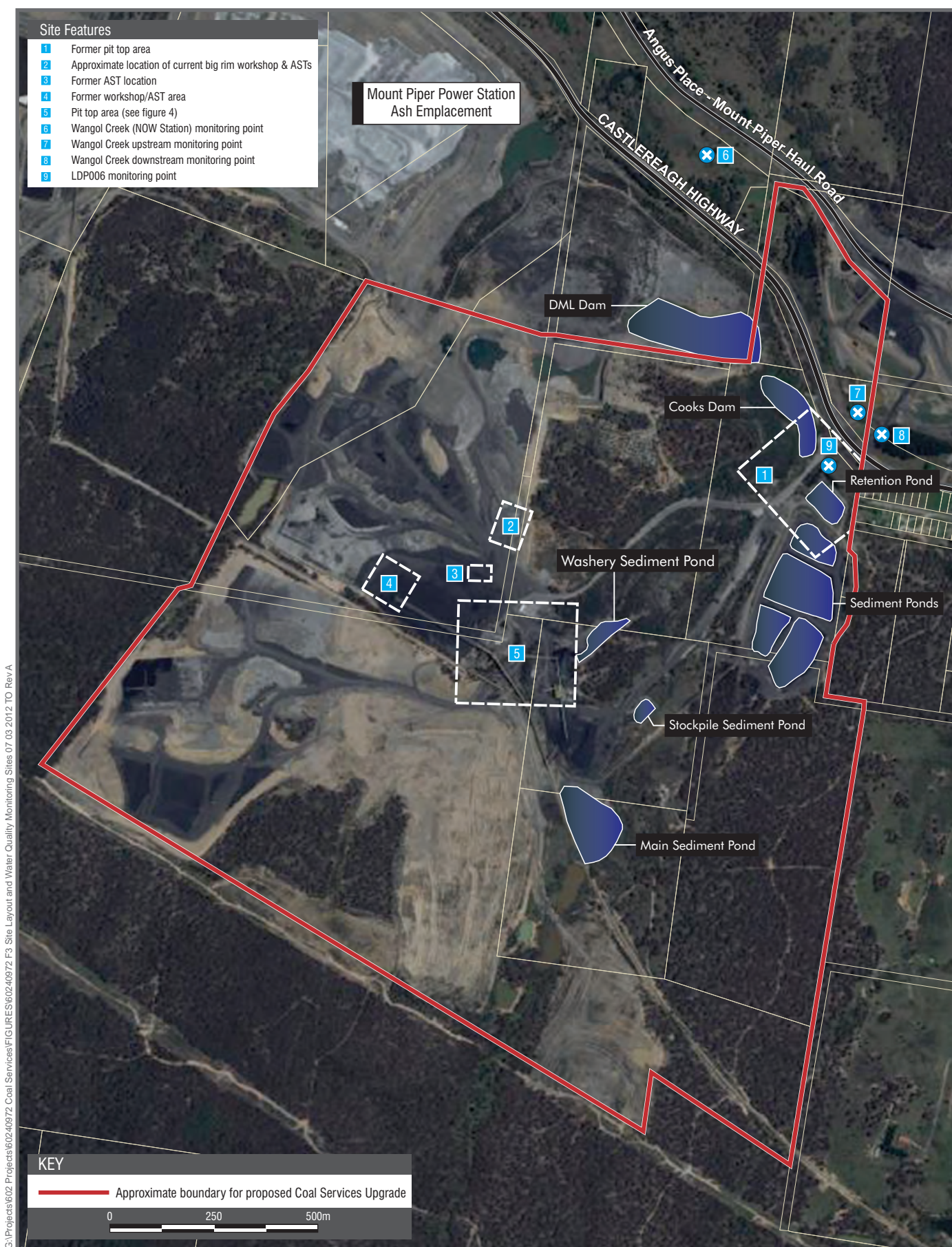
G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F1 Site Location 27 02 2012 TO

G:\Projects\602 Projects\60240972 Coal Services\FIGURES\60240972 F2 Regional Location Plan 05 04 2013



AECOM

REGIONAL LOCATION PLAN
Phase 1 Environmental Site Assessment
Western Coal Services Project
Blackmans Flat, New South Wales



AECOM

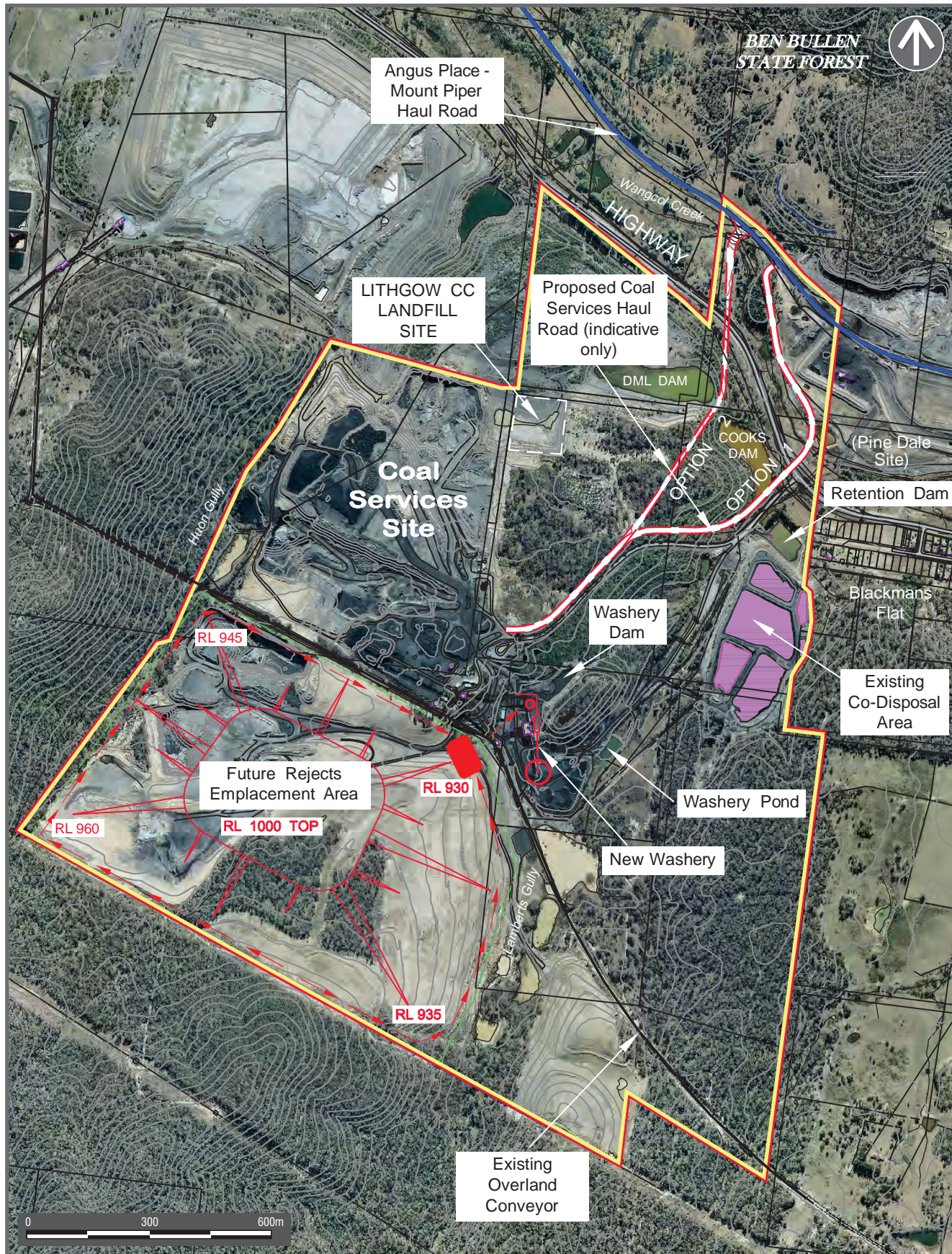
SITE LAYOUT AND WATER QUALITY MONITORING SITES

Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 3



G:\Projects\602 Projects\6024\0972 Coal Services\FIGURES\6024\0972 F5 Proposed Site Layout 13.12.2012



AECOM

PROPOSED SITE LAYOUT
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

Drawing Source: RPS Australia East Pty Ltd (12/12/2012) Job Ref: 110910

FIGURE 5



G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F6 Aerial Photograph - 1950 27 02 2012 TO



AECOM

AERIAL PHOTOGRAPH - 1950
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 6



G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F7 Aerial Photograph - 1969 27 02 2012 TO

AECOM

AERIAL PHOTOGRAPH - 1969
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 7

G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F8 Aerial Photograph - 1970 27 02 2012 TO



AECOM

AERIAL PHOTOGRAPH - 1970
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 8



G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F9 Aerial Photograph - 1984 27 02 2012 TO

AECOM

AERIAL PHOTOGRAPH - 1984
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 9

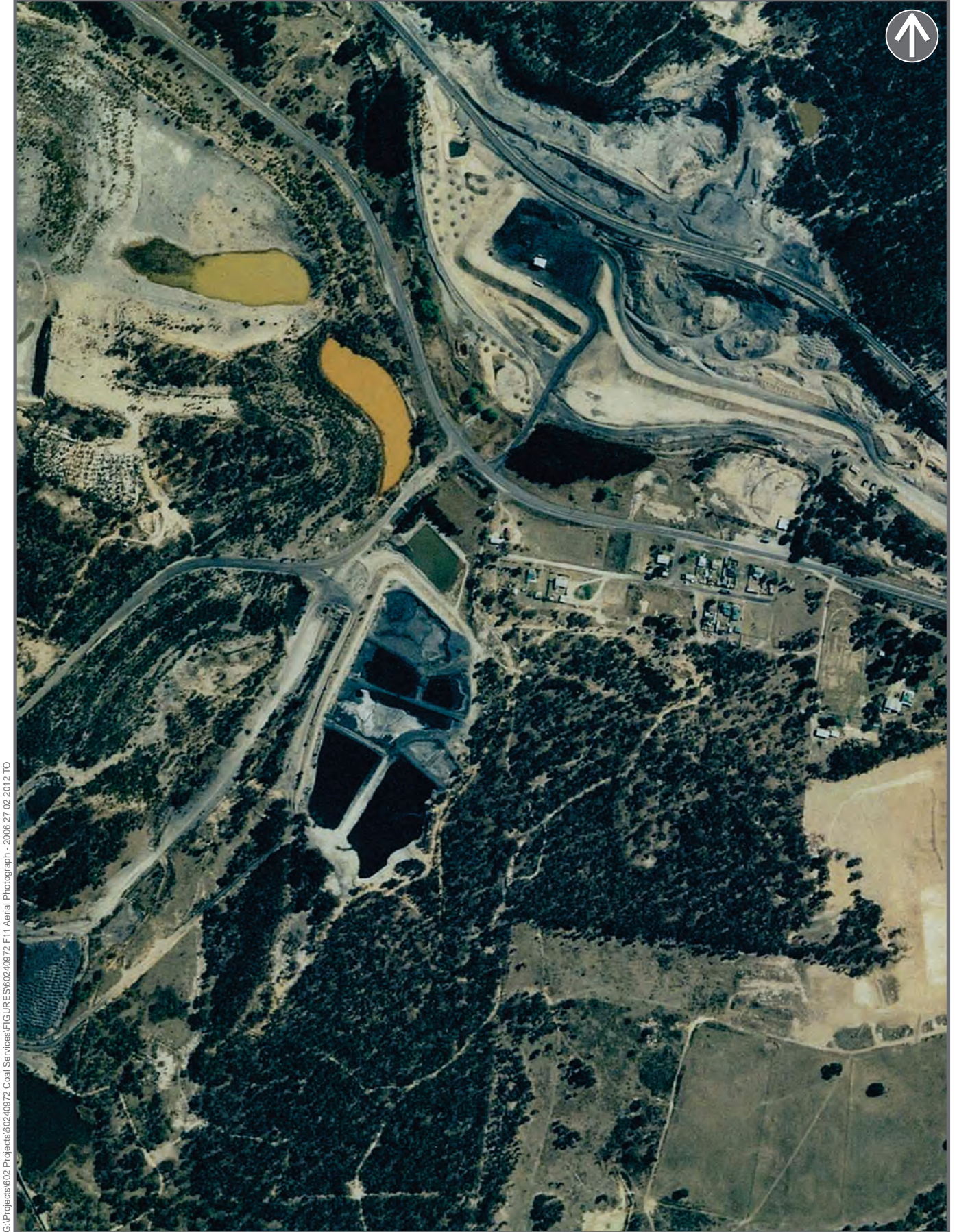


G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F10 Aerial Photograph - 1991 27 02 2012 TO

AECOM

AERIAL PHOTOGRAPH - 1991
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 10



G:\Projects\602 Projects\602 40972 Coal Services\FIGURES\602 40972 F11 Aerial Photograph - 2006 27 02 2012.TIF

AECOM

AERIAL PHOTOGRAPH - 2006
Phase 1 Environmental Site Assessment
Coal Services Upgrade Project
Blackmans Flat, New South Wales

FIGURE 11

Appendix B

Centennial Communication with NSW EPA



ENVIRONMENT PROTECTION AUTHORITY

Our reference: DOC12/5989

FILE COPY

Ms Mary-Anne Crawford
Group Environment Manager
Centennial Coal
100 Miller Road
Fassifern NSW 2283

Dear Ms Crawford,

**Centennial Coal – Operating Sites in NSW
Section 60 Notifications under the *Contaminated Land Management Act 1997***

Thank you for the Site Contamination Notifications dated 2 February 2012 and the accompanying information that was provided in accordance with Section 60 of the *Contaminated Land Management Act 1997* (CLM Act) and our apologies for our delayed response. This information relates to the following sites:

Western Region

- Angus Place Colliery
- Charbon Colliery
- Clarence Colliery
- Ivanhoe Colliery
- Kerosene Vale Colliery
- Lambert Gully Mine
- Lidsdale Rail Loading Facility
- Springvale Colliery

Northern/Hunter Region

- Awaba Colliery
- Endeavour Colliery
- Mandalong Mine
- Mannering Colliery
- Munmorah Colliery
- Myuna Colliery
- Newstan Colliery

The sites will be added to the public list of notified sites on the EPA website, which can be accessed at: www.environment.nsw.gov.au/clm/publiclist.htm. This list includes all sites notified under section 60 of the CLM Act. The listing only provides basic information such as the location of the sites, the category of activity that has caused the contamination and the current status of the sites with respect to site assessment and management. If circumstances relating to your site change, you should advise EPA in writing so that the listing can be amended as appropriate.

It is noted that these sites either have or have been regulated with Environment Protection Licences (EPLs) under the *Protection of the Environment Operations (POEO) Act 1997*. Based on this we consider that for all of these sites the processes that you have described, being:

Stage 2

- Phase 2 Survey
- Development of remediation plans – completion February 2012

Stage 3

- Implementation of Stage 2 remediation plans

would most appropriately be handled under the provisions of the POEO Act and the respective EPLs.

For this reason we request that the new Phase 2 surveys and remediation plans be provided to the respective EPA offices handling the EPLs. For the two regions the contacts are:

Western Region – Manager Bathurst, Richard Whyte
Hunter Region – Manager Newcastle, Graeme Clarke

Consideration can then be given for the need for relevant amendments to the EPLs for implementation of the remediation activities.

