Centennial Coal

Angus Place

Longwalls 900W and 910 Coal Resource Recovery Plan

Angus Place Colliery

November 2013

This page has been intentionally left blank.

DOCUMENT OWNER AND ORIGINATOR: **Natalie Conroy** **Angus Place Environment and Community Coordinator**
APPROVED BY: **Brian Nicholls** **Angus Place Mine Manager** **Signature:** ..... **Date:** 26/11/13
DISTRIBUTION: **Lotus Notes (Angus Place), Department of Planning and Infrastructure, Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy, SMP Interagency Committee.**

Title	Date Effective:	Revision Status:	Planned Review:
Longwalls 900W and 910 Coal Resource Recovery Plan	26/11/2013	1.0	As required

TABLE OF CONTENTS

Tables

Figures

Appendices

Abbreviations

CCL	Consolidated Coal Lease
DP&I	NSW Department of Planning and Infrastructure
DTIRIS-DRE	NSW Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy
EP&A Act	*Environmental Planning and Assessment Act 1979*
ML	Mining Lease
MOP	Mining Operations Plan
Mtpa	Million tonnes per annum
PA	Project Approval
PAD	Potential Archaeological Deposit
ROM	Run-of-mine

1. INTRODUCTION

1.1. Site Background

Angus Place Colliery (Angus Place) is an underground coal mining operation located approximately five kilometres north of the village of Lidsdale, eight kilometres northeast of the township of Wallerawang and approximately 15 kilometres northwest of the city of Lithgow in the Blue Mountains region of NSW. It is bordered by Springvale Colliery to the south, Ivanhoe Colliery to the northwest and Wolgan Valley and Newnes Plateau to the north and east, respectively. The locality of Angus Place is shown on **Figure 1**.

Angus Place has been in operation since 1979 and is operated by Centennial Angus Place Pty Ltd, a joint venture company owned in equal share between the Centennial Coal Company Ltd and SK Kores of Korea. Secondary extraction of coal is currently undertaken at Angus Place utilising the longwall method of mining within Mining Lease (ML) 1424 and Consolidated Coal Lease (CCL) 704.

Project Approval PA 06_0021 was granted by the then NSW Department of Planning (now NSW Department of Planning and Infrastructure (DP&I)) on 13 September 2006. This approval allowed for an extension of underground longwall mining operations (Longwalls 920 – 980) and an increase in run-of-mine (ROM) coal production to 3.5 million tonnes per annum (Mtpa). PA 06_0021 has been modified on two occasions. Modification 1 (Mod 1) was approved on 29 August 2011 and allowed for the development and extraction of two additional longwall panels (Longwall 900W and 910), as well as an increase in production limit to 4 Mtpa. Modification 2 (Mod 2) was approved in April 2013 and allowed for the development of underground roadways and the construction and operation of a Ventilation Facility (APC-VS2) and supporting infrastructure.

1.2. Purpose

This *Longwalls 900W and 910 Coal Resource Recovery Plan* (Coal Resource Recovery Plan) has been prepared to demonstrate effective recovery of available resources obtained through underground mining activities associated with Longwalls 900W and 910 at Angus Place.

This Coal Resource Recovery Plan has been developed in accordance with Schedule 3, Condition 3C(g) of PA 06_0021 (as modified) and Section 6.3 of the *Guidelines for Applications for Subsidence Management Approvals* (2003) (herein referred to as the SMP Guideline) issued by the then NSW Department of Mineral Resources (now NSW the Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy (DTIRIS)).

Plans have been prepared in accordance with the SMP Guideline (Department of Mineral Resources, 2003) and have been provided as **Appendix 1** (at A3 size). These Plans provide supporting information for the *Longwalls 900W and 910 Integrated SMP/Extraction Plan* including:

- Existing and proposed seam workings (Plans 1A and 1B);
- Natural and man-made surface features (Plans 2A and 2B);
- Seam thickness and depth of cover (Plans 3A and 3B);
- Location of geological structures (Plans 3AA and 3BB);
- Mining titles and land ownership (Plans 5A and 5B);
- Borehole cross sections (Plans 6A and 6B); and
- An orthophoto map (Plans 7A and 7B).

An SMP Approved Plan has also been prepared for Longwalls 900W and 910, which becomes part of the permanent record of the details of the approval (SMP Approved Plans A and B).

Plan 4 provides details of all existing and/or planned future mine workings in seams above and/or below the proposed workings. Angus Place currently undertakes mining operations within the Lithgow Seam which has been identified as the only economically viable seam for mining within the Angus Place Colliery Holding. Subsequently Plan 4 was not relevant to the *Longwalls 900W and 910 Integrated SMP/Extraction Plan*.

1.3. Scope

This Coal Resource Recovery Plan applies to the development and secondary extraction of Longwalls 900W and 910 in the Lithgow Seam at Angus Place. Plans 1A and 1B show the proposed mine workings and dimensions (see **Appendix 1**).

1.4. Statutory Requirements

1.4.1. Project Approval

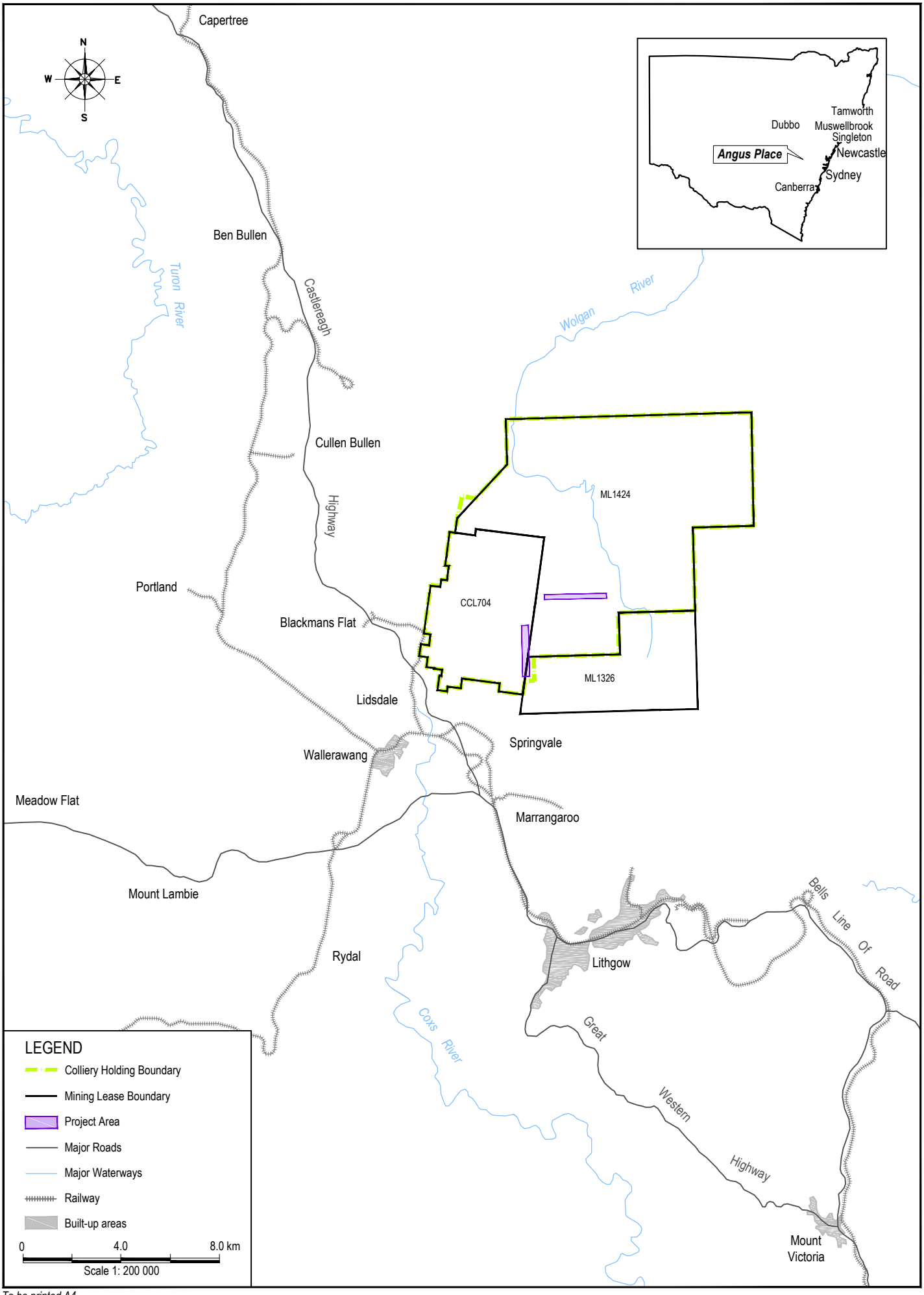
This document has been prepared to satisfy Schedule 3, Condition 3C(g) of PA 06_0021 (as modified). This condition has been reproduced in **Table 1**.

