Centennial Coal

STATEMENT OF ENVIRONMENTAL EFFECTS

Western Coal Services Project

State Significant Development 5579

Modification 2

Volume 1 – Main Report

August 2017

Centennial Coal
Springvale

Western Coal Services Project

SSD 5579 – Modification 2

STATEMENT OF ENVIRONMENTAL EFFECTS

Prepared for:

Springvale Coal Pty Limited

By:

Centennial Coal Company Limited

Level 18
1 Market St
Sydney NSW 2000

STATEMENT OF VALIDITY

Submission of *Statement of Environmental Effects*
Under Section 96(2) of the *Environmental Planning and Assessment Act 1979*

Development Application

Applicant Name	Springvale Coal Pty Limited
Applicant Address	Level 18, 1 Market St, Sydney NSW 2000
Development	Western Coal Services Project (SSD 5579)
Development Description	Modification 2 to Western Coal Services Project's consent SSD 5579 for activities described in **Section 1.3** and **Chapter 4.0** of this document.
Land to be Developed	Refer to Schedule of Lands (**Appendix C**)
Environmental Impact Assessment	*Statement of Environmental Effects*

Document Preparation

Name	Nagindar Singh
Qualifications	BSc, MSc, PhD
Company	Centennial Coal Company Limited
Address	Level 18, 1 Market St, Sydney NSW 2000

Declaration

I certify I have prepared the *Statement of Environmental Effects*, and to the best of my knowledge:

- It contains all available information that is relevant to the environmental impact assessment of the development to which this statement relates.
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

30 August 2017

EXECUTIVE SUMMARY

Background

The Western Coal Services Project (the Project) was granted State Significant Development consent SSD 5579 on 04 April 2014. The consent was granted by the Planning Assessment Commission of NSW, as delegate of the then Minister of Planning and Infrastructure, under Section 89E of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for a project life of 25 years. SSD 5579 consent will lapse on 30 June 2039. Prior to the grant of SSD 5579, the majority of the components of the Project were constructed and / or operated under Springvale Mine's former consent DA 11/92 or Angus Place Colliery's current project approval PA 06_0021.

The Project is located to the west of the Blue Mountains in the Lithgow Local Government Area in New South Wales. The largest Project component, the Springvale Coal Services Site, is located approximately 125 kilometres (km) from Sydney, approximately 15 km north of city of Lithgow, approximately 5 km north-northwest from the township of Wallerawang, and approximately 4 km northwest of the village of Lidsdale.

The consent SSD 5579 allows for the operation and construction of infrastructure to facilitate the receipt, handling and processing of coal from the Springvale Mine, Angus Place Colliery and other Centennial Coal operations, and the transportation of this coal to local power stations or the Lidsdale Rail Siding (PA 08_0223) operated by Ivanhoe Coal ty Ltd, also a Centennial Coal company.

The following represent the main components of the Project.

- Springvale Coal Services Site (SCSS)
- Kerosene Vale Stockpile Area
- Overland conveyor system
- Mount Piper Haul Road
- Wallerawang Haul Road
- Link Haul Road

The Project is owned by the Springvale unincorporated joint venture with participants Centennial Springvale Pty Limited (as to 50%) and Springvale SK Kores Pty Limited (as to 50%). Springvale Coal Pty Limited (Springvale Coal) is the operator of the Project on behalf of the joint venture.

Proposed Modification

Springvale Coal is seeking a modification (Modification 2) to SSD 5579 to allow for:

- an increase in the amount of coal that can be received by the Project from Springvale Mine from the approved 4.5 Mtpa to up to 5.5 Mtpa on the overland conveyor
- the establishment of a dedicated product coal stockpile of 80,000 tonne capacity in the vicinity of the coal preparation plant within the SCSS
- an increase in the workforce from the approved 18 full time equivalent (FTE) personnel to 25 FTE personnel
- a revision in the application of noise criteria in SSD 5579 (Schedule 3 Condition 9) to the Project components.

The SSD 5579 consent boundary for the Project remains unchanged. There are no changes proposed to the surface infrastructure. No major changes are proposed with respect to the approved surface operations. The majority of activities in the Project will continue to be undertaken as approved under SSD 5579.

There is no proposal to reduce the life of the consent in this modification from the approved 25 years from the date of consent, and the consent expiry date (30 June 2039) will remain unchanged.

Environmental Impact Assessment

A *Statement of Environmental Effects* (SEE) has been prepared to support the proposed modification, to be submitted under Section 96(2) of the EP&A Act. The SEE describes the proposed modification, and assesses the potential impacts on the environment. Measures that will be required to mitigate and/or manage potential environmental impacts are also described in the SEE.

The SEE has been prepared to meet the requirements of Part 1 Clause 2(4) of Schedule 1 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and it contains information required for modifications under Clause 115 of the EP&A Regulation.

A risk based approach was used to identify and prioritize technical assessments required to assess the impacts of the proposed modification elements on the environment. Given the minor nature of the proposed modification elements no environmental issues have been assessed as presenting a high, significant or moderate risk rating. The following technical assessments were undertaken.

(i) Noise Impact Assessment

(ii) Traffic Impact Assessment

(iii) Air Quality Impact Assessment

(iv) Social Impact Assessment

The findings of the technical assessments are provided in the main body of the SEE and the full reports are attached as appendices. The following sub-sections provide an overview of the key outcomes while more detailed summaries are provided in **Chapter 7.0**, however, to gain a full understanding of the potential impacts of the proposed modification elements the full assessments included as appendices should be read in their entirety.

Noise

The Noise Impact Assessment (Global Acoustics, 2017) has been prepared to assess the noise impacts from the SCSS operations. It supports Springvale Coal's proposal in the modification to restrict the current noise criteria in SSD 5579 (Schedule 3, Condition 7) to SCSS operations only and to preclude their application to the other Project components, namely, the overland conveyor system, Mount Piper Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area. Accordingly, the assessment proposes and models reasonable and feasible mitigation measures that can be implemented within the SCSS fixed and mobile plant to facilitate in achieving compliance at that site. The assessment also proposes mitigation measures for the overland conveyor system at Lidsdale and operational management of coal haulage on private haul roads to reasonably reduce noise emissions on the environment.

Noise predictions without and with the implementation of mitigation measures are provided for the assessed 168 sensitive receptors surrounding the Project Application Area and located in Blackmans Flat, Lidsdale, Wallerawang, Springvale Lane (in the vicinity of Springvale Mine pit top) and Wolgan Road (in the vicinity of the Angus Place Colliery pit top).

The SCSS operations are predicted to be not more than 1 to 2 dB above WCS consent criteria at all assessed sensitive receptors when the modelled mitigation measures noted above have been implemented. Global Acoustics (2017) consider these predicted exceedances as not significant.

The mitigated noise levels from the SCSS operations demonstrate that the implementation of the proposed mitigation measures will allow Springvale Coal to achieve compliance and resolve the recurring non-compliance issues in the Project. The mitigated predictions also support Springvale

Coal's proposal in the modification to restrict the current noise criteria in SSD 5579 to the SCSS operations only, and to preclude their application to the other project components discussed above.

Low frequency noise assessments show that when the mitigated noise predictions from the SCSS operations are assessed against the draft *Industrial Noise Guidelines* (EPA, 2015) no exceedances at any receptor are predicted for the day, evening and night periods.

Consideration of the cumulative impact of SCSS mitigated operations with the nearby Mount Piper Power Station operations for the day, evening and night periods showed that no cumulative impact is predicted for the SCSS operations for all periods.

Springvale Coal has developed a priority sequencing of installation of the modelled mitigation measures at the SCSS (**Section 7.1.6.2**, **Section 7.1.9.1)**. Springvale Coal is proposing to complete the installation of these mitigation measures within a two-year period. Given that the noise sources making the greatest contributions to the predictions will be mitigated in a priority order the proposed sequencing will facilitate SCSS to achieve compliance in the shortest possible timeframe. Re-modelling of the noise predictions after implementation of the identified noise control will inform the efficiency of the noise control. An evaluation of whether further implementation of noise controls is required will also be undertaken at the same time. The implementation of the mitigation controls will be continued as required until compliance with the consent noise criteria is achieved.

Following implementation of noise controls on both fixed and mobile plant and in conjunction with the implementation of operational controls and strategies in the Project, the noise levels in the surrounding communities will be lower than current levels. Throughout the life of the Project, the noise levels will be reduced to the lowest in the region since the commencement of the overland conveyor system and SCSS operations over 20 years ago.

Given that noise reductions predicted are potentially achievable through the implementation of engineering noise controls and management of noise emissions from fixed and mobile plant, Global Acoustics (2017) do not consider Springvale Coal's proposal to request in this modification that WCS consent noise criteria be only applicable to the SCSS operations as unreasonable..

Traffic and Transport

The Traffic Impact Assessment (ARC Traffic and Transport, 2017) assessed the impact of the proposed increase in workforce from the approved 18 FTE personnel to 25 FTE personnel. The assessment considered only travel to and from the SCSS, and not to other Project components which are only accessed via private haul roads.

The increase in workforce will result in an additional 7 vehicle trips each to the SCSS in the AM arrival peak hour (5:30 am – 6:30 am) and the PM peak departure hour (5:30 pm – 6:30 pm). These increases will have a minor impact on traffic flows on Castlereagh Highway. No significant impact on the SCSS Access Road intersection to Castlereagh Highway will ensue, nor will there be any significant impact on the broader local and sub-regional road network due to the predicted minor increase in vehicle generation. The Access Road and Castlereagh Highway intersection will continue to operate at a high or 'A' level of service with essentially no delays or queued vehicles, and with significant spare capacity. This level of service will not be altered through to the forecast year of 2027. As such, the future traffic flows will not require any higher order intersection treatment to that currently provided in accordance with the AustRoads guidelines.

Air Quality

A dispersion modelling exercise was performed in the Air Quality Impact Assessment (SLR, 2017) prepared to assess the potential impacts of fugitive particulate emissions from the approved WCS operations and the proposed modification. The assessment assumed that the increase in the ROM coal transferred using the conveyor from the Springvale Mine pit top to the Project by 1 Mtpa and the

establishment of the 80,000 tonne product (beneficiated) coal stockpile near the Coal Preparation Plant has the potential to impact on the air quality:

The air quality predicted results show that the Modification 2 activities are unlikely to cause any additional exceedances of the relevant ambient air quality criteria for Total Suspended Particulate TSP and $PM_{2.5}$ concentrations or dust deposition rate at the 168 sensitive receptors assessed. Exceedances of PM_{10} criterion have been predicted for four sensitive receptors in Blackmans Flat, however on further investigations it was found that the exceedances at these receptors were dominated by the high regional background PM_{10} concentration used in the modelling (Bathurst OEH Monitoring Station). The contribution of Modification 2 activities to the predicted cumulative impacts at all assessed receptors is negligible.

SLR (2017) concluded the results presented are conservative and that there are no constraints in relation to air quality impacts at sensitive receptors assessed in the air quality assessment due to the changes proposed in Modification 2. The Project is predicted to comply with the relevant air quality criteria at the identified receptors for the SCSS operations and with regard to potential cumulative impacts.

Social

The Social Impact Assessment (Centennial Coal, 2017) examined changes that will likely occur as a result of the proposed modification elements and the social impacts on the community and the amenity of the region. The noise and traffic impact assessment outcomes have been considered in the social impact assessement while the air quality impacts were not considered given they were identified as negligible.

In deriving the overall social impact of the modification, the assessment has used a risk based evaluation of the potential environmental outcomes in technical assessments (noise, traffic) against a number of potential effects (population characteristics, employment, housing, community infrastructure, community support services and demand, conflict within the community, community identity, cultural identity). The potential changes have been classified as positive or negative (or adverse) or no impacts. The evaluation process also considered the mitigation measures proposed to reduce impacts and the residual impacts.

Scores provided for the impacts (adverse, positive or no impact) in the evaluation process was used to grade the degree of overall social impact or risk of the proposed modification elements. The score obtained corresponds to an insignificant risk due to the modification, with the following consequences:

- an improved noise environment
- no requirement to acquire properties
- no change to the land use across neighbouring / nearby residential areas
- slight economic benefit due to increased employment
- complaints may be received requiring intervention.

Overall, the social impact assessment concluded the positive impacts of the modification outweigh the negligible adverse impacts identified.

Notwithstanding the outcomes of the social impact assessment, Springvale Coal will continue to monitor and respond to environmental impacts that could potentially affect the community over time. Reviews of the environmental monitoring data will be undertaken on a regular basis to ensure that management strategies are adhered to and that the potential cumulative impacts are identified, monitored and managed where relevant. A key component of monitoring will be the continuation of the stakeholder engagement strategy that commenced for the Project in 2012 and covered a wide range of environmental and social issues. This is discussed in more detail below.

Environmental Management System

The Project has a well-established Environmental Management System (EMS) developed in accordance with the Centennial Coal's EMS Framework to manage its operations in a sustainable manner. The EMS ensures the effective management of environmental issues and compliance with all regulatory requirements. The EMS incorporates a large number of Environmental Management Plans (EMPs) designed to assist in meeting community expectations and regulatory conditions, including the conditions of the Environment Protection Licence.

Following approval of the modification, the existing EMPs will be reviewed and updated for the modification, as appropriate, and will take into consideration the outcomes of the technical assessments undertaken as part of this SEE, the commitments made and all relevant revised consent conditions in SSD 5579.

Consultation

Springvale Coal maintains an open two-way communication with the local community, consent authority and other government agencies. A dedicated Western Coal Services Stakeholder Engagement Plan is available and consultation with the identified stakeholders is undertaken in accordance with that plan. A dedicated Stakeholder Consultation Strategy was prepared for Modification 2, and consultation with the government agencies and community was undertaken extensively as described in **Chapter 6.0**.

Consultation with the local community for the Project was commenced in 2012 during the Project design stage and the preparation of the EIS for the WCS State signification development application in 2013. Community consultation for the Project has been ongoing since then. Consultation has been undertaken especially in regard to the noise criteria exceedances in the Project, despite the Project having a low complaint history. Consultation with the community has been undertaken via the Western Region Community Consultative Community, held every six months, where the Project activities and approvals being sought are discussed. Similarly, consultation with the Registered Aboriginal Parties is held every six months to discuss Aboriginal cultural heritage matters pertinent to approvals and Aboriginal cultural heritage identification, monitoring and management across the operations.

A targeted consultation program with landholders who have been previously notified of noise criteria exceedances and landholders who could be potentially impacted in the future was undertaken. Issues raised at meetings related to WCS operations (current and future noise impacts, property acquisition) and other Centennial operations (traffic noise, noise from the proposed Neubeck Coal Project) have been included in **Section 6.3.2.2,** along with comments on how issues raised have been addressed in the SEE. It is noted all issues relevant to the WCS operations have been satisfactorily addressed.

A key component of monitoring of social impacts will be continuation of the stakeholder engagement strategy that commenced for this Project in 2012 and covered a wide range of environmental and social issues. The proposed monitoring will comprise the following activities.

- Regular review and update of the noise monitoring data and noise model predictions. This will enable management and mitigation measures to be reviewed and updated to reflect any changes required to be addressed.
- Regular liaison and consultation with the community, including face to face meetings with the potentially affected landholders.
- Communication of progress of the noise mitigation works to the community and government agency stakeholders.
- Regular updates on the noise mitigation works at the six-monthly meetings of the Western Region Community Consultative Committee and Registered Aboriginal Parties.

- Regular Project updates through factsheets, Centennial Coal website and local newspaper bulletins.
- Continuation of a grievance and complaint handling system, including complaints communications channels such as a dedicated telephone line.

The broader community will be notified of the proposed modification through an advertisement placed in the local newspaper following lodgment of the modification application. The community will also be asked to take part in the modification assessment process through the public exhibition process, whereby the community will be invited to make formal submissions on the modification.

Conclusion

Technical assessments (noise, traffic, air quality) have been prepared to assess the potential environmental impacts associated with the proposed modification elements. a social impact assessment has been prepared to understand the impacts of the modification elements on the community and the amenity of the region.

The proposed increase in the workforce will result in a minor increase in traffic flows on Castlereagh Highway, however, a positive impact due to additional job creation and associated economic flow-on effects have been identified. The air quality impacts due to the establishment of the 80,000 tonne product coal stockpile and an increase in ROM coal transport by 1 Mtpa on the overland conveyor have been identified as negligible.

In response to noise level exceedances in the vicinity of the overland conveyor system in Lidsdale and in general due to the SCSS operations, Springvale Coal has extensively investigated and will be implementing a number of noise engineering controls to mobile and fixed plant at the SCSS and operational controls and strategies to the management of operations. These controls will allow noise emissions to the environment to be reduced, and the Project to be able to achieve compliance with the consent noise criteria. Noise predictions with all proposed noise engineering and operational controls in place at the SCSS are not more than 1 to 2 dB above the WCS consent criteria at all assessed sensitive receptors. No exceedances at any receptor are predicted for the day, evening and night periods in the low frequency noise assessments. No cumulative impact with the nearby Mount Piper Power Station operations is predicted for the SCSS mitigated operations for the day, evening and night periods.

A priority sequencing of the implementation of the noise controls has been developed to permit the SCSS operations to meet the noise criteria in the shortest possible timeframe within the staged two-year noise mitigation works program. It is recognised that the noise non-compliances could continue up to two years, however, when the proposed mitigation and operational controls have been implemented the background noise levels in the community will be the lowest that they have been since the construction of the overland conveyor and the commencement of the SCSS operations. With Springvale Coal's commitment to maintain mobile and fixed plant the lower background noise environment will be sustained in the long term and will provide a positive benefit to the community.

The environmental impacts have been assessed as ranging from minor to negligible and the environmental consequences are considered negligible. The social impact assessment has concluded the positive impacts will outweigh any negative impacts.

The modification meets the relevant objects of the EP&A Act and is consistent with the four principles of the ecologically sustainable development. It meets the relevant government policies. On these bases, the modification will meet the environmental and social performance requirements to be considered for approval.

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1.0 INTRODUCTION

1.1 Overview

Springvale Coal Pty Limited (Springvale Coal) is proposing to modify State Significant Development (SSD) 5579 consent for the Western Coal Services Project (the Project) pursuant to Section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This *Statement of Environmental Effects* (SEE) relates to the proposed modification (Modification 2) to SSD 5579. The location of the Project in NSW is shown in **Figure 1** and the Project Application Area boundary is shown in **Figure 2**. The Project is located in the Lithgow Local Government Area.

The consent SSD 5579 was granted on 04 April 2014 by the Planning Assessment Commission of NSW, as delegate of the then Minister of Planning and Infrastructure. The SSD 5579 consent was granted under Section 89E of the EP&A Act for a project life of 25 years, and allows operations in the Project as modified until 30 June 2039 (**Appendix A**).

The consent has been modified once since 2014 (Modification 1). The supporting documents for SSD 5579 are the *Western Coal Services Project*: *Environmental Impact Statement* (WCS EIS) (RPS, 2013a) and *Western Coal Services Project Modification 1: Statement of Environmental Effects* (WCS MOD 1 SEE) (Centennial Coal, 2016), which describe in detail the operations approved under the consent, as modified.

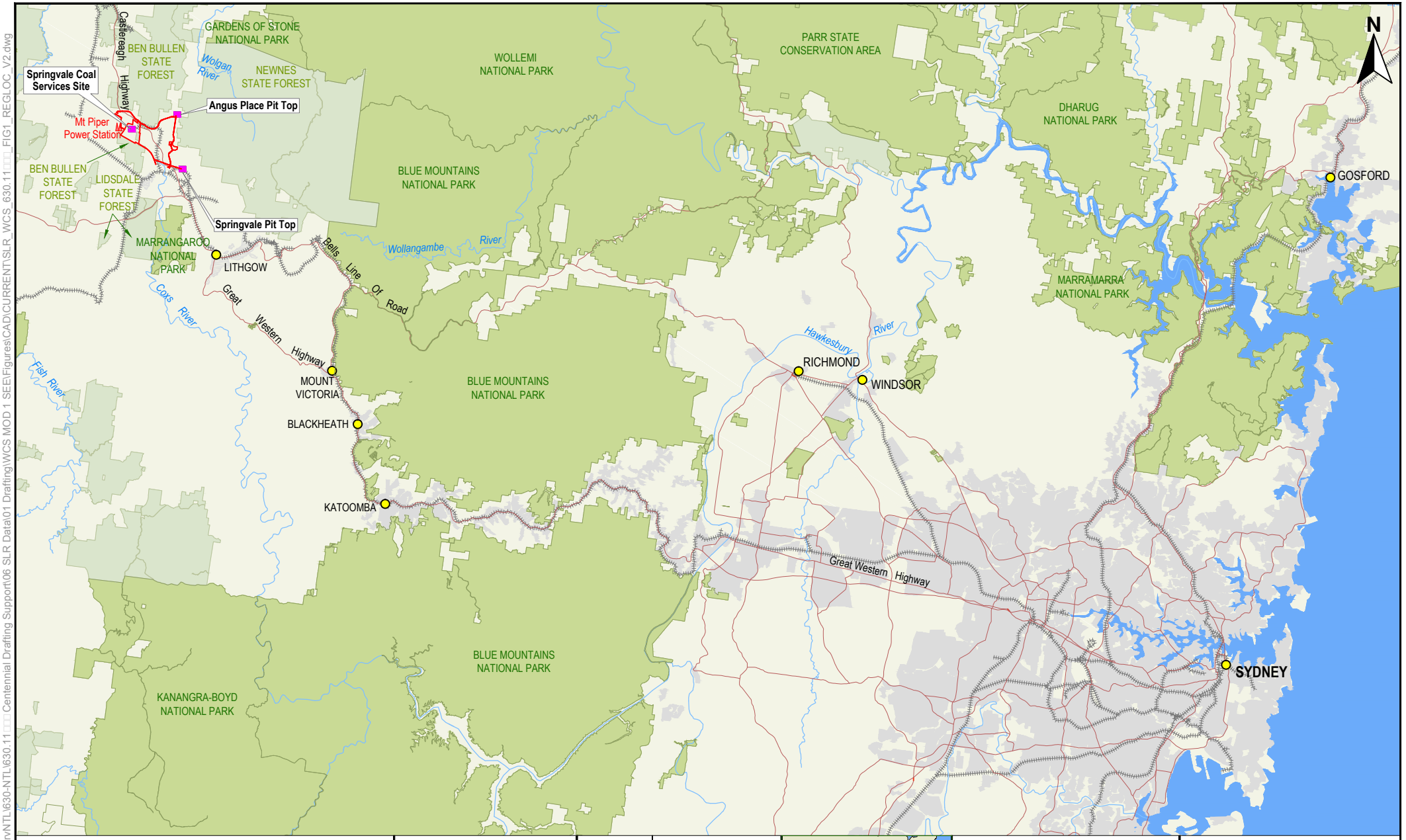
The original consent SSD 5579 allows for the operation and construction of infrastructure to facilitate the receipt, handling and processing of coal from the Springvale Mine, Angus Place Colliery and other Centennial Coal operations, and the transportation of this coal to local power stations or the Centennial Coal operated Lidsdale Rail Siding. Modification 1 to the Project, approved on 19 June 2017, allows the Project to receive and manage residuals waste stream from the water treatment plant in the Springvale Water Treatment Project (Springvale WTP) (SSD 7592) when this project becomes operational from 01 July 2019. The Springvale WTP was approved under Section 89E of the EP&A Act on 19 June 2017 and is approved to transfer the residuals waste stream from its water treatment plant located at the Mount Piper Power Station (MPPS) to the Project from 01 July 2019.