Should you have any questions with regard to this advice please contact John Coffey on 9995-5621.

Yours sincerely

Niall Johnston 6/7/2012

NIALL JOHNSTON
Manager Contaminated Sites
Environment Protection Authority

cc. *Richard Whyte*
Graeme Clarke



2 February 2012

By Post

Contaminated Sites
Department of Environment, Climate Change and Water
PO Box A290
SYDNEY SOUTH NSW 1232

To whom it may concern

Centennial Coal - Duty to Report under the CLM Act

Centennial Coal has undertaken a contaminated site assessment across all of its operating sites in NSW to determine its legal obligation to report contamination pursuant to the amendments to the *Contaminated Land Management Act 1997* (**CLM Act**).

The amendments, which took effect on 1 December 2009, include revision to the Duty to Report (Section 60) as detailed by the "Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997" (Department of Environment and Climate Change, June 2009).

Centennial Coal owns or operates mines and sites in New South Wales the subject of the attached notifications, all of which have been in operation for over 30 years. Centennial Coal has not been the owner or operator of these mines and sites for all this time. As such, specific causes of historic contamination may not be known.

To identify the existence, nature and extent of any contamination, Centennial Coal engaged AECOM Australia Pty Ltd (AECOM) to undertake contaminated site assessments across all of its operating sites in NSW. The purpose of the assessments was to ensure a consistent approach to the report and management of potentially contaminated sites across regions and to determine which sites triggered the Duty to Report criteria.

To assess our obligations to report we have adopted a 3 staged approach to the assessment of contamination at all of our sites.

- **Stage 1 – Phase 1 Assessment**
Comprised a desk top review of existing information to provide an assessment of duty to report notification requirements for all sites. This review was completed in December 2010.
- **Stage 2 – Commencement of Phase 2 Survey**

Development of remediation plans and notification of contamination to DECCW. To be completed February 2012.

- **Stage 3** - Implementation of Stage 2 remediation plans. To be implemented as a risk based 5 year plan.

Stage 1

The consolidated Contamination Assessment Report for Operational Sites has identified areas of contamination and hence a duty to report to DECCW has been triggered at six of the 15 sites assessed, with further investigation required at other sites. To alleviate any uncertainty regarding any potential contamination Centennial Coal has made the decision to Notify DECCW for all sites.

Attached are Contaminated Land Notification Forms as required under *Section 60 of the Contaminated Land Management Act 1997* for:

Western Region	Northern Region
Angus Place Colliery	Awaba Colliery
Charbon Colliery	Endeavour Colliery
Clarence Colliery	Mandalong Mine
Ivanhoe Colliery (incl. Ivanhoe North)	Mannering Colliery (formally Wyee)
Kerosene Vale Colliery	Munmorah Colliery
Lambert Gully Mine	Myuna Colliery
Lidsdale Rail Loading Facility	Newstan Colliery
Springvale Colliery	

Stage 2

Stage 2 has involved the undertaking of these additional works, to assess the nature and extent of contamination at Centennial Coal's sites, with staging based on the sites risk ranking as follows.

- High risk sites – assessment within 18 months
- Medium risk sites – assessment within 2 years
- Low risk sites – assessment within 3 years

The risk ranking and priority planning for additional works is indicated in the following table.

Site	Summary of Contamination	Notification Triggered	Priority to Complete Phase 2 Works
Charbon Colliery	Contamination identified in the vicinity of the Washery AST, 3 rd Entry Boxcut workshop and wetland area. Contamination identified exceeds notification triggers and indicate migration of contamination of surface water.	Yes	High

Site	Summary of Contamination	Notification Triggered	Priority to Complete Phase 2 Works
Clarence Colliery	No analytical data available. Spillage of more than 30,000 L of diesel in September 2009 likely to have resulted in soil and groundwater contamination ¹ . Highest risk of contamination associated with the fuel spill which occurred in the vicinity of the washery UPSS, pit top UPSS, stowage bunker and wash down area.	Yes	High
Lidsdale Rail Loading Facility	Hydrocarbons detected in the vicinity of the AST and workshop in soil at concentration exceeding notification triggers. Hydrocarbon detected in groundwater ² .	Yes	High
Munmorah Colliery	Analytical data exceeds notification criteria. Site since rehabilitated. Final contaminated land assessment will be carried out prior to rehabilitation sign-off.	Yes	High
Myuna Colliery	Single exceedence of assessment criteria. Further assessment required to confirm Centennial obligations to notify the site.	Yes	High
Newstan Colliery	No analytical data available for the pit top area. Analytical data from the arsenic smelter site and Hussey's Quarry exceed the notification criteria (these are being undertaken separately to Newstan pit top area).	Not enough information available for Newstan pit top area.	Medium
Angus Place Colliery	No analytical data available. Visual evidence of soil contamination, however extent appears limited. Highest contamination risk associated with the drum crushing area and fuel dispensing area located adjacent the diesel AST.	Not enough information available	Medium
Awaba Colliery	No analytical data available. Visual evidence of soil contamination, however extent appears limited. Highest contamination risk associated with diesel UPSS (reportedly no longer in use), service and wash down bays and oil/water separator.	Not enough information available	Medium
Ivanhoe Colliery	No analytical data available. Visual evidence of soil contamination appears limited in extent. Site facilities (including fuel storage facilities and workshops) were assessed to present a moderate risk to human health and the environment.	Not enough information available	Medium
Mandalong Mine	No analytical data available. Visual evidence of soil contamination. The potential for contamination at Mandalong Mine and Cooranbong Entry were assessed to present a moderate risk to human health and the environment.	Not enough information available	Medium (Cooranbong and Mandalong) Low (Delta Decline)
Manning Colliery	No analytical data available. Visual evidence of soil contamination associated with fuel storage and handling areas, equipment storage and waste disposal areas.	Not enough information available	Medium

¹ The diesel was contained on site in on site pollution control systems.

² The Lidsdale Siding Facility is currently the subject of a Part 3A application to upgrade the facility. Hydrocarbon management forms a component of the Director General's Requirements for this project. It is anticipated that the Environmental Assessment for the Project will be lodged in early 2012.

Site	Summary of Contamination	Notification Triggered	Priority to Complete Phase 2 Works
Springvale Colliery	No analytical data available. Visual evidence of soil contamination, however extent appears limited. Highest potential for contamination associated with the diesel UST, wash down area, workshop and the site of a potential UST in the crane yard.	Not enough information available	Medium
Endeavour Colliery	No intrusive investigation undertaken prior to rehabilitation of the site. No analytical data available. Phase 1 assessment reported areas of potential concern including leaking transformers, oil disposal areas and asbestos sheeting used in buildings. Highest risk of contamination associated with the former locations of the workshop, diesel service bay, compressor shed, switch yard, oil/water separators, oil disposal areas and the old rubbish dump.	Not enough information available	Low
Kerosene Vale Colliery	No analytical data available for former pit top area. No visual evidence of contamination. Limited information available for the remainder of the site.	Not enough information available	Low
Lamberts Gully Mine	No analytical data available. Visual evidence of soil contamination appears limited in extent.	Not enough information available	Low

Stage 3

Stage 3 will include the development of management plans and undertaking of remedial work to address contamination identified by previous stages. This Stage will be implemented following consultation with the DECCW and an accredited contaminated land Auditor.

Centennial Coal is committed to ensuring ongoing adherence with the CLM Act and would like to meet with DECCW to discuss our strategy. Please do not hesitate to contact me regarding these assessments or any other matter in this letter on (02) 4935 8918 or 0400 403 550.

Yours sincerely



Mary-Anne Crawford

Group Environment Manager

Encl *Consolidated Contamination Assessment Report for NSW Operational Sites – Centennial Coal, December 2010*
Contaminated Land Notification Form for:
Angus Place Colliery, Awaba Colliery, Charbon Colliery, Endeavour Colliery, Clarence Colliery, Mandalong Mine, Ivanhoe Colliery (incl. Ivanhoe North), Mannering Colliery, Kerosene Vale Colliery, Munmorah Colliery, Lambert Gully Mine, Myuna Colliery, Lidsdale Rail Loading Facility, Newstan Colliery, Springvale Colliery

Appendix C

Historical Titles

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

23rd January, 2012

AECOM AUSTRALIA PTY LTD

PO Box Q410,
QVB PO,
SYDNEY, NSW 1230

Attention: Orla Ferguson,

RE: Castlereagh Highway, Lithgow
Ref: 60240972

Note 1: Lot 37 DP 827626
Note 2: Auto Consol 8478-204
Note 3: Lot 502 DP 825541

Note 1:

Current Search

Folio Identifier 37/827626 (title attached)
DP 827626 (plan attached)
Dated 16th January, 2012
Registered Proprietor:
ENHANCE PLACE PTY LIMITED

Title Tree
Lot 37 DP 827626

Folio Identifier 37/827626

CA 58065

Conveyance Book 3604 No. 382

Conveyance Book 3389 No. 153

Conveyance Book 3019 No. 544

Conveyance Book 2266 No. 257

Conveyance Book 1874 No. 19

Conveyance Book 1547 No. 111

Conveyance Book 1537 No. 246

Conveyance Book 1517 No. 118

Summary of proprietor(s) Lot 37 DP 827626

Year	Proprietor
	(Lot 37 DP 827626)
2007 – todate	Enhance Place Pty Limited
1993 – 2007	Electricity Commission of New South Wales
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 1.878 hectares and other lands – Conv Bk 3604 No. 382)
1984 – 1993	Electricity Commission of New South Wales
1984 – 1984	Western Main Collieries Pty Limited
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 3389 No. 153 and other lands)
1979 – 1984	Western Main Collieries Pty Limited
1979 – 1979	James Wright Brown, superintendent of colliers
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 3019 No. 544 and other lands)
1971 – 1979	James Wright Brown, State Superintendent
1971 – 1971	Lidsdale Reclamation Co Pty Limited
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 2266 No. 257 and other lands)
1952 – 1977	Lidsdale Reclamation Co Pty Limited
1952 – 1952	Eliza Florence Charlotte Farrimond, wife of labourer
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 1874 No. 19 and other lands)
1940 – 1952	Eliza Florence Charlotte Farrimond, wife of labourer
1940 – 1940	William Wolf Gardiner, grazier
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 1547 No. 111 and other lands)
1929 – 1940	William Wolf Gardiner, grazier
1929 – 1929	Charles Henry David Lane, general carrier
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 1537 No. 246 and other lands)
1928 – 1929	Charles Henry David Lane, general carrier
1928 – 1928	Jessie Emily Lane, widow
	(Lot E, Subdivision of Portion 10, Parish of Cox – Area 4 Acres 2 Roods 22 ¼ Perches – Conv Bk 1517 No. 118 and other lands)
1928 – 1928	Jessie Emily Lane, widow
1928 – 1928	Arlam Crow, retired railway superintendent
	(That piece or parcel of land, part of Lot 39, County of Cook, Parish Unnamed – Area 30 Acres – Conv Bk 1517 No. 118)
1892 – 1928	Arlam Crow, as trustee for the estate of Alice Dickie

Note 2:

Current Search

Folio Identifier Auto Consol 8478-204 (title attached)

DP 126483 (plan attached)

Dated 16th January, 2012

Registered Proprietor:

CENTENNIAL SPRINGVALE PTY LIMITED

SPRINGVALE SK KORES PTY LIMITED

Title Tree **Auto Consol 8478-204**

Auto Consol 8478-204

Folio Identifier 1 & 2/126483

Certificate of Title Volume 8478 Folio 204

CROWN LAND

**Summary of proprietor(s)
Auto Consol 8478-204**

Year	Proprietor
	(Lots 1 and 2 DP 126483 - Auto Consol 8478-204)
1993 – todate	Centennial Springvale Pty Limited Springvale SK Kores Pty Limited
	(Lots 1 & 2 DP 126483 – Area 2 Roods 15 Perches – CTVol 8478Fol 204)
1993 – 1993	Western Mine Collieries Pty Limited
1962 – 1993	N.S.W. Mining Company Limited, grant of land as compensation for land resumed for a public road 1962/5508
Prior – 1962	CROWN LAND

Note 3:

Current Search

Folio Identifier 502/825541 (title attached)
DP 825541 (plan attached)
Dated 16th January, 2012
Registered Proprietor:
CROWN LAND

Title Tree Lot 502 DP 825541

Folio Identifier 502/825541

CROWN LAND

Government Gazette 18 March 1983 Folio 1252

Summary of proprietor(s) Lot 502 DP 825541

Year	Proprietor
	(Lot 502 DP 825541, part of land dedicated as Ben Bullen State Forest No. 434 – No. 6 extension, Parish of Lidsdale)
Prior – todate	CROWN LAND
<i>(1983 – todate)</i>	<i>(Ben Bullen State Forest No. 434 – No. 6 extension)</i>
<i>(1927 – 1983)</i>	<i>(Part of Forest Reserve 57273)</i>



Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act.

Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 8478-204

SEARCH DATE	TIME	EDITION NO	DATE
22/3/2013	8:51 AM	9	20/11/2012

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT BLACKMANS FLAT
LOCAL GOVERNMENT AREA LITHGOW CITY
PARISH OF COX COUNTY OF COOK
TITLE DIAGRAM DP126483

FIRST SCHEDULE

CENTENNIAL SPRINGVALE PTY LIMITED
SPRINGVALE SK KORES PTY LIMITED
AS TENANTS IN COMMON IN EQUAL SHARES (CN AH192896)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 Z935727 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART OF LOT 1 DP 126483 SHOWN SO BURDENED IN DP 641841

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS

LOTS 1-2 IN DP126483.