Table 1. Relevant Project Approval Conditions

Condition	Condition Requirement	Section Addressed
Schedule 3, Condition 3C(g)	The Proponent shall prepare and implement Extraction Plan/s for the second workings in Longwalls 910 and 900W to the satisfaction of the Director-General. Each Extraction Plan must: (g) include the following to the satisfaction of the Executive Director Mineral Resources: • a Coal Resource Recovery Plan that demonstrates effective recovery of the available resource	This document

1.4.2. Mining Leases

This document has also been prepared to partially address statutory requirements of ML 1424, ML 1326 and CCL 704 with regard to the preparation of Subsidence Management Plans. This Coal Resource Recovery Plan is a component of the *Longwalls 900W and 910 Integrated SMP/Extraction Plan* and, accordingly, includes details to satisfy Section 6.3 of the SMP Guideline (Department of Mineral Resources, 2003) requiring information to demonstrate that the proposed mining system is efficient in terms of resource recovery.



To be printed A4

Longwalls 900W and 910 Subsidence Monitoring and Reporting Program
Regional Locality

FIGURE 1

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\Coal Resource Recovery Plan\Fg1_CCC07-007_Locality_141113.dwg

2. RESOURCE DESCRIPTION

2.1. Regional and Local Geology

The report prepared by Palaris titled *Stratigraphic Setting – Angus Place and Springvale Collieries* (2013) discusses the nature of the geological strata overlying the Angus Place and Springvale collieries. The information in the following sections has been sourced from this report.

2.1.1. Regional Geology

Angus Place is located in the southwest portion of the Western Coalfield of the Sydney Basin. Strata in the Sydney Basin date from Early Permian to Late Triassic, with Quaternary alluvium deposited in erosional valleys. Two periods of coal deposition occurred during the Permian, with the more significant Late Permian episode resulting in widespread coal seam development across the entire Sydney Basin. The economically important Illawarra Coal Measures of the Southern and Western Coalfields were formed during this phase. Total thickness of the Illawarra Coal Measures increases towards the east, reaching a maximum thickness of 520 metres (m) in the northern part of the Southern Coalfield. Non-coal-bearing Triassic strata directly overlie the Illawarra Coal Measures. The basal unit is the Narrabeen Group, which consists of sandstone, shale and claystone. This is overlain by the Hawkesbury Sandstone, which, in turn, is overlain by the Wianamatta Shale. The latter two units are not extensively developed in the Western Coalfield. The Newnes Plateau hanging swamps and shrub swamps that are found throughout the western region generally occur on strata of the Narrabeen Group.

Structure in the Western Coalfield is relatively benign, with seams generally dipping at one to two degrees towards the east. The dominant structures are north-south trending regional-scale monoclines and associated sub-parallel faults that can have throws of up to 200 m. Small-scale faults, generally with throws of less than 5 m are also found. Igneous intrusions are only present in the centre and north-east of the coalfield.

2.1.2. Local Geology

As the Lithgow area is located towards the western edge of the Western Coalfield, the Illawarra Coal Measures are relatively thin, with an average thickness of 110 m from the Katoomba Seam to the Lithgow Seam at Angus Place. Above the coal measures, the Narrabeen Group is the only member of the Triassic sequence present in the area, having a maximum thickness of 340 m.

The depth of cover over the Longwalls 900W and 910 varies from 300 m to 370 m. Details of depth of cover are included in **Table 2** below, and shown on Plans 3A and 3B (see **Appendix 1**).

Table 2. Depth of Cover

Panel	Minimum Cover (m)	Maximum Cover (m)
Longwall 900W	300	320
Longwall 910	320	370

The Lithgow Seam is a medium-high volatile bituminous coal (30% volatile matter dry ash-free) of medium rank (0.78 - 0.95 vitrinite reflectance) containing medium ash and low vitrinite content. It is highly suitable for domestic power generation without washing. Specific energy averages 34 megajoules per kilogram (MJ/kg) dry ash-free, ash fusion (hemispherical) is above 1,400 degrees and the coal is hard with an average Hardgrove Grindability Index of 44. Sulphur, phosphorous and chlorine are low, averaging 0.55%, 0.028% and 0.05%, respectively. Seam ash is low in calcium, magnesium oxide and sulphur trioxide, with aluminium oxide averaging 25%. The seam contains negligible gas levels and has a low propensity for spontaneous combustion (GSS Environmental, 2013).

2.2. Overburden Stratigraphy

Angus Place is situated within the southern portion of the Western Coalfield. The existing workings and Longwalls 900W and 910 are located within the combined Lithgow/Lidsdale Seam of the Illawarra Coal Measures. Borehole cross sections relevant to Longwalls 900W and 910 have been shown in Plans 6A and 6B (see **Appendix 1**).

The strata units (in ascending order) above the mine workings include:

- The Lidsdale and Lithgow Seams are immediately overlain by 4 m to 6 m of the Long Swamp Formation, which consists of interbedded coal, shale and mudstone with low to moderate material strength.
- Approximately 31 m to 47 m of interbedded siltstone, sandstone and minor coal of the Newnes, Glen Davis and Denman Formations form the interburden up to the 7 m to 16 m thick Gap Sandstone and 10 m thick Katoomba/Little Riverdale Seams. Thinly bedded sandstone and siltstone of the Triassic Narrabeen Groups Caley Formation exist above the Katoomba Seam.
- The 74 m to 79 m thick Burra-Moko Head Unit is thickly bedded to massive conglomeratic sandstone with minor shale beds and overlies the thinly bedded strata some 114 m to 116 m above the workings.
- The Mount York Claystone is a 4 m to 11 m thick unit of medium to high strength claystone which separates the Burra-Moko Head Unit from the overlying Banks Wall Sandstone.
- The Banks Wall Sandstone is 75 m to 99 m thick and consists of thickly bedded to massive conglomeratic sandstone with minor shale beds and is 192 m to 206 m above the workings.

The first 50 m to 60 m of overburden at the surface consists of a shallow residual or alluvial sandy soil cover to a depth 1 to 5 m overlying highly weathered sandstones of the Burralow Formation with low to very low strength (unconfined compressive strength of greater than 20 megapascals (UCS <20 MPa)) (Ditton Geotechnical Services (DgS), 2010).

2.3. Lithological and Geotechnical Characteristics (Overburden)

The overburden consists of sandstone, siltstone and mudstone, interbedded with a number of coal seams namely the Wolgan, Irondale, Katoomba and Middle River seams (Centennial Angus Place, 2005). Strength testing was undertaken at selected horizons in borehole SPR 26 (Golder Associates, 2002), located within the adjoining Springvale Colliery Holding. This information has been presented in **Table 3**.

Table 3. Geotechnical Properties SPR 26

Formation	Depth (m)	UCS (MPa)	Modulus (GPa)	Brazil Tensile Strength (MPa)
Banks Wall Sandstone	68.0 – 68.55	16.3	8.5	2.06
Banks Wall Sandstone	100.81 – 101.23	24*	9.5*	1.47
Banks Wall Sandstone	132.41 – 132.97	30*	11.9*	1.50
Mt York Claystone	152.4 – 152.77	38*	8.2*	3.56
Burra –Moko Head Sandstone	166.88 – 167.59	39.4	5	2.66
Burra –Moko Head Sandstone	192.47 – 192.9	48.5	14.9	4.29
Caley Formation	234.05 – 234.37	46*	8.4*	5.31
Caley Formation	251.16 – 252.71	51.6	8.4	4.77**
State Mine Creek Formation	287.06 – 287.36	43.6	11.6	1.32
Denman Formation	314.96 – 315.24	64*	10.4*	3.87
Long Swamp Formation	339.19 – 339.66	141.6	21.6	14.65
Long Swamp Formation	348.83 – 349.42	21*	4.1*	3.18
Berry Siltstone	369.62 – 370.04	35.6	8.8	5.43

* Values calculated from triaxial strength tests.

** Average of finer grained part of sample, coarser part was 22.06 MPa and 10.85 MPa.

2.4. Lithological and Geotechnical Characteristics (Roof and Floor Strata)

The immediate roof is the Lidsdale Seam overlain by interbedded sandstones and siltstones of the Long Swamp Formation which is approximately 20 m thick. This is a hard, competent material of approximate 40 to 60 MPa strength (Centennial Angus Place, 2005).

The floor strata is composed of up to 3 m of sandstones and conglomerates (20 MPa) of the Marrangaroo Formation, which overlies the siltstones of the Nile Subgroup (50 to 60 MPa) (Centennial Angus Place, 2005). Geotechnical details have been provided in **Table 3**.

2.5. Existence and Characteristics of Geological Structure

The known regional geological structure of the Project Area consists of normal and reverse faulting. The structure is mid-angled to sub-vertical (i.e. dip angles from 35° to 80°) and is oriented on a northeast-southwest, north-south and northwest-southeast strike (DgS, 2010). Surface jointing patterns mirror the major geological structure orientation where shallow sandstone rock exposures and low-level cliff lines exist along the northern part of Narrow Swamp and Kangaroo Creek.

DgS (2010) found that no major structures or lineaments have been identified above Longwall 900W and 910. Major horizontal stress directions have been measured at several locations using overhead coring and roof mapping techniques and were generally oriented east-west to northwest-southeast with variations to this measured in the vicinity of geological structures (DgS, 2013). The location of geological structures in relation to Longwalls 900W and 910 have been shown in Plans 3AA and 3BB, respectively (see **Appendix 1**).