Springvale Coal is seeking to modify the development consent SSD 5579 (the modification) to allow for:

- an increase in the amount of coal that can be received by the Project from Springvale Mine from the approved 4.5 Mtpa to up to 5.5 Mtpa on the overland conveyor
- the establishment of a dedicated product coal stockpile of 80,000 tonne capacity in the vicinity of the coal preparation plant
- an increase in the workforce from the approved 18 full time equivalent (FTE) personnel to 25 FTE personnel
- a revision in the application of noise criteria in SSD 5579 (Schedule 3 Condition 9) to the Project components.

Justifications for these proposed modification elements are provided in **Section 1.6**, and the proposed elements are described in detail in **Chapter 4.0**.

The SEE assesses the potential environmental impacts of the proposed modification elements, and includes mitigation measures to minimise environmental impacts. It has been prepared to a level of detail commensurate with the minor scale of the proposed modification and the legislative framework under which the modification will be considered. The SEE has been prepared to meet the requirements of Part 1 Clause 2(4) of Schedule 1 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and it provides information required under Clause 115 of the EP&A Regulation.



LEGEND:

- Project Application Area
- Major Roads
- Watercourse
- Railway
- Built-up areas
- Town / City
- State Forest
- National Park

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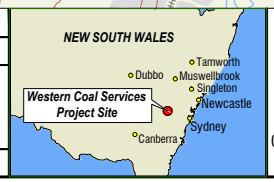

Figure 1
Regional Location Map

0.0 10 20 KM

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

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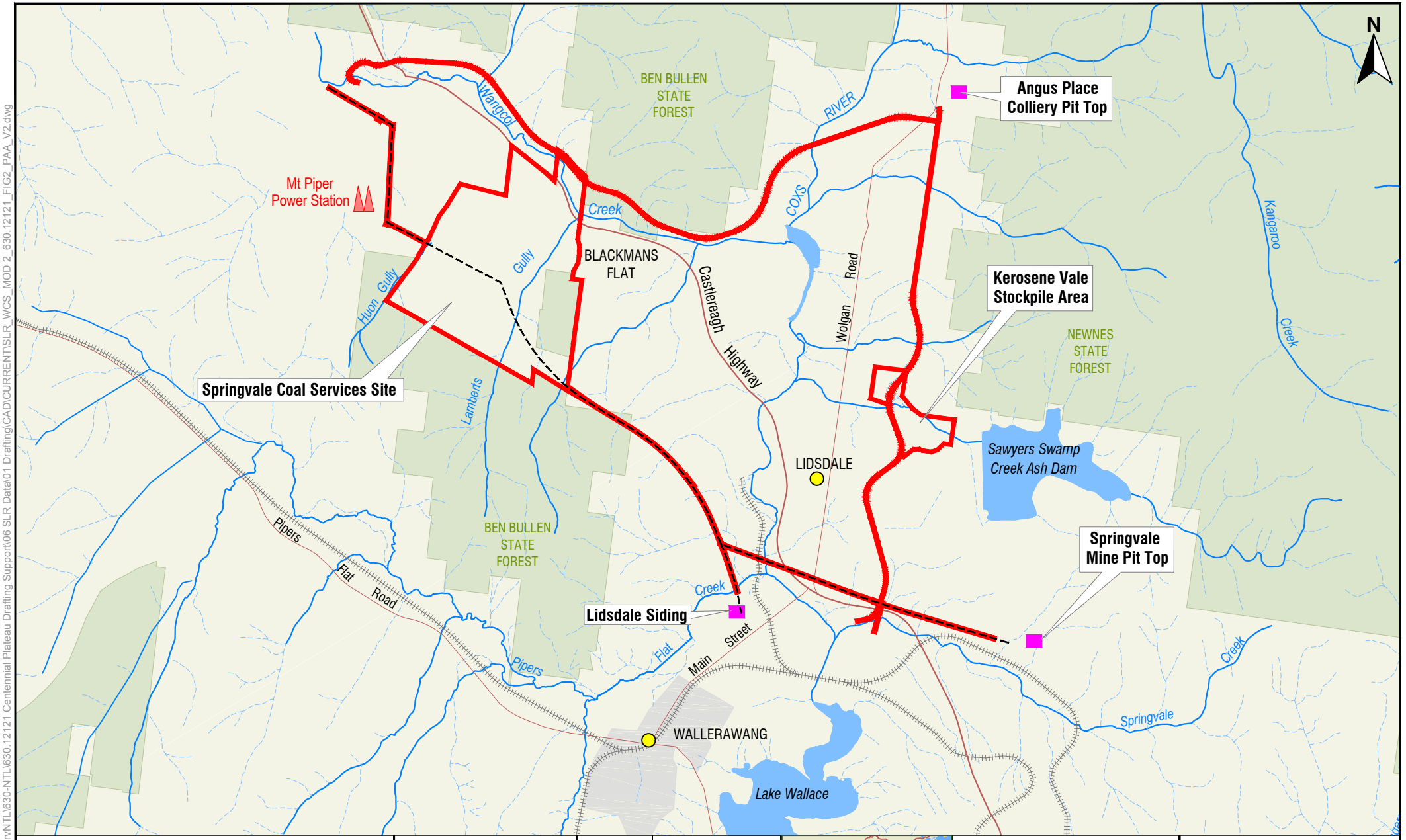
N
Angus Place Colliery Pit Top
Mt Piper Power Station
Springvale Coal Services Site
Kerosene Vale Stockpile Area
Springvale Mine Pit Top
Lidsdale Siding
BEN BULLEN STATE FOREST
NEWNES STATE FOREST
BLACKMANS FLAT
LIDSDALE
WALLERAWANG
Sawyers Swamp Creek Ash Dam
Lake Wallace
Castlereagh Highway
Wolgan Road
Pipers Flat Road
Main Street
Wangcol Creek
COXS RIVER
Huon Gully
Gully
Lamberts Gully
Kangaroo Creek
Springvale Creek
Flat Creek
Pipers Flat
LEGEND:
Project Application Area
Major Roads
Watercourse
Railway
Overland Conveyor System
Built-up areas
Town / City
State Forest
National Park
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DATE 11.08.2017
SEAM LITHGOW
REFERENCE SLR_WCS_MOD2_630.12121_FIG2_PAA_V2.dwg
SCALE 1:50000
Newcastle
Western Coal Services Project Site
Lithgow
Sydney
Figure 2
Project Application Area
0.0 1.0 2.0 KM
Centennial Coal
Western Coal Services
Prepared by:
SLR
A4
H:\Projects-SLR\630-SrvNTL\630-NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG2_PAA_V2.dwg

1.2 Background

The Project is located in the Blue Mountains area of NSW (**Figure 1**) within the Lithgow Local Government Area (Lithgow LGA).

The Project was developed in response to Centennial Coal's long term strategy for its future operations in the Western Coalfields involving both domestic and export coal sales. The key elements of the Project are to:

- provide infrastructure to enable flexibility of supply of coal to both domestic and export markets from Springvale Mine and Angus Place Colliery and other Centennial operations
- provide an upgraded Coal Preparation Plant (CPP) at the Springvale Coal Services Site (SCSS) with the total capacity to beneficiate run-of-mine (ROM) coal at 7 million tonne per annum (Mtpa)
- integrate into the one consent (SSD 5579) the receipt, the processing and distribution of coal from Springvale Mine (SSD 5594), Angus Place Colliery (PA 06_0221) and other Centennial Coal sources.

The main components included in the Project Application Area (**Figure 2**) are:

- the SCSS – for ROM coal handling and stockpiling, ROM coal beneficiation (washing), reject material emplacement and water management, comprising:
    - coal handling and preparation plant with a network of internal overland conveyor system and a coal preparation plant (CPP)
    - coal stockpiles
    - reject emplacement areas (REA)
    - water management and pollution control infrastructure
- Kerosene Vale Stockpile Area – for stockpiling of excess coal
- the overland conveyor system – extending from Springvale Mine pit top to MPPS via the SCSS, and from SCSS to Lidsdale Rail Siding (PA08_0223)
- Mount Piper Haul Road – traversing between Angus Place Colliery pit top and MPPS
- Wallerawang Haul Road – traversing between Angus Place Colliery pit top and Wallerawang Power Station (WPS)
- a private Link Haul Road between Mount Piper Haul Road and the SCSS.

The SCSS is the largest land component of the Project Application Area, and is located off the Castlereagh Highway at Blackmans Flat, approximately 18 km north of the city of Lithgow. The site consists of a CPP comprising an internal conveyor system, emplacement facilities for coarse and fine reject materials (tailings), and a coal distribution network of conveyors from the existing Springvale Mine to both the Wallerawang and Mount Piper Power Stations, and from the SCSS to Lidsdale Rail Siding for export.

The Project's strategy centres on the transport and processing of ROM coal from Springvale Mine, Angus Place Colliery and other Centennial Coal sources. Maximum ROM coal that can be received by the Project is 9.5 Mtpa from all sources. The design of the Project enables up to 7.0 Mtpa of ROM coal to be beneficiated (washed), up to 6.3 Mtpa of product coal delivered to the Lidsdale Rail Siding, and up to 6.7 Mtpa of ROM coal delivered to the domestic power stations. The Project will support the Springvale WTP following the approval of Modification 1.

An overview of the Project inputs and outputs is provided in **Figure 3**.

The Project is approved to operate 24 hours, seven days per week except:

- no truck movements for coal transportation on Wallerawang Haul Road can take place during the night period
- no truck movements for coal transportation on Mount Piper Haul Road can take place during adverse meteorological conditions during the night period
- Kerosene Vale Coal Stockpile Area operations can only take place during the day period.

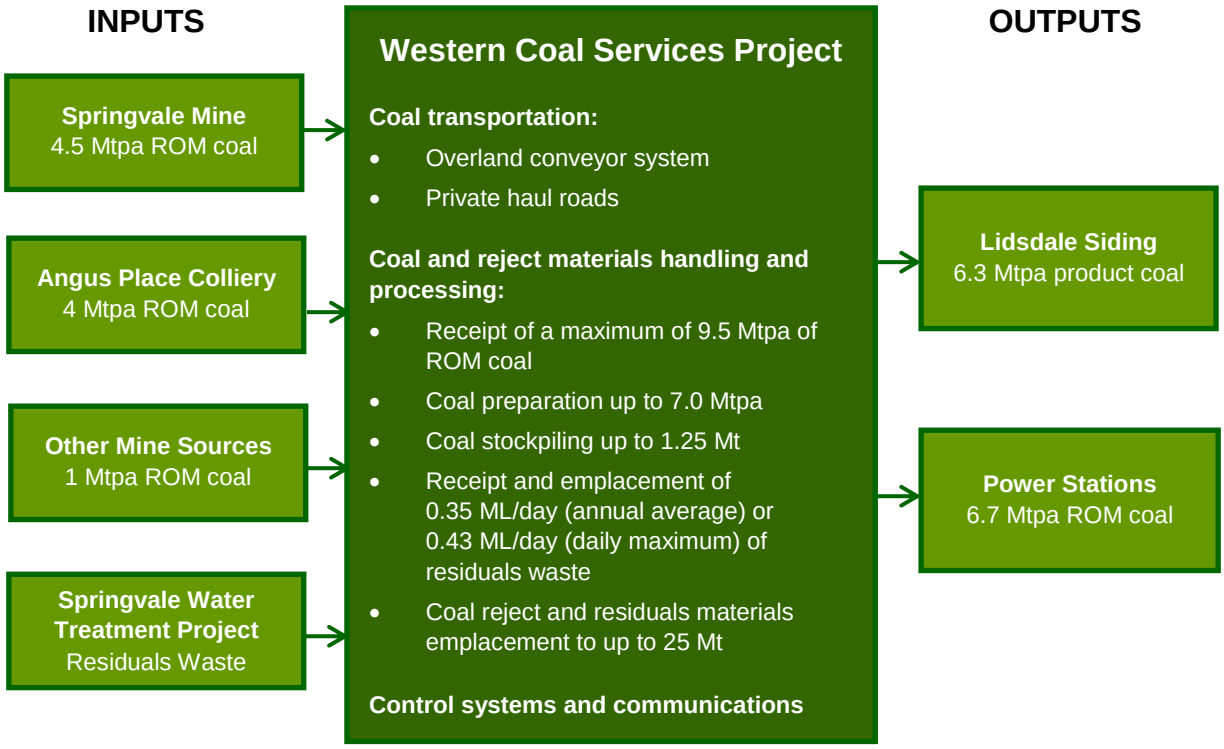


Figure 3 – Overview of the Western Coal Services Project

1.3 Proposed Modification

Springvale Coal is seeking a modification (Modification 2) to SSD 5579 under Section 96(2) of the EP&A Act to allow for:

- an increase in the amount of ROM coal that can be received by the Project from Springvale Mine from the approved 4.5 Mtpa to up to 5.5 Mtpa on the overland conveyor
- the establishment of a dedicated product coal stockpile of 80,000 tonne capacity in the vicinity of the coal preparation plant within the SCSS
- an increase in the workforce from the approved 18 FTE personnel to 25 FTE personnel
- a revision in the application of noise criteria in SSD 5579 (Schedule 3 Condition 9) to the Project components.

Details of the modification elements are described in **Chapter 4**. The SSD 5579 consent boundary for the Project remains unchanged (**Figure 2**). There are no changes proposed to the surface infrastructure. No major changes are proposed with respect to the current surface operations. The majority of activities will continue to be undertaken as described in WCS EIS (RPS, 2013a) and WCS

MOD 1 SEE (Centennial Coal, 2016). Progressive and life of mine rehabilitation will continue to be undertaken as described in the WCS EIS and further detailed in the updated WCS *Rehabilitation and Closure Plan* and the WCS *Mining Operations Plan*, following the approval of Modification 1.

There is no proposal to reduce the life of the consent in this modification from the approved 25 years from the date of consent, and the consent expiry date (30 June 2039) will remain unchanged.

1.4 The Applicant

Springvale Coal is the applicant of the proposed modification, and the operator of the Project on behalf of a joint venture comprising Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd. The relevant postal address of Springvale Coal is:

Springvale Coal Pty Limited
Level 18, 1 Market St
Sydney NSW 2000

1.5 Modification Approval Pathway

The Project was approved as a State Significant Development (SSD 5579) under Section 89E of the EP&A Act on 04 April 2014.

SSD consents may be modified under Section 96 of the EP&A Act provided that the information stipulated in Clause 115 of the *Environmental and Planning Regulation 2000* (EP&A Regulation) is contained within the application, and that the development as modified will be substantially the same development as the development for which consent was originally granted.

The approval pathway was confirmed with DPE in a letter from them dated 11 October 2016, attached as **Appendix B.**

When assessing an application under Section 96 for modification to consent, the consent authority is required to take into consideration the relevant matters outlined in Section 79C of the EP&A Act, which include the provisions of any relevant environmental planning instruments. The proposed modification meets the meets the relevant provisions of a number of planning instruments discussed in **Chapter 5.0**.

1.6 Modification Need

Concern about the exceedances of the noise criteria in SSD 5579 measured in the vicinity of a number of nearest sensitive receptors during monthly attended noise monitoring since July 2014 has prompted Springvale Coal to seek a revision in the application of these criteria to the Project components in this modification, albeit that the Project has a very low complaint history. The modification is proposing the noise criteria be applicable only to the SCSS operations and to preclude their application to other Project components, namely, the overland conveyor system, Mount Piper Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area. Additional noise controls will be implemented to the existing and proposed fixed and mobile plant at SCSS to facilitate in achieving compliance with the noise criteria in SSD 5579.

Springvale Coal will concurrently reduce noise emissions to the environment as much as practicable through the implementation of:

- mitigation measures to the overland conveyor system at Lidsdale
- operational management practices in the haulage of coal on the private haul roads and coal and reject handling within the SCSS.

Following the implementation of the identified engineering noise controls and operational management practices staged over a two-year period noise levels in the surrounding communities will be the lowest

since the establishment of the overland conveyor system and the commencement of the SCSS operations.

ROM coal production at Springvale Mine has been increased from 4.5 Mtpa to 5.5 Mtpa in the Springvale Mine's SSD 5594 Modification 1, approved on 19 April 2017. This increase has necessitated the need to increase the amount of ROM coal that can be received from that mine by the Project to up to 5.5 Mtpa and managed within the Project. However, this increase of an additional 1 Mtpa of coal from Springvale Mine will fall within the maximum 9.5 Mtpa of ROM coal approved in SSD 5579.

A dedicated 80,000 tonne product stockpile in the vicinity of the CPP will be established as part of this modification.

The workforce is proposed to be increased from the approved 18 FTE personnel to 25 FTE personnel to provide operational flexibility in the Project.

1.7 Environmental Assessment Considerations

No Secretary's Environmental Assessment Requirements were issued for the modification. Springvale Coal identified the potential impacts of the proposed modification elements in a letter to DPE dated 21 September 2016. The letter outlined the need for the modification (**Section 1.6**), the proposed modification elements, the technical assessments for the SEE, and sought DPE's agreement on the approval pathway and the adequacy of the technical assessments proposed.

A letter from DPE was received on 11 October 2016 (**Appendix B**) (i) to confirm that Section 96(2) of the EP&A Act was the applicable approval pathway for the proposed modification, and (ii) that the Department considered the proposed assessment approach was reasonable.

A risk based approach was used to identify and prioritize technical assessments required to assess the impacts of the proposed modification elements on the environment. Given the minor nature of the proposed modification elements no environmental issues have been assessed as providing a high, significant or moderate risk rating. The assessments undertaken comprised:

(v) Noise Impact Assessment

(vi) Traffic Impact Assessment

(vii) Air Quality Impact Assessment

(viii) Social Impact Assessment.

1.8 Document Purpose

This SEE has been prepared on behalf of Springvale Coal to support an application for modification to Springvale Mine's consent under Section 96(2) of the EP&A Act.

The proposed modification elements are noted in **Section 1.3**, and discussed in detail in **Chapter 4.0**. The SEE has been prepared to meet the requirements of Part 1 Clause 2(4) of Schedule 1 of EP&A Act, and contains information required under Clause 115 of the EP&A Regulation (**Section 5.3.1**).

The SEE describes the proposed modification, provides an assessment of its potential impacts and details measures that will be implemented to minimize the identified impacts. The information will be used by DPE and relevant government agencies to assess the merits of the proposed modification, and make recommendations to the determining authority on whether the proposed modification should be approved.

1.9 Document Structure

The SEE comprising the main SEE report and Appendices A to G are all provided in one volume. The SEE sets out the proposed modification in the context of the existing and approved environment,

planning considerations, key environmental issues, potential impacts, mitigation measures and residual impacts..

Chapter 1.0 provides an overview of the proposed modification.

Chapter 2.0 provides a brief site description.

Chapter 3.0 provides brief discussions of the approved operations under SSD 5579.

Chapter 4.0 provides details of the modification elements for which approval is sought, and compares the current approved operations with the proposed operations as modified.

Chapter 5.0 describes the regulatory framework relevant to the modification.

Chapter 6.0 describes the stakeholder consultation undertaken in respect of the modification.

Chapter 7.0 assesses the potential environment impacts on the water resources, and outlines management and mitigation measures as necessary to minimise impacts from the modification.

Chapter 8.0 provides the Statement of Commitments.

Chapter 9.0 provides modification justification and conclusion.

Chapter 10.0 provides the references used in the SEE.

2.0 SITE DESCRIPTION

2.1 Site Location

The Project is located to the west of the Blue Mountains in the Lithgow Local Government Area (Lithgow LGA) in New South Wales (**Figure 1**). The largest Project component, the SCSS, is located in Blackmans Flat approximately 125 kilometres (km) from Sydney, approximately 18 km north of city of Lithgow, approximately 5 km north-northwest from the township of Wallerawang, and approximately 4 km northwest of the village of Lidsdale.

2.2 The Project Application Area

The Project Application Area is shown in **Figure 2**. The approved components in the Project are:

- SCSS
- Kerosene Vale Stockpile Area
- Overland conveyor system
- Mount Piper Haul Road
- Wallerawang Haul Road
- Link Haul Road.

The Castlereagh Highway, a major arterial road in the region, traverses the Project Application Area at Blackmans Flat.

2.3 Land Zoning

The Project Application Area falls under the *Lithgow Local Environmental Plan 2014* (Lithgow LEP). The Lithgow LEP commenced on 19 December 2014 and is the principal planning instrument affecting land use in the Lithgow LGA. Under the Lithgow LEP the Project Application Area encompasses the following zones, and shown in **Figure 4**.

- RU1 Primary Production
- RU3 Forestry
- SP2 Infrastructure
- IN1 General Industrial

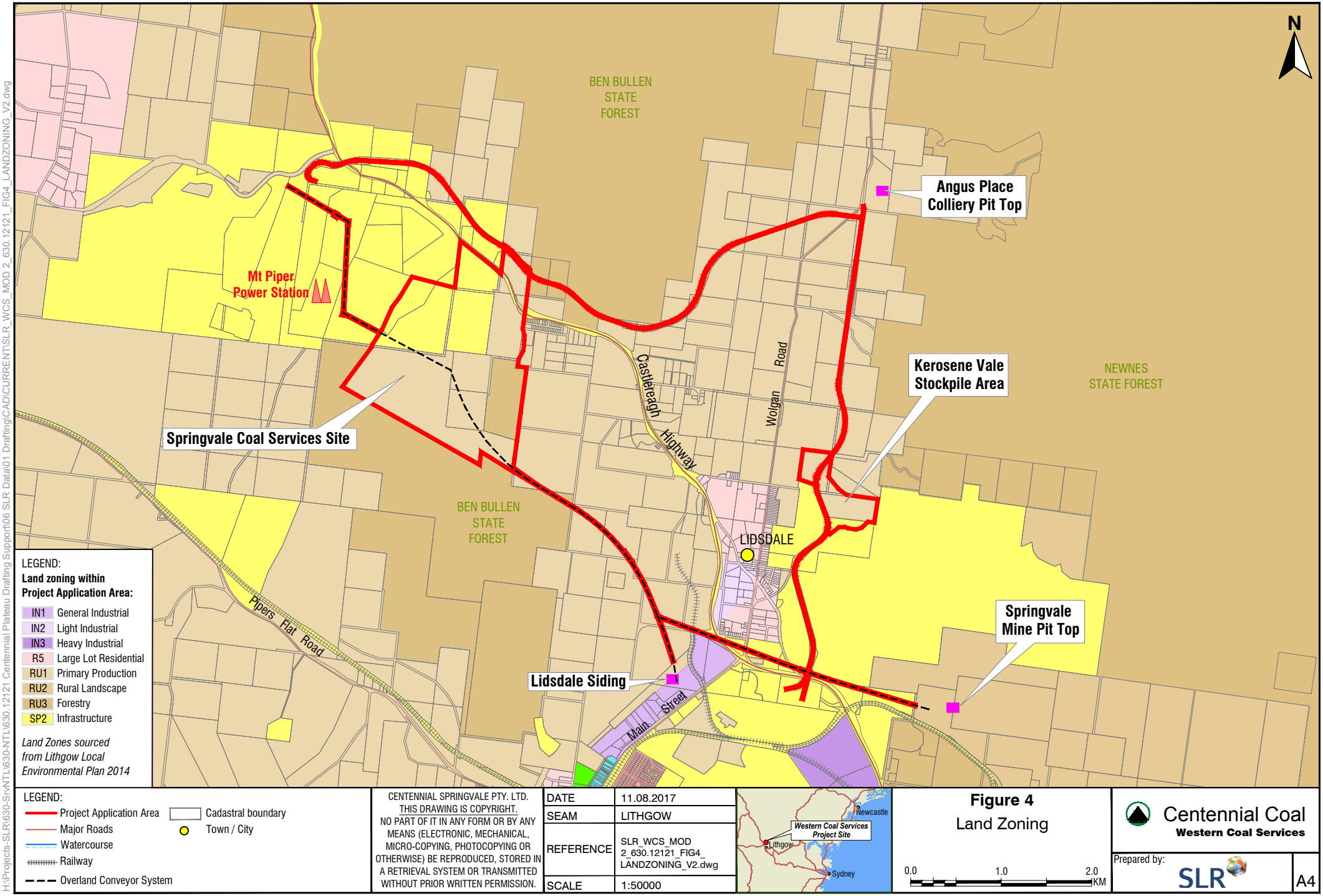
2.4 Land Ownership

The schedule of lands relevant to the Project is included in **Appendix C**, and shown in **Figure 5**. It is noted the schedule of lands has been updated since the submission of the WCS EIS (RPS, 2013a).