*** END OF SEARCH ***

No. 1952/5508

State of New South Wales

FREE



VOL. 8478 FOL. 204

CANCELLED

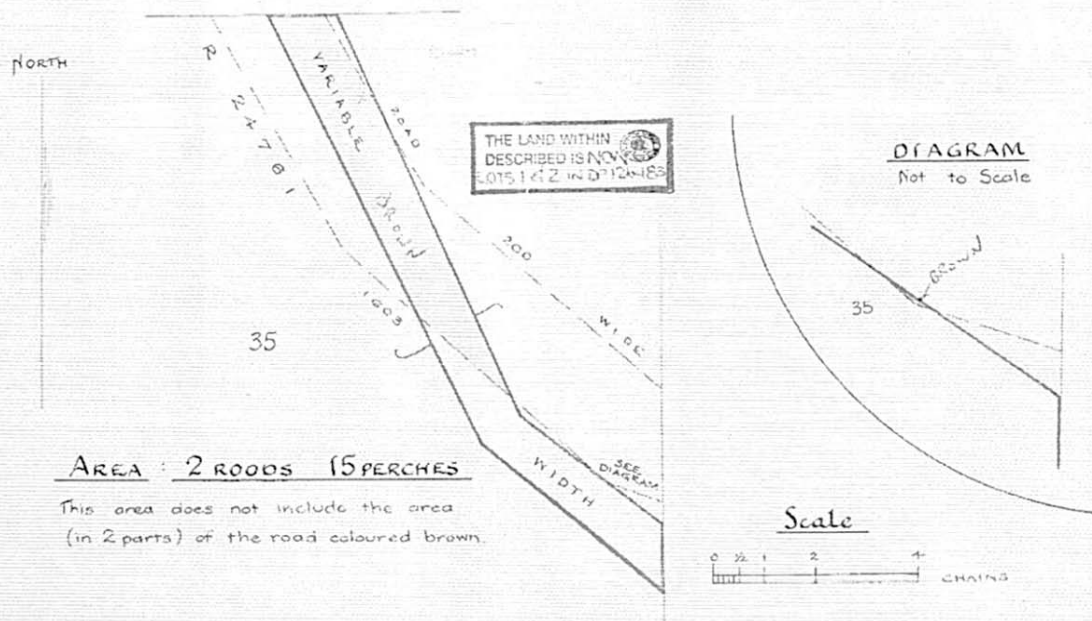
GRANT OF LAND AS COMPENSATION FOR LAND RESUMED FOR A PUBLIC ROAD

(UNDER THE PUBLIC ROADS ACT, 1902)

ELIZABETH the SECOND, by the Grace of God of the United Kingdom, Australia and Her other
Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith.—
To All to whom these Presents shall come, Greeting:—

Whereas by a Notification of Resumption published in the Gazette on the twenty second day of November 1957
certain Land therein mentioned was resumed under the powers conferred by the Public Roads Act, 1902 from N.S.W. MINING COMPANY PTY. LIMITED

(hereinafter called the GRANTEE —) who held the same in fee simple And Whereas it has been agreed that the Land hereinafter described shall be granted
in accordance with the provisions of the said Act in fee simple to the GRANTEE as compensation for the Land so resumed as aforesaid Now Know Ye That
in consideration of the premises We for Us Our Heirs and Successors Do HEREBY GRANT unto the GRANTEE and its Heirs and Assigns subject to the
Reservations and Exceptions hereinafter contained ALL THAT Piece or Parcel of Land in Our said State containing by Admeasurement two roods fifteen
perches be the same more or less situated in the County of
Cook Parish of Cox Being the closed part of the road reserved through portion 35 and extending
from the Northern boundary of that portion in a South Easterly direction to the Eastern boundary thereof EXCLUSIVELY of the road 2
chains wide as now surveyed and shown in plan catalogued No. R.24761-1603 in the Department of Lands passing through this land in a
South Easterly direction and thence in part of that road again in a South Easterly direction the area of which is not included in the
area shown hereon



As per Plan hereon With all the Rights and Appurtenances whatsoever thereto belonging To Hold unto the GRANTEE and its
Heirs and Assigns for ever Provided Nevertheless AND WE DO HEREBY RESERVE AND EXCEPT unto Us Our Heirs and Successors all
minerals which the said Land contains with full power and authority for Us Our Heirs and Successors and such person or persons as shall from time to time
be authorised by Us or Them to enter upon the said Land and to search for mine dig and remove the said minerals And also all such parts and so much of
the said Land as may hereafter be required for public ways in over and through the same to be set out by Our Governor for the time being of Our said State
or some person by him authorised in that respect with full power for Us Our Heirs and Successors and for Our Governor as aforesaid by such person or persons
as shall be by Us Them or him authorised in that behalf to make and conduct all such public ways And the right of full and free ingress egress and regress into
out of and upon the said Land for the several purposes aforesaid or any of them In Testimony Whereof We have caused this Our Grant to be Sealed with the
Seal of Our said State

Witness Our Trusty and Well-beloved SIR ERIC WINSLOW WOODWARD, Knight Commander of Our
Most Distinguished Order of Saint Michael and Saint George, Knight Commander of Our Royal
Victorian Order, Companion of Our Most Honourable Order of the Bath, Commander of Our Most
Excellent Order of the British Empire, Companion of Our Distinguished Service Order, Knight
of the Most Venerable Order of St. John of Jerusalem, Lieutenant-General on the Retired List
of Our Australian Military Forces, Governor of Our State of New South Wales and its Dependent
encies in the Commonwealth of Australia, at Sydney in Our said State, this 14th day of
October in the twelfth year of Our Reign and in the year of
Our Lord one thousand nine hundred and sixty

Governor

RECORDED and ENROLLED in the Registrar General's Office, at Sydney, in New South
Wales, this 18th day of November 1901.

Janetson
Registrar General.

2936727 - Resumption Application Easement
for Transmission Line affecting the part
of the land above described shown
as burdened in pp 691861 - Registered
21.10.1991

(N.O.I.)

REGISTERED PROPRIETOR *Western Main Collieries Pty*
Limited by Application J 76845 and Transfer
J 76846 Registered 2.2.1993

FOLIO CANCELLED - NEW FOLIO IS Auto Cancel
18478-204

18478-204 - Easement for Transmission
Line Resumed vide Qpx 26-7-1991, Fol 16239
201/1/1991 M.R.
J 76845 R
46 T/R



Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

22/3/2013 9:05AM

FOLIO: 2/126483

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 8478 FOL 204

Recorded	Number	Type of Instrument	C.T. Issue
18/2/1993	DP126483	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
19/2/1993		CONVERTED TO AUTO CONSOL 8478-204	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

Aecom

PRINTED ON 22/3/2013

*ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.



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19/2/1993		CONVERTED TO AUTO CONSOL 8478-204	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

Aecom

PRINTED ON 22/3/2013

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Appendix D

**Certificate 149 Part 2 and
5 for Lots 1 and 2 of
DP126483 & Lot 37 of DP
827626**

Foster & Foster Pty Limited

DX 208 Sydney

GPO Box 980 Sydney 2001

Tel (02) 9268-0033

Fax (02) 8088-1188

ABN 40 116 451 140

www.legalsearches.com.au

service@legalsearches.com.au

Trading as:

Property Enquiry Services

Statewide Urgent Enquiries

Urgent Legal Searches

Property Enquiry Services

CERTIFICATE STATUS

To:

Orla Ferguson
AECOM Australia Pty Ltd
PO Box Q410
QVB Post Office
Sydney NSW. 1230

Our Reference **F72169**

Status as at **09/02/2012**

All certificates delivered

Your Ref **60240972**

Your Client **Centennial Springvale**

Property **9507 Castlereagh Highway, Blackmans Flat**

LGA and Title **LITHGOW CITY, Lot 37 * DP827626 ***

Certificates Enclosed ** Council Sect 149 (2)
Section 149 (5) add.info

**** Please check that enclosed certificates contain correct details including title(s) and property description.**



FOSTER & FOSTER PTY LTD T/A PROPERTY ENQUIRY SERVICES
G P O BOX 980
SYDNEY NSW 2001

PLANNING CERTIFICATE UNDER SECTION 149, ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CERTIFICATE NO: 149(5)-11-0117

YOUR REF: F72169
RECEIPT NO: 233638

PROPERTY NO: 103199
ISSUE DATE: 07/02/2012

PROPERTY ADDRESS: WESTERN MAIN COLLIERY 9507 CASTLEREAGH HIGHWAY
BLACKMANS FLAT NSW 2790
OWNER: CENTENNIAL SPRINGVALE PTY LIMITED &
SAMSUNG DEVELOPMENT (AUST) PTY LTD

LAND PARCEL DESCRIPTIONS: Part Lot 37 DP 827626
Lot 1 DP 126483
Lot 2 DP126483

**IN ACCORDANCE WITH SECTION 149(2) OF THE ENVIRONMENTAL PLANNING AND
ASSESSMENT ACT, 1979, IT IS CERTIFIED THAT AT THE DATE OF THIS CERTIFICATE THE
FOLLOWING PRESCRIBED MATTERS RELATE TO THE LAND:**

1. Names of relevant planning instruments and DCPs

- (1) The name of each planning instrument that applies to the carrying out of
development on the land:**

LITHGOW CITY LOCAL ENVIRONMENTAL PLAN 1994
Zone: 1(a) Rural (General)

**Further, the following State Environmental Planning Policy, or draft State
Environmental Planning Policy of which the minister has notified the council apply to
the land?**

SEPP No. 1—Development Standards

SEPP No. 4- Development Without Consent & Miscellaneous Complying Development

SEPP No. 6—Number Of Storeys In A Building

SEPP No. 15 - Rural Land-Sharing Communities

SEPP No. 21 - Caravan Parks

☎ (02) 6354 9999
☎ (02) 6351 4259

🌐 www.lithgow.nsw.gov.au
✉ council@lithgow.nsw.gov.au

✉ ADDRESS CORRESPONDENCE
TO GENERAL MANAGER
PO BOX 19, LITHGOW NSW 2790

SEPP No. 22 - Shops And Commercial Premises

SEPP No. 30 – Intensive Agriculture

SEPP No. 32 - Urban Consolidation (Redevelopment Of Urban Land)

SEPP No. 33 - Hazardous And Offensive Development

SEPP No. 36 – Manufactured Homes Estates

SEPP No. 44 - Koala Habitat Protection

SEPP No. 55 – Remediation Of Land

SEPP No. 60 – Exempt And Complying Development

SEPP No. 64 – Advertising And Signage

SEPP No. 65 – Design Quality Of Residential Flat Development

SEPP (Affordable Rental Housing) 2009

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (Exempt And Complying Development Codes) 2008

SEPP (Housing For Seniors or People With a Disability) 2004

SEPP (Infrastructure) 2007

SEPP (Major Development) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Rural Lands) 2008

SEPP (State and Regional Development) 2011

SEPP (Temporary Structures) 2007

SEPP (Sydney Drinking Water Catchment) 2011

A copy of the SEPPs are available on the NSW Legislation website- www.legislation.nsw.gov.au

The following draft State Environmental Planning Policies apply to the land:

Draft SEPP (Competition) 2010

SEPP 65 Design Quality of Residential Flat Development Review

A copy of the draft SEPPs are available on the NSW Department of Planning Website under 'Development' and 'On exhibition'- <http://www.planning.nsw.gov.au/>

- (2) The name of each proposed planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposal instrument has been deferred indefinitely or has not been approved):**

Nil.

- (3) The name of each development control plan that applies to the carrying out on development on the land:**

Development Control Plan- Off Street Car Parking
Development Control Plan- Bed & Breakfast
Development Control Plan- Outdoor Advertising
Development Control Plan- Poultry
Development Control Plan- Animal Boarding and Training Establishments

If you require a copy of any Development Control Plan please contact Council, download from Councils website (www.council.lithgow.com) or alternatively, documentation can be found at Council chambers.

Additionally, the following Drafts may be applicable to the land:

Draft Lithgow Heritage Development Control Plan Study

2. Zoning and land use under relevant LEPs

(a) Identify the zone:

1(a) RURAL (GENERAL)

The objective of the zone are:

(a) protecting, enhancing and conserving:

- (i) rural land, in particular prime crop and pasture land, in a manner which sustains its efficient and effective agricultural production potential;
- (ii) soil, by controlling and locating development in accordance with soil capability;
- (iii) forests of existing and potential commercial value for timber production;
- (iv) valuable deposits of minerals, coal and extractive materials, by controlling the location of development for other purposes in order to ensure the efficient extraction of those deposits;
- (v) trees and other vegetation in environmentally sensitive areas, where the conservation of the vegetation is significant for scenic amenity or natural wildlife habitat or is likely to control land degradation;
- (vi) water resources for use in the public interest, preventing the pollution of water supply catchment and major water storages;
- (vii) localities of significance for nature conservation, including places with rare plants, wetlands and significant wildlife habitat; and
- (viii) items of heritage significance;

(b) preventing the unjustified development of prime crop and pasture land for purposes other than agriculture;

(c) facilitating farm adjustments;

(d) minimising the cost to the community of:

- (i) fragmented and isolated development of rural land; and
- (ii) providing, extending and maintaining public amenities and services;

(e) providing land for other non-agricultural purposes, in accordance with the need for that development; and

(f) providing for the separation of conflicting land uses.

(b) Development that may be carried out within the zone without the need for development consent:

Development for the purpose of agriculture (other than intensive livestock keeping establishments or ancillary dwellings); bushfire hazard reduction; forestry (other than ancillary dwellings); home-based child care.

(c) Development that may not be carried out within the zone except with development consent:

Any development except that permitted without consent or prohibited.

(d) Development that is prohibited within the zone:

Development for the purpose of boarding houses; bulky goods salesrooms and show-rooms; commercial premises; home occupation (sex services); motor show-rooms; residential units; restricted premises; sex services premises; shops (other than general stores).

(e) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling- house on the land and, if so, the minimum land dimensions so fixed:

If the land is vacant see Annexure "A".

Not applicable if a dwelling is constructed on the land.

(f) Whether the land includes or comprises of critical habitat:

No.

(g) Whether the land is in a conservation area (however described):

No.

(h) Whether an item of environmental heritage (however described) is situated on the land:

No.

2A. Zoning and land use under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*

Is the land zoned under Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (SEPP 2006)*, or a Precinct Plan (within the meaning of SEPP 2006), or a proposed Precinct Plan that is or has been the subject of community consultation or on public consultation?

No.

3. Complying Development

- (1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*:**

NO - Complying development may not be carried out on the subject land under the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* does not apply.

- (2) If complying development may not be carried out on that land because of the provisions of clause 1.17A (c) and (d) and 1.19 of that Policy, the reasons why it may not be carried out under that clause:**

Complying development may not be carried out on the land under Clause 1.19(6)(i) of the SEPP because the land or part thereof is known to be unsewered land to which the State Environmental Planning Policy (Sydney Drinking Water Catchment) 2001 applies.

Note: If the land is a lot to which the Rural Housing Code (within the meaning of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* applies, complying development may be carried out on any part of the lot that is not affected by the provisions of clause 1.19 of that Policy.

4. Coastal Protection

Not applicable to Lithgow City Council Local Government Area.

4A. Certain information relating to beaches and coasts

Not applicable to Lithgow City Council Local Government Area.

4B. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

Not applicable to Lithgow City Council Local Government Area.

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of Section 15 of *The Mines Subsidence Compensation Act, 1961*:

No.

6. Road widening and road realignment

Whether or not the land affected by any road widening or road realignment under:

- a) Division 2 of Part 3 of the *Roads Act 1993*, or**
- 2) any environmental planning instrument, or**
- 3) any resolution of council:**

Not known as it is Roads and Traffic Authority (RTA) controlled road - please contact the Roads and Traffic Authority.

7. Council and other public authority policies on hazard risk restrictions

Whether land is affected by a policy:

- a) adopted by council, or
 - b) adopted by another public authority and notified to council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,
- that restricts the development of the land because of the likelihood of landslip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding):**

No.

7A. Flood related development controls information

- (1) Whether or not development on the land or part of the land for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purpose of group homes or seniors housing) is subject to flood related development controls:**

No.

- (2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls:**

No.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provisions in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act:

No.

9. Contributions Plans

The name of each contributions plan applying to the land:

Section 94 Contribution Plans apply to coal related developments and to certain developments in 1(a),1(c),1(d), 1(f) and 1(e) rural zonings with respect to Rural Roads and Rural Fire Services. For further details please contact Council.

9A. Biodiversity Certified Land

If the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*):

No.

10. Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates (but only if the Council has been notified of the existence of the agreement by the Director- General of the Department of Environment, Climate Change and Water):

No.

11. Bush Fire Prone Land

If any of the land is bush fire prone land (as defined in the Act):

Yes - The land is partially bushfire prone in Council's records.

12. Property Vegetation Plans

If the land is land to which a property vegetation plan under *The Native Vegetation Act 2003* applies (but only if Council has been notified of the existence of the plan by the person or body that approved the plan under that Act):

No.

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the Council has been notified of the order):

No.

14. Directions under Part 3A

Is there a direction by the Minister in force under Section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect:

No.

15. Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning policy (Housing for Seniors or People with a Disability) 2004* applies:

No.