DgS (2013) stated that there were four types of geological structures within the Angus Place Colliery Holding that appear to have had some to no effect on subsidence measurement. A summary of each structure type and its effect on subsidence development is presented below:

- In-seam mapping and surface interpretation work indicates several Major Type 1 faults associated with East Wolgan, Narrow and Kangaroo creeks. These faults are associated with the Wolgan River and Kangaroo Creek lineaments and have incised valleys and plateau areas. Subsidence monitoring indicates that there have been subsidence increases above the incised valley sections of up to 1 m. Increased tilt and compressive strains have also occurred in the valleys.
- Type 2 faulting is similar to Type 1, however it is not as persistent with only limited surface expression (e.g. single sided valleys or steep slopes). Subsidence increase potential above Type 2 structures is unknown at this stage as they have not yet been undermined by any Angus Place longwalls.
- Minor Type 3 faulting commonly exists at seam level but show no surface expression across the mining area (e.g. mildly undulating terrain and plateau areas). Subsidence monitoring indicates that there have been no subsidence effect increases above the Type 3 structure areas.
- Type 4 structures are basement structures only, which, despite being common, do not have structural features associated with these at the Lithgow Seam level or have expression at the surface. No surface subsidence changes have occurred above Type 4 structures.

DgS (2013) indicates that there are no major (Type 1) fault structures within the footprint of Longwalls 900W and 910, although a less persistent Type 2 fault structure exists across the south-western corner of Longwall 900W.

2.6. Stability of Underground Workings

The proposed longwall panels have been designed to provide stable underground workings and reduce the effects on surface features by providing separation between the surface feature and the goaf edge.

DgS (2010) outlines that the probability that pillars will yield under the assessed mining conditions is less than 1 in 1,000 (< 1%). The pillar width to height ratios for the chain and main headings pillars range from 10.5 to 10.8. The pillars are therefore likely to exhibit strain hardening or ‘squeezing’ type yielding properties if overloaded during their service lives. This means that the pillars will still be able to support the applied loading with only a marginal increase in surface subsidence.

DgS (2013) completed a review of the subsidence predictions outlined in DgS (2010) considering any relevant information obtained since the approval of PA 06_0021 (Mod 1) in August 2011. This included a review of pillar stability associated with the proposed extension to Longwall 980 (see **Section 3.5**) and the reduced barrier pillar width to the east of Longwall 900W. This assessment determined that the potential for long term instability of the proposed pillars is ‘very unlikely’ due to their high ‘Factor of Safety’ under service loads and ‘squat’ geometry, which would provide a high degree of natural stability should the pillar ribs deteriorate. The high pillar width/height ratio (i.e. greater than 10) will also provide adequate support to the immediate roof strata if pillars are formed beneath geological structure (DgS, 2013).

3. MINING SYSTEM AND RESOURCE RECOVERY

3.1. Mining Method

Underground mining at Angus Place utilises longwall mining methods as the primary form of extraction. Longwall mining is supported by continuous miner development operations. Development roadways are mined using single pass continuous miner units. The continuous miner cuts the coal and simultaneously feeds it onto shuttle cars, which then transport and load the cut coal into the conveyor feeder, where it is conveyed out of the mine to the surface and deposited onto the ROM stockpile. The continuous miner then reverts to installing roof and rib supports.

Mine scheduling ensures that roadway development and the panel installation faces are fully accessible prior to the full extraction of the previous block. This aims to reduce longwall changeover periods facilitating continuity. Once the preceding panel has been fully extracted, the longwall shearer, hydraulic roof supports (chocks) and relevant utility services are installed at the take-off point on the new longwall.

Angus Place uses longwall mining methods, whereby the longwall shearer commences operations at the far end of the panel roadway, advancing inbye to finish at the access headings. The longwall shearer cuts laterally across the longwall face and transports cut coal to the conveyor system for transport to the surface. This method of mining will continue with no alterations for Longwalls 900W and 910.

3.2. Mining Geometry

Longwalls 900W and 910 will have extracted nominal void widths of 293 m and 210 m, respectively, within the Lithgow Seam. Longwall development will be undertaken at a height of 3.25 m and secondary extraction will be up to 3.425 m. The depth of cover ranges from 300 m to 370 m, giving critical panel width/cover depth ratios from 0.84 to 0.98 for Longwall 900W and sub-critical width/cover depth ratios of 0.60 to 0.68 for Longwall 910.

Longwall 900W will be extracted first and will retreat towards the north. It is located to the west of existing main headings that are adjacent to Longwalls 950 and 980. The main headings pillars are 35 m wide and range from 32 m to 118 m in length (DgS, 2010).

Longwall 910 is located to the north of the previously extracted Longwall 920 and will be extracted from east to west. The tailgate of Longwall 910 will consist of a row of chain pillars that will typically be approximately 34 m wide and 96 m long. The maingate for Longwall 910 will consist of 37 m wide by 95 m long chain pillars (DgS, 2010).

The layout of Longwalls 900W and 910, including dimensions have been shown on the SMP Approved Plans A and B (see **Appendix 1**).

3.3. Resource Recovery

Expected resource recovery from Longwalls 900W and 910 has been presented in **Table 4**. The tonnages outlined have been based on a working height of 3.25 m in development and 3.425 m in longwall extraction. Development bord widths for Longwalls 900W and 910 will be 4.8 m and a longwall block widths of 283.5 m and 200.5 m, respectively. The specific gravity of the coal (relative coal density) is 1.48 for both development and longwall extraction.

Table 4. Reserves and Resource Recovery

Panel	Longwall Tonnes	Development Tonnes	Total Tonnes	Recovery (%)
Longwall 900W	2,988,657	294,552	3,283,209	74.7
Longwall 910	2,565,629	157,068	2,722,697	77.5

3.4. Mining Schedule

Based upon the current mine schedule outlined in the approved Angus Place Mining Operations Plan (MOP), first workings associated with Longwall 900W will be completed in February 2014. The secondary extraction of Longwall 900W will be undertaken from May 2014 to April 2015.

First workings for Longwall 910 will be completed by April 2014 and secondary extraction will be undertaken from May 2015 to March 2016.

3.5. Future Mining

Angus Place is currently preparing an Environmental Impact Statement for the proposed Angus Place Mine Extension Project. This Project is a State Significant Development (SSD 12_5602) in accordance with Clause 8 and Schedule 1 (Item 5) of the *State Environmental Planning Policy (State and Regional Development) 2011*. Accordingly, Angus Place is seeking approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). If approved, the Angus Place Mine Extension Project will allow for continued mining operations to the east of the current workings within ML 1424, extracting up to 4 Mtpa of coal using longwall mining techniques.

To ensure continuity in the operations with the proposed Angus Place Mine Extension Project and to extract additional available resources, Angus Place submitted an application with the DP&I on 31 October 2013 to modify PA 06_0021 (Mod 3) in order to extend the finishing ends of Longwalls 980 and 900W by 43.4 m and 104.8 m, respectively.

3.6. Justification

The longwall method of extraction allows for maximum resource recovery while providing a safe work environment for mine employees and contractors. In general the wider the longwall face, the more productive and economic the mine operation due to the reduced cost of longwall panel development. Longwall mining offers improved resource recovery when compared to other mining methods such as bord-and-pillar. The surface subsidence effects vary with the mining method and other parameters such as extraction thickness, depth of cover, face width and strata conditions.

The location of significant surface features that may be affected by subsidence were came into consideration when developing the mine plan for Longwalls 900W and 910 during the preparation of the *Environmental Assessment for the Angus Place Colliery Modification of Project Approval 06_0021* (RPS, 2010). A rock formation was identified due south of the area identified for Longwall 900W. As a result, the longwall secondary extraction area was designed to ensure that the rock was beyond the subsidence area as an impact mitigation strategy.

The location and size of Longwall 910 were adjusted and refined to avoid potential impacts to an Aboriginal heritage site (Rock Shelter with Potential Archaeological Deposit (PAD)) and a cliffline identified to the west of the proposed finishing end of Longwall 910. The originally proposed longwall dimensions were amended and the finishing end of Longwall 910 was moved eastwards by approximately 100 m. This has subsequently resulted in the features being located beyond the 20 millimetre (mm) subsidence angle of draw line for Longwall 910.

As outlined in **Section 3.5**, Angus Place has submitted an application to modify PA 06_0021 (Mod 3) to permit a 104.8 m extension to the finishing end of Longwall 900W (along with an extension to Longwall 980). The extension to Longwall 900W will result in the recovery of an additional 431,345 tonnes of coal, amounting to a total expected extraction from Longwall 900W of approximately 3.72 million tonnes (see current expected resource recovery in **Table 4**). There are no significant surface features associated with the proposed longwall extension.

4. REFERENCES

Centennial Angus Place (2005) *Angus Place Colliery Longwalls 930 – 980 Subsidence Management Plan Application Written Report*.

Department of Mineral Resources (2003) *Guideline for Applications for Subsidence Management Plan Approvals*.

Ditton Geotechnical Services Pty Ltd (2010) *Subsidence Prediction Assessment for Angus Place Colliery Longwalls 910 and 900W*.