2.5 Land Uses

Land uses within and surrounding the Project Application Area vary, and include industrial, mining, power generation, residential, agricultural and forestry uses. MPPS is situated on land immediately west of the SCSS, whilst the locality of Blackmans Flat is located east of the SCSS. Pine Dale Coal Mine is located north of the SCSS on the northern side of the Castlereagh Highway.

Compartments of the Ben Bullen State Forest are located within the Project Application Area, to the south and the northeast of the SCSS. A large section of land within the SCSS includes an area owned by EnergyAustralia that is subject to an approval for ash emplacement. The SCSS also includes land owned by Lithgow City Council (LCC) which is subject to an approval for municipal waste emplacement.



DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG4_ LANDZONING_V2.dwg
SCALE	1:50000

Figure 4
Land Zoning

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

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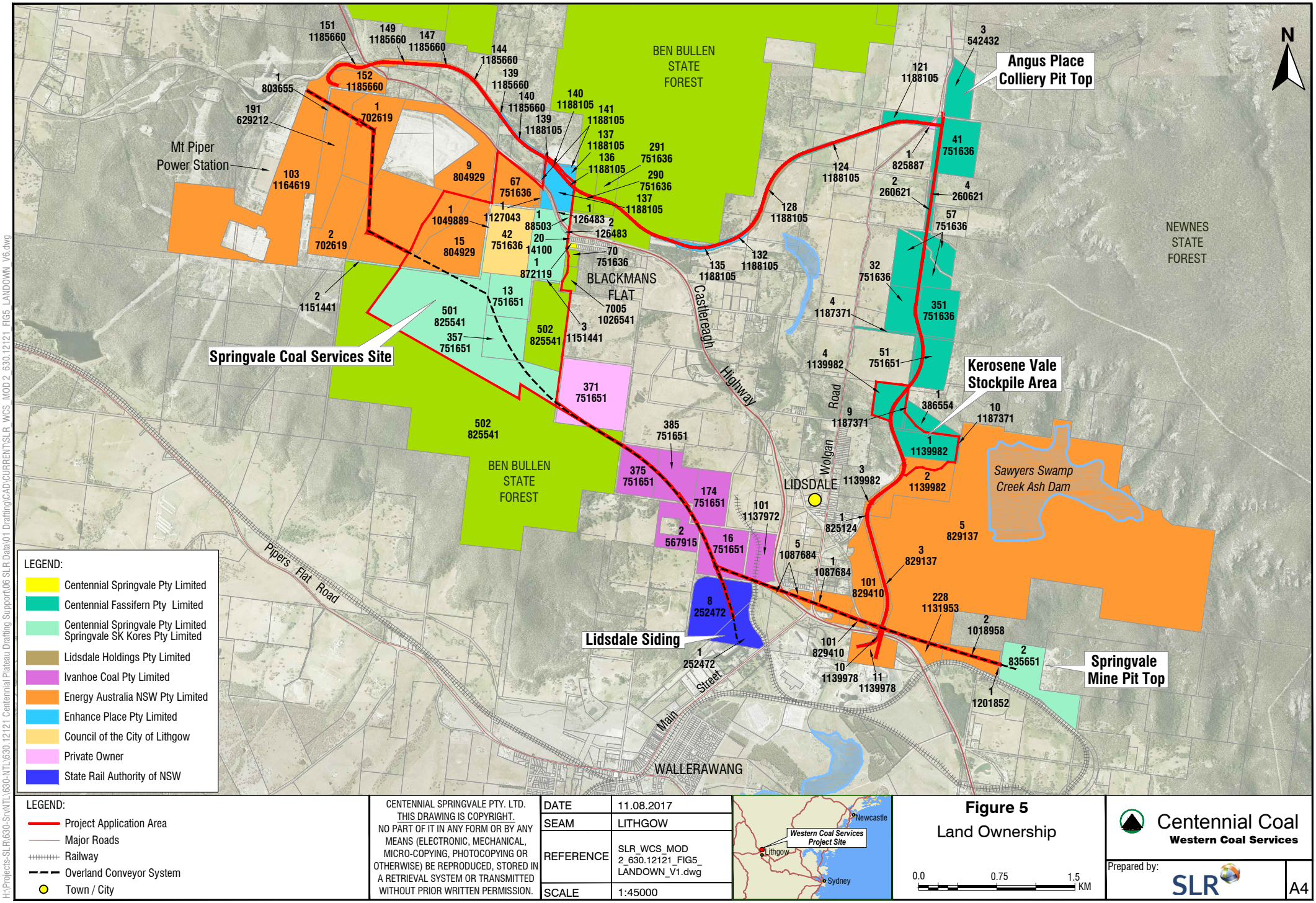
Springvale Coal Services Site
Angus Place Colliery Pit Top
Kerosene Vale Stockpile Area
Springvale Mine Pit Top
Lidsdale Siding
Mt Piper Power Station
BEN BULLEN STATE FOREST
BLACKMANS FLAT
NEWNES STATE FOREST
WALLERAWANG
LIDSDALE
Sawyers Swamp Creek Ash Dam
Castlereagh Highway
Wolgan Road
Pipers Flat Road
Main Street
N
LEGEND:
Centennial Springvale Pty Limited
Centennial Fassifern Pty Limited
Centennial Springvale Pty Limited Springvale SK Kores Pty Limited
Lidsdale Holdings Pty Limited
Ivanhoe Coal Pty Limited
Energy Australia NSW Pty Limited
Enhance Place Pty Limited
Council of the City of Lithgow
Private Owner
State Rail Authority of NSW
LEGEND:
Project Application Area
Major Roads
Railway
Overland Conveyor System
Town / City
CENTENNIAL SPRINGVALE PTY. LTD.
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DATE 11.08.2017
SEAM LITHGOW
REFERENCE SLR_WCS_MOD 2_630.12121_FIG5_ LANDOWN_V1.dwg
SCALE 1:45000
Newcastle
Western Coal Services Project Site
Lithgow
Sydney
0.0 0.75 1.5 KM
Figure 5
Land Ownership
Centennial Coal
Western Coal Services
Prepared by:
SLR
A4
H:\Projects-SLR\630-SrvNTL\630-ANTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG5_LANDOWN_V6.dwg

Land between the SCSS and the village of Lidsdale may be described as generally cleared grazing land with scattered trees and rural dwellings.

Historically, the SCSS was a site of open cut and underground coal mining prior to being converted to its current use. Open cut coal mining operations (Lamberts Gully Open Cut Mine) within the SCSS commenced in 1940, extracting coal from the Lidsdale and Lithgow seams. Underground coal mining operations commenced in 1942 with the Western Main underground entries located opposite the existing CPP, and the Eastern Main Mine entries located where the current tailings dams are located, near the main entrance to the SCSS. The mines mined the Lithgow seam until the 1990s.

Between 1980 and 1994, three separate open cut mines were developed which extracted the remaining coal south of the Castlereagh Highway, from MPPS to the SCSS entrance. The Lamberts Gully Open Cut Mine was operational from 1994 to 2010 and extracted coal from both north and south of the section of the overland conveyor system traversing through the SCSS.

2.6 Topography and Soils

The Project Application Area is situated within the Coxs River Valley. Dominant landforms include the forested hills and slopes of the Ben Bullen State Forest. The terrain within the SCSS is described as an active mine site, predominantly open and undulating, located on the valley floor with the elevation ranging from 920 m Australian Height Datum (AHD) to 960 m AHD. The site lies mid slope between the rising hills to the south and the Wangcol Creek valley to the north. Terrain to the south rises to 1050 m AHD with the overall terrain sloping to the northeast.

Soils within the Project Application Area have developed on the Illawarra Coal Measures and are naturally low in fertility. The soils have been subject to erosion, physical disturbance due to mining activities, and past overgrazing. The majority of soils are generally shallow and stony or contain coal material. However, there are two more developed soil types which are suitably structured, and of sufficient depth, for low intensity agricultural activities. These more developed soil types are structured loams and Gleyed podzolic soils, and Yellow Podzolic soils.

2.7 Geology

The Project is located in the southern part of the Western Coalfields and on the western edge of the Sydney Basin. The stratigraphy of the region consists of material from the Tertiary, Triassic and Permian periods.

The Sydney Basin is characterised by coal, shale and sandstone sedimentary beds of Permo-Carboniferous age. These form the gently dipping beds of the Illawarra Coal Measures, capped by shale and sandstone from the Wiannamatta and Narrabeen Group (Triassic Period) and Basalt from the Tertiary period.

The main geological unit in the area is the Cullen Bullen Subgroup of the Illawarra Coal Measures. The Lithgow Seam is the main target for the underground mines in the district with the other seams above this being extracted in the open cut operations where they occur and economically viable. Above this sequence is Triassic Sandstone while the unit below the coal measures is the Shoalhaven Group consisting of the Berry Formation (siltstones and shales) and the Megalong Conglomerate. The more recent Quaternary alluvium deposits are associated with the Coxs River and associated tributaries including Wangcol Creek.

There are seven identified coal seams within this region, listed in descending stratigraphical order as follows:

- Katoomba Seam
- Middle River Seam
- Moolarben Seam

- Upper Irondale Seam
- Irondale Seam
- Lidsdale Seam
- Lithgow Seam.

Directly below the Illawarra Coal Measures lies the silty, coaly sedimentary rocks of the Nile Subgroup and sandy siltstone of the Berry Siltstone. Basement rocks of Western Sydney are folded Palaeozoic metamorphosed rocks of the Lachlan Fold Belt, Late Carboniferous granites and Early Permian Rylstone Volcanics.

Seismic activity has been noted along the Coxs River Lineament Fault Zone, a 250 m wide, north-south trending graben structure which follows the valley of Coxs River.

2.8 Hydrology

The Project is located within the upper Hawkesbury River catchment, which includes the greater Warragamba Dam catchment and the upper Coxs River sub-catchment. The Coxs River is a perennial river that drains a catchment area of approximately 1,700 km^2 and is part of the greater Hawkesbury/Nepean catchment. The river rises within the Ben Bullen State Forest east of Cullen Bullen and flows generally in a south-east direction into Lake Burragorang (impounded by Warragamba Dam), which is the primary reservoir for drinking water supply to Sydney. The flow in Coxs River is regulated by three reservoirs, Lake Wallace, Thompsons Creek Reservoir and Lake Lyell.

The SCSS is located within the Wangcol Creek catchment. Wangcol Creek is a highly modified stream that drains into the Coxs River approximately 2 km to the east of SCSS. The creek has also been diverted to assist in mining land uses historically.

The runoff upstream of and within the SCSS concentrates into two natural watercourses, Huon Gully to the west and Lamberts Gully to the east. The hydrology of the site has been significantly changed due to open cut and underground mining and related activities. The natural watercourse in Huon Gully now terminates in a surface water storage, Huon Gully sediment pond 1 (SHG1) (**Figure 7**), as the gully has been disturbed by open cut mining and lower down filled by the MPPS Ash Emplacement Area.

2.9 Groundwater Environment

The geological conditions present within the vicinity of the Project create a range of aquifer systems associated with higher permeability sandstones and coal seams. These are likely separated by lower permeability aquitards associated with mudstones, claystones and shale layers.

Shallow sandstone aquifers are predominant across the SCSS and are expected to be associated with the Gap and Ivanhoe sandstone units. These aquifers are likely to be weathered in their near-surface profile resulting in relatively high permeability with potential for significant hydraulic connection with surface water features, including Wangcol Creek.

Surrounding the SCSS operations, groundwater is connected to remnant open cut areas, some of which have been backfilled while others remain open. SKM (2010) indicate that following mining (pillar extraction), the connectivity between surface water and groundwater can increase up to three times due to changes in permeability and storage capacities above the mine. This is supported by observations at the SCSS where a number of groundwater recharge areas exist, which maintain an influencing factor over discharge volume and quality currently.

The SCSS has a long history of mining using both underground and open cut methods. There are a number of historical open cut voids in the western part of the SCSS, including the H Pit West, H Pit East and Council Pit. Water stored in these voids is likely to be connected to the historical

underground mine workings which contribute down gradient to Cooks Dam. Inflows to Cooks Dam have been observed to occur from various locations along the western edge of the dam, originating from historical underground workings. The storage was historically constructed using a small (less than 3 m in height) homogeneous earth fill (overburden) bund, around the crest of an existing open cut pit and is not lined. Cooks Dam is located at the lowest point within the Lithgow Seam and forms a sink for much of the local groundwater environment.

The mudstone and siltstone units that are present between the primary coals seams (the Lidsdale and Lithgow seams) and sandstones throughout the profile significantly retard vertical flow between aquifer units. Much of this material has been extracted through mining activities

Regionally, the typical use of groundwater has been limited to stock use due to the low bore yields and water quality that is not potable.

2.10 Climate

2.10.1 Temperature

The climate in the region surrounding the Project is typical of a cool temperate mountain climate, characterised by cold winters and warm summers. Temperature data from Lithgow (Braidwood Street) Bureau of Meteorology Station (BOM) 063224, located 13 km southeast of SCSS, is provided in **Table 1**. The annual mean maximum and minimum temperature experienced at Lithgow are 18.2°C and 6.4°C respectively. On average January is the hottest month, with a mean maximum temperature of 25.5°C. July is the coldest month, with a mean minimum temperature of 0.7°C.

Table 1 – Distribution of Temperature at Lithgow (Braidwood Station, BOM Station 063224)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean maximum temperature (°C)	25.5	24.7	22.4	18.4	14.3	11.1	10.4	12.0	15.4	18.7	21.5	24.5	18.2
Mean minimum temperature (°C)	11.9	12.1	10.1	6.7	3.9	1.8	0.7	1.3	3.4	6.0	8.1	10.4	6.4

2.10.2 Rainfall

2.10.2.1 Annual Rainfall

SILO (Scientific Information for Land Owners) rainfall data from Lithgow (Braidwood Street) for the period January 1889 to December 2015 show the following rainfall statistics.

- Minimum annual rainfall – 447 mm in 1944
- Average annual rainfall – 862 mm
- Median annual rainfall – 853 mm
- Maximum annual rainfall – 1683 mm in 1950

2.10.2.2 Monthly Rainfall

The monthly rainfall statistics determined for the period of record from the Lithgow (Birdwood St) showed the average monthly rainfall was observed to vary from a low of approximately 57 mm in September to a high of approximately 93 mm in January. A significant variation in the maximum recorded monthly rainfall is observed with the maximum monthly value being approximately 374 mm in

August and the lowest monthly value being approximately 196 mm in September. The minimum monthly rainfall is less than 10 mm for all months.

2.10.3 Evapotranspiration

Average monthly evaporation rates, determined from the closest BOM station which records evaporation, Bathurst Agricultural Station (station number 63005), and based on 44 years of data from 1966 to 2016, showed the total average annual evaporation is approximately 1,350 mm. The annual average rainfall is approximately 862 mm, which gives an annual deficit (difference between annual rainfall and annual evaporation) of approximately 488 mm.

2.10.4 Wind

2.10.4.1 Wind Speed and Direction

The annual wind behaviour predicted by CALMET for the SCSS for the modelled year 2014 (refer **Section 7.3.4**) is summarised in this section and discussed in detail in Section 5.5.1 of SLR (2017). An assessment of the wind frequency chart indicated the SCSS predominantly experiences light winds (<5.5 m/s), for approximately 79% of time.

The wind roses (**Figure 6**) indicate that the predominant wind direction is seasonally dependent. Calm wind conditions (wind speed less than 0.5 m/s) were predicted to occur less than 1% of the time during the year.

The seasonal wind roses for the year 2014 indicate the following.

- In summer, winds were predominantly light to moderate (between 0.5 m/s and 8 m/s) from between north-northeast and southeast directions. The calms were predicted for approximately 1% of the time during the summer months.
- In autumn, winds were predominantly light to moderate (between 0.5 m/s and 8 m/s) from west-northwest and south-southeast directions. The calms were predicted to occur less than 1% of the time during autumn months.
- In winter, winds were predominantly light to fresh (between 0.5 m/s and 10.5 m/s) from between the west-northwest and southeast directions with very few winds from between the north and east directions. The calms were predicted to occur less than 1% of the time during winter months.
- In spring, winds were predominantly light to moderate (between 0.5 m/s and 8 m/s) from between the northwest and south-southwest directions. The calms were predicted to occur less than 1% of the time during spring months.

2.10.4.2 Atmospheric Stability

Atmospheric stability refers to the tendency of the atmosphere to resist or enhance vertical motion. The Pasquill-Turner assignment scheme identifies six Stability Classes, A to F, to categorize the degree of atmospheric stability as follows.

- Class A: Extremely unstable conditions
- Class B: Moderately unstable conditions
- Class C: Slightly unstable conditions
- Class D: Neutral conditions
- Class E: Slightly stable conditions
- Class F: Moderately stable conditions

According to SLR (2017) the SCSS exhibits a high frequency of conditions typical to Stability Class D and F. Stability Class D is indicative of neutral conditions, conducive to a moderate level of pollutant dispersion due to mechanical mixing. Stability Class F is indicative of stable night time conditions, which will inhibit pollutant dispersion resulting in higher pollutant concentrations at ground level at surrounding areas.

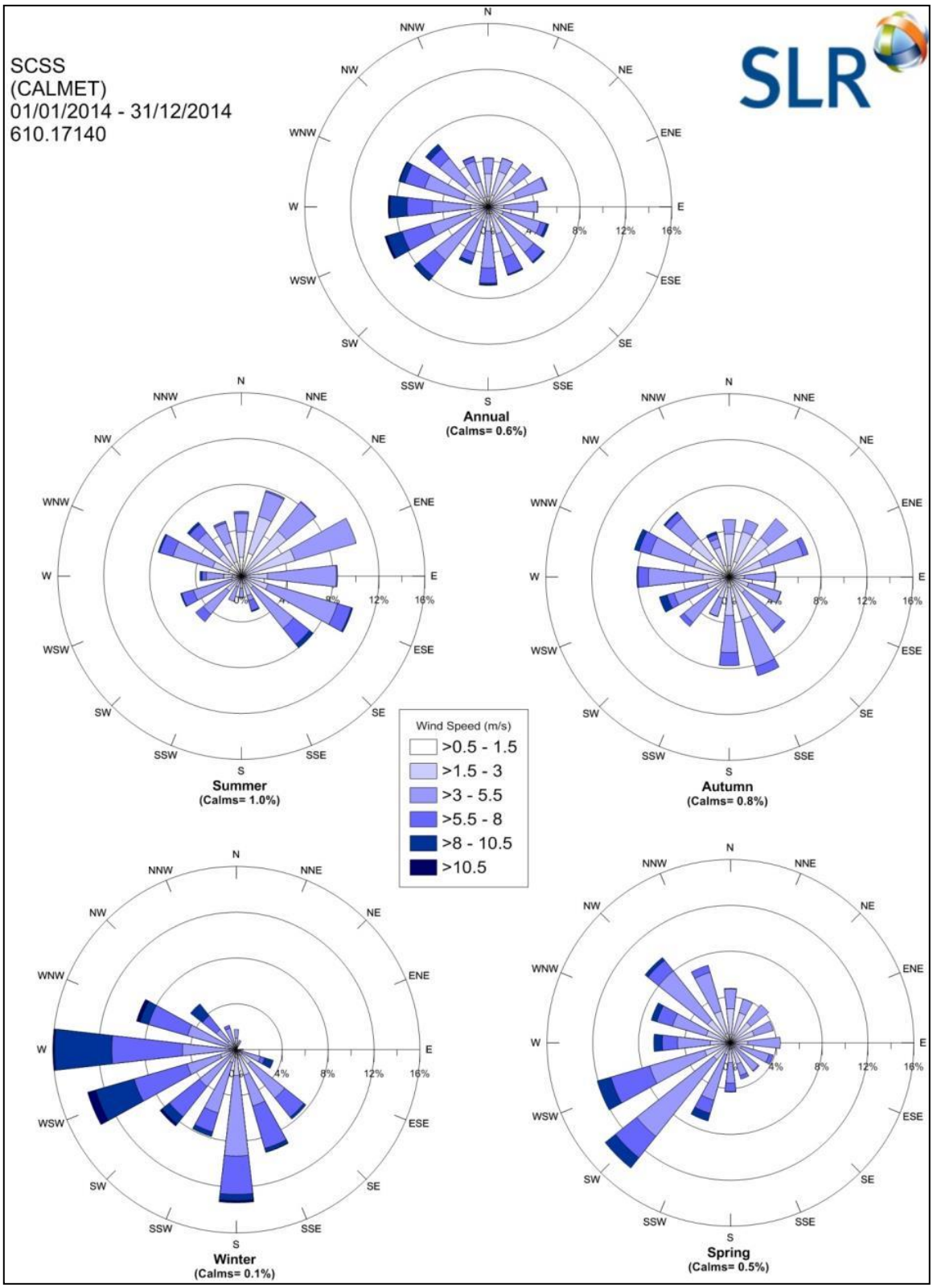


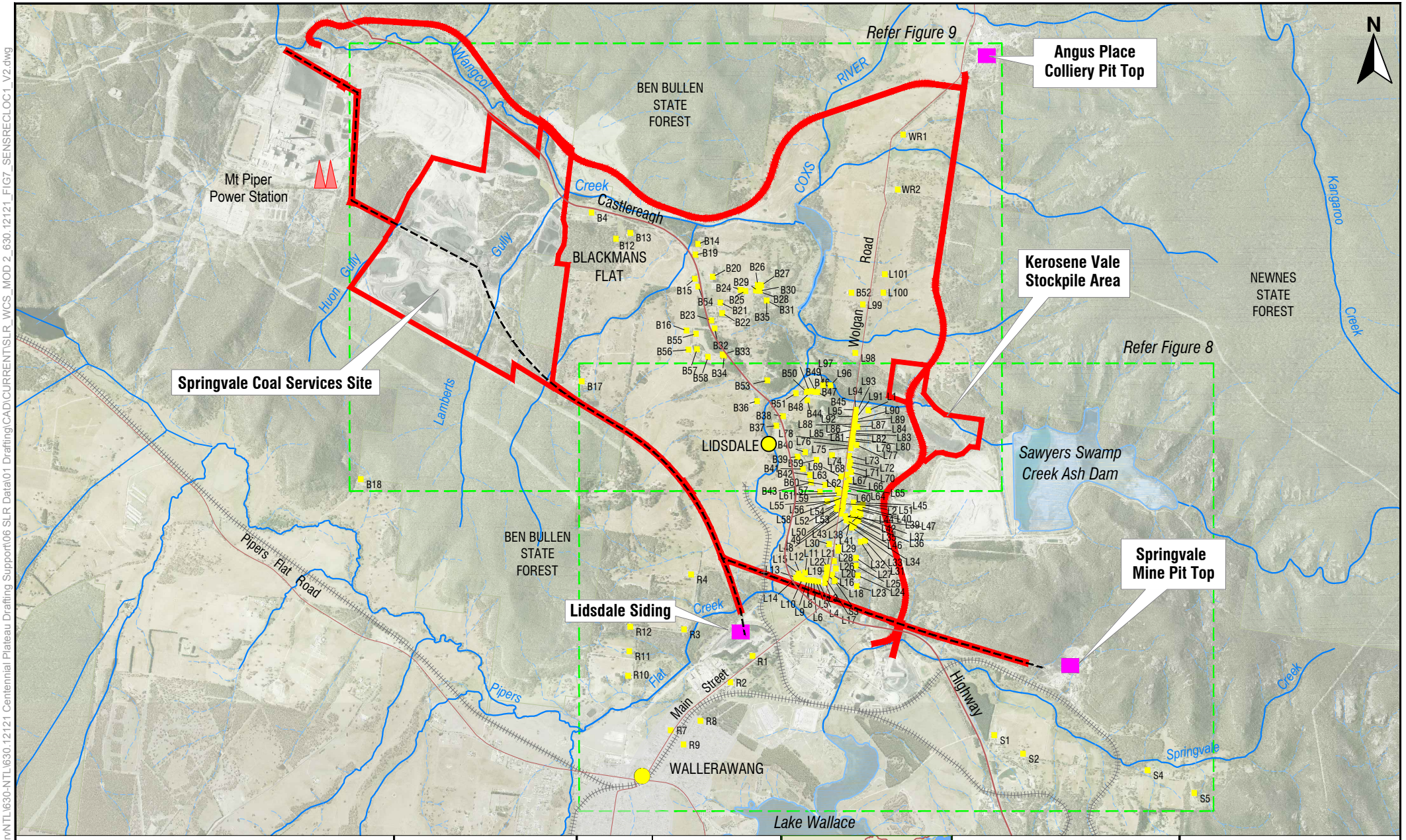
Figure 6 – Annual Wind Roses for the Springvale Coal Services Site for Year 2014 (Adapted from SLR (2017))

2.11 Sensitive Receptors

Sensitive receptors identified are those that could be potentially impacted by noise and air quality impacts arising from the proposed modification elements. The sensitive receptors are shown in **Figure 7**, **Figure 8** and **Figure 9**.