16. Site compatibility certificates for infrastructure

If the land is land to which a certificate was issued under *State Environmental Planning Policy (Infrastructure)*:

No.

17. Site compatibility certificates and conditions for affordable rental housing

If the land is land to which a site compatibility certificate was issued under *State Environmental Planning Policy (Affordable Rental Housing)* :

No.

NOTE:

The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

Is the land significantly contaminated land within the meaning of the Contaminated Land Management Act 1997— or is the land (or part of the land) significantly contaminated land at the date when the certificate is issued?

No.

Is the land subject to a management order within the meaning of the Contaminated Land Management Act 1997— or is the land subject to such an order at the date when the certificate is issued?

No.

Is the land subject of an approved voluntary management proposal within the meaning of Contaminated Land Management Act 1997— or is the land subject to such an order at the date when the certificate is issued?

No.

Is the land to subject to an ongoing maintenance order within the meaning of Contaminated Land Management Act 1997— or is the land subject to such an order at the date when the certificate is issued?

No.

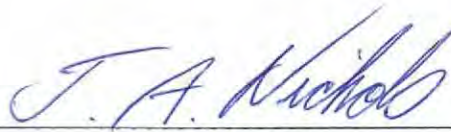
Is the land to subject of a site audit statement within the meaning of Contaminated Land Management Act 1997— or has a copy of such a statement been provided to council?

No.

The following matter is prescribed by Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 as additional matters that are to be specified in a planning certificate:

Has the NSW Infrastructure Co-ordinator general issued any exemption pursuant to Section 23 of the National Building and Jobs Plan (State Infrastructure Delivery) Act 2009 or an Authorisation pursuant to Section 24 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 (of which Council is aware):

No.



for Roger Bailey
GENERAL MANAGER
LITHGOW CITY COUNCIL

For any further information, please contact the Environment & Development Department on (02) 63549989.

DISCLAIMER

THIS SECTION 149 CERTIFICATE CONTAINS INFORMATION PROVIDED TO LITHGOW CITY COUNCIL BY OTHER AUTHORITIES AND IS AS CURRENT AS THE LATEST INFORMATION AVAILABLE TO COUNCIL AT THE TIME OF PRODUCTION OF THIS DOCUMENT. IT IS STRONGLY RECOMMENDED THAT YOU CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE ACCURACY OF THE INFORMATION.

SECTION 149(5) ADVICE

(a) Is the land affected by a Tree Preservation Order?	Council has adopted a Tree Preservation Order for public lands only. See attached Tree Preservation Order.
(b) Has any development consent with respect to the land been granted within the previous five years?	NO
(c) Additional information	Lithgow City Council recently adopted the Land Use Strategy 2010-2030 . Information on the document can be obtained by contacting Council, or on Council's website from the 22 December 2011.
	Threatened species and Endangered Ecological Communities currently exist within the Lithgow Local Government Area. Information on species reported and their localities can be found on the NSW Office of Environment and Heritage website below: http://www.environment.nsw.gov.au/wildlifeatlas/about.htm

LITHGOW CITY COUNCIL

Tree Preservation Order

- a) The Council of the City of Lithgow, for the purpose of preserving existing amenity and protection of the natural environment, hereby makes a Tree Preservation Order pursuant to the provisions of the Environmental Planning Assessment Act 1979.
- b) This Tree Preservation Order prohibits the ringbarking, cutting down, lopping, topping, removal or any other activity that may result in the demise of any tree situated on public property, including the application of herbicides, transplanting and/or pruning, without the prior written consent of Council. Public property shall include all Council owned land including parks, reserves and road reserves, land owned by the Crown, any Government Authority or State owned Corporation but excluding any specific exemptions under the Environmental Planning and Assessment Model Provisions or any other Act.
- c) This Tree Preservation Order relates to all trees on public land with a height of greater than four metres and a spread of greater than three metres or a trunk circumference of greater than 300mm measured at one metre above the ground. This Order applies to all trees and categories of trees which do not come under the jurisdictions of other acts.
- d) Any trees approved by Council for removal under this Order shall be replaced by at least one other tree of reasonable size which shall be maintained until it is mature. This condition may not apply where Council deems that such action is inappropriate.
- e) Any person who contravenes or causes or permits to be contravened the provisions of this Tree Preservation Order shall be guilty of an offence and liable to prosecution.

May 1997 (amended March 2000)

ANNEXURE "A"

Local Environmental Plan 1994 Gazetted 2 December 1994

SUBDIVISION IN ZONE NO 1 (a)

12. (1) General restriction

The Council may consent to a subdivision of land within Zone No 1 (a) in accordance with subclause (2). Such a consent can be granted only if the land to be subdivided does not comprise the whole or any part of an allotment or portion of land previously subdivided in accordance with a consent granted after the commencement of this plan. However, a further subdivision under subclause (2) may be permitted to a parcel of land notwithstanding that a previous subdivision has been approved under that subclause.

(2) Creation of "40 hectare allotments"

The Council may consent to a subdivision of land within Zone No 1 (a) if each allotment to be created by the subdivision will have an area of not less than 40 hectares.

(3)-(5) (Repealed)

(6) Exception for subdivisions to allow agriculture

Nothing in this clause prevents the Council from granting consent to the creation of an allotment of vacant land of any area if the Council is satisfied that the allotment will be used for the purpose of agriculture. The Council may decline to grant consent pursuant to this subclause if it has not been satisfied that agricultural production will be viable on any proposed allotment that will have an area of less than 40 hectares.

SUBDIVISION IN ZONE 1 (e)

- 12A. The Council must not grant development consent for the subdivision of land within Zone 1 (e) unless each lot to be created by the subdivision will have an area of at least 100 hectares.

SUBDIVISION FOR RESIDENTIAL PURPOSES IN ZONE NO 1 (C)

14. (1) The Council may consent to the subdivision of land within Zone No 1 (c) for the purpose of a dwelling if it is satisfied that:
- (a) each allotment to be created will have an area of not less than 1 hectare,
 - (b) after the subdivision, the average area of the allotments that have been and will be created from the existing holding concerned by all subdivisions, including all allotments created since 8 May 1992 and those effected in accordance with this clause will be not less than 2 hectares,
 - (c) a geotechnical survey indicates the capacity of the land for septic disposal of effluent within the boundaries of each allotment or a water balance assessment indicates that effluent can be disposed of within the boundaries of each allotment using domestic aerated sewerage or similar treatment,
 - (d) the land capability is classified as predominantly Class I to V, inclusive, as defined on maps prepared by the Department of Conservation and Land Management and deposited in the office of the Council,
 - (e) appropriate measures will be undertaken to prevent pollution of water catchment areas from each allotment,
 - (f) appropriate measures will be taken to control soil erosion and stormwater flows across each allotment or onto adjoining land,
 - (g) the subdivision is so arranged that the number of new vehicular access points to main roads is minimised,
 - (h) adequate measures will be taken, in relation to each allotment, for the provision of a water supply, power supply, access and disposal of domestic waste water, and
 - (i) development on each allotment is unlikely to be exposed to significant risks from natural hazards, or to increase those risks to other land.

ANNEXURE "A" cont

DEVELOPMENT IN ZONE NO. 1(d)

15. (1) The Council may consent to the subdivision of land in Zone No. 1(d) to create allotments it is satisfied will be used for the purposes of a dwelling only if each allotment has an area of not less than 10 hectares.
- (2) In determining any application for consent to development in Zone No. 1(d), the Council must consider:
- a) the strategic implications of the development on likely future land use patterns;
 - b) the relationship to surrounding uses;
 - c) provision for the effective disposal of solid and liquid waste; and
 - d) the availability of suitable zoned land elsewhere in the City.

ERECTION OF A DWELLING IN ZONE NO 1 (a)

17. The Council may consent to the erection of a dwelling on land within Zone No 1 (a) which is:
- (a) 40 hectares or more in area, or
 - (b) the whole of an existing holding, or
 - (c) an allotment less than 40 hectares in area created under clause 12 (6) provided that the agricultural use of the land has been established and the Council is satisfied that the agricultural use requires the residential occupation of the site,
 - (d) (Repealed)
 - (e) an allotment created by a subdivision consented to or approved by the Council prior to the gazettal of this Plan, being an allotment on which a dwelling could have been lawfully erected or consented to immediately before that gazettal, but only if any requirements relating to use or occupation of the dwelling are complied with.

DWELLING ENTITLEMENTS ON EXISTING CONCESSIONAL LOTS

- 17A. The amendment of this Plan by the State Environmental Planning Policy (Rural Lands) 2008 does not affect any entitlement arising under a provision of this Plan (as in force before that amendment) to erect a dwelling-house on a lot, if:
- (a) the lot was created before that commencement, or
 - (b) development consent to the creation of the lot was applied for, or granted, before that commencement.

ERECTION OF A DWELLING IN ZONE NO 1 (c)

18. The Council may consent to the erection of a dwelling on a separate, existing parcel of land in Zone No 1 (c), provided that the land is greater than one hectare in area and that the parcel meets the requirements for an allotment created by a subdivision of land within that zone after the commencement of this Plan.

ERECTION OF A DWELLING IN ZONE NO 1 (e)

- 18A. The Council must not consent to the erection of a dwelling on vacant land within Zone No. 1 (e) unless the land has an area of at least 100 hectares

DEFINITION OF EXISTING HOLDING

6. "existing holding" means:
- (a) except as provided by paragraph (b), the area of a lot, portion or parcel of land as it was as at the date of gazettal of this Plan;
 - (b) if, as at the date of gazettal of this Plan, a person owned two or more adjoining or adjacent lots, portions or parcels of land, the combined area of these lots, portions or parcels as they were on that date.



FOSTER & FOSTER PTY LTD T/A PROPERTY ENQUIRY SERVICES
G P O BOX 980
SYDNEY NSW 2001

PLANNING CERTIFICATE UNDER SECTION 149, ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CERTIFICATE NO: 149(5)-11-0118

YOUR REF: F72169(60240972)
RECEIPT NO: 233643

PROPERTY NO: 104924
ISSUE DATE: 07/02/2012

PROPERTY ADDRESS: PINEDALE COLLIERY CASTLEREAGH HIGHWAY BLACKMANS FLAT
NSW 2790
OWNER: ENHANCE PLACE PTY LTD

LAND PARCEL DESCRIPTIONS: Part Lot 37 DP 827626

**IN ACCORDANCE WITH SECTION 149(2) OF THE ENVIRONMENTAL PLANNING AND
ASSESSMENT ACT, 1979, IT IS CERTIFIED THAT AT THE DATE OF THIS CERTIFICATE THE
FOLLOWING PRESCRIBED MATTERS RELATE TO THE LAND:**

1. Names of relevant planning instruments and DCPs

- (1) The name of each planning instrument that applies to the carrying out of
development on the land:**

LITHGOW CITY LOCAL ENVIRONMENTAL PLAN 1994

Zone: 1(a) Rural (General)

**Further, the following State Environmental Planning Policy, or draft State
Environmental Planning Policy of which the minister has notified the council apply to
the land?**

SEPP No. 1—Development Standards

SEPP No. 4- Development Without Consent & Miscellaneous Complying Development

SEPP No. 6—Number Of Storeys In A Building

SEPP No. 15 - Rural Land-Sharing Communities

SEPP No. 21 - Caravan Parks

☎ (02) 6354 9999
📠 (02) 6351 4259

🌐 www.lithgow.nsw.gov.au
✉ council@lithgow.nsw.gov.au

✉ ADDRESS CORRESPONDENCE
TO GENERAL MANAGER
PO BOX 19, LITHGOW NSW 2790

SEPP No. 22 - Shops And Commercial Premises

SEPP No. 30 – Intensive Agriculture

SEPP No. 32 - Urban Consolidation (Redevelopment Of Urban Land)

SEPP No. 33 - Hazardous And Offensive Development

SEPP No. 36 – Manufactured Homes Estates

SEPP No. 44 - Koala Habitat Protection

SEPP No. 55 – Remediation Of Land

SEPP No. 60 – Exempt And Complying Development

SEPP No. 64 – Advertising And Signage

SEPP No. 65 – Design Quality Of Residential Flat Development

SEPP (Affordable Rental Housing) 2009

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (Exempt And Complying Development Codes) 2008

SEPP (Housing For Seniors or People With a Disability) 2004

SEPP (Infrastructure) 2007

SEPP (Major Development) 2005

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Rural Lands) 2008

SEPP (State and Regional Development) 2011

SEPP (Temporary Structures) 2007

SEPP (Sydney Drinking Water Catchment) 2011

A copy of the SEPPs are available on the NSW Legislation website- www.legislation.nsw.gov.au

The following draft State Environmental Planning Policies apply to the land:

Draft SEPP (Competition) 2010

SEPP 65 Design Quality of Residential Flat Development Review

A copy of the draft SEPPs are available on the NSW Department of Planning Website under 'Development' and 'On exhibition'- <http://www.planning.nsw.gov.au/>

- (2) The name of each proposed planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director- General has notified the council that the making of the proposal instrument has been deferred indefinitely or has not been approved):**

Nil.

- (3) The name of each development control plan that applies to the carrying out on development on the land:**

Development Control Plan- Off Street Car Parking

Development Control Plan- Bed & Breakfast

Development Control Plan- Outdoor Advertising

Development Control Plan- Poultry

Development Control Plan- Animal Boarding and Training Establishments

If you require a copy of any Development Control Plan please contact Council, download from Councils website (www.council.lithgow.com) or alternatively, documentation can be found at Council chambers.

Additionally, the following Drafts may be applicable to the land:

Draft Lithgow Heritage Development Control Plan Study

2. Zoning and land use under relevant LEPs

(a) Identify the zone:

1(a) RURAL (GENERAL)

The objective of the zone are:

(a) protecting, enhancing and conserving:

- (i) rural land, in particular prime crop and pasture land, in a manner which sustains its efficient and effective agricultural production potential;
- (ii) soil, by controlling and locating development in accordance with soil capability;
- (iii) forests of existing and potential commercial value for timber production;
- (iv) valuable deposits of minerals, coal and extractive materials, by controlling the location of development for other purposes in order to ensure the efficient extraction of those deposits;
- (v) trees and other vegetation in environmentally sensitive areas, where the conservation of the vegetation is significant for scenic amenity or natural wildlife habitat or is likely to control land degradation;
- (vi) water resources for use in the public interest, preventing the pollution of water supply catchment and major water storages;
- (vii) localities of significance for nature conservation, including places with rare plants, wetlands and significant wildlife habitat; and
- (viii) items of heritage significance;

(b) preventing the unjustified development of prime crop and pasture land for purposes other than agriculture;

(c) facilitating farm adjustments;

(d) minimising the cost to the community of:

- (i) fragmented and isolated development of rural land; and
- (ii) providing, extending and maintaining public amenities and services;

(e) providing land for other non-agricultural purposes, in accordance with the need for that development; and

(f) providing for the separation of conflicting land uses.

(b) Development that may be carried out within the zone without the need for development consent:

Development for the purpose of agriculture (other than intensive livestock keeping establishments or ancillary dwellings); bushfire hazard reduction; forestry (other than ancillary dwellings); home-based child care.

(c) Development that may not be carried out within the zone except with development consent:

Any development except that permitted without consent or prohibited.

(d) Development that is prohibited within the zone:

Development for the purpose of boarding houses; bulky goods salesrooms and show-rooms; commercial premises; home occupation (sex services); motor show-rooms; residential units; restricted premises; sex services premises; shops (other than general stores).