Ditton Geotechnical Services Pty Ltd (2013) *Subsidence Assessment Review for the Longwalls 900 West and 910 Integrated SMP/Extraction Plan, Centennial Angus Place Colliery*.

Golder Associates (2002) *Geotechnical and Hydrogeological Investigation Ventilation Shaft, Newnes – Springvale Colliery*.

GSS Environmental (2013) *Mine Operation Plan Angus Place Colliery July 2013 to May 2015*.

Palaris (2013) *Stratigraphic Setting – Angus Place and Springvale Collieries*. Palaris Report No. CEY1535-01.

RPS Australia East Pty Ltd (2010) *Environmental Assessment, Angus Place Colliery Modification of Project Approval 06_0021 Under Section 75W, Part 3A (for Longwalls 910 and 900W)*.

Appendix 1: Plans

This page has been intentionally left blank.

FORMER NEWCOM COLLIERY
(KEROSENE VALE WORKINGS)

ANGUS PLACE
COLLIERY

SPRINGVALE COLLIERY

LW 930 - 940 Section 138(1) CMR Act 1982: Approval 05/3224-02

LONGWALL 940

LONGWALL 950

LW 950 Clause 88(1) CMH&S Regulation 2006: Approval OUT 09/5487

LONGWALL 960

LW 960 - 970 Clause 88(1) CMH&S Regulation 2006: Approval OUT 12/1045

LONGWALL 970

LONGWALL 980

LW 980 Clause 88(1) CMH&S Regulation 2006: Approval OUT 12/12692

PANEL 900 WEST

LONGWALL 900 WEST

DISTRICT 900

LONGWALL No.1

LONGWALL 401

LONGWALL 402

LONGWALL 403

LONGWALL 404

LONGWALL 405

MGA Zone 56

0 50 100 150 200 250 metres

6303000m N

231000m E

232000m E

233000m E

234000m E

235000m E

LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Longwalls 930 - 980 SMP Approval Area (Approved December 2005)
- Clause 88 Approval
- Section 138 Approval

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ANGUS\LW900W&910SMP\EXTRACTION PLANS\ Plan 1A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
900W Existing and Proposed Seam Workings
Plan 1A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7014 | A0

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 1_CCC07-007_131118.dwg

ANGUS PLACE
COLLIERY

LW16 LW17 LW18 LW19 LW20 LW21 LW22 LW23 LW24

M84/3394
M84/3394
M84/3394
M84/3394(B)
M84/3394(B)

LONGWALL 910

LONGWALL 920

LW 920 Section 138(1) CMR Act 1982: Approval 02/0445

LONGWALL 930

LW 930 - 940 Section 139(1) CMR Act 1982: Approval 05/3224-02

LONGWALL 940

LONGWALL 950

LW 950 Clause 88(1) CMH&S Regulation 2006: Approval OUT 08/5487

LONGWALL 960

LW 960 - 970 Clause 88(1) CMH&S Regulation 2006: Approval OUT 12/1045

LONGWALL 970

DISTRICT 303

FORMER NEWCOMB COLLIERY
(KEROSENE VALE WORKINGS)

PANEL 900W

LONGWALL 900WEST

DISTRICT 900

SPRINGVALE COLLIERY

MGA Zone 56

0 50 100 150 200 250 metres

2339000m E
2340000m E
2341000m E
2342000m E
2343000m E
2344000m E
2345000m E
2346000m E
2347000m E
2348000m E
2349000m E
2350000m E
2351000m E
2352000m E
2353000m E
2354000m E
2355000m E
2356000m E
2357000m E
2358000m E
2359000m E
2360000m E

6306000m N
6305000m N
6304000m N

LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Longwalls 930 - 980 SMP Approval Area (Approved December 2005)
- Clause 88 Approval
- Section 138 Approval

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

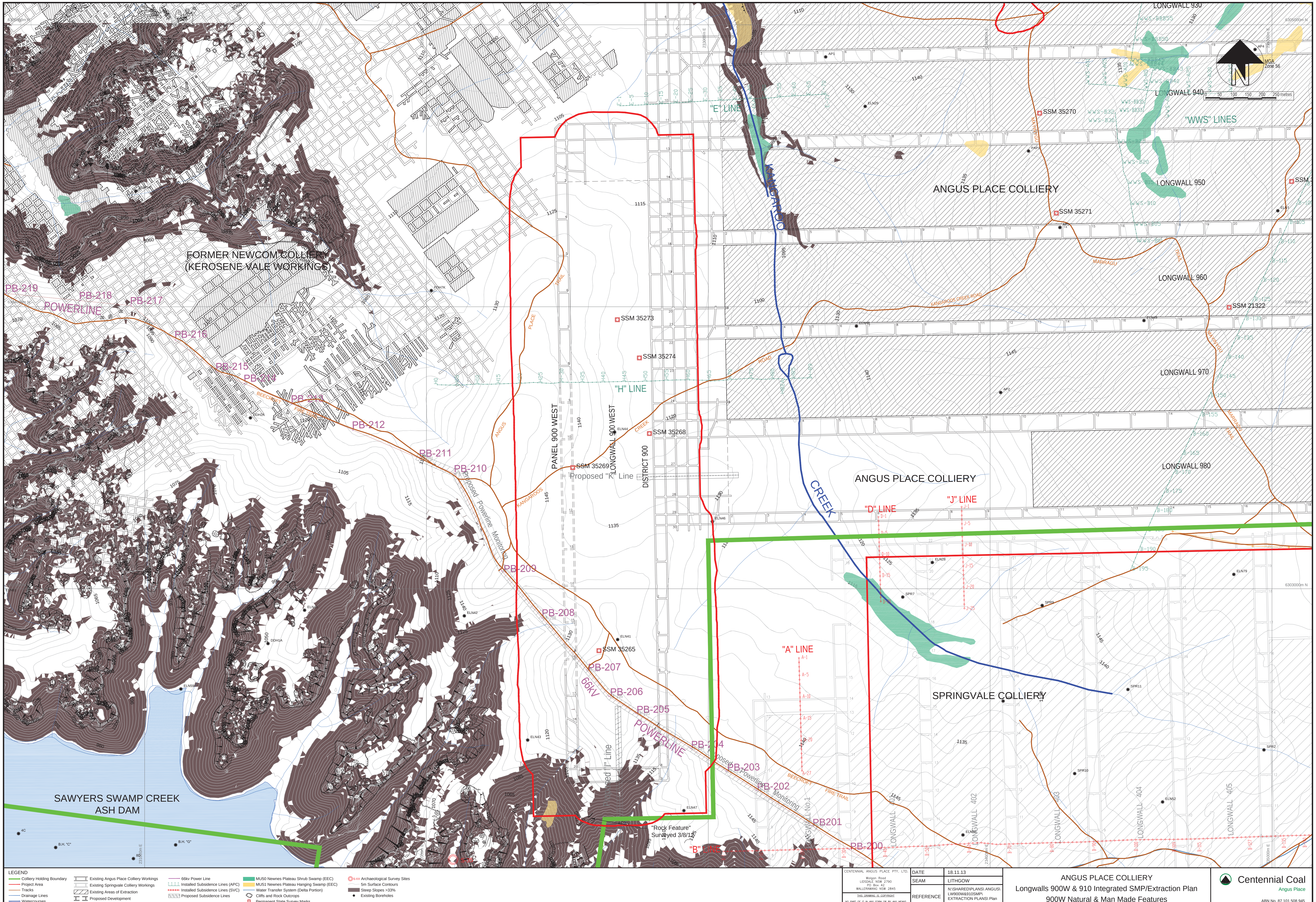
DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ANGUS\LW900W&910SMP\EXTRACTION PLANS\Plan 1B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
900W Existing and Proposed Seam Workings
Plan 1B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7015 | A0

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 1_CCC07-007_131118.dwg


LONGWALL 930
LONGWALL 940
LONGWALL 950
LONGWALL 960
LONGWALL 970
LONGWALL 980
"WWS" LINES
"E" LINE
"H" LINE
"D" LINE
"J" LINE
"A" LINE
"B" LINE
ANGUS PLACE COLLIERY
SPRINGVALE COLLIERY
FORMER NEWCOM COLLIERY
(KEROSENE VALE WORKINGS)
POWERLINE
PANEL 900 WEST
LONGWALL 900 WEST
DISTRICT 900
Proposed "K" Line
CREEK
66kV
SAWYERS SWAMP CREEK
ASH DAM
"Rock Feature"
Surveyed 3/8/12
SSM 35270
SSM 35271
SSM 35273
SSM 35274
SSM 35268
SSM 35269
SSM 35265
SSM 21322
PB-200
PB201
PB-202
PB-203
PB-204
PB-205
PB-206
PB-207
PB-208
PB-209
PB-210
PB-211
PB-212
PB-213
PB-214
PB-215
PB-216
PB-217
PB-218
PB-219
MGA
Zone 56
LONGWALL 402
LONGWALL 403
LONGWALL 404
LONGWALL 405
LEGEND
Colliery Holding Boundary
Project Area
Tracks
Drainage Lines
Watercourses
Existing Angus Place Colliery Workings
Existing Springvale Colliery Workings
Existing Areas of Extraction
Proposed Development
66kv Power Line
Installed Subsidence Lines (APC)
Installed Subsidence Lines (SVC)
Proposed Subsidence Lines
MU50 Newnes Plateau Shrub Swamp (EEC)
MU51 Newnes Plateau Hanging Swamp (EEC)
Water Transfer System (Delta Portion)
Cliffs and Rock Outcrops
Permanent State Survey Marks
(SCIMS Search 14.11.2012)
Archaeological Survey Sites
5m Surface Contours
Steep Slopes >33%
Existing Boreholes