Of the 168 sensitive receptors identified:

- 50 receptors are located in Blackmans Flat with labels B04 (acquisition on request on SSD 5579), B12 – B60
- 102 receptors are located in Lidsdale with labels S3, L01 – L101
- 10 receptors are located in Wallerawang with labels R01 (acquisition on request on Lidsdale Siding Project Approval PA 08_0223), R02 – R04, R07 – R12
- 4 receptors are located in the vicinity of Springvale Mine pit top with labels S1, S2, S4, S5
- 2 receptors are located on Wolgan Road in the vicinity of Angus Place pit top with labels WR1 and WR2.



LEGEND:

- Project Application Area
- Major Roads
- Watercourse
- Railway
- Overland Conveyor System
- Built-up areas
- Town / City
- State Forest
- National Park
- Receptor

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG7_ SENSRECLOC1_V1.dwg
SCALE	1:45000

Figure 7

Sensitive Receptor Locations 1

0.0 0.75 1.5 KM

Centennial Coal
Western Coal Services

Prepared by: SLR

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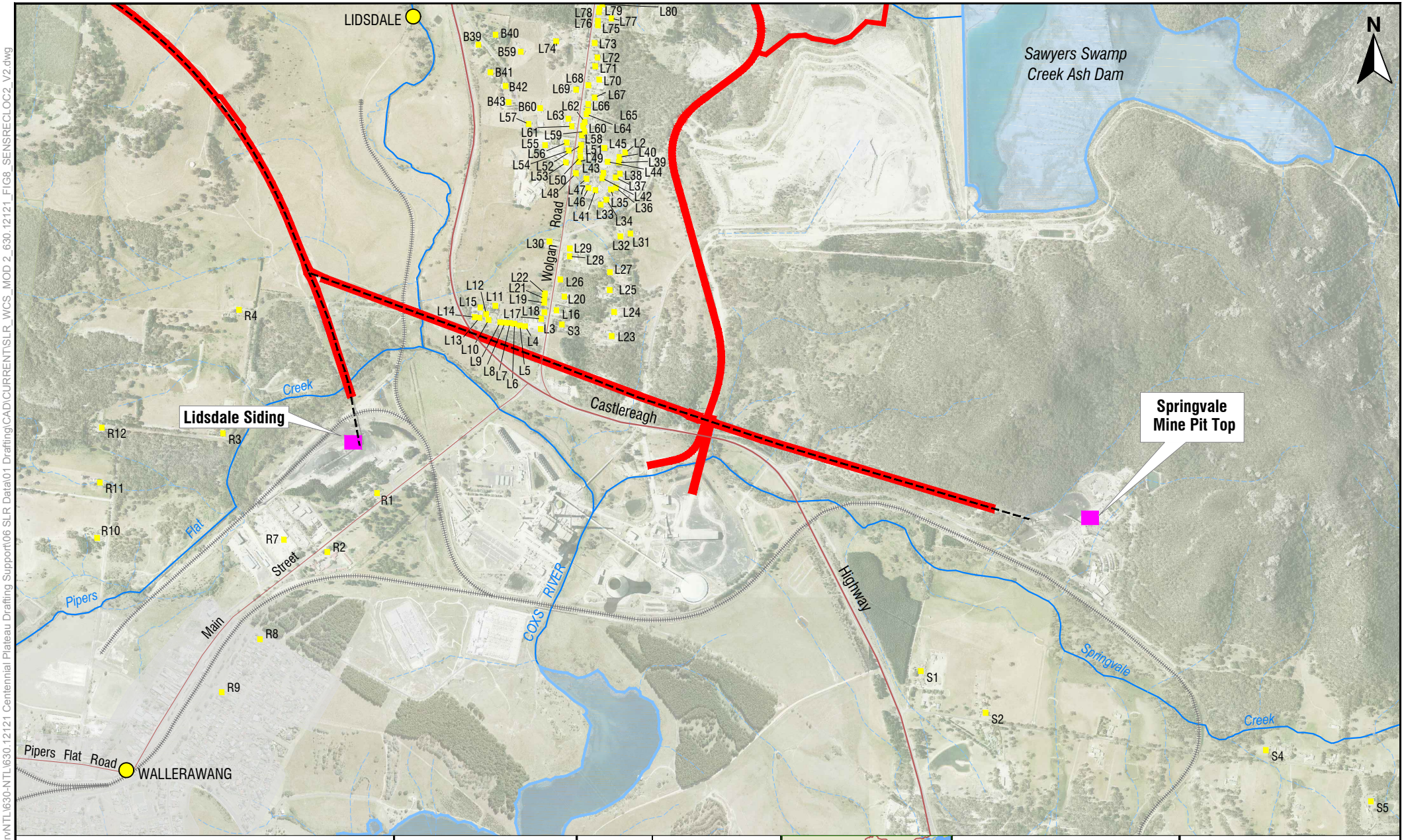

LEGEND:

- Project Application Area
- Major Roads
- Watercourse
- Railway
- Overland Conveyor System
- Built-up areas
- Town / City
- Receptor

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG8_ SENSRECLOC2_V1.dwg
SCALE	1:20000

Figure 8

Sensitive Receptor Locations 2

0 300 600 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

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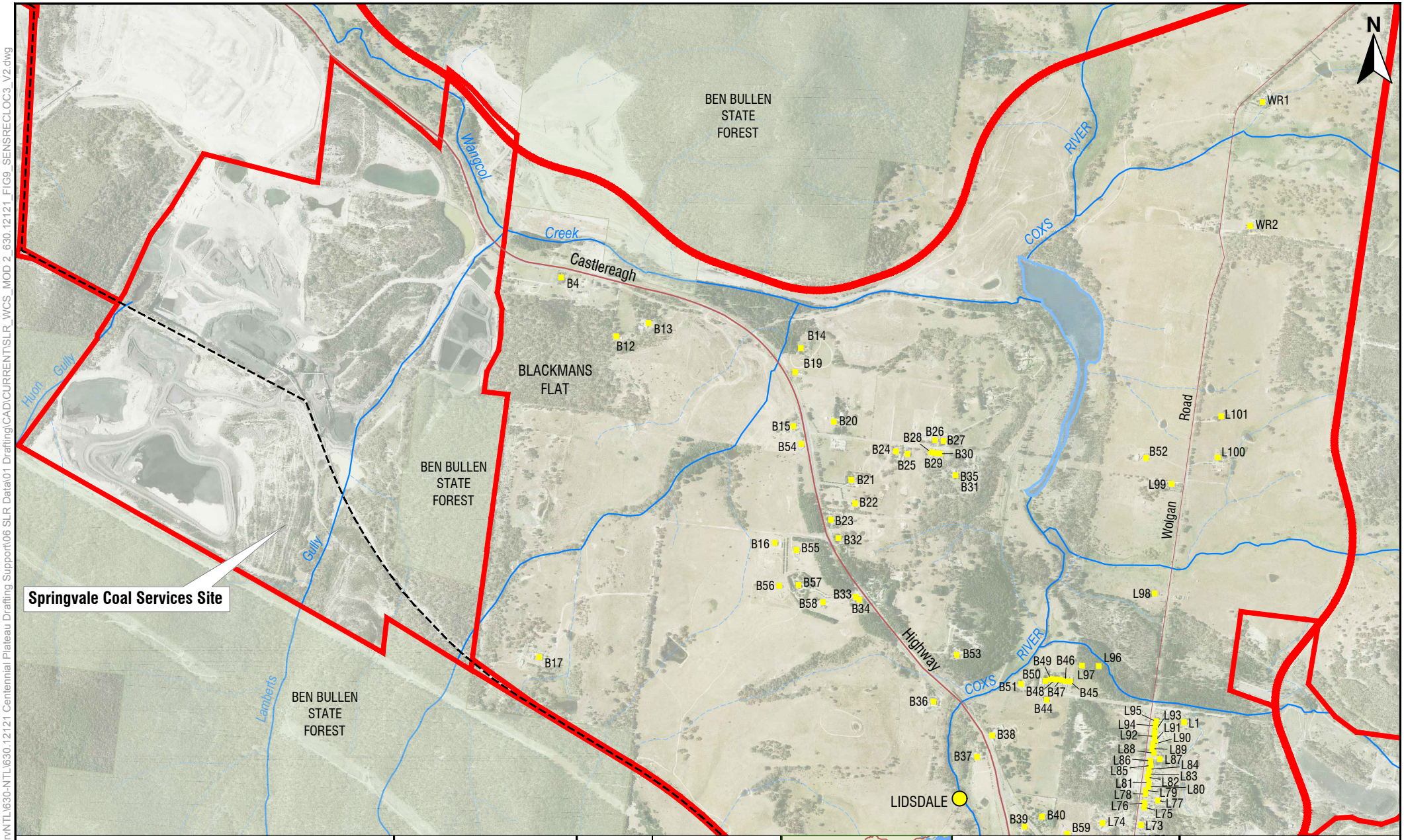

LEGEND:

- Project Application Area
- Major Roads
- Watercourse
- Railway
- Overland Conveyor System
- Built-up areas
- State Forest
- Town / City
- Receptor

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG9_ SENSRECLOC3_V1.dwg
SCALE	1:20000

Figure 9

Sensitive Receptor Locations 3

0 300 600 M

Centennial Coal
Western Coal Services

Prepared by: SLR

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3.0 APPROVED OPERATIONS

3.1 Overview of Approved Operations

The Western Coal Services Project operates under State Significant Development consent SSD 5579. The supporting documents for SSD 5579 are the *Western Coal Services Project*: *Environmental Impact Statement* (WCS EIS) (RPS, 2013a) and *Western Coal Services Project Modification 1: Statement of Environmental Effects* (Centennial Coal, 2017), which describe in detail the operations approved under the consent.

The consent SSD 5579 allows the following operations to be undertaken:

- Up to 9.5 Mtpa of ROM coal to be received at the SCSS from:
  - Springvale Mine (up to 4.5 Mtpa)
  - Angus Place Colliery (up to 4.0 Mtpa)
  - Other Centennial Coal sources, such as the future Neubeck Coal Project (up to 1.0 Mtpa)
- Upgrade of facilities and infrastructure within the SCSS to provide a total coal processing (beneficiation) capacity of up to 7 Mtpa within the CPP
- Construction of ancillary infrastructure including additional conveyors and transfer points and other coal handling requirements to cater for the upgraded CPP facility within the existing disturbance footprint of the SCSS
- Extension and enlargement of an existing reject emplacement area (REA) within the SCSS to enable sufficient reject emplacement capacity (25 Mt) for a 25 year project life.
- Construction of a private Link Haul Road linking the SCSS with the existing Mount Piper Haul Road
- Improvement of the water management systems at the SCSS by separating clean and dirty water streams prior to either reuse or discharge off site
- Receipt of no more than 0.35 ML/day (annual average) or 0.43 ML/day (daily maximum) of the residuals waste stream from the water treatment plant in the Springvale Water Treatment Project (SSD 7592) and emplacement within the existing REA at the SCSS
- Undertake progressive rehabilitation of disturbed areas within not required for operations, and rehabilitation at the end of project life
- Integration of the existing approved transport and processing of coal at Springvale Mine and Angus Place Colliery into the one consent
- Integration of the rehabilitation, monitoring, water management and reporting requirements associated with the Lamberts Gully Open Cut Mine within the SCSS
- Up to 6.3 Mtpa of product (processed and unprocessed (ROM)) coal to be delivered to the Lidsdale Rail Siding via the overland conveyor.
- Continued use all previously approved infrastructure (existing conveyors, private haul roads, Kerosene Vale Stockpile Area, reject emplacement areas, services, access roads, car parks and buildings), facilities and activities associated with the transport and processing of coal from each mine gate and the point of delivery to the SCSS.

3.2 Existing Approvals

3.2.1 Development Consents and Licences

Table 2 provides a summary of the development consents and licences relevant to the Project. The Project operates in accordance with the Mining Operations Plan (21 December 2015 – 31 December 2022).

Table 2 – Existing Development Consents and Licences

Reference	Description	Issued by	Issue Date	Expiry Date

SSD 5579	State significant development consent permitting:
	• Receipt of a total of 9.5 Mtpa off ROM coal, comprising 4.5 Mtpa from Springvale Mine, 4.0 Mtpa from Angus Place Colliery and 1 Mtpa from other Centennial Coal sources
	• Consent life of 25 years from date of consent (04/04/2014 – 30/06/2039)
	• Operations 24 hours per day, seven days per week
	• Employment of up to 18 full time equivalent personnel
	• Operations at SCSS comprising:
	  ○ Coal handling, stockpiling and processing
	  ○ Reject and residuals material emplacement from the site's CPP (fine and coarse reject material) and Springvale Water Treatment Project (residuals waste)
	  ○ Water (surface and groundwater) management
	  ○ Waste management
	• Coal transportation using:
	  ○ An overland conveyor system
	  ○ Mount Piper Haul Road
	  ○ Wallerawang Haul Road
	  ○ Link Haul Road
	• Beneficiation of ROM coal to up to 7 Mtpa
	• Transport of reject material off site (Neubeck Project) using private road haulage
	• Progressive rehabilitation and life of project rehabilitation.
		NSW Planning Assessment Commission	04/04/2014	30/06/ 2039

DA 110/98	Lamberts Gully Open Cut Mine (Lot 501, DP825541) Consent	Lithgow City Council	14/09/1998	In perpetuity
DA 105/92	Mount Piper Haul Road Consent (Coal>Link Pty Ltd)	Lithgow City Council	14/09/1992	In perpetuity
EPL 467 Angus Place Colliery	Environment Protection Licence 467 Holders: Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited	EPA	Anniversary 1 January	N/A
EPL 3607 Springvale Mine	Environment Protection Licence 3607 Holder: Springvale Coal Pty Limited	EPA	Anniversary 1 January	N/A

Reference	Description	Issued by	Issue Date	Expiry Date
Radiation Management Licence 5061304	Radiation gauges	EPA	05/06/2017	15/06/2018
Coal Mine Health and Safety Act 2002	Section 100 Approval Establishment of Reject Emplacement Area – A Pit	Industry and Investment	07/06/2010	06/2026
High Risk Activity (*Work Health and Safety (Mines) Regulation 2014*)	New Reject Emplacement Area – Lamberts Gully	DRE	24/08/2015	N/A
Monitoring Bore Licences	10BL605382 (for 4 bores) 10BL605349 10BL605348 10BL605347 10BL605346	DPI Water	03/06/2013 12/03/2013 12/03/2013 12/03/2013 12/03/2013	In perpetuity

3.2.2 Mining Tenements

The Project operates under a variety of mining tenements, included in **Table 3**, comprising mining lease (ML), coal lease (CL), consolidated coal lease (CCL), mining purposes lease (MPL), private lands lease (PLL).

Table 3 – Mining Tenements

Reference	Title Holder	Grant Date	Expiry Date	Area (ha)
CCL733	Centennial Springvale Pty Ltd	23/05/1990	03/07/ 27	693
CL361	Centennial Springvale Pty Ltd	17/07/1990	16/07/32	14.26
CL394	Centennial Springvale Pty Ltd	27/05/1992	27/05/34	17
ML1319	Centennial Springvale Pty Ltd	05/07/1993	05/07/35	1.476
ML204	Centennial Springvale Pty Ltd	27/05/1910	27/05/33	10.12
ML564	Centennial Springvale Pty Ltd	02/05/1922	02/05/23	19.75
PLL133	Centennial Springvale Pty Ltd	10/08/1922	10/08/24	16.51
Part MPL314	Centennial Springvale Pty Ltd	03/08/1993	03/08/35	95.98
ML1352	Centennial Springvale Pty Ltd	23/06/1994	23/06/36	7.6
ML1448	Centennial Springvale Pty Ltd	31/05/1999	30/05/20	95.16
Part MLA497	Mining Lease Application	Submitted 28/05/2015		
Part MLA498	Mining Lease Application	Submitted 02/06/2015		

3.3 Existing Operations

3.3.1 Hours of Operation

The hours of operation for the Project components are as follows:

- SCSS: 24 hours per day, 7 days per week
- Kerosene Vale Stockpile Area: Day period only (7 am – 6 pm)
- Overland Conveyor System: 24 hours per day, 7 days per week
- Mount Piper Haul Road: No operations during adverse meteorological conditions during the night period (10 pm – 7 am)
- Wallerawang Haul Road: No operations during the night period (10 pm – 7 am).

3.3.2 Workforce

The Project is approved to employ a workforce of up to 18 full-time equivalent employees.

3.3.3 Site Access

SCSS is accessed via the Access Road which joins Castlereagh Highway in Blackmans Flat. From the Castlereagh Highway, access is readily available to the sub-regional and regional road network.

3.3.4 Coal and Reject Material Transport

ROM coal from the Springvale Mine pit top is transported to either MPPS directly, or via the SCSS using the overland conveyor system. ROM coal transferred to the SCSS is either for stockpiling (and subsequently transferred to MPPS) or further processing (beneficiation). Product coal (beneficiated and ROM) from the CPP is transferred to the Lidsdale Siding Rail Loading Facility, using the return belt of the overland conveyor system, for the export market.

ROM coal from Angus Place Colliery is approved to be transferred by road haulage to the MPPS via the Mount Piper Haul Road and to Wallerawang Power Station (under care and maintenance) via the Wallerawang Haul Road. The following restrictions currently apply.

- No truck movements are to occur during the night on Wallerawang Haul Road.
- No truck movements are to occur during the adverse meteorological conditions during the night period on Mount Piper Haul Road.

In addition, the Mount Piper haul road conditions of consent (DA 105/92) states that truck movements are limited to five (5) loaded truck movements (five (5) movements from the mine and five (5) return trips) between 9.30 pm and 7.00 am.

A private Link Haul Road from the Mount Piper Haul Road to the SCSS is approved but not yet constructed. Once the Link Haul Road is constructed it will allow the transport of:

- ROM coal from Angus Place Colliery pit top to the SCSS
- coal from SCSS to Kerosene Vale Stockpile Area and vice versa
- coarse reject material from the SCSS to the proposed Neubeck Coal Project (once the consent for this project is in place)
- ROM coal from other Centennial operations (including the proposed Neubeck Project (once the consent for this project is in place) to the SCSS and Kerosene Vale Stockpile Area.

3.3.5 Coal Handling and Stockpiling

The Project is approved to receive ROM coal up to a maximum of 9.5 Mtpa from a number of sources, (**Figure 3**) as follows:

- Springvale Mine – up to 4.5 Mtpa
- Angus Place Colliery – up to 4.0 Mtpa
- Other Centennial Coal sources – up to 1.0 Mtpa.

The Project is approved to transfer up to 6.3 Mtpa of product coal to the Lidsdale Rail Siding, and up to 6.7 Mtpa of ROM coal to the domestic power stations.

Once ROM coal has been received at the SCSS the coal is stockpiled in a 150,000 tonne capacity ROM coal stockpile area in the vicinity of the CPP, and which serves as the CPP feed.

An additional ROM stockpile capacity of 600,000 tonnes is available at the SCSS if MPPS is unable to receive coal for an extended period. This stockpile area can also be used to blend reject and to store and feed raw coal produced from other operations.

The Kerosene Vale Stockpile Area provides the Project with an additional coal storage capacity of 500,000 tonnes. Access to Kerosene Vale Stockpile Area from the SCSS using private haul roads is only possible if the approved private Link Haul Road (**Figure 10**) connecting the SCSS and Mount Piper Haul Road with an overbridge over Castlereagh Highway is constructed. There is no plan to construct the Link Haul Road in the current five-year business plan.

The Project is approved to operate a 100 tonne dozer and a 50 tonne wheel loader on coal (and reject) stockpiles during the day, evening and night periods.

3.3.6 Coal Processing

The SCSS houses the original CPP constructed as part of the original (now lapsed) Springvale Mine consent DA 11/92. This CPP has the capacity to process coal up to 2.0 Mtpa.

A new CPP with an additional 5.0 Mtpa ROM coal beneficiation capacity is approved to be constructed in the vicinity of the existing CPP, however has not been constructed to date. The new CPP will include waste recovery and water recycling circuits which will allow generation and separation of dry coarse and fine reject material streams.

3.3.7 Reject Materials Management

The SCSS is approved to operate a co-disposal reject emplacement area for the for the co-disposal of both the coarse and fine reject emplacement. This REA consists of a series of tailings ponds and a retention dam, located on the eastern boundary of the site. The REA is being progressively rehabilitated.

The A-Pit REA, formed by the final void of the Lamberts Gully Open Cut Mine, is located on the southern boundary of the SCSS, south of the CPP and overland conveyor. It is no longer used for emplacement of reject materials, and currently serves as water management structure.

A new enlarged REA was approved to be constructed in SSD 5579 to up to approximately 1000 m long and approximately 700 m wide surrounded by a purpose built dirty water management system. The construction of the new REA was commenced in 2015. It is a progressive structure with works incorporating the former A-Pit REA. The first stage of the REA construction, referred to as the REA Storage Augmentation Project (REASA) has involved the extension to the south and east of the A-Pit REA, in order to store up to 1.4 million m^3 of sub-aerially deposited fine coal reject material. The walls of the REA are constructed from coarse reject materials.

The REA development has been planned as part of five stages based on the down gradient crest level. Each stage will comprise maximum 5 m high embankment lift. The stages and crest levels are as follows:

- Stage 1 with crest level at RL 960 m AHD
- Stage 2A facility extension westwards with crest level at RL 965 m AHD
- Stage 2B with the final crest level at 970 m AHD
- Stage 3 with the final crest level at RL 970 m AHD.

The Lamberts Gully REASA will have a life of up to approximately 8 years at current reject production levels.

A predominantly trenched pipeline from the water treatment plant to be located within the MPPS site as the Springvale WTP (SSD 7592) will transfer residuals (up to 2% solids) to the new REA. The liquid residuals will be sub-aerially deposited in the centre of the REA using a distribution header which will allow the residuals to be discharged at multiple points with low velocity and low volumetric flow to avoid localised erosion within the REA. The maximum daily transfer rate to the REA from the water treatment plant will be 0.43 ML/day, however will not exceed 0.35 ML/day on an annual average basis. As the residuals material will be mostly water the transferred volume will be decanted from the REA and managed in accordance with the current water management practices at the SCSS, described in detail in **Section 3.3.9.3**.