(e) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling- house on the land and, if so, the minimum land dimensions so fixed:

If the land is vacant see Annexure "A".
Not applicable if a dwelling is constructed on the land.

(f) Whether the land includes or comprises of critical habitat:

No.

(g) Whether the land is in a conservation area (however described):

No.

(h) Whether an item of environmental heritage (however described) is situated on the land:

No.

2A. Zoning and land use under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*

Is the land zoned under Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (SEPP 2006)*, or a Precinct Plan (within the meaning of SEPP 2006), or a proposed Precinct Plan that is or has been the subject of community consultation or on public consultation?

No.

3. Complying Development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*:

NO - Complying development may not be carried out on the subject land under the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* does not apply.

(2) If complying development may not be carried out on that land because of the provisions of clause 1.17A (c) and (d) and 1.19 of that Policy, the reasons why it may not be carried out under that clause:

Complying development may not be carried out on the land under Clause 1.19(6)(i) of the SEPP because the land or part thereof is known to be unsewered land to which the State Environmental Planning Policy (Sydney Drinking Water Catchment) 2001 applies.

Note: If the land is a lot to which the Rural Housing Code (within the meaning of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* applies, complying development may be carried out on any part of the lot that is not affected by the provisions of clause 1.19 of that Policy.

4. Coastal Protection

Not applicable to Lithgow City Council Local Government Area.

4A. Certain information relating to beaches and coasts

Not applicable to Lithgow City Council Local Government Area.

4B. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

Not applicable to Lithgow City Council Local Government Area.

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of Section 15 of *The Mines Subsidence Compensation Act, 1961*:

No.

6. Road widening and road realignment

Whether or not the land affected by any road widening or road realignment under:

- a) Division 2 of Part 3 of the *Roads Act 1993*, or**
- 2) any environmental planning instrument, or**
- 3) any resolution of council:**

Not known as it is Roads and Traffic Authority (RTA) controlled road - please contact the Roads and Traffic Authority.

7. Council and other public authority policies on hazard risk restrictions

Whether land is affected by a policy:

- a) adopted by council, or
 - b) adopted by another public authority and notified to council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,
- that restricts the development of the land because of the likelihood of landslip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding):

No.

7A. Flood related development controls information

- (1) Whether or not development on the land or part of the land for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purpose of group homes or seniors housing) is subject to flood related development controls:**

No.

- (2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls:**

No.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provisions in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act:

No.

9. Contributions Plans

The name of each contributions plan applying to the land:

Section 94 Contribution Plans apply to coal related developments and to certain developments in 1(a),1(c),1(d), 1(f) and 1(e) rural zonings with respect to Rural Roads and Rural Fire Services. For further details please contact Council.

9A. Biodiversity Certified Land

If the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*):

No.

10. Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates (but only if the Council has been notified of the existence of the agreement by the Director- General of the Department of Environment, Climate Change and Water):

No.

11. Bush Fire Prone Land

If any of the land is bush fire prone land (as defined in the Act):

Yes - The land is partially bushfire prone in Council's records.

12. Property Vegetation Plans

If the land is land to which a property vegetation plan under *The Native Vegetation Act 2003* applies (but only if Council has been notified of the existence of the plan by the person or body that approved the plan under that Act):

No.

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the Council has been notified of the order):

No.

14. Directions under Part 3A

Is there a direction by the Minister in force under Section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect:

No.

15. Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning policy (Housing for Seniors or People with a Disability) 2004* applies:

No.

16. Site compatibility certificates for infrastructure

If the land is land to which a certificate was issued under *State Environmental Planning Policy (Infrastructure)*:

No.

17. Site compatibility certificates and conditions for affordable rental housing

If the land is land to which a site compatibility certificate was issued under *State Environmental Planning Policy (Affordable Rental Housing)* :

No.

NOTE:

The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

Is the land significantly contaminated land within the meaning of the *Contaminated Land Management Act 1997*— or is the land (or part of the land) significantly contaminated land at the date when the certificate is issued?

No.

Is the land subject to a management order within the meaning of the *Contaminated Land Management Act 1997*— or is the land subject to such an order at the date when the certificate is issued?

No.

Is the land subject of an approved voluntary management proposal within the meaning of *Contaminated Land Management Act 1997*— or is the land subject to such an order at the date when the certificate is issued?

No.

Is the land to subject to an ongoing maintenance order within the meaning of *Contaminated Land Management Act 1997*— or is the land subject to such an order at the date when the certificate is issued?

No.

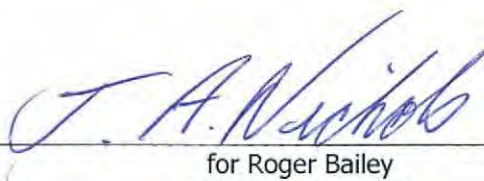
Is the land to subject of a site audit statement within the meaning of *Contaminated Land Management Act 1997*— or has a copy of such a statement been provided to council?

No.

The following matter is prescribed by Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 as additional matters that are to be specified in a planning certificate:

Has the NSW Infrastructure Co-ordinator general issued any exemption pursuant to Section 23 of the National Building and Jobs Plan (State Infrastructure Delivery) Act 2009 or an Authorisation pursuant to Section 24 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 (of which Council is aware):

No.



for Roger Bailey
GENERAL MANAGER
LITHGOW CITY COUNCIL

For any further information, please contact the Environment & Development Department on (02) 63549989.

DISCLAIMER

THIS SECTION 149 CERTIFICATE CONTAINS INFORMATION PROVIDED TO LITHGOW CITY COUNCIL BY OTHER AUTHORITIES AND IS AS CURRENT AS THE LATEST INFORMATION AVAILABLE TO COUNCIL AT THE TIME OF PRODUCTION OF THIS DOCUMENT. IT IS STRONGLY RECOMMENDED THAT YOU CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE ACCURACY OF THE INFORMATION.

SECTION 149(5) ADVICE

(a) Is the land affected by a Tree Preservation Order?	Council has adopted a Tree Preservation Order for public lands only. See attached Tree Preservation Order.
(b) Has any development consent with respect to the land been granted within the previous five years?	NO
(c) Additional information	Lithgow City Council recently adopted the Land Use Strategy 2010-2030 . Information on the document can be obtained by contacting Council, or on Council's website from the 22 December 2011.
	Threatened species and Endangered Ecological Communities currently exist within the Lithgow Local Government Area. Information on species reported and their localities can be found on the NSW Office of Environment and Heritage website below: http://www.environment.nsw.gov.au/wildlifeatlas/about.htm

LITHGOW CITY COUNCIL

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- c) This Tree Preservation Order relates to all trees on public land with a height of greater than four metres and a spread of greater than three metres or a trunk circumference of greater than 300mm measured at one metre above the ground. This Order applies to all trees and categories of trees which do not come under the jurisdictions of other acts.
- d) Any trees approved by Council for removal under this Order shall be replaced by at least one other tree of reasonable size which shall be maintained until it is mature. This condition may not apply where Council deems that such action is inappropriate.
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May 1997 (amended March 2000)

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(2) Creation of "40 hectare allotments"

The Council may consent to a subdivision of land within Zone No 1 (a) if each allotment to be created by the subdivision will have an area of not less than 40 hectares.

(3)-(5) (Repealed)

(6) Exception for subdivisions to allow agriculture

Nothing in this clause prevents the Council from granting consent to the creation of an allotment of vacant land of any area if the Council is satisfied that the allotment will be used for the purpose of agriculture. The Council may decline to grant consent pursuant to this subclause if it has not been satisfied that agricultural production will be viable on any proposed allotment that will have an area of less than 40 hectares.

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14. (1) The Council may consent to the subdivision of land within Zone No 1 (c) for the purpose of a dwelling if it is satisfied that:
- (a) each allotment to be created will have an area of not less than 1 hectare,
 - (b) after the subdivision, the average area of the allotments that have been and will be created from the existing holding concerned by all subdivisions, including all allotments created since 8 May 1992 and those effected in accordance with this clause will be not less than 2 hectares,
 - (c) a geotechnical survey indicates the capacity of the land for septic disposal of effluent within the boundaries of each allotment or a water balance assessment indicates that effluent can be disposed of within the boundaries of each allotment using domestic aerated sewerage or similar treatment,
 - (d) the land capability is classified as predominantly Class I to V, inclusive, as defined on maps prepared by the Department of Conservation and Land Management and deposited in the office of the Council,
 - (e) appropriate measures will be undertaken to prevent pollution of water catchment areas from each allotment,
 - (f) appropriate measures will be taken to control soil erosion and stormwater flows across each allotment or onto adjoining land,
 - (g) the subdivision is so arranged that the number of new vehicular access points to main roads is minimised,
 - (h) adequate measures will be taken, in relation to each allotment, for the provision of a water supply, power supply, access and disposal of domestic waste water, and
 - (i) development on each allotment is unlikely to be exposed to significant risks from natural hazards, or to increase those risks to other land.

ANNEXURE "A" cont

DEVELOPMENT IN ZONE NO. 1(d)

15. (1) The Council may consent to the subdivision of land in Zone No. 1(d) to create allotments it is satisfied will be used for the purposes of a dwelling only if each allotment has an area of not less than 10 hectares.
- (2) In determining any application for consent to development in Zone No. 1(d), the Council must consider:
- a) the strategic implications of the development on likely future land use patterns;
 - b) the relationship to surrounding uses;
 - c) provision for the effective disposal of solid and liquid waste; and
 - d) the availability of suitable zoned land elsewhere in the City.

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- (a) 40 hectares or more in area, or
 - (b) the whole of an existing holding, or
 - (c) an allotment less than 40 hectares in area created under clause 12 (6) provided that the agricultural use of the land has been established and the Council is satisfied that the agricultural use requires the residential occupation of the site,
 - (d) (Repealed)
 - (e) an allotment created by a subdivision consented to or approved by the Council prior to the gazettal of this Plan, being an allotment on which a dwelling could have been lawfully erected or consented to immediately before that gazettal, but only if any requirements relating to use or occupation of the dwelling are complied with.

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- 17A. The amendment of this Plan by the State Environmental Planning Policy (Rural Lands) 2008 does not affect any entitlement arising under a provision of this Plan (as in force before that amendment) to erect a dwelling-house on a lot, if:
- (a) the lot was created before that commencement, or
 - (b) development consent to the creation of the lot was applied for, or granted, before that commencement.

ERECTION OF A DWELLING IN ZONE NO 1 (c)

18. The Council may consent to the erection of a dwelling on a separate, existing parcel of land in Zone No 1 (c), provided that the land is greater than one hectare in area and that the parcel meets the requirements for an allotment created by a subdivision of land within that zone after the commencement of this Plan.

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- 18A. The Council must not consent to the erection of a dwelling on vacant land within Zone No. 1 (e) unless the land has an area of at least 100 hectares

DEFINITION OF EXISTING HOLDING

6. "existing holding" means:
- (a) except as provided by paragraph (b), the area of a lot, portion or parcel of land as it was as at the date of gazettal of this Plan;
 - (b) if, as at the date of gazettal of this Plan, a person owned two or more adjoining or adjacent lots, portions or parcels of land, the combined area of these lots, portions or parcels as they were on that date.

Appendix E

Historical Water Quality Monitoring Results for selected locations

Data Entry: SH CML
 Data Review:
 AECOM

12/12/2012
 Page 1 of 3

Data Entry: SH CML
Data Review:
AECOM

12/12/2012
Page 2 of 3

60240972_TableE1.xlsm

[illegible]

- Site Specific Target Values were developed by GHD (2012), and were intended for comparison to water quality data from Wangolli Creek downstream monitoring locations only. For comparative reasons however LDP006 results have been compared to the SSTVs also whilst acknowledging that there may be insufficient mixing at this or other monitoring points, to warrant reliable results.
- SSTVs are stated to require 2 years of monthly data (i.e. at least 24 data entries), to calculate a median value to compare with the SSTV. Individual results have been compared with the SSTVs, but for comparison purposes only.
- The Environmental Protection License (EPL) Discharge Limits are intended for application to LDP006 only, however all data was screened against these limits, for comparative purposes only.
- The ANZECC & ARMCANZ 95% Freshwater Trigger Values were applied in all instances; however the ANZECC & ARMCANZ 99% Trigger Value was also applied for bioaccumulative species Mercury and Selenium.

- = not analysed
N/A - median value not counted as <24 data points over two years.

Appendix F

NSW WorkCover Dangerous Goods Search



WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D12/027063
Your Ref: Orla Ferguson

5 March 2012

Attention: Orla Ferguson
AECOM Australia Pty Limited
Level 21,
420 George St
Sydney NSW 2000

Dear Ms Ferguson,

RE SITE: Castlereagh Hwy Blackmans Flat

I refer to your site search request received by WorkCover NSW on 29 February 2012 requesting information on licences to keep dangerous goods for the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licences 35/022735 relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely


Brent Jones
Senior Licensing Officer
Dangerous Goods Notification Team

COLLIERY OPERATION
P O Box 198
Wallerawang NSW 2645
Telephone: (063) 55 7188
Facsimile: (063) 55 1052



Springvale
Coal

SPRINGVALE COAL PTY LIMITED
ACN 052 096 769

SYDNEY OFFICE
Level 9, 80 George Street
PARRAMATTA NSW 2150
Telephone: (02) 689 1899
Facsimile: (02) 635 6805

GO SERVICES

1994

GO SERVICES

PLEASE DELIVER THE FOLLOWING PAGES TO:

FAX NO: (02) 3705999 DATE: 26/10/94
ATTENTION: ANGELA MCLAREN FROM: NEIL WILLIS
COMPANY: MARK COVER

TOTAL NUMBER OF PAGES (INCLUDING THIS COVER SHEET): 1

Please advise the sender immediately if you do not receive all pages

MESSAGE:

ANGELA

RE: LICENCE # 35/022735

FURTHER TO YOUR CORRESPONDENCE 25/8/94, I HAVE
CHECKED WITH WESTERN MAIN REGARDING THE
UNDERGROUND TANK YOU REFERRED TO. I UNDERSTAND
THIS TANK WAS REMOVED IN MAY 1992 AND THE LICENCE
(1993) WAS AMENDED ACCORDINGLY

REGARDS

Neil Willis
MANAGER, SERVICES

CDS 8/01/98

4/12/98

WorkCover New South Wales, 400 Kent Street, Sydney 2000, Telephone (02) 370 5000 ALL MAIL TO LOCKED BAG 10, CLARENCE STREET SYDNEY 2000

Reference



** REMINDER NOTICE **

APPLICATION FOR RENEWAL OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/022735 to 1996. I confirm that all the licence details shown below are correct (amend if necessary).