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 2_CCC07-007_131118.dwg

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

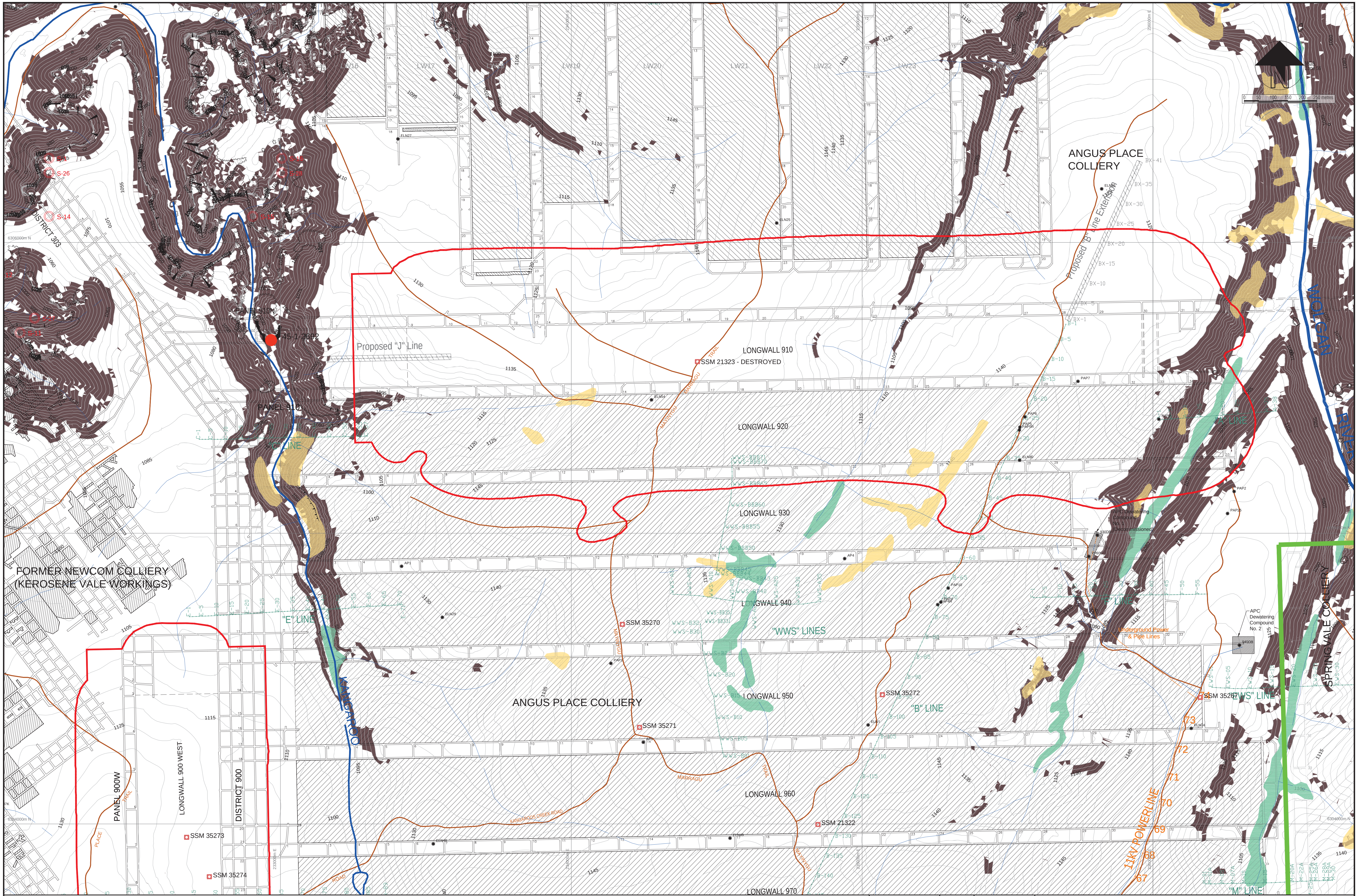
CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 2A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
900W Natural & Man Made Features
Plan 2A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7016 A0



LEGEND

- Colliery Holding Boundary
- Project Area
- Tracks
- Drainage Lines
- Watercourses
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- 11kv Power Line
- Installed Subsidence Lines
- Proposed Subsidence Lines
- MU50 Newnes Plateau Shrub Swamp (EEC)
- MU51 Newnes Plateau Hanging Swamp (EEC)
- Cliffs and Rock Outcrops
- Permanent State Survey Marks (SCIMS search 14.11.2012)
- S-XX Archaeological Survey Sites
- Rock Shelter with PAD
- 5m Surface Contours
- Steep Slopes >33%
- Existing Boreholes

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

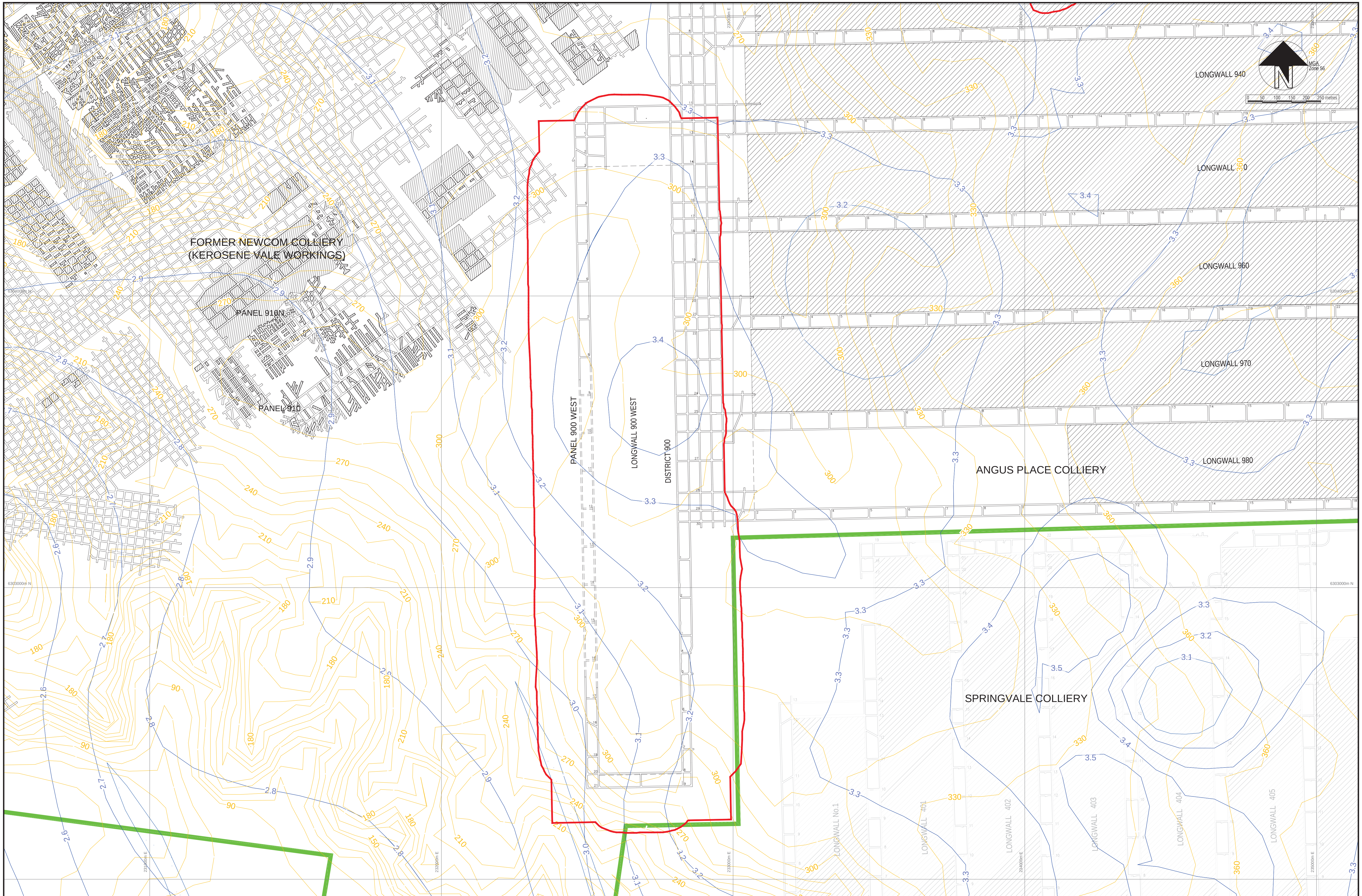
CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 2B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP Extraction Plan
910 Natural & Man Made Features
Plan 2B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7017 A0