The total volume of reject material approved to be stored in the REAs at the SCSS is up to 12.5 million m^3. Based on a conservative compaction density of 2 tonnes/m^3, the available reject emplacement capacity approved at SCSS over the 25-year life of the Project is 25 Mt.

The Project is approved to operate a 50 tonne wheel loader on the coarse reject material stockpiles during the day, evening and night periods. The haulage of reject materials using two haul trucks from the existing reject stockpile area in the vicinity of the CPP to the new REA occurs using haul trucks. SSD 5579 also authorises the transport of up to 1 Mtpa of coarse reject off site using the private haul road network for emplacement within the final void of the proposed Neubeck Project (subject to obtaining the necessary approvals). The transport of reject materials to the Neubeck Project site using private haul roads will only be possible if the approved private Link Haul Road (**Figure 10**) is constructed.

3.3.8 Surface Facilities and Infrastructure

3.3.8.1 Support Facilities

The support facilities at SCSS consist of the following.

- Site access road and internal roads
- Car park
- Administration buildings
- Potable and ablutions water from Lithgow City Council main town water supply
- Biocycle sewerage systems – two units are available and both units have spray irrigators and utilise adjacent landscaping areas
- Bath house and ablutions facilities
- Workshop and storage areas
- Telecommunications systems
- Water storage tanks for storage of process water for the CPP and fire-fighting purposes

- Main control room
- Electrical substations and transformer yards.

3.3.8.2 Surface Infrastructure

The infrastructure within the Project comprises the following.

- The main overland conveyor system with sections OL1 – OL5, spanning from Springvale pit top (OL1) to MPPS (OL5), with OL2 section connecting the SCSS and Lidsdale Siding. A conveyor spur branching from the overland conveyor system at a point approximately 1 km west from the Springvale Mine services the WPS (now under care and maintenance).
- A system of internal conveyors within the SCSS for the transfer of ROM coal and product coal from and to stockpiles and the CPP.
- Coal stockpile areas and REAs
- Surface water management and pollution control infrastructure including separation of dirty and clean water flow paths, both at the SCSS and Kerosene Vale Stockpile Area, comprising:
    - water storage dams
    - diversion drains
    - settling ponds
    - licensed discharge points
    - dust suppression facilities.

Installation of additional clean water diversions, described further in **Section 3.3.9.1**, have commenced at the SCSS, as was committed to in the WCS EIS (RPS, 2013a).

The SCSS infrastructure is shown in **Figure 10** while the Kerosene Vale Stockpile Area infrastructure is shown in **Figure 11**.

3.3.9 Surface Water Management

The objective of the water management system at SCSS is to generally secure supply for coal washing, washdown and dust suppression (haul roads and coal stockpiles), and to control the quantity and quality of water discharged into Wangcol Creek via the licensed discharge point LDP006 (EPL 3607).

The inputs into the surface water system consist of:

- surface water runoff from catchment areas as a direct result of rainfall events
- groundwater from old underground workings
- runoff water from the CPP.

The surface water management system at SCSS consists of a series water management structures (**Figure 12**), allowing surface water runoff from the site and water seeping from the old underground mine workings to be captured and redistributed within the site for reuse or to improve the water quality of another dam.

3.3.9.1 Clean Water Management

Clean water diversion drains at the SCSS concentrate the catchment upstream of the site into two drainage lines that are then intercepted by the site. Lamberts Gully, to the east, is intercepted by Main Sediment Dam, which also collects runoff from rehabilitation areas. Huon Gully, to the west, terminates at SHG1 where retained runoff is lost to seepage. It is likely that water seeping out of this storage is

seeping into historical underground workings. The Main Sediment Dam and Cooks Dam provide the site's most reusable sources of water.

Clean Water Diversion and Pollution Reduction Works

The SCSS is currently undertaking design and construction works relating to the separation and optimisation of clean and dirty surface water flow paths within the Lamberts Gully catchment. The works are consistent with a Statement of Commitment included in the WCS EIS, which committed to completing the separation of clean and dirty water at SCSS within five years of date of the development consent. Schedule 3 Condition 46 of SSD 5579 (as modified) requires the design and installation of run-off diversion works to divert all clean water run-off generated from catchments upstream of SCSS to be completed prior to receiving any residuals material from the operation of the Springvale WTP, commencing from 30 July 2019.

The clean water diversion works at the SCSS, when completed, will reduce the clean water load from LDP006 and improve the quality of water discharged from the site in rainfall discharge events. Additionally, the volume of clean water that infiltrates into the groundwater and subsequently reports to LDP006 is expected to reduce, in part due to improved flow efficiency through the site and the planned pumping of water from SHG1 to the Main Sediment Dam. The primary objective is to promote the capture and settlement of runoff from dirty catchments and to bypass cleaner water appropriately through the site.

The separation works were commenced in mid-2016 during the establishment of the new REA described in **Section 3.3.7**, and comprised:

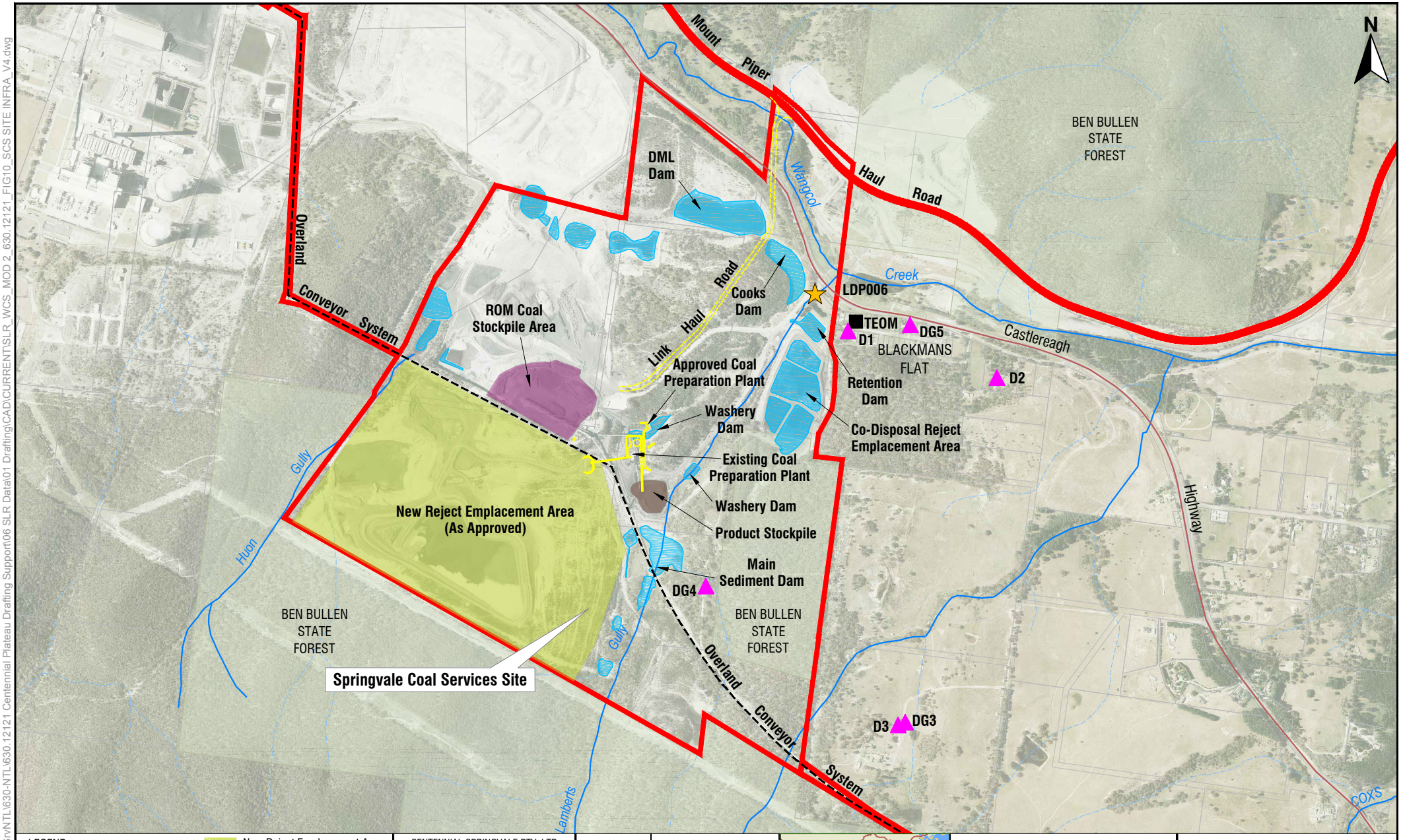
- Diversion of upstream catchment of Huon Gully around the new REA to enable clean water flows down Huon Gully
- Modifications to the A-Pit REA to serve as the sediment pond for the new REA by receiving tailings return water
- Establishing a pumping system for the transfer of tailings water from the A-Pit REA to Cooks Dam.

Automated flow and targeted manual water quality monitoring were established to monitor the success of the separation works.

The Lamberts Gully clean water separation has commenced with Stage 1 clean and dirty water diversion works, shown in **Figure 12**, anticipated to be completed by end of 2017. The Stage 2 works is anticipated to be completed by June 2019. Works and associated monitoring planned within the two stages are described below.

Stage 1 Water Diversion – Clean (non-coal contact) and Dirty (coal contact) Water Separation at Lamberts Gully

- Installation of the head of catchment separation to divert the upstream clean water away from the Retention Pond
- Commencement of modification to critical culverts, drains, spillways, separation bunds and the regrade of the Access Road with a cross-grade to the dirty water diversion through Lamberts Gully according to design
- Construction of a staged bypass between the Main Sediment Dam and Retention Pond
- Targeted manual flow and quality monitoring



LEGEND:
- Project Application Area
- Major Roads
- Watercourse
- Overland Conveyor System
- State Forest
- Coal Stockpile Area
- New Reject Emplacement Area (as approved)
- Water Management Structures
- New Infrastructure
- Licensed Discharge Point
- Dust Deposition Gauge
- TEOM

DATE	01.09.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG10_ SCS SITE INFRA_V4.dwg
SCALE	1:17500

Figure 10

Springvale Coal Services Site Infrastructure

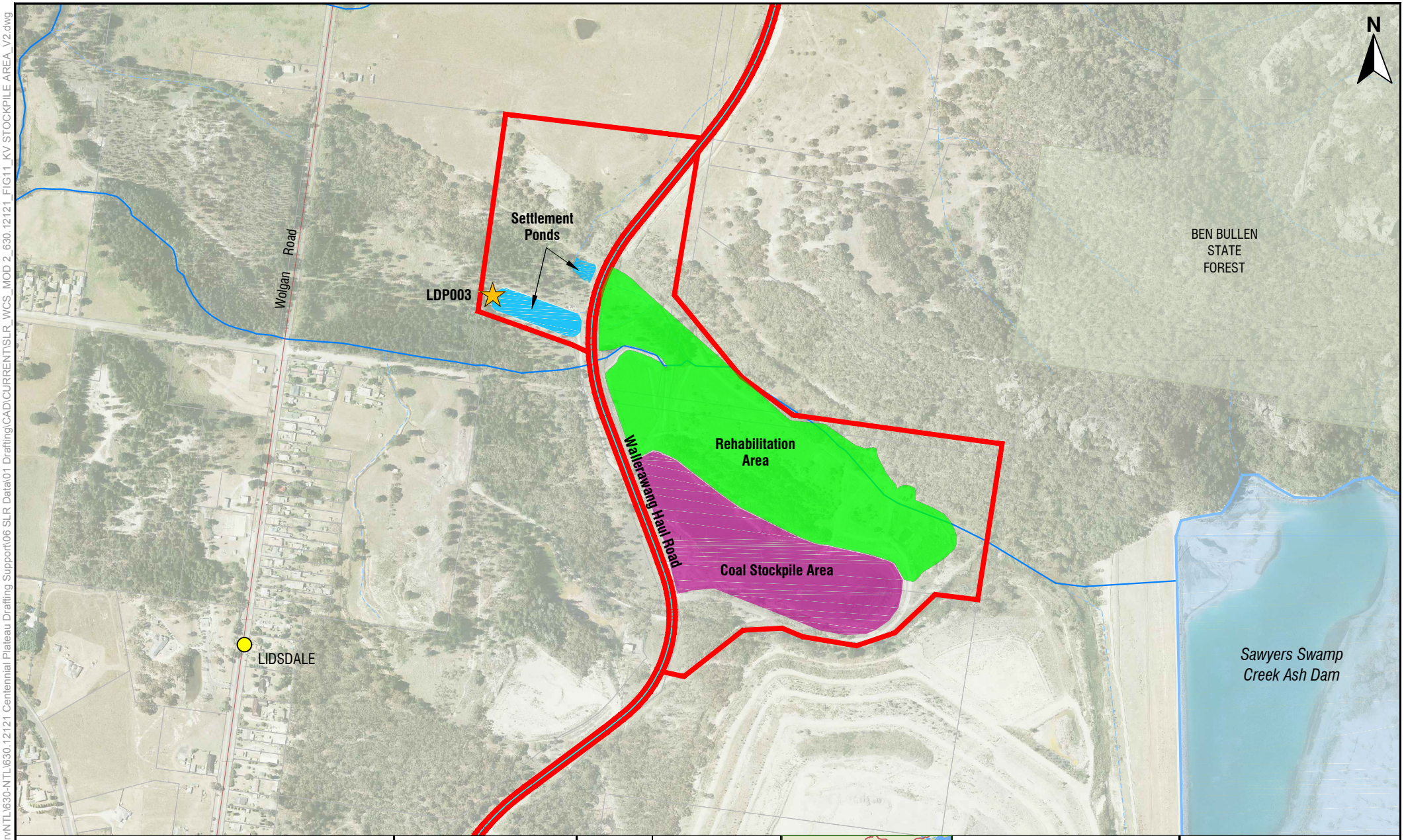
0 300 600 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

H:\Projects-SLR\630-SrvNTL\630-NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG10_SCS SITE INFRA_V4.dwg



LEGEND:
- Project Application Area
- Major Roads
- Watercourse
- Railway
- State Forest
- Town / City
- Rehabilitation Area
- Coal Stockpile Area
- Water Management Structures
- Licensed Discharge Point

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG11_KV STOCKPILE AREA_V1.dwg
SCALE	1:8000

Figure 11
Kerosene Vale Stockpile Area

0 150 300 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

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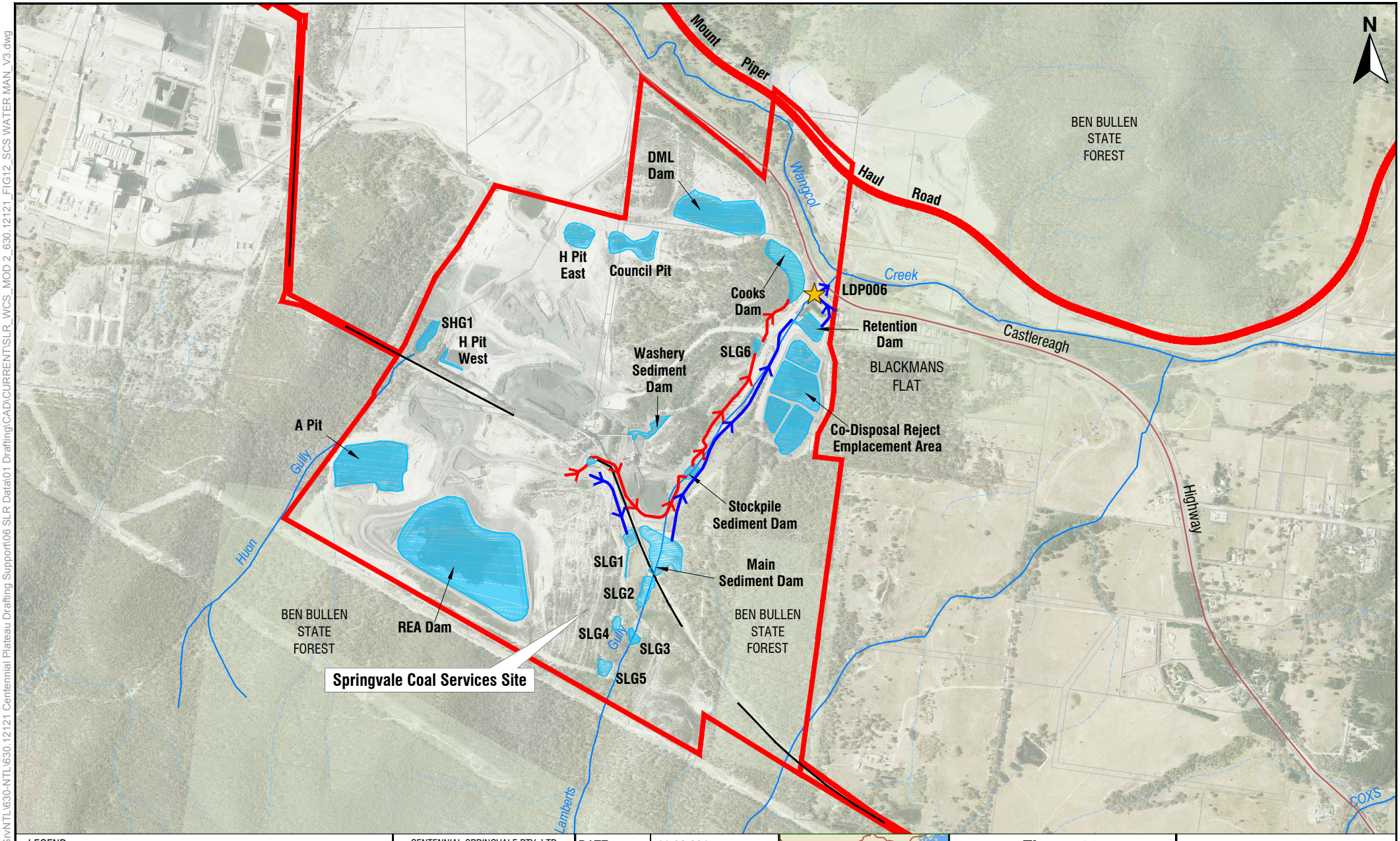


LEGEND:

- Project Application Area
- Major Roads
- Watercourse
- Railway
- Overland Conveyor System
- State Forest
- Water Management Structures
- Licensed Discharge Point
- Stage 1 - Clean Water Diversion
- Stage 1 - Dirty Water Diversion

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG12_ SCS WATER MAN_V2.dwg
SCALE	1:17500

Figure 12
Water Management Structures at Springvale Coal Services Site

0 300 600 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

H:\Projects-SLR\630-SrvNTL\630-NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG12_SCS WATER MAN_V3.dwg

Stage 2 Water Diversion – Clean (non-coal contact) and Dirty (coal contact) Water Separation at Lamberts Gully

- Completion of modification to critical culverts, drains, spillways, and separation bunds
- Installation of automated flow and quality monitoring
- Interception of clean water from the Huon Gully and transfer (via pumping) to Lamberts Gully clean water diversion

The proposed civil design works for the clean diversion works are based on storm event criteria of 20 to 50 year ARI.

Schedule 3 Condition 46 of SSD 5579 (as modified) requires the establishment of a groundwater monitoring network across the SCSS comprising an adequate number of bores that will provide an understanding of surface water and groundwater interactions across the site. The automation of the existing groundwater monitoring network was completed in mid-2017.

3.3.9.2 Dirty Water Management

The dirty water management system consists of a series of water management structures, pumps and pipes that allow runoff and water seeping from the groundwater to be captured, treated (if required) and redistributed within the site for reuse or to improve the water quality of another dam through dilution. Water is used in the CPP and for dust suppression.

The existing dams and sediment basins across the north-east and south-east perimeter of the SCSS provide containment of predominantly surface runoff. The arrangement of the basins permits the settling of suspended sediment prior to discharge at LDP006. Surface water predominantly entering these containment basins is either runoff from undisturbed catchment areas off site or from the partly rehabilitated previous open cut mine areas at the site. Water running off from contaminated hardstand areas is directed to primary sediment control basins, which is either recycled or further treated within the existing water management system.

Various measures are employed to manage the water quality on site. Runoff from disturbed areas and areas not fully rehabilitated are captured in sediment ponds and treated if required prior to discharge. This allows for maximum reuse of influenced water. The Retention Dam is used as a final storage location (settling pond).

A number of the surface water storages are unlined and are expected to seep into and/or receive seepage from groundwater including water in the historical mine workings. These unlined storages include DML Dam, Cooks Dam, SHG1, Council Pit, H Pit East, H Pit West, A Pit REA and the New REA.

3.3.9.3 Water Management Structures

The locations of the dams that exist within the SCSS and discussed below are shown in **Figure 11**.

Water management structures at the Kerosene Vale Stockpile Area are limited and shown in **Figure 10**. Pollution control and water retention is provided by Kerosene Vale Dam. Surface water run-off from the site is directed by a drainage line to the dam. Water discharges occur from the dam via LDP003 (**Section 3.3.9.4**) to Coxs River.

Cooks Dam

With a capacity of 44.6 ML, Cook Dam is used for the collection and management of dirty water on site. Water is received from a pipeline from Washery Sediment Dam and Washery Makeup Tank. Decant water from A Pit also reports to Cooks Dam. Water from this dam can be pumped to the CPP or discharged off site via LDP006.

DML Dam

DML Dam receives inflow from catchment runoff. Subsurface inflows also enter the dam, similar to the relationships observed at Cooks Dam. The water level in the dam reportedly remains relatively constant apart from after significant rainfall events, which causes the water level to rise temporarily.

No spillway exists at the dam and there has been no known uncontrolled spilling from the dam as a result of its capacity being exceeded, however it is likely that water from the dam infiltrates into the historical mine workings. DML Dam is an unlined storage.

Retention Dam

Retention Dam (3.9 ML capacity) indirectly collects catchment runoff from a large proportion of the site. Excess inflows bypass through the cement impregnated geotextile fabric lined spillway. Water discharges from the spillway into the same outflow channel that outflows from the Cooks Dam spillway flow and contributes to LDP006. Retention Dam is a partially lined dam. There is a pump located at the dam that supplies all dust suppression on site and also supplements supply to the CPP.

Stage 1 diversion works will result in clean water diverted to Retention and discharged offsite independently of licensed discharges at LDP006.

Co-disposal Reject Emplacement Area

This co-disposal REA has been divided into six separate cells (total capacity of 121.9 ML), with four utilised for tailings and coarse reject co-disposal and the remaining two (located along the eastern side) used to hold decant water. Historically, the cells were used to temporarily hold tailings and coarse rejects for a drying period, before they were removed and blended with coal product.

Washery Sediment Dam

Washery Sediment Dam (0.8 ML) receives runoff water from the CPP and surface water runoff from the haul roads and administration building areas and surrounding catchments. During high rainfall events, depending on the preceding water levels in the dam, water will overflow from Washery Sediment Dam into SLG6 via overland flow across rehabilitated land. The dam has an overflow weir and low flow outlet pipe.

Stockpile Sediment Dam

Stockpile Sediment Dam (0.8 ML) receives surface water runoff from the coal stockpile area and surrounding contributing catchments. Water levels within the dam are controlled by a manually operated diesel pump, pumping water from the Stockpile Sediment Dam to the Washery Makeup Tank for re-use within the CPP.

During high rainfall events, water may overflow from Stockpile Sediment Dam into SLG6 via a combination of open channels and pipe networks.