(Signature)

for: SPRINGVALE COAL P/L

NEIL HUGH WILLIS

(Please print name)

22/9/96

(Date signed)

THIS SIGNED DECLARATION SHOULD BE RETURNED TO:

WorkCover New South Wales
Dangerous Goods Licensing Section (Level-3)
Locked Bag 10
P O CLARENCE STREET

Details of licence on 27 June 1996

Licence Number 35/022735 Expiry Date 12/09/96

Licensee SPRINGVALE COAL P/L ACN 052 096 769

Postal Address BOX 198 P O, WALLERAWANG 2845

Licensee Contact NEIL WILLIS Ph. 063 557188 Fax. 063 551062 557357

Premises Licensed to Keep Dangerous Goods

BLACKMANS FLAT PORTION 42 PARISH OF LIDSDALE
WALLERAWANG 2845

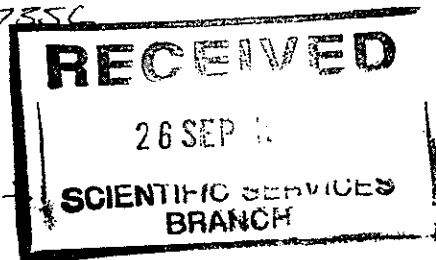
Nature of Site Coal Mining Major Supplier of Dangerous Goods I C I

Emergency Contact for this Site NEIL WILLIS ph. 063 557188 557357

Site staffing 16HRS 5DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	MAGAZINE	Class 1.1d UN 0241 EXPLOSIVE BLASTING TYP	2000 kg 50 kg
2	MAGAZINE	Class 1.1b UN 0029 DETONATORS NON ELECTRI	2000 kg 200 No.





RECEIVED

10 MAY 1993

SCIENTIFIC SERVICES

WORKCOVER AUTHORITY

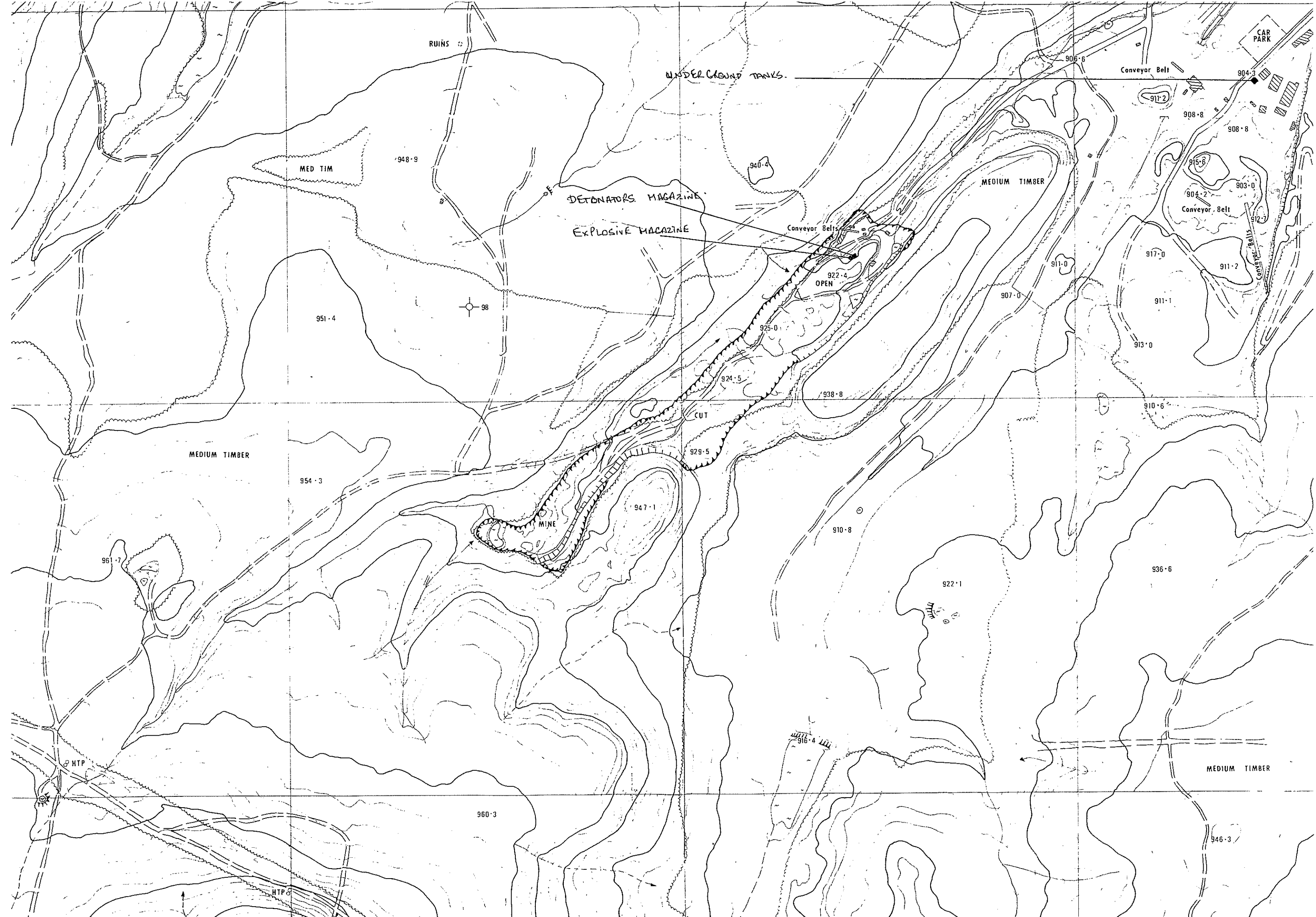
LICENCE TO KEEP DANGEROUS GOODS

(Dangerous Goods Act 1975)

Application for ~~new licence~~ amendment or ~~transfer~~
1/5 CSD 29.6.89

1. Name of applicant		ACN
WESTERN MAIN COLLIERIES P/L		000 044 477
2. Site to be licensed		
No	Street	
	PORTION 42 PARISH OF LIDSDALE	
Suburb/Town		Postcode
BLACKMANS FLAT		2845
3. Previous licence number (if known)		35-022735
4. Nature of site		MINE SITE
5. Emergency contact on site:		SCIENTIFIC SERVICES BRANCH 27 MAY 1993 DANGEROUS GOODS
Phone	Name	
047 878982	PAUL HENSLEY	
6. Site staffing:	Hours per day	Days per week
	16	5
7. Major supplier of dangerous goods		
8. If new site or significant modification		
Plan stamped by:	Accredited consultant's name:	Date stamped
9. Number of dangerous goods depots at site		3
10. Trading name or occupier's name		
WESTERN MAIN COLLIERIES P/L		
11. Postal address of applicant		Suburb/Town
P.O BOX 20		WALLERAWANG
		Postcode
		2845
12. Contact for licence enquiries:		
Phone	Fax	Name
063 5511 02	063 5518 09	MANAGER.
I certify that the details contained in this application (or the accompanying computer disk) are true and correct		
13. Signature of applicant		Date
		10/5/93

Please complete attached site sketch, depot listing and check sheet
(if required) and return to WorkCover Authority in envelope provided.



DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Box R216, Royal Exchange Sydney, N.S.W. 2000 and must be accompanied by the prescribed fee.
- Registration of Premises — For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.
- In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.
- Store Licence, Div. A — For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.
- Store Licence, Div. B (See Regulation 7) — For quantities exceeding 4,000 gallons of mineral spirit, and/or Dangerous Goods of Classes 1 and 2, and/or Dangerous Goods of Class 3.
- For the keeping of Dangerous Goods of Classes 3 and/or 4.

1. Name of occupier including full christian names.

Clutha Development Pty Limited

2. Trading Name (if any)

Locality of the premises in which the depot or depots are situated

No. or Name

Street

Town

LIDSDALE

4. Postal address

5. Occupation

6. Nature of premises (dwelling, garage etc.)

P.O. Box 12, NARELLAN Postcode 2567

colliery proprietors

store

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

PLEASE ATTACH PLAN OF PREMISES

Depot No.	Construction of depots*			Inflammable liquid		Dangerous goods						
	Walls	Roof	Floor	Mineral spirit gallons	Mineral oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gal	Class 5B water gal	Class 9 gallons
	underground tank			5000								
2												
3												
4												
5												
6												
7												
8												
9												
10												

*If product is kept in tanks describe depots as underground or aboveground tanks.

Signature of applicant

J. H. Hyde

Date of application 19

EFB see signature on copy of cheque herein

CERTIFICATE OF INSPECTION

I, Charles James being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Place

Signature of Inspector

Date

PLEASE TURN OVER

alteration or amendment the provisions of the Inflammable Liquid Act, 1915-53, for the ensuing year.
Goods, in accordance with—

EXPLANATORY

Inflammable Liquid—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

**FEES INCORPORATED AS
FROM 1.9.55.**

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, No. 4 Albert Street, off Phillip Street, Circular Quay, Sydney (Box 48, G.P.O.), and must be accompanied by the prescribed fee, as set out hereunder:—

30/- Registration of Premises (Fee, ~~30/-~~).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

65/- Store License, Div. A (Fee, ~~65/-~~).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

7/10/- Store License, Div. B (Fee, ~~7/10/-~~).—For quantities exceeding 4,000 gallons of mineral oil and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.

to \$100. For the keeping of Dangerous Goods of Classes 3 and/or 4. — (See Schedule).

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915-1953, or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... Huon Collieries Ltd. Pty. Ltd.

2. Occupation ... balling Proprietary

3. Locality of the premises in which the depot or depots are situated ...
No. or Name _____
Street _____
Town LIDSBARK N.S.W.

4. Nature of premises (Dwelling, Garage, Store, etc.)... Store & office

5. Will mineral spirit be kept in a prescribed underground tank depot? Yes

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots.			Inflammable Liquid.		Dangerous Goods.			
	Walls.	Roof.	Floor.	Mineral Spirit. Gallons.	Mineral Oil. Gallons.	Class 1. Gallons.	Class 2. Gallons.	Class 3. lb.	Class 4. cub. ft.
1	<u>Underground tank</u>			<u>4000</u>					
2									
3									
4	<u>balter installed - 1/9/55.</u>								
5									
6									
7									
8									
9									
10									

HUON COLLIERIES (EXT.) PTY. LTD.

Date of Application 5/6/56 19

Signature of Applicant [Signature]

Postal Address 44 Argyle St
Launceston

CERTIFICATE OF INSPECTION.

I, John Edwards Leach being an Inspector under the Inflammable Liquid Act, 1915-53, do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Place Wallerawang

Date 5/6/56

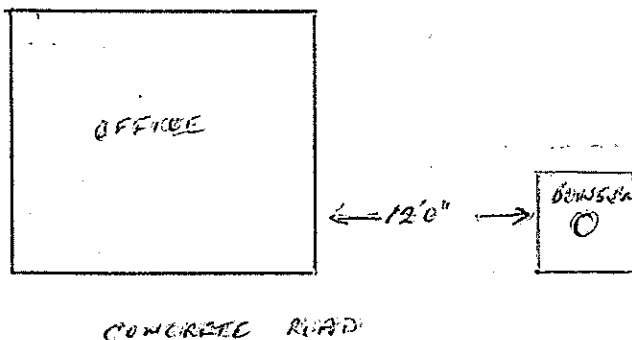
Signature of Inspector [Signature]

(PLEASE TURN OVER)

Make Rough Sketches showing—

Ground plans of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings.

Sketch of depot or depots showing provision made for ventilation, also inside dimension (length, width, and depth) of this pit or lower portion, designed to prevent outflow. This sketch is not required for underground tanks.



TABLES SHOWING DISTANCES WHICH UNDER LICENSE MUST SEPARATE PROTECTED WORKS FROM DEPOTS.

Table I.—Where Mineral Spirit and/or Dangerous Goods of Class 1 (with or without Mineral Oil and/or Dangerous Goods of Class 2) are kept or to be kept :—

In an underground Tank Depot, in quantity exceeding 500 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot, separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
2,000	1,000	250	10
2,400	1,200	300	11
2,800	1,400	350	12
3,200	1,600	400	13
3,600	1,800	450	14
4,000	2,000	500	15
7,200	3,600	900	16
10,400	5,200	1,300	17
13,600	6,800	1,700	18
16,800	8,400	2,100	19
20,000	10,000	2,500	20
22,000	11,000	2,750	21
24,000	12,000	3,000	22
26,000	13,000	3,250	23
28,000	14,000	3,500	24
30,000	15,000	3,750	25
32,000	16,000	4,000	26
40,000	20,000	5,000	30
60,000	40,000	10,000	40
80,000	60,000	20,000	50
100,000 and over.	100,000	40,000	75
	160,000	60,000	100
	320,000 and over.	120,000	115
		240,000	130
		400,000 and over.	150

Table II.—Where Mineral Oil and/or Dangerous Goods of Class 2 only are kept or to be kept :—

5c 8130

In an underground Tank Depot, in quantity exceeding 600 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot separated from protected works by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not separated from protected works by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
4,000	2,000	1,000	10
8,000	4,000	2,000	15
14,400	7,200	3,600	16
20,800	10,400	6,200	17
40,000	20,000	10,000	20
60,000	40,000	20,000	30
100,000	80,000	40,000	40
160,000	160,000	80,000	50
320,000 and over.	320,000 and over.	160,000	75
		320,000 and over.	100

Provided that the distances shown above may be altered proportionately for intermediate quantities.
Protected Works means :

Appendix G

NSW EPA Contaminated Sites Register Search

Rate
this
siteOffice of
Environment
& HeritageYou are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

Site and notice details

Your search for: LGA: Lithgow City Council 4 notices on 3 sites were matched.

[Return to list of search results](#)[Search Again](#)[Refine Search](#)

Area No: 3346

The information below was correct at the time the notices were issued.

Site: ADI Lithgow Small Armaments

Address: Methven Street, Lithgow, 2790

LGA: Lithgow City Council

Occupier: Thales Australia Limited

Owner: Thales Australia Limited

Lot 15 DP 1105442

Notices relating to this site (0 current and 1 former)

(Map) where available, maps show the part of the site affected by the notice

*notice matched search criteria

Notice recipient	Notice type & number	Status	Date
ADI Limited	Agreed Voluntary Remediation Proposal * 26036 Map	Former	Issued 21 Jan 2004 Completed 15 Apr 2009

20 February 2012

Rate
this
siteOffice of
Environment
& HeritageYou are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

Site and notice details

Your search for: LGA: Lithgow City Council 4 notices on 3 sites were matched.

[Return to list of search results](#)[Search Again](#)[Refine Search](#)**Area No: 3178**

The information below was correct at the time the notices were issued.

Site: Hartley Vale Former Shale Oil Refinery

Address: Hartley Vale Road, Hartley Vale, 2790

LGA: Lithgow City Council

Occupier: Name Withheld

Owner: Name Withheld

Lot 3 DP 836542

Lot 52 DP 867197

Notices relating to this site (1 current and 0 former)(Map) where available, maps show the part of the site affected by the notice
*notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Not Applicable	Declaration of Remediation Site ★ 21054 Map	Current	Issued 13 Feb 2004

20 February 2012

Rate
this
siteOffice of
Environment
& HeritageYou are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

Search results

Your search for: LGA: Lithgow City Council

Matched 4 notices
relating to 3 sites.[Search Again](#)[Refine Search](#)

Suburb	Address	Site Name	Notices related to this site
Hartley Vale	Hartley Vale Road	Hartley Vale Former Shale Oil Refinery	1 current
Lithgow	Methven Street	ADI Lithgow Small Armaments	1 former
Portland	Williwa Street	Blue Circle Southern Cement	2 former

Page 1 of 1

20 February 2012

Rate
this
siteOffice of
Environment
& HeritageYou are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

Site and notice details

Your search for: LGA: Lithgow City Council 4 notices on 3 sites were matched.

[Return to list of search results](#)[Search Again](#)[Refine Search](#)

Area No: 3118

The information below was correct at the time the notices were issued.