LEGEND
- Colliery Holding Boundary
- Project Area
- Depth of Cover Contours (10m)
- Seam Thickness Isopachs
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 3A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Geological and Seam Data
Plan 3A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7018 A0

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 3_CCC07-007_131118.dwg

LW16 LW17 LW18 LW19 LW20 LW21 LW22 LW23 LW24

ANGUS PLACE COLLIERY

DISTRICT 303

PANEL 910N

LONGWALL 910

PANEL 910

LONGWALL 920

LONGWALL 930

LONGWALL 940

LONGWALL 0

LONGWALL 960

LONGWALL 970

PANEL 900W

LONGWALL 900

DISTRICT 900

SPRINGVALE COLLIERY

MGA Zone 56

0 50 100 150 200 250 metres

LEGEND

- Colliery Holding Boundary
- Project Area
- Depth of Cover Contours (10m)
- Seam Thickness Isopachs
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

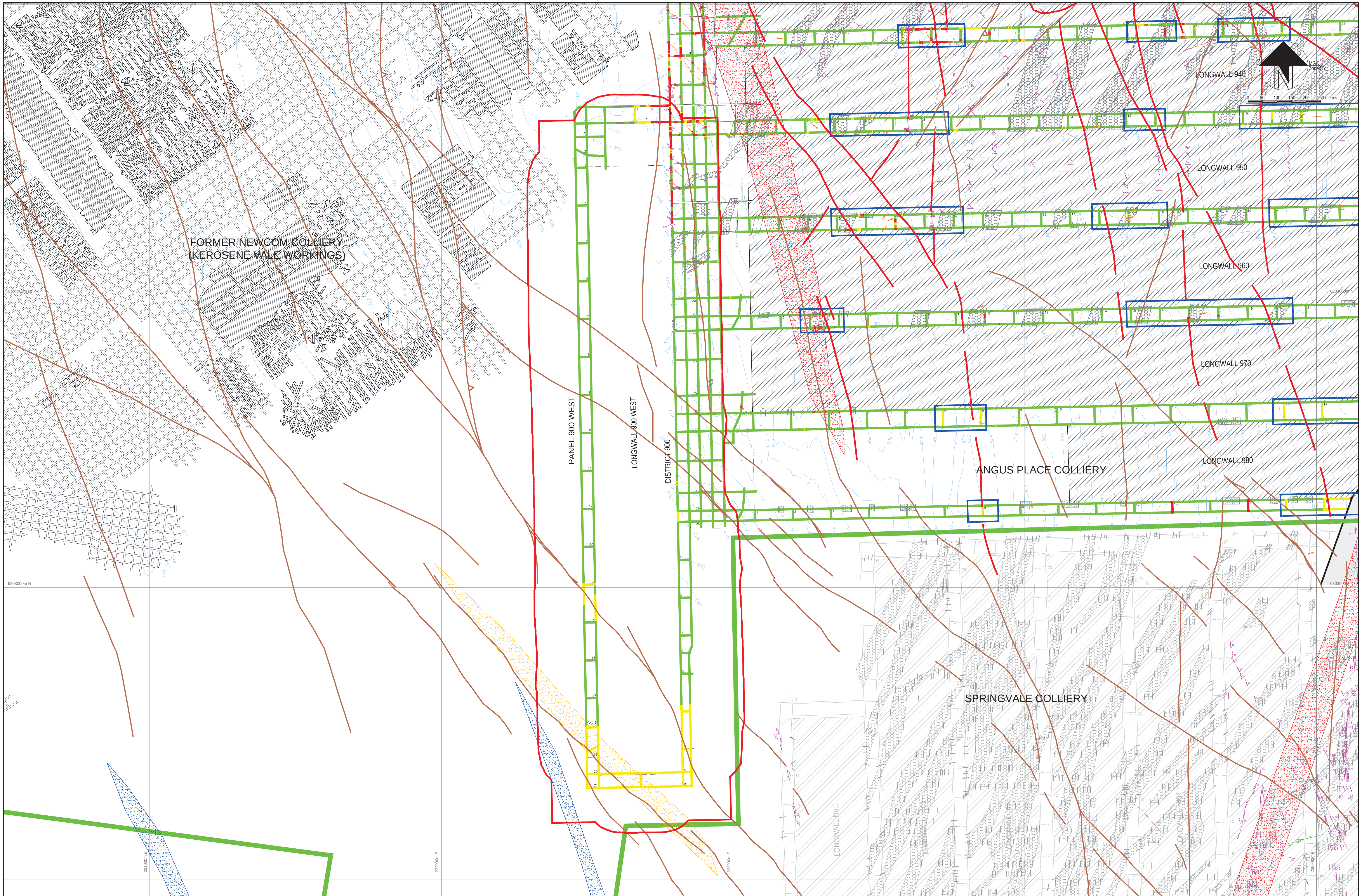
DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 3B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Geological and Seam Data
Plan 3B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7019 | A0

D:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 3_CCC07-007_131118.dwg



LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Good Mining Conditions Anticipated/experienced
- Moderate Mining Conditions Anticipated/experienced
- Poor Mining Conditions Anticipated/experienced
- Poor C/t Or Roadway Conditions Experienced On Development
- SRK Anticipated Structures (Seam Level)
- SRK Confirmed Structures (Seam Level)
- SRK Predicted Basement Faults
- Wolgan Zone
- Wolgan Transition Zone

GEOLOGICAL MAPPING

- Grade Change
- Swilley Inflection
- Swilley Trough
- Swilley Zones
- Stress Direction
- Joint Orientation (Showing Direction)
- 812 Seam Floor Level

MAPPED FAULTING

- 50 Fault (Showing Dip Direction & Angle)
- 65 Thrust Fault (Showing Dip Direction & Angle)
- 80 Strike-slip Fault

GEOLOGICAL STRUCTURE TYPE 1

Major geological structure zones are recognised in underground workings as faulted or highly fractured ground. Type 1 Structures are associated with basement features and surface lineaments.

- AP Structures - HIGH Risk
- NNE Lineaments
- NNW Lineaments

GEOLOGICAL STRUCTURE TYPE 2

Type 2 Structures have evidence of geological structure in the basement and mine workings. Structure zone and overlying topographic relief alignmenet extend only a limited distance and are not part of a longer surface lineament.

- Structure Type 2

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 3AA
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Geological and Seam Data
Plan 3AA

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7028 A0

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 3_CCC07-007_131118.dwg

LW16 LW17 LW18 LW19 LW20 LW21 LW22 LW23 LW24

ANGUS PLACE COLLIERY

SPRINGVALE COLLIERY

DISTRICT 303

DISTRICT 900

PANEL 910N

PANEL 910

PANEL 900W

LONGWALL 900

LONGWALL 910

LONGWALL 920

LONGWALL 930

LONGWALL 940

LONGWALL 950

LONGWALL 960

LONGWALL 970

0 50 100 150 200 250 metres

LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Good Mining Conditions Anticipated/experienced
- Moderate Mining Conditions Anticipated/experienced
- Poor Mining Conditions Anticipated/experienced
- Poor C/t Or Roadway Conditions Experienced On Development
- SRK Anticipated Structures (Seam Level)
- SRK Confirmed Structures (Seam Level)
- SRK Predicted Basement Faults
- Wolgan Zone
- Wolgan Transition Zone

GEOLOGICAL MAPPING

- Grade Change
- Swilley Inflection
- Swilley Trough
- Swilley Zones
- Stress Direction
- Joint Orientation (Showing Direction)
- Seam Floor Level

MAPPED FAULTING

- Fault (Showing Dip Direction & Angle)
- Thrust Fault (Showing Dip Direction & Angle)
- Strike-slip Fault

GEOLOGICAL STRUCTURE TYPE 1

Major geological structure zones are recognised in underground workings as faulted or highly fractured ground.
Type 1 Structures are associated with basement features and surface lineaments.

AP Structures - HIGH Risk | NNE Lineaments | NNW Lineaments

GEOLOGICAL STRUCTURE TYPE 2

Type 2 Structures have evidence of geological structure in the basement and mine workings. Structure zone and overlying topographic relief alignment extend only a limited distance and are not part of a longer surface lineament.