Main Sediment Dam

Main Sediment Dam (29.7 ML), also known as Conveyor Dam, is located south of the main coal stockpile area. The dam is designed to be operated at a level greater than 1.0 m below the full supply level so that it has sufficient capacity to store the 80th percentile, 5 day runoff event. The retention time within the dam allows for settlement before the water is discharged into a channel that reports to SLG6. Controlled discharges occur via a 30 m long 425 mm diameter pipe with a valve on the downstream outlet, whilst the storage may overflow via a nearby concrete spillway.

Main Sediment Dam receives overflow from five upstream ‘fill and spill’ sediment ponds in the Lamberts Gully area, SLG1, SLG2, SLG3, SLG4 and SLG5.

A Pit REA

A Pit (50.3 ML) is a historical open cut used as a fine rejects emplacement area until late 2015. It serves as the sediment pond for the new REA by receiving tailings return water, which is then pumped to Cooks Dam.

SHG1

Huon Gully Sediment Dam 1, SHG1 (9.5 ML) is a clean water retention structure located in Huon Gully that terminates the natural watercourse. Previously this storage contributed to Wangcol Creek, however, it is now intercepted by historical open cut mine workings and part of Mount Piper Ash Emplacement. Despite the storage having no defined outlet, the storage has not been observed to overtop. Given that evaporation is not significant enough for all captured water to be lost, it is inferred that there is significant seepage into the historical mine workings.

Historical Open Cut Voids

A number of historic open cut voids in the western part of the site hold a volume of water, and the water these voids is believed to be connected to the historical mine workings and then down gradient to Cooks Dam. These voids are:

- H Pit East (10.2 ML)
- H Pit West (10.5 ML)
- Council Pit (19.9 ML)

New REA

The new REA is a fine reject and coarse reject materials storage facility with an ultimate storage capacity of 1449 ML. The fine reject material is pumped as a slurry from the CPP and deposited within the centre of the REA.

Decant water is drawn from a shallow decant pond, with a maximum pond radius under normal operating conditions of 50 m. Return water is decanted to A Pit.

3.3.9.4 Discharges from Springvale Coal Services Site and Kerosene Vale Stockpile Area

At the SCSS all the catchments draining towards LDP006 converge upstream and discharge off site through a single discharge point into Wangcol Creek. Surface water runoff from both clean and dirty water catchments is thus combined prior to being discharged from site.

Discharge to Wangcol Creek flow south-east to the Coxs River. The SCSS currently operates with a surplus of water, which is stored on site.

Due to the extent of historical disturbance at the SCSS, the current water management system involves the mixing of clean and dirty water prior to discharge into Wangcol Creek. Water from disturbed and undisturbed areas that drains into Lamberts Gully eventually drains into the Retention Dam where it overflows to LDP006. Overflows from Cooks Dam also discharge via LDP006. The effect of this mixing of clean and dirty water has previously increased the sediment loading at the Retention Dam, and also unnecessarily increased the total volume of water that reaches LDP006, with the LDP006 discharges historically including all the water from forested areas located upstream of the SCSS. The will change when the diversion works discussed in **Section 3.3.9.1** have been completed.

A significant component of the discharge at LDP006 has been shown to result from the overflow of Cooks Dam, which has a major contribution from groundwater seepage. LDP006 monitors discharges from the SCSS as well as the contribution of catchment runoff to Lamberts Gully and hence discharge volumes become elevated following rainfall events.

The Kerosene Vale Stockpile Area has a number of settling ponds. Water discharges from the site occur from the settling ponds via LDP003 (EPL 467) to Coxs River.

3.3.9.5 Licensed Discharge Points

The Project operates under the provisions of EPL 3607 and EPL 467 (**Table 2**). EPL 3607 for Springvale Mine (held by Springvale Coal Pty Limited) allows discharge of water from the Project via LDP006 located at SCSS (**Figure 9**) and via LDP007 from the overland conveyor system. There are no volumetric limits for LDP006 or LDP007 specified by EPL 3607. Discharges through LDP006 and LDP007 are required to be monitored daily during discharges. EPL 467 (held by Centennial Angus Place Pty Limited) allows discharge of water in the Project via LDP003 located at the Kerosene Vale Stockpile Area (**Figure 10**).

The Project will have its own EPL in the future. LDP006 and LDP007 (on Springvale Mine's EPL 3607) and LDP003 (on Angus Place Colliery's EPL 467) will effectively be 'transferred' to the new EPL for the Project.

3.4 Waste Management

3.4.1 Production Waste

Production waste comprising reject materials from ROM coal beneficiation in the CPP is generated at SCSS. The emplacement of these reject materials (coarse and fine) is discussed in **Section 3.3.7**.

3.4.2 Non-Production Waste

The waste management contractor utilised by Springvale Coal provides a Waste Management System across the site including detailed waste tracking, monitoring, measurement, and recycling. Springvale Coal is committed to operating the Project in an environmentally responsible manner and abides by the waste management hierarchy of "avoidance, reduction, reuse, recycle and disposal" as much as practicable to minimise the volume of waste generated from the operation of the mine.

General solid waste is disposed of to landfill by licensed waste contractors. Waste paper and cardboard is separated and collected for recycling as required. Recyclable materials, are recycled whenever possible at the site. Any recyclable material unable to be used at the site is removed from the site by a recycling service provider.

Oil drums and filters (after rinsing and crushing) are disposed of with waste metals through metal recyclers. Aluminium cans are sold to metal recyclers. Waste oil (and oily water) is disposed of by licensed waste transporters and recyclers, or at treatment plants. Oily rags, filters, oily water and general workshop wastes plus other miscellaneous waste generated are separated for collection by a licensed waste contractor.

No hazardous waste is generated at the site.

Regular waste management inspections are completed by the waste contractor. An internal review process is carried out regularly to monitor and continually improve waste management procedures.

3.5 Environmental Management

3.5.1 Environmental Management System

The Project has an established Environmental Management System (EMS) that has been developed in accordance with Centennial Environmental Policy that sets out Centennial Coal's aims and values applicable to all employees and contractors. The EMS provides an environmental management framework for all activities and areas managed under the Project. This EMS ensures the effective management of environmental issues and compliance with all regulatory requirements. The EMS incorporates Environmental Management Plans (EMPs) designed to assist in meeting community expectations and regulatory conditions.

The EMS applies to:

- all operations undertaken within the Project
- all personnel who have specific responsibilities and duties within the EMS and associated standards and procedures
- all mine employees, contractors and external parties.

The EMPs have been established in response to approval and licence requirements noted in **Section 3.2**, and documents described below.

- Development consent conditions under SSD 5579 as modified
- Statement of Commitments made in the WCS EIS (RPS, 2013a) that accompanied development application for SSD 5579
- Statement of Commitments made in the WCS MOD 1 SEE (Centennial Coal, 2016) that accompanied Modification 1 to SSD 5579
- EPL3607 (Springvale Mine) and EPL 467 (Angus Place Colliery)
- Environmental Management System Framework Document

The current approved management plans and strategies that relate to the Project and include management plans required to be prepared by SSD 5579 conditions are as follows.

- Environmental Management Strategy (Schedule 5 Condition 1)
- Mining Operations Plan (MOP) (21 December 2015 – 31 October 2022)
- Air Quality Management Plan (Schedule 3 Condition 17), part of Western Region Air Quality and Greenhouse Gas Management Plan
- Noise Management Plan (Schedule 3 Condition 9), part of Centennial Coal Western Region Noise Management Plan
- Heritage Management Plan (Schedule 3 Condition 32), part of Centennial Coal Western Region Aboriginal Cultural Heritage Management Plan and Centennial Coal Western Region Historic Heritage Management Plan
- Water Management Plan (Schedule 3 Condition 24)
- Construction Traffic Management Plan: Stage 1 Lamberts Gully REASA (Schedule 3 Condition 35)
- Biodiversity Management Plan (Schedule 3 Condition 29), part of Centennial Coal Western Region Biodiversity Management Plan) – submitted to DPE on 19 December 2016
- Biodiversity Offset Strategy (Schedule 3 Condition 25), part of Centennial Coal Western Region Biodiversity Offset Package – submitted to DPE and OEH on 23 December 2016.

The following management plan is required to meet the SSD 5579 consent conditions following the approval of Modification1.

- Riparian Habitat and Catchment Improvement Plan (Schedule 3 Condition 27) – to be submitted prior to 31 October 2017.

3.5.2 Environmental Monitoring and Reporting

Monitoring results undertaken as part of consent conditions are reported at Centennial Coal's website as required by EPL 3607 and EPL 467 requirements, and on an annual basis in an Annual Review (Schedule 5 Condition 5) submitted to DPE and other the stakeholders by the end of March every year.

Notifications of landowners / tenants of non-compliances with environmental performances conditions (Schedule 3) are required under Schedule 4 Condition 3 and Incident Reporting is required under Schedule 4 Condition 7.

While the Project achieves compliance with all SSD 5579 environmental performance conditions majority of the time, there has been an ongoing issue with not meeting the consent noise criteria (Schedule 3 Condition 7) at noise monitoring locations, including in Lidsdale and Blackmans Flat, since attended noise monitoring commenced in July 2014. Since that time Springvale Coal has been investigating a wide range of engineering noise controls for implementation on acoustically significant noise sources (fixed and mobile plant) and introduction of operational management practices that would allow the Project to achieve compliance. As a result, mitigation works comprising the replacement of standard noise idlers with low noise idlers on the noisy sections of the overland conveyor system (OL1 and OL2 sections) in Lidsdale was commenced in 2016 and will be completed by December 2017. Further noise mitigation controls are proposed (**Section 4.3.2, Section 7.1**) to allow Springvale Coal to achieve compliance with noise criteria at all receptors.

3.6 Rehabilitation and Final Landform

The rehabilitation activities undertaken in the Project are described in the MOP (21 December 2015 – 31 October 2022), based on the life of Project rehabilitation strategy included in the WCS EIS (RPS, 2013a). Springvale Coal has a progressive approach to rehabilitation to reduce and mitigate potential environmental impacts. All reasonable and feasible measures are implemented to minimise the total area exposed for dust generation at any time through progressive rehabilitation. Active monitoring and maintenance of rehabilitated areas and existing erosion and sediment controls are being undertaken at SCSS on an ongoing basis.

Following the grant of development consent on 04 April 2014 a *Rehabilitation and Closure Plan* for the Project was prepared and approved, as required by Condition 45 Schedule 3 of SSD 5579. The plan outlined the rehabilitation and closure management in detail. This Plan has been superseded by the MOP. Springvale Coal is currently revising the rehabilitation activities in the MOP in regard to long term closure and rehabilitation required and taking into consideration the proposed capping design to the new REA submitted to Department of Resources and Geosciences for approval.

An indicative closure timeline was provided in the WCS EIS, which noted that the closure planning will commence 5 years prior to the closure of the facilities. Closure and post-closure activities will continue 10 years after cessation of coal processing and transport.

3.6.1 Rehabilitation Domains

The primary and secondary rehabilitation domains nominated in the WCS EIS and included in the MOP are included in **Table 4**. The infrastructure sites noted in the primary domains in **Table 4** are shown in **Figure 10**, **Figure 11** and **Figure 12**. The primary domains are shown in **Figure 13**, while the secondary domains are shown in **Figure 14**.

WCS Modification 1 approved the update of the following primary rehabilitation domains as follows:

- Domain 2 – REA: to include the trenched residuals pipeline from the water treatment plant from MPPS (Springvale Water Treatment Project)
- Domain 7 – Haul Roads and Conveyor System: to include the trenched water pipeline within the Project Application Area following the overland conveyor from Wallerawang Haul Road intersection and traversing through the SCSS.

The progressive rehabilitation of the raw water and residuals pipeline corridors and the decommissioning of the raw water and the residuals pipelines at the end of the Springvale WTP will be undertaken under the Springvale WTP consent requirements. The Springvale WTP EIS (GHD, 2016) discusses and commits to the decommissioning of these pipelines, and rehabilitation works as required.

The SCSS includes land owned by EnergyAustralia and LCC, and as noted below, the management and rehabilitation of these lands lie with these entities.

Table 4 – Primary and Secondary Rehabilitation Domains within the Project Application Area

Code	Domain	Description
Primary Domains		
1	Domain 1 – Coal Preparation Plant and Coal Handling	Area includes the existing and approved (not constructed) coal processing area, coal stockpiles, associated conveyors and access roads.
2	Domain 2 – new REA	Area incorporates the A-Pit REA and the new expanded REA, and the trenched residuals pipeline from the water treatment plant from MPPS (Springvale Water Treatment Project).
3	Domain 3 – Co-Disposal REA	Area includes the co-disposal REA incorporating the old tailings dams.
4	Domain 4 – Water Management at Springvale Coal Services Site	Water management structures include: • Cooks Dam • DML Dam • Main Sediment Dam • Stockpile Dam • Retention Dam • New REA Dam • Other water management structures at SCSS (**Section 3.3.9**).
5	Domain 5 - Rehabilitation	Previous rehabilitation work and offsets associated with the Lamberts Gully Open Cut Mine
6	Domain 6 – Kerosene Vale Stockpile Area	This domain includes: • Coal stockpile area • Rehabilitation area • Water management • Stockpile stowage material • Sealed underground entries.
7	Domain 7 – Haul Roads and Overland Conveyor System	Including (Centennial Coal) owned haul roads and conveyor system associated with Western Coal Services Project, and the trenched raw water pipeline (Springvale Water Treatment Project) within the Project Application Area following the overland conveyor from Wallerawang Haul Road intersection and traversing through the SCSS.
8	Domain 8 – Energy Australia Ash Emplacement Area	Management of this area is the responsibility of EnergyAustralia.
9	Domain 9 – Lithgow City Council Waste Emplacement	Management of this area is the responsibility of Lithgow City Council.

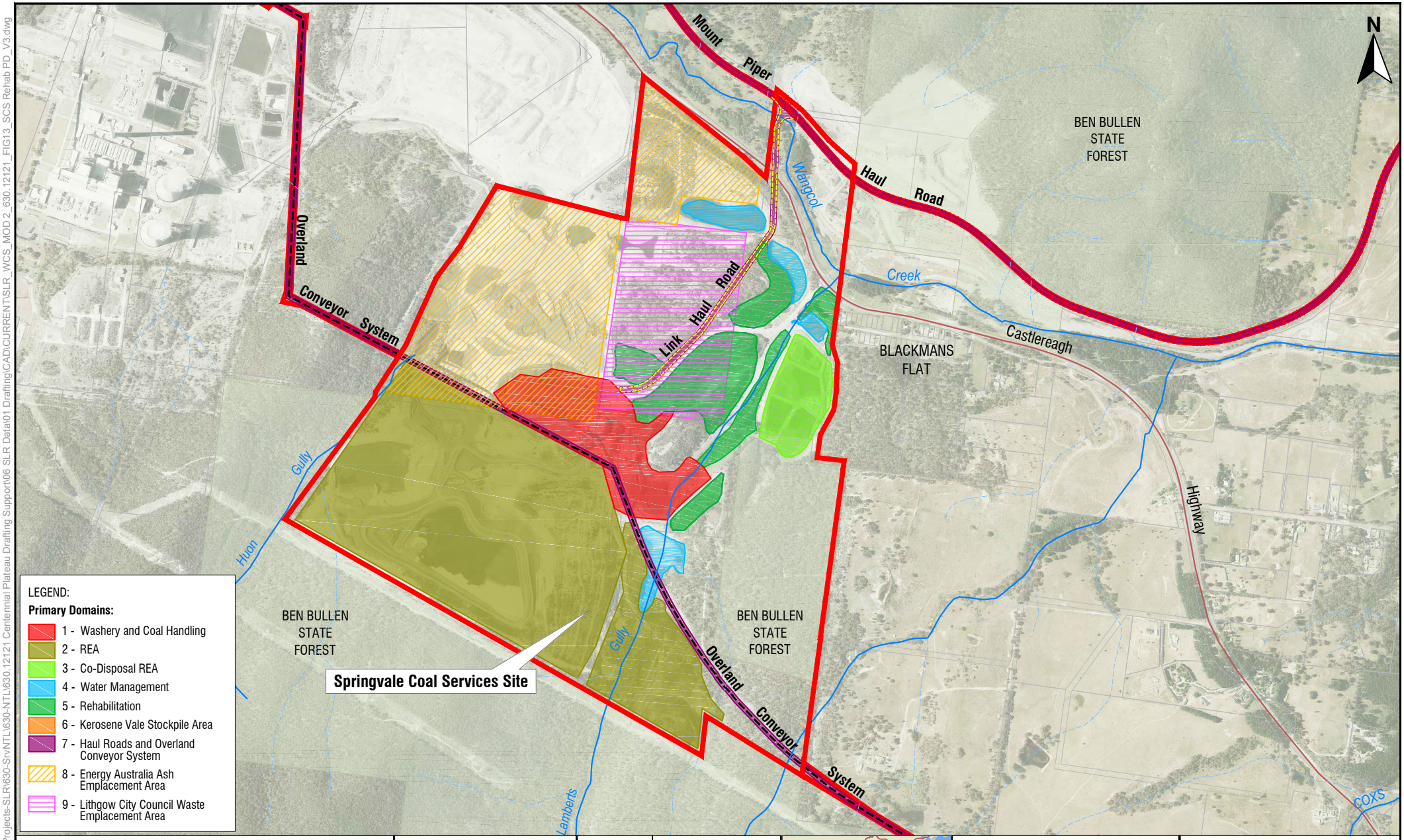
Code	Domain	Description
Secondary Domains		
A	Rehabilitation - Woodland	The following areas will be rehabilitated using a woodland seed mix: • New REA • Co-disposal REA • Existing rehabilitation areas (including Lamberts Gully Rehabilitation initiatives) • Administration Area • Coal processing area • Kerosene Vale Stockpile Area.
B	Rehabilitation - Pasture	Pasture rehabilitation will be used in rehabilitating haul road batters and any disturbed areas in the conveyor corridor.
C	Ash Emplacement from nearby power stations	There are areas of the site owned by EnergyAustralia which will be used for future ash emplacement. These areas are located within the Project Application Area, but it is the responsibility of EnergyAustralia to manage and rehabilitate this area.
D	Industrial Land Use	This includes the continuing use of existing private haul roads for access following closure completion of the Project.
E	Water Management	The existing water management system will remain at closure.
F	Energy Australia Ash Emplacement Area	Final land use for this area is the responsibility of Energy Australia.
G	Lithgow City Council Waste Emplacement	Final land use for this area is the responsibility of Lithgow City Council.

Rehabilitation works at the SCSS have commenced and are being undertaken in accordance with the approved WCS MOP (21 December 2015 – 31 October 2022). The rehabilitation phases that will be undertaken during the MOP period within the primary domains may include as relevant:

- Landform establishment
- Growth media establishment
- Ecosystem establishment
- Ecosystem development.

It is noted that only decommissioning works will be undertaken at the Kerosene Vale Stockpile Area in the current MOP period. This will involve the decommissioning of the existing three drifts and air shaft / fan house, which will be undertaken at the end of the MOP term.

Monitoring and maintenance of the rehabilitated areas at SCSS are ongoing. The MOP outlines the adaptive management that will be implemented where the rehabilitation performance is not trending to the nominated completion criteria. A Trigger Action Response Plan has been developed to identify required management actions in the event that rehabilitation outcomes are not achieved within an acceptable timeframe.



DATE	29.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG13_ SCS Rehab PD_V2.dwg
SCALE	1:17500

Figure 13

Primary Rehabilitation Domains at the Springvale Coal Services Site

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Centennial Coal
Western Coal Services

Prepared by: SLR

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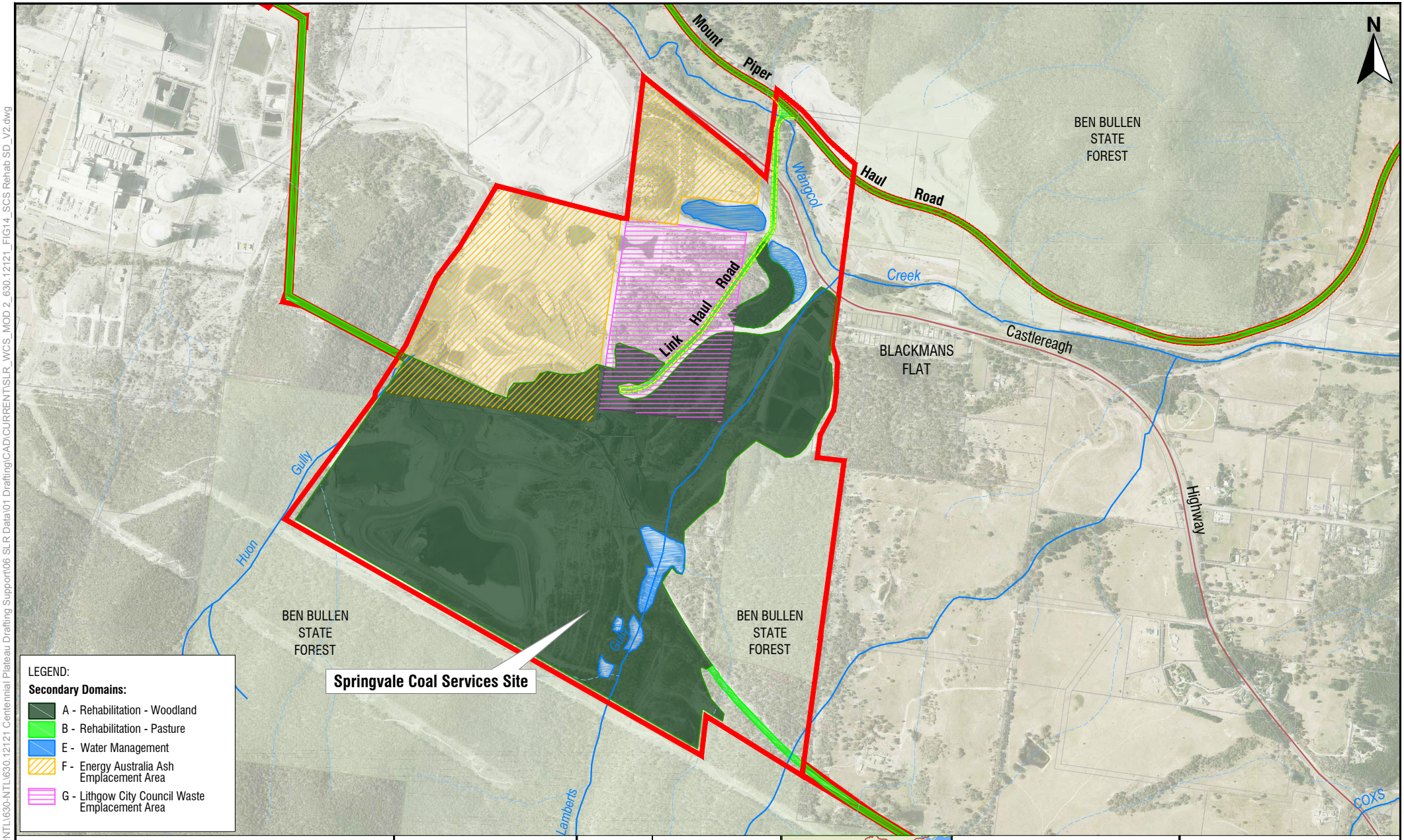

DATE	31.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG14_ SCS Rehab PD_V3.dwg
SCALE	1:17500

Figure 14

Secondary Rehabilitation Domains in the Final Landform at the Springvale Coal Services Site

Centennial Coal
Western Coal Services

Prepared by: SLR

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At the expiry of the WCS consent the Project will undertake the decommissioning of its infrastructure as described in the WCS EIS. The rehabilitation of the entire Project Application Area to achieve the final landform will be completed after the 25 years of operations on cessation of coal handling and processing.