Site: Blue Circle Southern Cement
 Address: Williwa Street, Portland, 2847
 LGA: Lithgow City Council

Occupier: Blue Circle Southern Cement Ltd
 Owner: Blue Circle Southern Cement Ltd

Lot 1 DP 109595	Lot 2 DP 749903	Lot 3 DP 749905	Lot 4 DP 749906	Lot 5 DP 749907	Lot 6 DP 749908
Lot 7 DP 749909	Lot 104 DP 755769	Lot 174 DP 755769	Lot 52,53 DP 755769	Lot 24/46 DP 758855	Lot 1 DP 842890

Notices relating to this site (0 current and 2 former)

(Map) where available, maps show the part of the site affected by the notice

*notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Blue Circle Southern Cement Ltd	EHC Act Revocation Notice * 528	Former	Issued 06 Oct 1999
Blue Circle Southern Cement Ltd	Section 35 EHC Act Order * 410	Former	Issued 17 Aug 1995 Revoked 06 Oct 1999

20 February 2012

Appendix H

Site Inspection Photographs

PHOTOGRAPHIC LOG

Site Name: Coal Services Property		Site Location: Castlereagh Highway, Blackmans Flat, NSW	Project No: 60240972
Plate No. 1	Date: 19/12/2011		
Direction Photo Taken: South			
Description: Oil and grease shed with staining evident on the concrete floor and external of the shed.			

Plate No. 2	Date: 19/12/2011		
Direction Photo Taken: West			
Description: Waste oil bunded area with staining evident on the hardstand surface and external of the bunded area.			

PHOTOGRAPHIC LOG


Site Name: Coal Services Property		Site Location: Castlereagh Highway, Blackmans Flat, NSW	Project No: 60240972
Plate No. 3	Date: 19/12/2011		
Direction Photo Taken: West			
Description: Waste batteries adjacent to the Workshop at the Pit Top Area. .			

Plate No. 4	Date: 19/12/2011	
Direction Photo Taken: Northwest		
Description: Stockpile of coal overburden in area of former Workshop.		

PHOTOGRAPHIC LOG



Site Name: Coal Services Property		Site Location: Castlereagh Highway, Blackmans Flat, NSW	Project No: 60240972
Plate No. 5	Date: 8/02/2012		
Direction Photo Taken: North west			
Description: Two 15,000 L self bunded ASTs in Workshop area of Pine Dale Mine. No staining was observed in bunded area.			

Plate No. 6	Date: 8/02/2012	
Direction Photo Taken: North		
Description: Chemical storage shed in Workshop Area at Pine Dale Mine.		

PHOTOGRAPHIC LOG

Site Name: Coal Services Property		Site Location: Castlereagh Highway, Blackmans Flat, NSW	Project No: 60240972
Plate No. 7	Date: 8/02/2012		
Direction Photo Taken: West			
Description: Stockpile of fly ash on Pine Dale Mine property.			

Plate No. 8	Date: 8/02/2012		
Direction Photo Taken: West			
Description: Concrete bridge over Wangcol Creek on Pine Dale Mine property, just north of Castlereagh Highway.			

Appendix I

Bore Search Results

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
Document Generated on Wednesday, February 29, 2012
[Works Details](#) [Site Details](#) [Form A](#) [Licensed](#) [Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

[Print Report](#)

Work Requested -- GW101340

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW101340
LIC-NUM 108158010
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Rotary
OWNER-TYPE Private
COMMENCE-DATE 1996-09-05
COMPLETION-DATE 1996-09-05
FINAL-DEPTH (metres) 26.40
DRILLED-DEPTH (metres) 26.50
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GRISA -
GW-ZONE -
STANDING-WATER-LEVEL 2.55
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6305599.00
EASTING 235546.00
LATITUDE 33 21' 13"
LONGITUDE 150 2' 43"
OS-MAP
AMG-ZONE 56
COORD-SOURCE GIS - Geographic Information System
REMARK

Form-A [\[top\]](#)

no details

Licensed [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-DP 19

Construction [\[top\]](#)

Negative depths indicate Above Ground Level/Hole-Pipe/GS-Outside Diameter.
ID Inside Diameter-C Connected/St-Slot Length/Aperure/GS-Grain Size/Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	26.00				
1	1	Casing	(Unknown)	0.00	26.40	50		C: 1.9-2.7m	
1	1	Opening	Slots - Horizontal	21.40	26.40	50		PVC; (Unknown)	
1		Annulus	(Unknown)	2.70	26.40			(Unknown)	

Water Bearing Zones [\[top\]](#)

FROM-DEPTH (metres) TO-DEPTH (metres) THICKNESS (metres) ROCK-CAT-DESC S-W-L D-D-L YIELD TEST-HOLE-DEPTH (metres) DURATION SALINITY

19.80 20.00 0.20 2.55

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL COMMENT
0.00 2.00 2.00		Ft - silty, sandy gravel	
2.00 9.00 7.00		sandstone - low strength interbedded carbonaceous shale and fine sandstone	
9.00 9.20 0.20		coal	
9.20 12.50 3.30		sandstone - high strength fine-grained sandstone coming up as short sections of core (<100). Interbedded high strength	
12.50 14.00 1.50		sandstone coarse-grained, medium to high strength	
14.00 19.80 5.80		sandstone high to very high strength grey quartz, finegrained, 100mm core lengths free from bedding and joint discontnu	
19.80 21.00 1.20		sandstone - dark grey, finegrained, fresh fractured, clay joint infill, 10-30mm spacing	
21.00 26.00 5.00		sandstone - dark grey, fine grained, <20 core sections.	

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
Document Generated on Wednesday, February 29, 2012
[Works Details](#) [Site Details](#) [Form A](#) [Licensed](#) [Construction](#) [Water Bearing Zones](#) [Drillers Log](#)

Work Requested -- GW101341

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW101341
LIC-NUM 1082158032
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Rotary
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 1996-09-05
FINAL-DEPTH (metres) 30.60
DRILLED-DEPTH (metres) 30.60
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL 18.49
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6305590.00
EASTING 234965.00
LATITUDE 33 21' 10"
LONGITUDE 150 2' 40"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE GIS - Geographic Information System
REMARK

Form-A [\[top\]](#)

no details

Licensed [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-DP 19

Construction [\[top\]](#)

Negative depths indicate Below Ground Level/Hole-P Pipe/GS-Casals Diameter.
ID Inside Diameter C-Centered/St-Slot Length/A-Aperture/GS-Grain Size/G-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	30.60				
1	1	Casing	(Unknown)	0.65	30.60			C: 1.35-2.35m	
1	1	Opening	Slots - Horizontal	24.60	30.60			PVC; (Unknown)	
1		Annulus	(Unknown)	2.35	24.65			(Unknown)	

Water Bearing Zones [\[top\]](#)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
22.40	23.00	0.60				18.49			

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 3.50	3.50	FR - rock, gravelly silty sand with clayey pockets		
3.50 5.50	2.00	sandstone - yellow/brown, some iron-intruded bands		
5.50 9.50	4.00	sandstone - light grey, fresh, fine grained, up to 50mm core lengths		
9.50 17.60	8.10	siltstone - (some thin sandstone bands), dark grey banded, light grey, FR M-H thinly laminated		
17.60 19.00	1.40	coal		
19.00 21.00	2.00	sandstone - dark grey-brown, fresh, finegrained, <20 core sections		
21.00 23.70	2.70	sandstone - light grey banded, dark grey, finegrained		
23.70 26.00	2.30	coal - some carbonaceous shale bands		
26.00 28.50	2.50	sandstone - light grey banded dark grey, fine grained		
28.50 30.00	1.50	sandstone - light brown and medium grained, core sections 20-30		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW101342

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW101342
LIC-NUM 108158032
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD Rotary
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 1996-09-05
FINAL-DEPTH (metres) 28.70
DRILLED-DEPTH (metres) 28.70
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL 27.20
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6305370.00
EASTING 234586.00
LATITUDE 33 21' 20"
LONGITUDE 150 2' 25"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE GIS - Geographic Information System
REMARK

Form-A [\[top\]](#)

no details

Licensed [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-DP 19

Construction [\[top\]](#)

Negative depths indicate Below Ground Level(Hole-P) Pipe-OD-Outside Diameter,
ID Inside Diameter-C-Centeral(St-Slot Length-Aperture-OS-Grae-Slot-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	28.70				
1	1	Coating	P.V.C.	0.70	28.70	50		C: 15.4-16.2m	
1	1	Opening	Slots - Horizontal	22.70	28.70	50		PVC	
1		Annulus	(Unknown)	6.20	17.20			(Unknown)	

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 16.00	16.00	Ash		
16.00 27.50	11.50	Coal		
27.50 28.00	0.50	siltsand: dark grey, carbonaceous, fresh <20 core lengths.		

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Groundwater Works Summary

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Work Requested -- GW106737

Works Details [\[top\]](#)

GROUNDWATER NUMBER	GW106737
LIC-NUM	0000116350
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Rotary - Percussion (Down Hole Hammer)
OWNER-TYPE	Misc
COMMENCE-DATE	
COMPLETION-DATE	2004-11-25
FINAL-DEPTH (metres)	90.00
DRILLED-DEPTH (metres)	90.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	IVANHOE COAL PTY LIMITED
GRSA	-
GW-ZONE	-
STANDING-WATER-LEVEL	33.00
SALINITY	
YIELD	0.65

Site Details [\[top\]](#)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	212 - HAWKESBURY RIVER
AREA-DISTRICT	
CMA-MAP	8921-35
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6303098.00
EASTING	238077.00
LATITUDE	33 22' 33"
LONGITUDE	150 4' 35"
OS-MAP	
AMG-ZONE	56
COORD-SOURCE	Unidentified Location
REMARK	

Form-A [\[top\]](#)

COUNTY	COOK
PARISH	LIDSDALE
PORTION-LOT-OP	5/1084545

Licensed [\[top\]](#)

COUNTY	COOK
PARISH	LIDSDALE
PORTION-LOT-OP	5 1084545

Construction [\[top\]](#)

Negative depths indicate Below Ground Level(H-Hole/P-Pipe/OD Outside Diameter).

ID Hole Diameter/C Component/SS drill Length-A-Armure/GS Code-S&O Casing

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	90.00	200			Rotary - Percussion (Down Hole Hammer)
1	1	Casing	PVC Class 9	0.00	90.00	150	132		Riveted and Glued. Sealed on Bottom, Open End
1		Opening	Slits - Horizontal	73.00	96.00	150			PVC Class 9 Casing - Machine Drilled, SL: 150mm, A: 3mm; Riveted and Glued
1		Annulus	Waterworn/Rounded	0.00	90.00				Graded, GS: S-10mm; Q: 2m³

Water Bearing Zones [\[top\]](#)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
84.00	84.50	0.50				33.00	0.65		3.00

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL COMMENT
0.00	0.50	0.50	topsoil
0.50	3.00	2.50	clay
3.00	7.00	4.00	shale
7.00	8.00	1.00	coal
8.00	17.00	9.00	shale
17.00	28.00	11.00	sandstone
28.00	30.00	2.00	coal
30.00	90.00	60.00	shale

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW110158

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW110158
LIC-NUM 1082165533
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2005-10-14
FINAL-DEPTH (metres) 0.00
DRILLED-DEPTH (metres) 0.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE MINE
GRMA -
GW-ZONE -
STANDING-WATER-LEVEL -
SALINITY -
YIELD -

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6304231.00
EASTING 237584.00
LATITUDE 33 22 '0"
LONGITUDE 150 4 20"
GS-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-CP 331827628

Licensed [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-CP CCL 770

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole)P-Fire-OD Outside Diameter.
ID-Hole Diameter(C)Component-ID-Hole Length-A-Average-ID Code-Side-Clearing

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	0.00	125			

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 8.70 8.70		CHATTER BACKFILL MATERIAL CONTAINING GRAVEL,SAND,COAL AND CONCRETE		
8.70 9.00 0.30		WEATHERED SANDSTONE WITH SOME CLAY,BROWN,GREY,HARD,DRY		

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Groundwater Works Summary

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Print Report

Work Requested -- GW110159

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW110159
LIC-NUM 1082165533
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2005-10-13
FINAL-DEPTH (metres) 10.30
DRILLED-DEPTH (metres) 10.30
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE MINE
GRMA -
GW-ZONE -
STANDING-WATER-LEVEL -
SALINITY -
YIELD -

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6304284.00
EASTING 237820.00
LATITUDE 33 21' 59"
LONGITUDE 150 4' 29"
OS-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-CP 331827628

Licensed [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-CP CCL 770

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-High P-Fire)OD Outside Diameter.
ID Inside Diameter(C)Component ID; dist Length-A-Average OD Code: See O-Charting

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	Hole		Hole	0.00	10.30		125		

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 10.20 10.20		CHTA BACKFILL MATERIAL SHALE GRAVEL SAND AND TRACE COAL		
10.30 10.30 0.10		SANDSTONE TO SILTY CLAY BROWN TO LIGHT BROWN/HARD TO DRY		

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Groundwater Works Summary

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Work Requested -- GW110861

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW110861
LIC-NUM 1081035591
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-19
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY ENHANCE COLLIERY
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL -
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303562.00
EASTING 237055.00
LATITUDE 33 22' 21"
LONGITUDE 150 3' 59"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-OP 1/596248

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-OP 3/751651

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Corresponds, S-Slot Length-A-Arrows-GS Code-S&O Grouting

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.00	125			Rotary Air
1		Hole	Hole	6.00	24.00	100			Rotary Air
1	1	Casing	PVC Class 12	0.00	6.00	100	90		Graded, Skotted on Bottom, End cap
1	1	Opening	Slot	21.00	24.00	50			PVC Class 12, Casing - Machine Skotted, Screwed
1		Annulus	Waterworn/Rounded	18.00	24.00				Graded, GS 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 1.00	1.00	TOPSOIL	YELLOW	
1.00 3.00	2.00	CLAYS	YELLOW	
3.00 4.00	1.00	SANDSTONE	YELLOW WEATHERED	
4.00 24.00	20.00	SANDSTONE	SHALE COAL SEAMS	

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Groundwater Works Summary

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Work Requested -- GW111027

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111027
LIC-NUM 1081603551
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2004-02-23
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY ENHANCE COLLIERY
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 179.00
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303549.00
EASTING 230888.00
LATITUDE 33 22' 22"
LONGITUDE 150 3' 56"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 3701751651

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 3 751651

Construction [\[top\]](#)

Negative depths indicate Below Ground Level(H-Hole,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Component,SL-Slot Length,I-Invert,GS-Grade,Sh-O-Opening)

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.90	125			Rotary Air
1		Hole	Hole	6.00	24.00	100			Rotary Air
1	1	Casing	PVC Class 12	0.00	6.00	100	90		Gravel
1	1	Casing	PVC Class 12	0.00	21.00	50	40		
1	1	Opening	Slots	21.00	24.00				PVC Class 12; Casing - Machine Slotted; Screwed
1		Annulus	Waterworn/Rounded	16.00	24.00				Graded, GS: 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 1.00	1.00	TOPSOIL YELLOW		
1.00 3.00	2.00	CLAY YELLOW		
3.00 5.00	2.00	SANDSTONE YELLOW WEATHERED		
5.00 24.00	19.00	COAL SANDSTONE SHALE		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111028

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111028
LIC-NUM 1081603551
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2004-02-23
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY ENHANCE COLLIERY
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 1079.00
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303551.00
EASTING 235645.00
LATITUDE 33 22' 22"
LONGITUDE 150 3' 54"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 3701751651