Structure Type 2

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 3BB
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Geological and Seam Data
Plan 3BB

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7029 | A0

FORMER NEWCOM COLLIERY
(KEROSENE VALE WORKINGS)

COUNTY OF COOK
PARISH OF COX

COUNTY OF COOK
PARISH OF LISDALE

SAWYERS SWAMP CREEK
ASH DAM
PRESCRIBED DAM
NOTIFICATION AREA
(Gazettal date: 23.5.1992)

CCL 704

PANEL 900 WEST

LONGWALL 900 WEST

DISTRICT 900

ML 1424

ML 1326

ML 1326

NOTE:
The area of ML 1326 inside Angus Place Colliery Holding as approved under Colliery Holding Amendment 16.12.2010

ANGUS PLACE COLLIERY

LONGWALL 940

LONGWALL 950

LONGWALL 960

LONGWALL 970

LONGWALL 980

NEWNES
STATE
FOREST

COUNTY OF COOK
PARISH OF COX

COUNTY OF COOK
PARISH OF COOK

COUNTY OF COOK
PARISH OF
MARRANGAROO

SPRINGVALE COLLIERY

LONGWALL No.1

LONGWALL 401

LONGWALL 402

LONGWALL 403

LONGWALL 404

LONGWALL 405

MGA
Zone 56

0 50 100 150 200 250 metres

6303000m N

232000m E

235000m E

LEGEND

- Colliery Holding Boundary
- Project Area
- Mining Lease Boundary
- Parish Boundary
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Cadastral Information (from DCDB 1.6.2010)
- Newnes State Forest
- Private Land Holding
- Crown Land
- Prescribed Dam Notification Area

Mining Lease Areas	
Lease	Expiry Date
CCL 704	14/01/2023
ML 1326	18/08/2024
ML 1424	18/08/2024

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
P.O. Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 5A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W &910 Integrated SMP/Extraction Plan
900W Mining Titles and Land Ownership
Plan 5A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7020 | A0

G:\Drafting\Angus Place\CCO7\-007\Figures\Final\CAD\SMP A0 Plans\Plan 5_CCO7-007_131118.dwg

LW16 LW17 LW18 LW19 LW20 LW21 LW22 LW23 LW24

CCL704

ML1424

NEWNES STATE FOREST

ANGUS PLACE COLLIERY

DISTRICT 303

PANEL 910N

COUNTY OF COOK
PARISH OF COX

LONGWALL 910

COUNTY OF COOK
PARISH OF COOK

PANEL 910

LONGWALL 920

LONGWALL 930

FORMER NEWCOM COLLIERY
(KEROSENE VALE WORKINGS)

ML 1424

ML 1326

SPRINGVALE COLLIERY

LONGWALL 940

ANGUS PLACE COLLIERY

LONGWALL 950

PANEL 900W

LONGWALL 900 WEST

DISTRICT 900

LONGWALL 960

NEWNES STATE

LONGWALL 970

MGA Zone 56

0 50 100 150 200 250 metres

LEGEND

- Colliery Holding Boundary
- Project Area
- Mining Lease Boundary
- Parish Boundary
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development
- Cadastral Information (from DCDB 1.6.2010)
- Newnes State Forest

Mining Lease Areas	
Lease	Expiry Date
CCL 704	14/01/2023
ML 1326	18/08/2024
ML 1424	18/08/2024

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE, NSW 2790
PO Box 42
WALLERAWANG NSW 2845

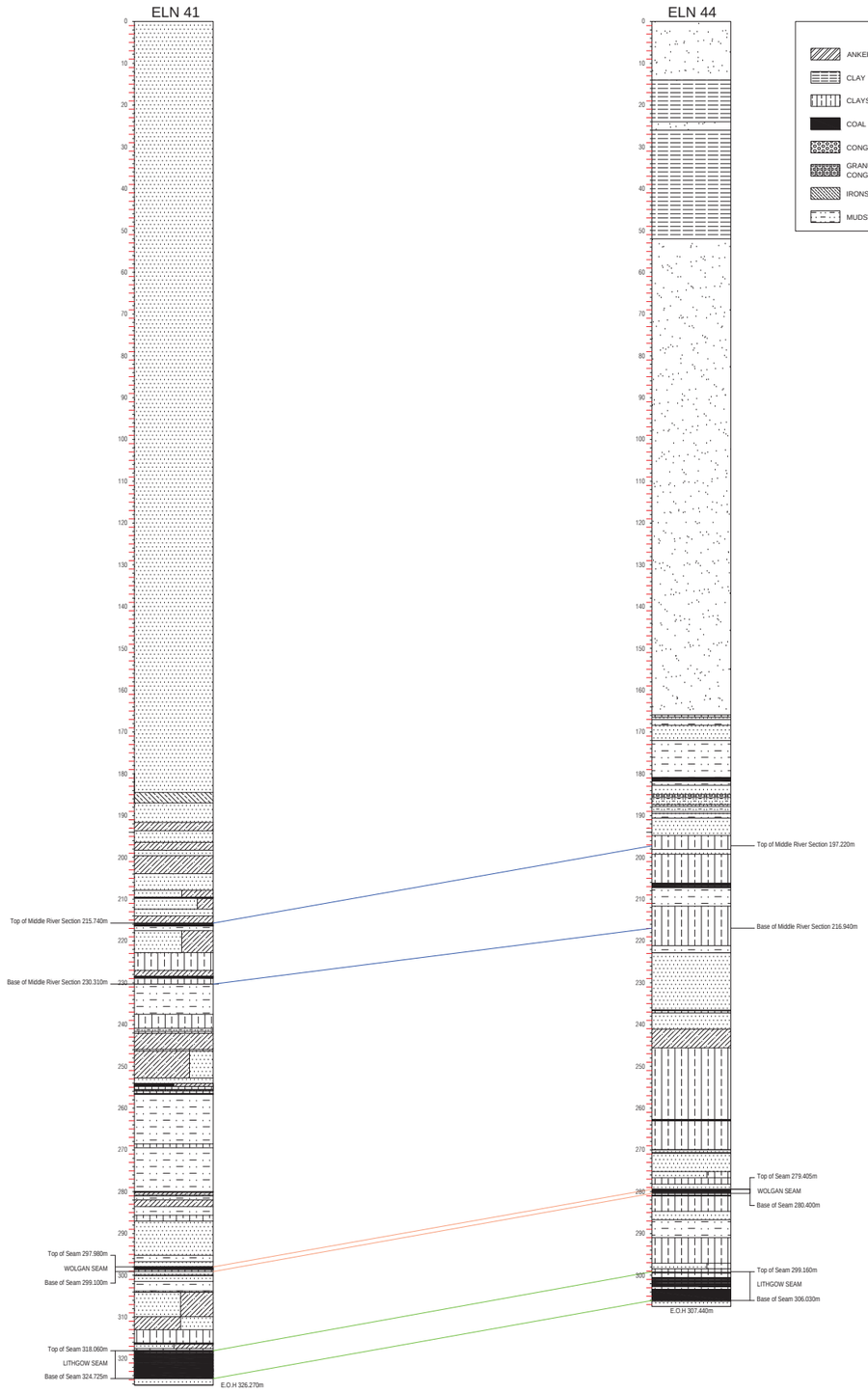
DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 5B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Mining Titles and Land Ownership
Plan 5B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

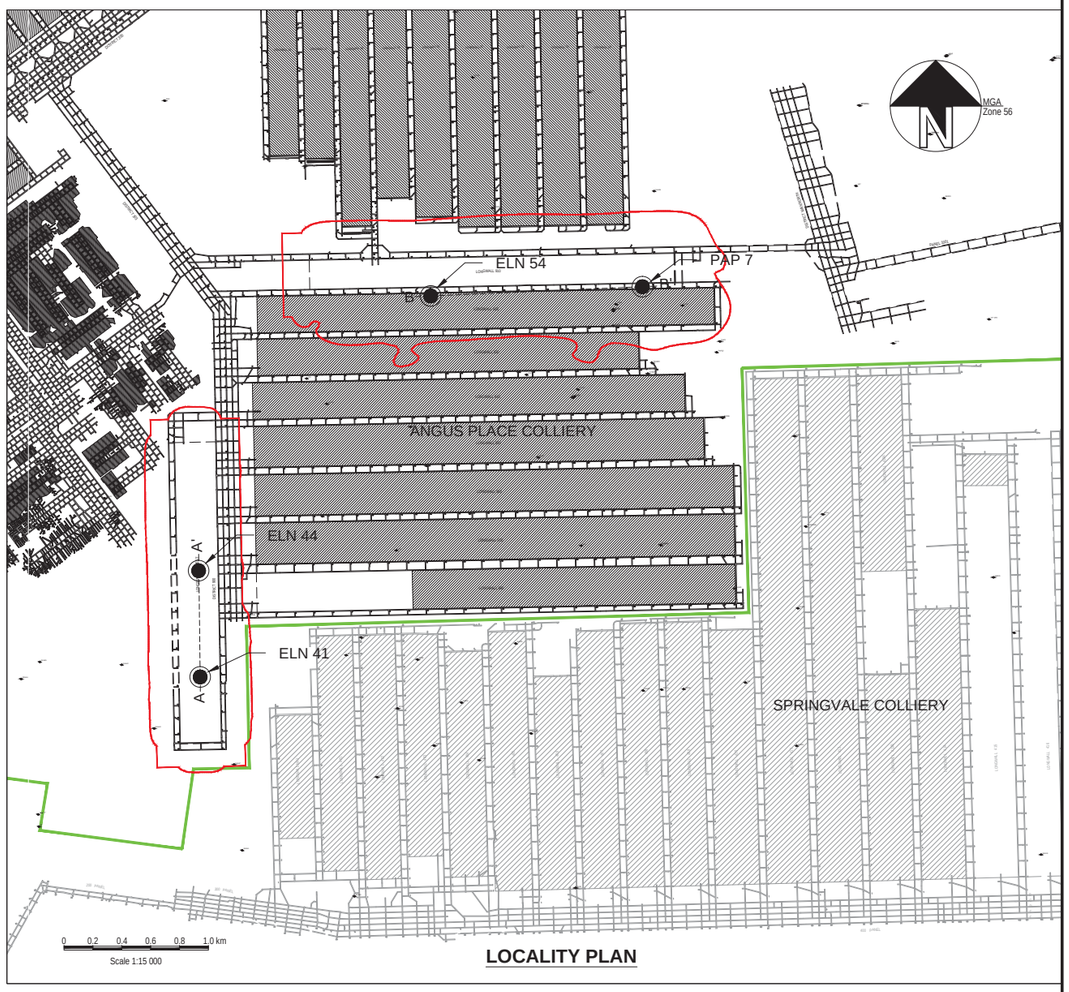
DRG. No. AP7021 | A0

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 5_CCC07-007_131118.dwg



Legend
Lithology Reference

ANKERITE	SAND
CLAY	SANDSTONE
CLAYSTONE	CARBONACEOUS SHALE
COAL	SHALE
CONGLOMERATE	SILT
GRANULE CONGLOMERATE	SILTSONE
IRONSTONE	SIDERITE
MUDSTONE	