3.6.2 Final Land Form and Land Use

The final land form and end use options for the Project's land components were discussed in the WCS EIS. The Project is required to return any land disturbed due to exploration or mining activities to its pre-mining capacity and Schedule 3 Condition 43 of SSD 5579 stipulates the final landform be consistent with the surrounding environment.

In accordance with the Project's decommissioning and rehabilitation strategy outlined in the WCS EIS, and further detailed in the WCS MOP a large proportion of the SCSS falls within the secondary domain A – Rehabilitation Woodland (**Figure 14**) and these lands will be returned to 'woodland' for an end use of forest ecosystem. This domain also contains existing rehabilitation commitments at the SCSS from previous land uses. Specifically, Schedule 3 Condition 26 of SSD 5579 relates to Additional Rehabilitation Initiatives for the Lamberts Gully Creek catchment at the SCSS, and requires the establishment and enhancement of locally endemic native vegetation species and improvement of fauna habitat values in the area (refer Appendix 7 of the SSD 5579 consent).

Grassland rehabilitation (Secondary Domain B – Pasture) will only be used to rehabilitate the haul road batters and any disturbed areas associated with the conveyor at the time of closure. Grassland rehabilitation aims for long-term stabilisation of areas.

The final landform will also include permanent water bodies and drainage structures (Secondary Domain E – Water Management). These water management structures will be selected dams from the primary Domain 4 – Water Management at Springvale Coal Services Site, which will be retained to manage surface water flows and provide water resources for native fauna and stock.

The secondary Domain F – EnergyAustralia Ash Emplacement Area comprises land owned by EnergyAustralia (formerly Delta) within the SCSS (**Figure 13**, **Figure 14**) and is subject to ash emplacement. The rehabilitation and the establishment of the final land form of this area will be the responsibility of EnergyAustralia.

The secondary Domain G – Lithgow City Council Waste Emplacement comprises land owned by LCC (**Figure 13**, **Figure 14**) and is subject to an approval for municipal waste emplacement. The rehabilitation and the establishment of the final land form of this area will be the responsibility of LCC.

4.0 PROPOSED MODIFICATION

4.1 Overview

Springvale Coal is seeking to modify consent SSD 5579 under the provisions of Section 96(2) of the EP&A Act. The proposed modification will allow for:

- an increase in the amount of ROM coal that can be received by the Project from Springvale Mine from the approved 4.5 Mtpa to up to 5.5 Mtpa on the overland conveyor (**Section 4.2.5**)
- The establishment of a dedicated product coal stockpile of 80,000 tonne capacity in the vicinity of the coal preparation plant (washery) (**Section 4.2.5**)
- an increase in the workforce from the approved 18 FTE personnel to 25 FTE personnel (**Section 4.2.2**)
- a revision in the application of noise criteria in SSD 5579 (Schedule 3 Condition 9) to the Project components (**Section 4.3.2**).

The SSD 5579 consent boundary for the Project remains unchanged (**Figure 2**). There are no changes proposed to the surface infrastructure. No major changes are proposed with respect to the current surface operations, however restrictions of the operations of the Mount Piper Haul Road and Wallerawang Haul Roads during Angus Place Colliery's development phase under current project approval are proposed in this modification as discussed in **Section 4.2.1** and **Section 4.2.4**. The majority of activities will continue to be undertaken as described WCS EIS (RPS, 2013a) and WCS MOD 1 SEE (Centennial Coal, 2016).

Progressive and life of project rehabilitation will be undertaken as described in the WCS EIS and WCS SEE for Modification 1.

There is no proposal to reduce the life of the consent in this modification from the approved 25 years from the date of consent, and the consent expiry date (31 December 2028) will remain unchanged.

4.2 Proposed Modification

Table 5 summarises and compares the major components of the operations approved under SSD 5579, and the operations that are proposed to be modified. The individual modification elements are discussed below in the relevant sub-sections.

4.2.1 Hours of Operation

The operating hours for the SCSS, Kerosene Vale Stockpile Area and the Overland Conveyor System are not proposed to change from the approved hours noted in **Section 3.3.1**.

The operation of the Wallerawang and Mount Piper Haul Roads are proposed to be restricted to the day period only during Angus Place Colliery's development phase under its existing approval (PA 06_0221) when the mine recommences operations (**Section 4.2.4**).

The operating hours of Wallerawang and Mount Piper Haul Roads during Angus Place Colliery's extraction phase are not proposed to be changed from the approved hours noted in **Section 3.3.1** however, the hours will be subject to a review in the future, as described in **Section 4.2.4.** Any future proposal on the operation of the haul roads will be contingent on agreement with the Secretary of the Department of Planning and Environment.

4.2.2 Workforce

The proposed modification is seeking an increase in workforce from the approved 18 FTE personnel to 25 FTE personnel.

Table 5 – Key Features of the Proposed Modification and Comparison with Approved Operations

Key feature	Approved Operation	Proposed change
Project Life	25 years, expiring on 30 June 2039	No change

Hours of Operation	• SCSS:
	  ○ 24 hours per day, 7 days per week
	• Kerosene Vale Coal Stockpile Area:
	  ○ Day period only (7 am – 6 pm)
	• Mount Piper Haul Road:
	  ○ No operations during adverse meteorological conditions during the night period (10 pm – 7 am)
	• Wallerawang Haul Road:
	  ○ No operations during the night period (10 pm – 7 am)
		Restrict operation of Mount Piper and Wallerawang Haul Roads to day period only during Angus Place Colliery's development phase under the existing approval (**Section 4.2.4**). Restrict number of haul trucks on the haul roads to 12 trucks at any one time.
		The operation of haul roads during the longwall extraction stage at Angus Place Colliery will be subject to a review in the future following the completion of a feasibility study on surface and underground coal transport options (**Section 4.2.4)**. If the feasibility study ascertains that there is a need for road haulage in the evening and night periods then mitigation and management measures to be implemented will be identified and provided to the Secretary of the Department of Planning and Environment for their agreement prior to any evening and night time haulage commencing.

Workforce	• 18 full time equivalent (FTE) personnel	Increase to 25 FTE personnel

Coal Handling	• 9.5 Mtpa total ROM coal received in the Project as follows:
	  ○ 4.0 Mtpa from Angus Place Colliery
	  ○ 4.5 Mtpa from Springvale Mine
	  ○ 1.0 Mtpa from other Centennial Coal sites
		Increase receipt of ROM coal from Springvale Mine to 5.5 Mtpa via the overland conveyor system.
		No change to the total 9.5 Mtpa that can be received by the Project.

	• 6.3 Mtpa of product (processed and unprocessed) coal transferred from SCSS to Lidsdale Rail Siding.	No change
Coal Stockpiles	• 150,000 tonne capacity ROM Coal Stockpile for stockpiling prior to processing in the CPP at the SCSS • 600,000 ROM Coal Stockpile for storage of ROM coal at SCSS if Mount Piper Power Station is unable to receive coal for an extended period. Also used to blend reject	Establishment of an 80,000 tonne product stockpile in the vicinity of the CPP

Key feature	Approved Operation	Proposed change
	material and to store and feed ROM coal from other operations. • 500,000 tonne coal stockpile at Kerosene Vale Stockpile Area which provides a temporary storage of coal when power stations are unable to accept coal. Access to Kerosene Vale Stockpile Area from SCSS using private haul roads only possible if the approved Private Haul Road connecting the SCSS and Mount Piper Haul Road with a bridge over Castlereagh Highway is constructed.	
Coal Transport	• ROM coal from Springvale Mine to SCSS and Mount Piper Power Station via the overland conveyor system (maximum capacity at 900 tonnes per hour). ROM coal can be directly transferred from Springvale Mine to Mount Piper Power Station or can be transferred to ROM coal stockpile for processing in the CPP. • ROM coal from Angus Place Colliery to Wallerawang and Mount Piper Power Stations (via Wallerawang and Mount Piper Haul Roads, respectively) and to SCSS (via approved Link Haul Road) using private haul roads. • ROM coal from Angus Place Colliery other Centennial sources (eg Neubeck Coal Project) transferred to SCSS using the Mount Piper Haul Road and the private Link Haul Road (approved but not constructed). • Product (ROM and beneficiated) coal to Lidsdale Siding by the overland conveyor system.	No change
Coal Processing	Beneficiate coal within the SCSS to up to 7 Mtpa.	No change
Reject Material Management	• Total coarse and fine reject material production at SCSS, representing 15% of the CPP throughput split equally to coarse and fine reject materials. • Total reject material storage capacity at SCSS, is 12.5 million cubic metres (12.5 Mm^3) or 25 Mt (using a compacting density of 2 t/m^3 available over a 25 year project life. • Reject emplacement areas at SCSS as follows: ○ A-Pit REA: Located within the final void of the Lamberts Gully Open Cut Mine, the A-Pit REA has been the existing emplacement area for both coarse and fine reject materials. Coarse reject material trucked to the REA is used to construct cells to contain the fine reject material. The latter is pumped as slurry into the cells. When full each cell is capped with the coarse material. ○ New Enlarged REA: will incorporate the A-Pit REA (extension to the south and east) and will be the main REA within the SCSS for coarse and reject material emplacement, referred to as the Lamberts Gully REA Storage Augmentation Project (Lamberts Gully REASA).	No change

Key feature	Approved Operation	Proposed change
	○ Co-disposal REA: Located near the main entrance to the SCCC the Co-Disposal REA offers above ground emplacement ad used as a back-up to the fine reject material circuit, however only the two southern ponds are used for this purpose. • Receive and emplace no more than 0.35 ML/day (annual average) or 0.43 ML/day (daily maximum) of residuals by-product from the Springvale Water Treatment Project (SSD 7592) within the existing new REA. • The Project approved to transport reject material off site (Neubeck Coal Project) at a rate 1 Mtpa using the private road network (Mount Piper Haul Road and Link Haul Road) subject to Neubeck Coal Project (SSD 5598) obtaining the necessary approvals.	
Surface Infrastructure	• An overland conveyor system links the Springvale Mine pit top to the MPPS via SCSS (for the transfer of ROM coal to both sites), Lidsdale Siding (for transfer of product coal) and Wallerawang Power Station (WPS) (being decommissioned). System is predominantly above ground except for the underpass beneath the Castlereagh Highway and a section parallel to Duncan Street, Wallerawang. Conveyor system is three-quarters enclosed to protect the belt from rain water and reduce coal dust emissions. The transfer of ROM coal MPPS utilises the upper belt of the conveyor system. • An enclosed overland conveyor system between SCSS and Lidsdale Siding to allow transfer of product coal (ROM and beneficiated) to Lidsdale Siding. The transfer of coal to Lidsdale Siding utilises the return strand of the belt. • Private Haul Roads comprising: ○ Mount Piper Haul Road between Angus Place pit top and MPPS ○ Wallerawang Haul Road between Angus Place pit top and WPS ○ Link Haul Road (approved but not constructed yet) with a bridge over Castlereagh Highway will connect SCSS with Mount Piper Haul Road and allow access to Kerosene Vale Stockpile Area from the SCSS using private haul roads. • Coal handling and preparation plant (CPP) at SCSS with processing capacity of up to 2 Mtpa and associated conveyor systems and switch room. An additional CPP approved to increase processing capacity at SCSS to up to 7 Mtpa. The approved components in the upgraded CPP comprise: ○ waste recovery and water recycling circuits for the production of both dry coarse and fine reject material ○ additional conveyors and transfer points ○ reject bin	No change

Key feature	Approved Operation	Proposed change
	○ product coal stacker and reclaim system ○ new belt press filter building ○ upgraded electrical and communication system ○ internal road modifications ○ new control room. • Water storage tanks for storage of process water for the CPP and fire-fighting purposes • Main control room • Electrical substations and transformer yards • Administration infrastructure • Site Access Road and other internal access roads • Coal stockpiles • Water management structures – settlement ponds, and dirty and clean water containment structures • Reject emplacement areas.	
Water Management and Pollution Control	• SCSS: Surface water management system at SCSS consists of separate clean (Lamberts Gully drainage line from upstream catchment) drainage and dirty water (Cooks Dam catchment) flow paths. Dirty water is captured and contained within pollution control dams: ○ Main Sediment Dam / Conveyor Dam ○ Washery Dam ○ Stockpile Dam ○ DML Dam ○ Cooks Dam ○ Retention Dam ○ New A Pit REA Dam • Contained water from the four main pollution control structures (Washery, Stockpile, DML and Cooks Dams) at SCSS preferentially reused on site as process water for the CPP, and for other raw water uses, such as dust suppression and fire-fighting purposes • Water pipeline (approved but not constructed yet) from Springvale Mine to SCSS and Lidsdale Siding along the overland conveyor structure	No change

Key feature	Approved Operation	Proposed change
	• Excess water at SCSS discharged to Wangcol Creek through LDP006 (EPL 3607 held by Springvale Coal Pty Limited • Kerosene Vale Stockpile Area: Stormwater run-off from disturbed areas of Kerosene Vale Stockpile Area drain to a dirty water system, which is directed through on site settling ponds and dosing system prior to discharge through LDP003 (EPL467 held by Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited). • Overland Conveyor System: Given the overland conveyor system is predominantly above ground, no specific drainage controls are required or exist. The transfer point at the intersection of the conveyor from the Springvale Mine to the conveyor between SCSS and Lidsdale Siding, has a collection pit and sump to contain any coal spillage from the transfer point. This collection point represents LDP007 on EPL3607 (Springvale Mine). • Mount Piper Haul Road: The road runs generally east-west, with the predominant natural drainage flowing from north to south. Watercourse crossings on Coxs River, Neubeck Creek and Wangcol Creek are in-fill sections of the road with multiple piped culverts. The road is predominantly in cut, with an earthen bund on the southern side. These sections are drained via a series of channels along the upslope side which direct water away from the road and into natural watercourses. These, in turn, are piped under the road in-fill sections. • Wallerawang Haul Road: The road is aligned generally north-south, and prevailing drainage flows from east to west. Natural drainage is directed beneath the road into piped culverts generally in areas of fill batters. When the road is in-cut, i.e. below the natural surface, runoff is collected in channels above cut batters and directed to natural drainage paths towards the existing culverts. The pavement is drained via table drains along the road verge into culverts beneath the road. The final section of the road, as it enters Wallerawang Power Station, is drained into the existing surface water management system of the power station.	
Waste (non-production) Management	• Undertaken by a waste management contractor, utilising the waste management hierarchy of “avoidance, reduction, reuse, recycle and disposal” • Waste generated comprises packaging, timber, waste oil, oil filters, oily water, empty oil drums, metal, hoses and paper.	No change

Rehabilitation	• Three potential final land uses within SCSS are:
	  ○ Ash emplacement from nearby power stations
	  ○ Industrial land use, including continuing use of existing private haul roads for access, for example for use as a waste disposal facility by Lithgow City Council
		No change

Key feature	Approved Operation	Proposed change
	○ Reforestation and conservation – return to forest community comparable with the nearby Ben Bullen State Forest. • The rehabilitation program for SCSS comprises a mix of rehabilitated stable landforms covering the reject material emplacements and forest ecosystem for the remaining areas not identified for future industrial activities or ash emplacements. • The Kerosene Vale Stockpile Area, located adjacent to Energy Australia's Ash Emplacement Area, could be used for ash disposal in the future. Unless a separate project is proposed for this area, the final land use for this site will be revegetation to a forest ecosystem compatible with the surrounding vegetation communities. • Rehabilitation of the Project Application Area have been divided into the following primary domains, and rehabilitation will be undertaken progressively: ○ Domain 1 – Coal Processing Handling: this area includes the coal processing area including the CPP, coal stockpiles, associated conveyors, access roads and storm water dams ○ Domain 2 – REA: this area incorporates A Pit REA, the new / enlarged REA and the trenched residuals pipeline (Springvale Water Treatment Project). ○ Domain 3 – Co-Disposal REA: this incorporates the tailings dams ○ Domain 4 – Cooks and DML Dams and other water management structures at SCSS ○ Domain 5 – Rehabilitation work and offsets associated with the Lamberts Gully Open Cut Mine ○ Domain 6 – Kerosene Vale Stockpile Area ○ Domain 7 – Haul roads, overland conveyor system, trenched raw water pipeline (Springvale Water Treatment Project). • Secondary domains in the final landform will include: ○ Domain A – Rehabilitation - Woodland ○ Doman B – Rehabilitation - Pasture ○ Doman C – Ash Emplacement from nearby power stations ○ Doman D – Industrial Land use ○ Doman E – Water Management ○ Doman F – Energy Australia Ash Emplacement Area ○ Doman G – Lithgow City Council Waste Emplacement	

4.2.3 Site Access

No change to SCSS access is proposed. The site will continue to be accessed via Access Road off Castlereagh Highway in Blackmans Flat.

4.2.4 Coal and Reject Material Transport

No changes are proposed in the approved transport modes for the receipt of coal and reject material by the Project, and transfer of these materials to other projects or sites. However, the modification is proposing to restrict haul truck movements on the Mount Piper and Wallerawang Haul Roads during Angus Place Colliery's development phase under its existing approval (PA 06_0221) to the day period only. The number of trucks will be constrained to a maximum of 12 trucks operating on each haul road at any one time.

The Project will continue to investigate surface and underground coal transfer options for when Angus Place Colliery commences longwall extraction for optimal operations and reduction in noise emissions to the environment as far as practicable. If a need for road haulage in the evening and night periods is ascertained for the extraction phase then mitigation and management measures to be implemented will be identified and provided to the Secretary of the Department of Planning and Environment for their agreement prior to any evening and night time haulage commencing.

4.2.5 Coal Handling and Stockpiling

The modification proposes to increase the amount (tonnes) of ROM coal that can be received by the Project from Springvale Mine from 4.5 Mtpa to up to 5.5 Mtpa, however the modification is not proposing to increase the total quantity of coal handled by the Project above the current approved limit of 9.5 Mtpa (**Section 3.3.5**).

The proposed modification will not result in any other changes to the approved limits of coal that can be received from Angus Place Colliery (4 Mtpa) or other sources (1 Mtpa), or the approved quantities of coal transported from the Project to either the Mount Piper Power Station (6.7 Mtpa) or Lidsdale Siding (6.3 Mtpa).

An 80,000 tonne product coal stockpile (**Figure 10**) with an approximate footprint of 1.1 ha is required to be formally established in the vicinity of the CPP. This stockpile has existed at the identified location however was assessed in the WCS EIS (RPS, 2013a) as part of the 750,000 tonne ROM coal stockpiles (600,000 tonne and 150,000 tonne) described in **Section 3.3.5**. The air quality assessment supporting this modification (SLR, 2017), discussed in **Section 7.3,** has assessed the product stockpile at the location shown in **Figure 10**, and has assessed it as a separate stockpile and in addition to the existing 750,000 ROM coal stockpile.

4.2.6 Coal Processing

No change is proposed to the approved 7.0 Mtpa ROM coal processing or beneficiation capacity.

4.2.7 Reject Materials Management

No change is proposed to the reject (coarse and fine) material emplacement management in this modification. The reject emplacement will be managed as approved in SSD 5579 and Modification 1.

4.2.8 Surface Facilities and Infrastructure

4.2.8.1 Support Facilities

No changes to the existing mine support facilities and surface infrastructure are proposed due to the proposed modification.

4.2.8.2 Surface Infrastructure

No changes to the water management and pollution control infrastructure at the SCSS specifically in response to the proposed modification are required.

4.2.9 Surface Water Management

No changes to the surface water management are proposed in this modification.

4.2.10 Waste Management

No changes to the Project's current waste management practices are proposed.

4.3 Environmental Management

4.3.1 Environmental Management System

The Project will continue to undertake monitoring and reporting in accordance with the existing Centennial Coal EMS as described in **Section 3.5**. The management plans will continue to be reviewed regularly and updated as required.

The relevant WCS management plans will be updated within three months of the approval of the proposed modification as required by Schedule 5, Condition 5 of SSD 5579.

4.3.2 Environmental Monitoring and Reporting

Environmental monitoring as required SSD 5579 and approved management plans will continue to be undertaken. The monitoring results will continue to be reported in accordance with the EPL 3607 / EPL467 requirements, and on an annual basis in an Annual Review. Notifications to landowners and Incident Reporting will continue to be undertaken as described in **Section 3.5.2**.

As discussed in **Section 1.3**, Springvale Coal is proposing a revision in the application of the noise criteria in SSD 5579 to apply to the SCSS operations only and to preclude their application to other Project components, namely, the overland conveyor system, Mount Piper Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area.

In order to achieve compliance all acoustically significant noise sources within the SCSS are proposed to be mitigated. These mitigation measures will comprise the following (refer **Section 7.1.6.2**). The noise controls will be implemented in the priority sequencing identified until compliance is achieved.

- Installation of low noise idlers on identified sections of overland conveyors within the SCSS (**Figure 16**).
- Installation of a barrier surrounding the western side of the OL3 conveyor drive within SCSS.
- Cladding of the new 5 Mtpa capacity CPP building (when constructed).
- Upgrading the cladding on the existing CPP (2 Mtpa) building.
- Use of an attenuated dozer operating in the day period only.
- Use of an attenuated loader operating in the day and night periods only.

If a need to use the attenuated loader in the evening period arises then real time noise monitoring data will be used to inform the decision, to ensure that compliance with the noise criteria can be achieved during operations.

Concurrently, Springvale Coal will implement (**Section 7.1.9.2**) the following operational controls and management strategies in order to reduce noise emissions to the environment as much as practicable.

- Installation of low noise idlers to identified sections of the overland conveyor system at Lidsdale.

- Operational management practices in the haulage of coal on the private haul roads (**Section 4.2.4**) and coal and reject handling within the SCSS. (**Section 4.2.5** and **Section 4.2.7**).

The proposed mitigation and management works will be staged over two years. Indicative timing on the completion of each stage of proposed works is discussed in detail in **Section 7.1.9**.

4.4 Rehabilitation and Final Landform

4.4.1 Rehabilitation Strategy

No changes are proposed to the existing rehabilitation strategy in this modification. Progressive rehabilitation at the SCSS and the Kerosene Vale Stockpile Area will continue to be undertaken as outlined in the WCS MOP. Similarly, monitoring and maintenance of rehabilitated areas will continue to be undertaken as described in the MOP, and will be reported in the Annual Review.

4.4.2 Final Landform and Land Use

No changes to the Project's final land form and end land use are proposed in this modification.

5.0 REGULATORY FRAMEWORK

5.1 Introduction

This chapter describes the applicable State and Commonwealth regulatory and policy framework under which the proposed modification will be assessed and determined. Full consideration of the environmental planning instruments has also been provided. The regulatory framework under which the Project was approved is described in Chapter 7 of the WCS EIS (RPS, 2013a), and updated in the *Western Coal Services Project Modification 1 Statement of Environmental Effects* (Centennial Coal, 2016), and discussed below as relevant.

5.2 Approval Pathway and Permissibility

State Significant development consent SSD 5579 was granted to the Western Coal Services Project under Part 4 Division 4.1 of the EP&A Act on 04 April 2014 by the Planning Assessment Commission of NSW, as delegate of the then Minister of Planning and Infrastructure. The SSD 5579 consent allows Springvale Coal to carry out operations in the Project until 30 June 2039 (**Appendix A**). .

The Project is classified as SSD pursuant to Section 89C of the EP&A Act and declared to be such by the *State and Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Clause 5(3) of Schedule 1 of the SRD SEPP identifies development for the purpose of mining related works that is ancillary to another SSD project or has a capital investment value of more than $30 million as SSD. The capital investment value of the Project was in excess of $30 million. As a result, pursuant to Clause 8(1) of the SRD SEPP, the Western Coal Services Project comprises SSD. The Project is not permissible without development consent under an environmental planning instrument (**Section 5.5**), being State Environmental and Planning Policies (SEPPs) or Local Environment Plan (LEP).