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 3 751651

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole/P-Pipe/OD Outside Diameter)
ID-Hole Diameter/C-Component Size/Slot Length-A-Arrow/G-G-Gate-S-S-Slotting

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.90	125			Rotary Air
1		Hole	Hole	6.00	24.00	100			Rotary Air
1	1	Casing	PVC Class 12	0.00	6.00	100	90		Graded
1	1	Casing	PVC Class 12	0.00	21.00	50	40		Graded
1	1	Opening	Slots	21.00	24.00		50		PVC Class 12; Casing - Machine Slotted; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GDS 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 1.00	1.00	TOPSOIL YELLOW		
1.00 3.00	2.00	CLAY YELLOW		
3.00 5.00	2.00	SANDSTONE YELLOW WEATHERED		
5.00 24.00	19.00	COAL SANDSTONE SHALES		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111029

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111029
LIC-NUM 1081603591
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-21
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY ENHANCE COLLIERY
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 1240.00
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303594.00
EASTING 237050.00
LATITUDE 33 22' 21"
LONGITUDE 150 3' 58"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 1/159248

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-CP 3.751651

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole/P-Pipe/OD Outside Diameter)
ID-Hole Diameter(C) Component(S) and Length-A-Arrow(G) Code-S&O-Casting

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.90	125			Rotary Air
1		Hole	Hole	6.00	24.00	100			Rotary Air
1	1	Casing	PVC Class 12	0.00	6.00	100	90		
1	1	Casing	PVC Class 12	0.00	21.00	50	40		
1	1	Opening	Slots	21.00	24.00				PVC Class 12; Casing - Machine Slotted; Screwed
1		Annulus	Waterworn/Rounded	16.00	24.00				Graded; GSD 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 1.00 1.00		TOPSOIL YELLOW		
1.00 3.00 2.00		CLAY YELLOW		
3.00 5.00 2.00		SANDSTONE YELLOW WEATHERED		
5.00 24.00 19.00		COAL SANDSTONE SHALES		

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111030

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111030
LIC-NUM 1081603591
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-20
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY ENHANCE COLLIERY
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 202.00
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303571.00
EASTING 237070.00
LATITUDE 33 22' 21"
LONGITUDE 150 3' 59"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-OP 1/159248

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-OP 3.751651

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole),P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-CornerRadius, and Length-A-Arrow,G-Gate, S-Slot, C-Casing

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.90	125			Rotary Air
1		Hole	Hole	6.00	24.00	100			Rotary Air
1	1	Casing	PVC Class 12	0.00	6.00	100	90		Glued, Sealed on Bottom, End cap
1	1	Casing	PVC Class 12	0.00	21.00	50	40		Glued, Sealed on Bottom
1	1	Opening	Slots	21.00	24.00		50		PVC Class 12, Casing - Machine Slotted, Screwed
1		Annulus	Waterworn/Rounded	16.00	24.00				Graded, GDS 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00 1.00	1.00	TOPSOIL YELLOW		
1.00 3.00	2.00	CLAY YELLOW		
3.00 5.00	2.00	SANDSTONE YELLOW WEATHERED		
5.00 24.00	19.00	COAL SANDSTONE SHALE		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Print Report

Work Requested -- GW111205

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111205
LIC-NUM 108103558
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary Air
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-01
FINAL-DEPTH (metres) 87.00
DRILLED-DEPTH (metres) 87.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE COAL MINE
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6306348.00
EASTING 238757.00
LATITUDE 33 20' 51"
LONGITUDE 150 3' 52"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-OP //9999

Licensed [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-OP BEN BULLEN STATE FOREST (MA299ELA3834)

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Component,SL-Slot Length-A-Arrow-GD-Gate-S&O-Opening

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	3.50	125			Rotary Air
1		Hole	Hole	3.50	87.64	100			Jettied - Water
1	1	Casing	PVC Class 12	0.00	3.50	100			Glued, Sealed on Bottom, Open End
1		Casing	PVC Class 12	0.00	84.00	50	40		Glued, Sealed on Bottom, Open End
1	1	Opening	Slots	84.00	87.00	50			PVC Class 12, Casing - Machine Slotted, SL: 25mm; A: 1mm; Glued
1		Annulus	Waterworn/Rounded	87.00	87.00				Graded, GD: 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS DESC	GEO-MATERIAL COMMENT
0.00 3.50 3.50		ALLUVIUM
3.50 87.00 83.50		TYPICAL COAL MEASURES

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111206

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111206
LIC-NUM 1081030588
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary - Coring
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-06
FINAL-DEPTH (metres) 38.94
DRILLED-DEPTH (metres) 38.94
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE COAL MINE
GRSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY 391.00
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6306531.00
EASTING 237132.00
LATITUDE 33 20' 48"
LONGITUDE 150 4' 5"
GSMAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-OP //9999

Licensed [\[top\]](#)

COUNTY COOK
PARISH COX
PORTION-LOT-OP BEN BULLEN STATE FOREST (MA299ELA3834)

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-High,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Corner,SL-Start Length-A-Arrow,G-Gate,Seal-O-Sealing)

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	5.10	125			Rotary - Coring
1		Hole	Hole	5.10	38.94	100			Other
1	1	Casing	PVC Class 12	0.00	5.10	100	90		Glued; Sealed on Bottom; End cap
1	1	Casing	PVC Class 12	0.00	38.94				Glued; Sealed on Bottom
1	1	Opening	Slots - Horizontal	35.00	38.00		50		PVC Class 12; Casing - Machine Slotted; SL: 25mm; A: 1mm; Glued
1		Annulus	Waterworn/Rounded	32.00	38.00				Graded; GDS 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS DESC	GEO-MATERIAL COMMENT
0.00 5.10 5.10		ALLUVIAL GRAVELS
5.10 38.00 32.90		TYPICAL COAL MEASURES

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111207

Works Details [\[top\]](#)

GROUNDWATER NUMBER: GW111207
LIC-NUM: 10BL005588
AUTHORISED-PURPOSES: MONITORING BORE
INTENDED-PURPOSES: MONITORING BORE
WORK-TYPE: Bore
WORK-STATUS:
CONSTRUCTION-METHOD:
OWNER-TYPE: Private
COMMENCE-DATE: 2010-02-18
COMPLETION-DATE: 2010-02-18
FINAL-DEPTH (metres): 50.00
DRILLED-DEPTH (metres): 50.00
CONTRACTOR-NAME:
DRILLER-NAME:
PROPERTY: PINE DALE COAL MINE
GWSA: -
GW-ZONE: -
STANDING-WATER-LEVEL:
SALINITY:
YIELD:

Site Details [\[top\]](#)

REGION: 10 - SYDNEY SOUTH COAST
RIVER-BASIN:
AREA-DISTRICT:
DMA-MAP:
GRID-ZONE:
SCALE:
ELEVATION:
ELEVATION-SOURCE:
NORTHING: 6308516.00
EASTING: 234813.00
LATITUDE: 33 20' 43"
LONGITUDE: 150 2' 35"
GSD-MAP:
AMG-ZONE: 56
COORD-SOURCE:
REMARK:

Form-A [\[top\]](#)

COUNTY: COOK
PARISH: COX
PORTION-LOT-OP: /9999

Licensed [\[top\]](#)

COUNTY: COOK
PARISH: COX
PORTION-LOT-OP: BEN BULLEN STATE FOREST (MLA299ELA3834)

Construction [\[top\]](#)

Negative depths indicate Below Ground Level(H-Hole/F-Pipe)OD Outside Diameter.
ID Inside Diameter(C) Component(S) and Length-A-Average(G) Code: See Q-Charting

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.90	125			
1		Hole	Hole	6.00	50.42				
1	1	Casing	PVC Class 12	0.00	6.00	100	90		Guard

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL COMMENT
0.00 1.50	1.50	CLAY	
1.50 6.00	4.50	SANDSTONE	
6.00 50.00	44.00	TYPICAL COAL MEASURES	

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111334

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111334
LIC-NUM 108104388
AUTHORISED-PURPOSES TEST BORE
INTENDED-PURPOSES TEST BORE
WORK-TYPE Bore
WORK-STATUS Test Hole
CONSTRUCTION-METHOD Other
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-14
FINAL-DEPTH (metres) 12.00
DRILLED-DEPTH (metres) 12.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINEDALE MINE
GWSA 603 - SYDNEY BASIN
GW-ZONE
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6304308.00
EASTING 237807.00
LATITUDE 33 21' 58"
LONGITUDE 150 4' 24"
GSMAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-OP 33 827626

Licensed [\[top\]](#)

COUNTY COOK
PARISH COH
PORTION-LOT-OP 35 827626

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole/P-Pipe/OD Outside Diameter)
ID Hole Diameter/G-Component/SL-Steel Length-A-Arrow/G-Code-S-4-0-Casing

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.00	400			Other
1		Hole	Hole	0.00	12.00	4000			
1		Hole	Hole	6.00	12.00	300			Other
1	1	Casing	Lining	0.00	0.00				

Water Bearing Zones [\[top\]](#)

FROM-DEPTH (metres) TO-DEPTH (metres) THICKNESS (metres) ROCK-CAT-DESC S-W-L D-D-L YIELD TEST-HOLE-DEPTH (metres) DURATION SALINITY
5.00 12.00 7.00

Drillers Log [\[top\]](#)

FROM TO THICKNESS DESC GEO-MATERIAL COMMENT
0.00 5.00 5.00 SLTSTONE,SANDSTONE/SHALE
5.00 6.00 1.00 COAL
6.00 8.00 2.00 SANDSTONE/SLTSTONE
8.00 12.00 4.00 COAL

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111471

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111471
LIC-NUM 10BL000559
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-02-23
FINAL-DEPTH (metres) 24.00
DRILLED-DEPTH (metres) 24.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE MINE
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303739.00
EASTING 237784.00
LATITUDE 33 22' 18"
LONGITUDE 150 4' 0"
GS-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH LINDSDALE
PORTION-LOT-CP 21596248

Licensed [\[top\]](#)

COUNTY COOK
PARISH LINDSDALE
PORTION-LOT-CP 2 596248

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.00	1.00	TOPSOIL	
1.00	5.00	4.00	SALTSTONE FINE SANDSTONE LEROVIN	
5.00	6.00	1.00	MUDSTONE LIGHT GREY	
6.00	7.00	1.00	MUDSTONE GREY FINE GRAINED	
7.00	10.00	3.00	SALTSTONE LIGHT GREY	
10.00	15.00	5.00	MUDSTONE LIGHT GREY	
15.00	17.00	2.00	COAL LINDSDALE SEAM	
17.00	24.00	7.00	SANDSTONE LIGHT GREY COARSE GRAINED MOIST	

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111472

Works Details [\[top\]](#)

GROUNDWATER NUMBER: GW111472
LIC-NUM: 0081603559
AUTHORISED-PURPOSES: MONITORING BORE
INTENDED-PURPOSES: MONITORING BORE
WORK-TYPE: Bore
WORK-STATUS:
CONSTRUCTION-METHOD: Rotary Air
OWNER-TYPE: Private
COMMENCE-DATE:
COMPLETION-DATE: 2010-02-23
FINAL-DEPTH (metres): 23.90
DRILLED-DEPTH (metres): 23.90
CONTRACTOR-NAME:
DRILLER-NAME:
PROPERTY: PINE DALE MINE
GRMA: -
GW-ZONE: -
STANDING-WATER-LEVEL:
SALINITY:
YIELD:

Site Details [\[top\]](#)

REGION: 10 - SYDNEY SOUTH COAST
RIVER-BASIN:
AREA-DISTRICT:
DMA-MAP:
GRID-ZONE:
SCALE:
ELEVATION:
ELEVATION-SOURCE:
NORTHING: 6303741.00
EASTING: 237553.00
LATITUDE: 33 22' 15"
LONGITUDE: 150 3' 59"
OS-MAP:
AMG-ZONE: 56
COORD-SOURCE:
REMARK:

Form-A [\[top\]](#)

COUNTY: COOK
PARISH: LIDSDALE
PORTION-LOT-CP: 21596248

Licensed [\[top\]](#)

COUNTY: COOK
PARISH: LIDSDALE
PORTION-LOT-CP: 2 596248

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-High,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Corner,ES-End Length-A-Arrow,CG-Center,SO-SO Center)

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	Hole		Hole	0.00	23.90				Rotary Air

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL COMMENT
0.00 2.00	2.00	TOPSOIL	
2.00 4.00	2.00	SILTSTONE,LIGHT BROWN	
4.00 6.00	2.00	SILTSTONE LIGHT GREY WITH SAND	
6.00 10.00	4.00	SILTSTONE,FINE GRAINED, GREY	
10.00 15.50	5.50	MUDSTONE,FINE GRAINED,DARK GREY	
15.50 17.00	1.50	COAL,LIDSDALE SEAM	
17.00 20.00	3.00	MUDSTONE,DARK GREY,COARSE GRAINED	
20.00 22.00	2.00	SANDSTONE,COARSE GRAINED,LIGHT GREY,MOIST	
22.00 23.90	1.90	COAL,LITHGOW SEAM	

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW111473

Works Details [\[top\]](#)

GROUNDWATER NUMBER GW111473
LIC-NUM 1081635589
AUTHORISED-PURPOSES MONITORING BORE
INTENDED-PURPOSES MONITORING BORE
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary - Percussion (Down Hole Hammer)
OWNER-TYPE Private
COMMENCE-DATE
COMPLETION-DATE 2010-03-23
FINAL-DEPTH (metres) 80.80
DRILLED-DEPTH (metres) 80.80
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY PINE DALE MINE
GWSA -
GW-ZONE -
STANDING-WATER-LEVEL -
SALINITY
YIELD

Site Details [\[top\]](#)

REGION 10 - SYDNEY SOUTH COAST
RIVER-BASIN
AREA-DISTRICT
DMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6303561.00
EASTING 237726.00
LATITUDE 33 22' 22"
LONGITUDE 150 4' 8"
GSD-MAP
AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A [\[top\]](#)

COUNTY COOK
PARISH COB
PORTION-LOT-OP 2 596248

Licensed [\[top\]](#)

COUNTY COOK
PARISH LIDSDALE
PORTION-LOT-OP 2 596248

Construction [\[top\]](#)

Negative depths indicate Above Ground Level(H-Hole,P-Pipe,OD Outside Diameter,
ID Inside Diameter,C-Corresponds to Slot Length-A-Armour-GG-Gravel-Sand-C-Casing

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	11.70	125			Rotary - Percussion (Down Hole Hammer)
1		Hole	Hole	11.70	80.80	97			Rotary - Casing
1	1	Casing	PVC Class 12	0.00	11.70	110	100		Glued, Sealed on Bottom, Open End
1	1	Casing	PVC Class 12	0.00	80.80	60	50		Glued
1	1	Opening	Slots - Horizontal	72.00	75.00	60			PVC Class 12; Casing - Machine Slotted, SL 25mm; A: 1mm; Glued
1		Annulus	Waterworn/Rounded	70.00	86.00				Graded, GG 3-5mm

Water Bearing Zones [\[top\]](#)

no details

Drillers Log [\[top\]](#)

FROM TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	55.00	55.00	SLTSTONE	SOME SHALE
55.00	75.00	20.00	COAL	
75.00	80.80	5.80	SLTSTONE	

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

State heritage register (modified)