LOCALITY PLAN

LEGEND
- Colliery Holding Boundary
- Project Area
- Displayed Boreholes
- Surrounding Boreholes
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

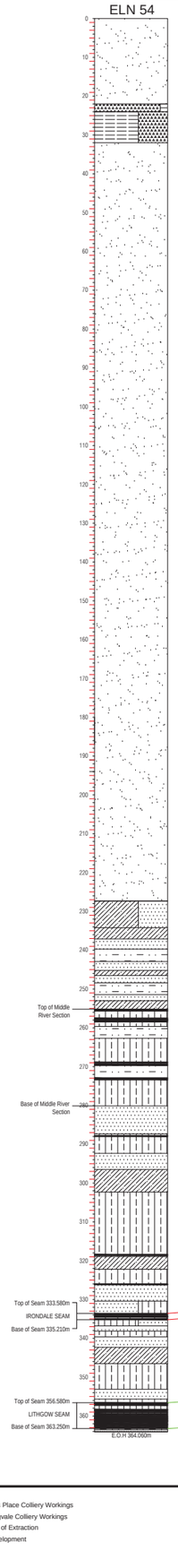
CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE, NSW 2790
PO Box 42
WALLERAWANG NSW 2845

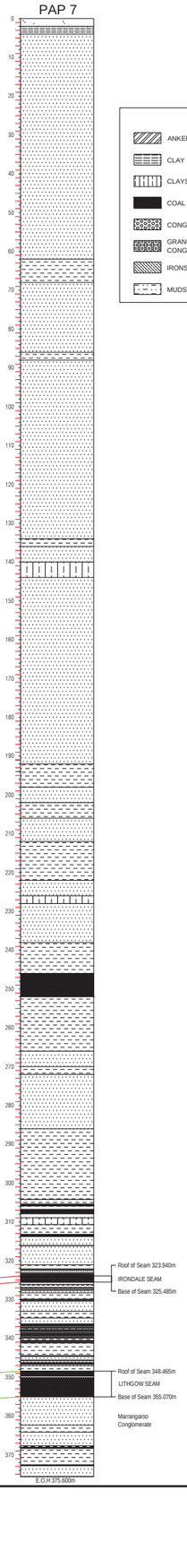
DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ANGUS\LW900W&910SMP\EXTRACTION PLANS\Plan 6A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
Borehole Cross Sections
Plan 6A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

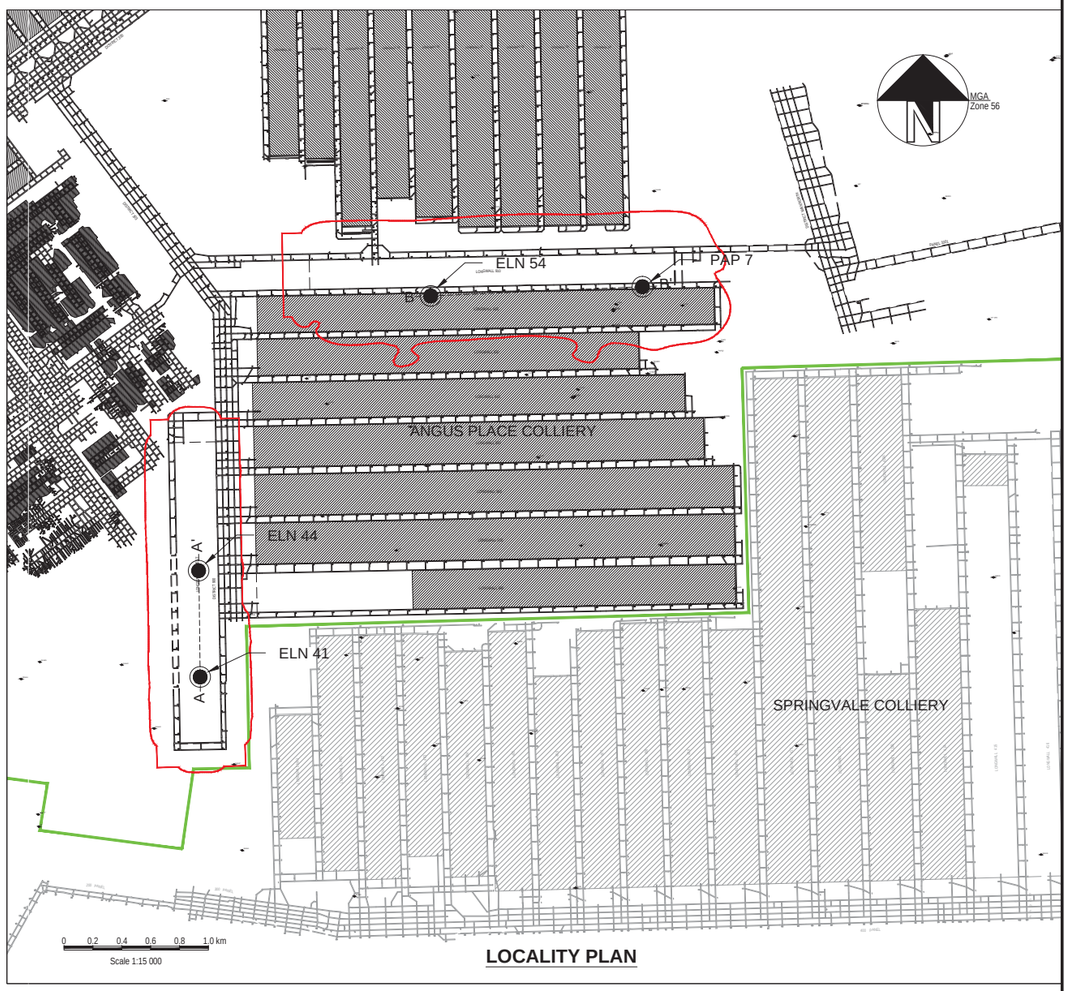
DRG. No. AP7026 | A0





Legend
Lithology Reference

ANKERITE	SAND
CLAY	SANDSTONE
CLAYSTONE	CARBONACEOUS SHALE
COAL	SHALE
CONGLOMERATE	SILT
GRANULE CONGLOMERATE	SILTSONE
IRONSTONE	SIDERITE
MUDSTONE	



LOCALITY PLAN

LEGEND
- Colliery Holding Boundary
- Project Area
- Displayed Boreholes
- Surrounding Boreholes
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDDELL NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 6B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
Borehole Cross Sections
Plan 6B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7027 | A0

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

E:\Drafting\Angus Place\DOS01-007\Figures\Final\CAD\SMP A0 Plans\Plan 6_DOS01-007_131118.dwg

LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

Orthophoto Date: July 2009

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDDELL NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 7A
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Orthophoto Map
Plan 7A

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7022 | A0

LEGEND

- Colliery Holding Boundary
- Project Area
- Existing Angus Place Colliery Workings
- Existing Springvale Colliery Workings
- Existing Areas of Extraction
- Proposed Development

Orthophoto Date: July 2009

Prepared by: GSS Environmental, a Division of SLR Consulting Australia Pty Ltd

CENTENNIAL ANGUS PLACE PTY. LTD.
Wolgan Road
LIDSDALE NSW 2790
PO Box 42
WALLERAWANG NSW 2845

DATE	18.11.13
SEAM	LITHGOW
REFERENCE	N:\SHARED\PLANS\ ANGUS\ LW900W&910SMP\ EXTRACTION PLANS\ Plan 7B
SCALE	1:4000

ANGUS PLACE COLLIERY
Longwalls 900W & 910 Integrated SMP/Extraction Plan
910 Orthophoto Map
Plan 7B

Centennial Coal
Angus Place
ABN No. 87 101 508 945

DRG. No. AP7023 A0

G:\Drafting\Angus Place\CCC07-007\Figures\Final\CAD\SMP A0 Plans\Plan 7_CCC07-007_131118.dwg

This page has been intentionally left blank.

Centennial Coal

Angus Place

Angus Place Colliery

PO Box 42

Wallerawang NSW 2845