Springvale Coal is now proposing to modify its consent SSD 5579. SSD consents may be modified under Section 96 of the EP&A Act provided that the information stipulated in Clause 115 of the EP&A Regulation is contained within the modification application, and that the development as modified will be substantially the same development as the development for which consent was originally granted. This approval pathway is further discussed in **Section 5.3.1**. When assessing an application under Section 96 for modification to consent, the consent authority is required to take into consideration the relevant matters outlined in Section 79C(1) of the EP&A Act, which include the provisions of any relevant environmental planning instruments (SEPPs and LEP). The environmental planning instruments relevant to the modification are discussed in **Section 5.4** and **Section 5.5**.

5.3 NSW State Legislation

5.3.1 Environmental Planning and Assessment Act 1979

Section 96 of the EP&A Act applies to modifications to Part 4 development consents generally, and includes provisions for modifications involving minor error, mis-description or miscalculation (Section 96(1) of EP&A Act)), and modifications involving minimal environmental impacts (Section 96(A) and other modifications (Section 96(2)).

Section 96(2) other modifications includes the following provisions:

> *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:*
>
> *(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and*

(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 5) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and

(c) it has notified the application in accordance with:

(i) the regulations, if the regulations so require, or

(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and

(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.

The proposed modification for SSD 5579 described in this SEE is being made under Section 96(2) other modifications. Further, Section 96(3) requires the consent authority to take into consideration the matters referred to in Section 79C(1) of the EP&A Act, in so far as they are relevant to the modification.

Negligible to minimal predicted environmental impacts and consequences, described in **Chapter 7.0**, result from the proposed modification elements. The approval pathway is appropriate as the proposed modification elements will necessitate only minor changes to the currently approved activities, and the modified development would be substantially the same development for which the consent was originally granted (**Section 9.2**).

An application for modification of development consent under Section 96 of the EP&A Act must contain information stipulated in Clause 115 of the EP&A Regulation.This information is provided **in Table 6**. The table also notes where the information has been addressed in the SEE.

Table 6 – Clause 115 Requirements for Section 96 Applications

Requirement	Where Addressed in SEE
(a) The name and address of the applicant.	**Section 1.4**
(b) A description of the development to be carried out under the consent.	**Chapter 3.0**
(c) The address, and formal particulars of title, of the land on which the development is to be carried out.	**Appendix C**
(d) A description of the proposed modification to the development consent.	**Chapter 4.0**
(e) A statement that indicates either: (i) that the modification is merely intended to correct a minor error, misdescription or miscalculation, or (ii) that the modification is intended to have some other effect, as specified in the statement.	N/A **Chapter 7.0, Section 9.2** The modification will have minimal environmental impacts.
(f) A description of the expected impacts of the modification.	**Chapter 7.0**
(g) An undertaking to the effect that the development (as to be modified) will remain substantially the same as the development that was originally approved.	**Section 9.2** The development as modified will remain substantially the same as the development (Western Coal Services Project) that was originally approved in consent SSD 5579.

Requirement	Where Addressed in SEE
(h) If the applicant is not the owner of the land, a statement signed by the owner of the land to the effect that the owner consents to the making of the application (except where the application for the consent the subject of the modification was made, or could have been made, without the consent of the owner),	Landowner's consent is not required as the Project falls under 'public notification development' pursuant to clause 49 of the EP&A Regulation. Landowners will be notified of the application to modify consent SSD 5579 through an advertisement placed in the local newspaper following lodgement of the modification application, as required pursuant to Clause 49(2)b of the EP&A Regulation.
(i) A statement as to whether the application is being made to the Court (under Section 96) or to the consent authority (under Section 96AA), and, if the consent authority so requires, must be in the form approved by that authority.	The application is not being made to the Court (under Section 96) or to the consent authority (under Section 96AA).

Objects of the EP&A Act

The EP&A Act is the principal piece of legislation overseeing the assessment and determination of development proposals in NSW. It aims to encourage the proper management, development and conservation of resources, environmental protection and ecologically sustainable development.

The objects of the EP&A Act generally seek to promote management and conservation of natural and artificial resources, while also permitting appropriate development to occur. The principles of ecologically sustainable development and public participation are also objects of the EP&A Act. The consistency of the modification with the relevant objects is summarised in **Table 7**.

Table 7 – Objects of the EP&A Act

Object	Consistency of the Modification
(a) to encourage: *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*	The proposed modification will allow the Project to be in compliance with its noise consent conditions in the future. The continued operations of the Project will facilitate continued operations of Springvale Mine, an approved mining operation which develops a natural resource (coal). Both Springvale Mine and the Project operate without significant impacts on the environment and their operations promote the social and economic welfare of the local community. The proposed modification will result in a better noise environment in the region than has been experienced since the commencement of the Springvale Mine and the Project's operations.
(ii) the promotion and co-ordination of the orderly and economic use and development of land,	The orderly and economic use of land is served by development which is permissible under the relevant planning regime and predominantly in accordance with the prevailing planning controls. The modification comprises a permissible development which is consistent with the statutory and strategic planning controls. The modification proposes a minor alteration to the operations of an existing operation which handles and processes coal from Springvale Mine an approved coal mine (and in the future from Angus Place Colliery and Neubeck Coal Project) which represents an orderly and economic use of a resource approved for extraction for supply to domestic power generation. The proposed modification will not impact on land uses within and surrounding the Project Application Area.
(iii) the protection, provision and co-ordination of communication and utility services,	The modification will not affect public communication networks or utilities.

Object	Consistency of the Modification
(iv) the provision of land for public purposes,	Not applicable to the proposal. The Project is located on land which is majority owned by Centennial Coal and Energy Australia.
(v) the provision and co-ordination of community services and facilities, and	Not applicable to the proposal.
(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and	The proposed modification will not impact on threatened species, populations and ecological communities, and their habitats.
(vii) ecologically sustainable development, and	The Project is consistent with the principles of ecological sustainable development (ESD), as was outlined in Section 11.3 of WCS EIS (RPS, 2013a). The proposed modification is also consistent with the principles of ESD, discussed in detail in **Section 9.5**. The discussions included in **Section 9.5** address both this object of the EP&A Act and Clause 7(1)f in Schedule 2 of the EP&A Regulation.
(viii) the provision and maintenance of affordable housing, and	Not applicable to the proposal.
(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and	The Western Coal Services Project is an SSD and its assessment and approval was subject to the provisions of Part 4 of the EP&A Act. Extensive consultation with many different levels of government (Federal, State, local) was undertaken during the preparation of the WCS EIS. The assessment process and determination again included consultation with different levels of government, including local government. The modification will be assessed and approved under Section 96(2) of the EP&A Act and the assessment process will be undertaken by the DPE in consultation with other relevant government agencies. The preparation of the SEE in support of the proposed modification has involved engagement with DPE, other government agencies (EPA, DRG, LCC) and the local community including potentially affected landholders (**Chapter 6.0**).
(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.	Extensive consultation with a wide range of stakeholder was undertaken during the preparation of the WCS EIS, commencing in 2012. The consultation has been ongoing since the grant of SSD 5579 in 2014 to discuss Project activities. The consultation included discussions of non-compliances with the consent noise criteria. More recently, consultation with the community has been undertaken specifically for the proposed modification to discuss any issues in relation to the modification elements. Matters raised have been included in **Section 6.3**. **Table 10** provides responses and comments on the issues / matters raised by the community and SEE section references for further details on how the issues have been addressed. Community engagement will continue through Centennial Coal's Western Region Community Consultative Committee, and other community engagement tools discussed in **Section 6.4**. The community will have the opportunity to comment on the modification application during the public exhibition of the SEE and the assessment through submissions.

Section 79C Evaluation

Section 79C of the EP&A Act applies to the determination of development applications for SSD. In determining an application for modification, the consent authority is required to consider the matters listed in Section 79C(1) of the EP&A Act as are of relevance to the development. Each of the relevant matters has been addressed in the SEE (**Section 5.4**, **Section 5.5**, **Chapter 7.0**) and will need to be considered by the consent authority during the assessment of the modification application.

Other Approvals

Pursuant to Section 89J of the EP&A Act, the following authorisations are not required for approved SSD proposals:

- The concurrence under Part 3 of the *Coastal Protection Act 1979* of the Minister administering that Part of the Act
- A permit under Section 201, 205 or 219 of the *Fisheries Management Act 1994*
- An approval under Part 4, or an excavation permit under Section 139, of the *Heritage Act 1977*
- An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974*
- An authorisation referred to in Section 12 of the *Native Vegetation Act 2003* (or under any Act to be repealed by that Act) to clear native vegetation or State protected land
- A bushfire safety authority under Section 100B of the *Rural Fires Act 1997*
- A water use approval under Section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*
- An order under Division 8 of Part 6 of the *Heritage Act 1977* restricting harm to buildings, works or relics that are not protected by a heritage listing.

Pursuant to Clause 89K of the EP&A Act, an authorisation of the following kind cannot be refused if it is necessary for carrying out an approved SSD proposal, and must be granted "substantially consistent" with the SSD consent:

- An aquaculture permit under Section 144 of the *Fisheries Management Act 1994*
- An approval under Section 15 of the *Mine Subsidence Compensation Act 1961*
- A mining lease under the *Mining Act 1992*
- A production lease under the *Petroleum (Onshore) Act 1991*
- An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997* (for any of the purposes referred to in Section 43 of that Act);
- A consent under Section 138 of the *Roads Act 1993*
- A licence under the *Pipelines Act 1967*.

5.3.2 Other Key NSW State Legislation

The existing approvals relevant for Springvale Mine operations are described in **Section 3.2**. **Table 8** lists the key relevant pieces of NSW State legislation and indicates the implications, if any, for the modification.

Table 8 – Other Key NSW State Legislation

Relevant State Legislative Act	Project Implications (approvals, licences and/or authorities)
Protection of the Environment Operations Act 1997	The POEO Act is the principal environmental protection legislation in NSW and is administered by the EPA. The Act regulates waste generation and disposal, and water, air and noise pollution in NSW. Under the POEO Act, an EPL is required for any premises at which a scheduled activity, as defined in Schedule 1 of the Act, is conducted. Clause 10 of Schedule 1 includes 'Coal works, meaning any activity (other than coke production) that involves storing, loading or handling coal (whether at any coal loader, conveyor, washery or reject dump or elsewhere) at an existing coal mine or on a separate coal industry site [where] it has a capacity to handle more than 500 tonnes per day of coal, or it has capacity to store more than 5,000 tonnes of coal (not including within a closed container or building)'. The Western Coal Services Project is a premises-based "scheduled activity" and currently operates under the provisions of EPL 3607 and EPL 467 (**Table 2**). EPL 3607 for Springvale Mine (held by Springvale Coal Pty Limited) covers the mining operations, surface facilities, overland conveyors and the SCSS and eight licensed discharge points (LDP001, LDP002, LDP004 – LD007, LDP009, LDP010) for water discharge off site. EPL 467 for Angus Place Colliery (held by Centennial Angus Place Pty Limited) covers the mining operation, surface facilities, road haulage of coal, Kerosene Stockpile Area and three licensed discharge points (LDP001 – LDP003). EPL 3607 allows discharge of water in the Project via LDP006 located at SCSS and via LDP007 from the overland conveyor system. EPL 467 allows discharge of water in the Project via LDP003 located at the Kerosene Vale Stockpile Area. A variation to EPL 3607 will be required by June 2019 to accept residuals waste stream from the Springvale Water Treatment Project (SSD 7592) when that project commences operations.
Mining Act 1992	The Western Coal Services Project holds mining leases (**Table 3**) granted under the *Mining Act 1992*. A Mining Operations Plan, for the period 23 December 2015 to 31 October 2022, has been prepared to outline proposed operations and rehabilitation approved under development consent SSD 5579. The MOP has been prepared in accordance with the Department of Industry – Division of Resources and Energy publication titled *ESG3: Mining Operations Plan (MOP) Guidelines* (DRE, 2013). The MOP was approved on 23 December 2015. The MOP has also been prepared to satisfy the requirements of a *Rehabilitation Management Plan*, required by Schedule 3, Condition 45 of SSD 5579.
Water Act 1912	The *Water Act 1912* (Water Act) governs access, trading and allocation of licences associated with surface water and groundwater sources where a Water Sharing Plan is not in place. As Water Sharing Plans ((WSP) have been developed for the Project Application Area, the Water Act no longer applies. The Project holds groundwater monitoring bore licences (**Table 2**) for eight boreholes (10BL605382 (for 4 bores), 10BL605349, 10BL605348, 10BL605347, 10BL605346) granted under the Water Act.
Water Management Act 2000	The *Water Management Act 2000* (WM Act) is intended to ensure that water resources are conserved and properly managed for sustainable use benefitting both present and future generations. WSPs prepared in accordance with the WM Act include rules for protecting the environment and administrating water licensing and trading. The following two WSPs made under Section 50 of the WM Act are relevant to the Project: • *Greater Metropolitan Region Groundwater Source 2011* • *Greater Metropolitan Region Unregulated River Water Sources 2011* For groundwater, the Project is located within the *Greater Metropolitan Region*

Relevant State Legislative Act	Project Implications (approvals, licences and/or authorities)
	Groundwater Source WSP. This WSP covers 13 groundwater sources on the east coast of NSW. The Project is located within the Sydney Basin Coxs River Groundwater Source. For surface water, the Project is located within the *Greater Metropolitan Region Unregulated River Water Sources* WSP. This WSP covers six water sources which are made up of a total of 87 management zones. The Project is located within the Wywandy Management Zone of the Upper Nepean and Upstream Warragamba Water Source. The Project will seek a water access licence for the transfer of mine water from the Springvale Mine to the SCSS and the Lidsdale Siding, along the existing overland conveyor approved in SSD 5579, when required. The proposed modification will not require any water access licences under the above-noted WSPs.
Work Health and Safety Act 2011 *&* *Work Health and Safety (Mines and Petroleum Sites) Act 2013*	The *Work Health and Safety Act 2011*(WHS Act) seeks to ensure the health and safety of workers. The *Work Health and Safety (Mines and Petroleum Sites) Act 2013* supplements the provisions of the WHS Act by providing additional health and safety requirements specifically for the mines and petroleum sites. Springvale Coal currently holds all necessary approvals for the Project under the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*.
Mine Subsidence Compensation Act 1961	The Project Application Area is not located within a Mine Subsidence District.
Dams Safety Act 1978	The Project Application Area does not include any prescribed dams. The modification does not propose any underground mining or surface disturbance on or in the vicinity of any dams prescribed under the *Dam Safety Act 1978*.
Crown Lands Act 1989	There is Crown land within the Project Application Area. However, no operations are undertaken within the Crown Land or proposed in the modification. No licence is required for the modification to use Crown Land under the provisions of the *Crown Lands Act 1989*.
Roads Act 1993	Section 138 of the *Roads Act 1993* requires consent be obtained prior to disturbing or undertaking work in, on or over a public road. The Project will require an approval under Section 138 of the Roads Act prior to the construction of the private Link Haul Road, which will cross Castlereagh Highway. However, no additional approval under the Roads Act will be required due to the proposed modification given that no disturbance or works on public roads within the Project Application Area are proposed.
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) is intended to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. A terrestrial ecological impact assessment was prepared for the WCS EIS (RPS, 2013b) in accordance with the now repealed *Threatened Species and Conservation Act* (TSC Act) prior to the commencement of the BC Act. The assessment had concluded the Project was unlikely to significantly impact on threatened species, population or ecological community or their habitat listed under the TSC Act. The proposed modification is not proposing any vegetation clearing, therefore will not impact any protected entities under the BC Act.
National Parks and Wildlife Act 1974	The *National Parks and Wildlife Act 1974* (NPW Act) contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal heritage. Under the NPW Act, it is an offence to harm Aboriginal objects or places unless authorised by an Aboriginal Heritage Impact Permit (AHIP) issued under Section 90 of the NPW Act. By operation of Section 89J of the EP&A Act, the Project does not require any

Relevant State Legislative Act	Project Implications (approvals, licences and/or authorities)
	additional approvals, including an AHIP, under the NPW Act. The proposed modification will not impact on any national parks, historic sites, nature reserves and Aboriginal heritage protected and /or managed under the NPW Act.
Heritage Act 1977	Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the *Heritage Act 1977* (Heritage Act). The Project's cultural heritage impact assessment (RPS, 2013c) concluded there are no heritage items in the Project Application Area within the World Heritage List, National Heritage Database, NSW State Heritage Place Inventory. Lithgow LEP 1994, Draft Lithgow LEP 2013. In any event, approval is not required under Part 4 of the *Heritage Act 1977* due to the operation of Section 89J of the EP&A Act. The proposed modification is not proposing any land disturbance and will therefore not impact any heritage items protected under the Heritage Act.
Contaminated Land Management Act 1997	The *Contaminated Land Management Act1997* establishes a process for the investigation and remediation of contaminated land. The relevance of this legislation to the proposed modification is outlined in **Section 5.4.4**.
Native Vegetation Act 2003	The *Native Vegetation Act 2003 (*NV Act) provides for the promotion, improvement and protection of native vegetation in NSW. Approval to clear native vegetation is required under the NV Act. However, a Section 90 permit is not required for SSD by virtue of Section 89J of the EP&A Act. The proposed modification will not require any further vegetation clearing than is approved under SSD 5579.
Forestry Act 2012	The Project Application Area includes the Ben Bullen State Forest land within the SCSS, however, Springvale Coal does not hold Occupation Permits for the land under the *Forestry Act 2012* for that land. The overland conveyor traverses the Ben Bullen State Forest land. While no occupation permit exists the conveyor corridor is covered by MPL314. No surface disturbance activities are proposed on any State Forest land in the proposed modification.

5.4 State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) are Environmental Planning Instruments (EPIs) prepared by the Minister to address issues significant to NSW. The SEPPs outlined in the below sub-sections contain provisions that are relevant to the proposed modification, and therefore are matters to be taken into consideration by the consent authority.

5.4.1 SEPP (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) came into effect upon the repeal of Part 3A of the EP&A Act and identifies development to which the SSD assessment and determination process under Division 4.1 in Part 4 of the EP&A Act applies. The Western Coal Services Project is classified as SSD pursuant to Section 89C of the EP&A Act and declared to be such by the *SEPP (State and Regional Development) 2011* (SRD SEPP). Clause 5(3) of Schedule 1 of the SRD SEPP identifies development for the purpose of mining related works that is ancillary to another SSD project or has a capital investment value of more than $30 million as SSD. The capital investment value of the Project was in excess of $30 million. As a result, pursuant to Clause 8(1) of the SRD SEPP, the Western Coal Services Project comprises SSD.

5.4.2 SEPP (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) aims to provide for the proper management and development of mineral, petroleum

and extractive material resources for the social and economic welfare of NSW. **Section 5.5** discusses the permissibility of the Project due to the application of sub-clauses 7(1)(d) and 5(3) of the Mining SEPP.

Under Clause 7(1)(d) of the Mining SEPP, facilities for the processing or transportation of minerals or mineral bearing ores on certain land are permissible with development consent. The transport and processing of minerals, in this case coal, is permissible under the Mining SEPP because coal from the Springvale Mine Extension Project (SSD 5594) is processed in the Project.

Clause 12AB of Mining SEPP sets out a number of non-discretionary development standards under Section 79C (2) and (3) of the EP&A Act for mining developments. These relate to cumulative noise levels, cumulative air quality levels, airblast overpressure, ground vibration and aquifer interference. The cumulative noise levels and air quality levels are discussed in **Section 7.1.8** and Section **7.3.8**, respectively.

5.4.3 SEPP (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (*Sydney Drinking Water Catchment*) *2011* applies to land within the Sydney drinking water catchment. The Project Application Area is partly located within the Sydney drinking water catchment.

The aims of SEPP (Sydney Drinking Water Catchment) 2011 are:

(a) to provide for healthy water catchments that will deliver high quality water while permitting development that is compatible with that goal

(b) to provide that a consent authority must not grant consent to a proposed development unless it is satisfied that the proposed development will have a neutral or beneficial effect on water quality, and

(c) to support the maintenance or achievement of the water quality objectives for the Sydney drinking water catchment.

Clause 9(1) of this SEPP provides that any development or activity proposed to be carried out on land within the Sydney's drinking water catchment should incorporate the WaterNSW's current recommended practices and standards. Clause 10(1) requires a development under Part 4 of the EP&A Act to demonstrate a neutral or beneficial effect on water quality.

The modification is not proposing any additional discharges of water to the environment from its operations.

5.4.4 SEPP No. 55 – Remediation of Land

SEPP No. 55 – Remediation of Land (SEPP 55) provides for a state-wide planning approach to the remediation of contaminated land in order to reduce the risk to human health or any other aspect of the environment.

Clause 7(1) of SEPP 55 provides that a consent authority must not consent to the carrying out of any development on land unless:

- it has considered whether the land is contaminated
- if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Further, Clause 7(2) of SEPP 55 provides that before determining an application for consent to carry out development that would involve a "change of use" in respect of certain land specified in clause 7(4) of SEPP 55, the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines (being the 1998 publication *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land*).

Centennial Coal undertook a contaminated site assessment across majority of its sites in accordance with the *Contaminated Land Management Act 1997* to determine whether any site triggered the Duty to Report criteria. A three phase approach was adopted as follows.

- Phase 1 Environmental Site Assessment (ESA) – desk top assessment completed in December 2010
- Phase 2 ESA – intrusive sampling and analysis programme, completed in February 2012
- Phase 3 ESA – implementation of remediation plans

In the case of Western Coal Services Project, a Phase 1 ESA was undertaken in April 2013 by AECOM, and included with the EIS. The Phase 1 ESA concluded that past and current use of the site 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. In accordance with the schedule provided by Centennial Coal to the EPA in a letter dated 2 February 2012, the EIS committed to the completion of a Phase 2 ESA by February 2015 for the Project deemed a low risk site.

The Kerosene Vale Stockpile Validation Report (HLA – EnviroSciences, February 2007) and its subsequent review by NSW DECC accredited Site Auditor Ross McFarland (Site Auditor No.9819). validated the condition of the land at the site and demonstrates that a diesel spill that was reported to have taken place in a certain area of the site has been remediated.

The overland conveyor and the existing haul roads operate under an established EMS that has been developed in accordance with the Centennial EMS Framework. The EMS has been developed and implemented to ensure the effective management of environmental issues and compliance with all regulatory requirements.

A Phase 2 ESA was undertaken by AECOM in 2014. The Phase 2 ESA included drilling soil boreholes, collection and testing of sediment and the collection testing of water samples from LDP006 and Wangcol Creek. Based on the AECOM findings the site is suitable for ongoing commercial/industrial land use. A targeted Phase 3 Assessment and remediation would be required at mine closure, with some possible remediation around the area of the workshop at Western Coal Services and the coal storage area at Kerosene Vale Stockpile Area.

With the continued implementation of best management practices for hydrocarbons, as well as effective implementation of the approved environmental management plans and work health and safety management systems, the potential for contamination and associated issues remains low for the Project.

5.4.5 SEPP No. 44 – Koala Habitat Protection

SEPP No. 44 – Koala Habitat Protection provides for the protection of koala habitat by ensuring that areas subject to development proposals are considered for their value as habitat or potential habitat for koalas. The Greater Lithgow LGA (now Lithgow City LGA) is listed under Schedule 1 of SEPP No. 44 as an area to which this SEPP applies.

The *Ecology Impact Assessment* (RPS, 2013b) undertaken to support the WCS EIS concluded the SCSSs does not constitute Potential Koala Habitat and hence no further provisions of the policy applied to the Project. No Koalas or evidence of Koalas were recorded during surveys. Given the

nature of the Project and likelihood of impacts on habitat, it was considered unlikely that impacts to the Koala would result. The modification will not result in any impacts to the Koala.

5.4.6 SEPP No. 33 – Hazardous and Offensive Development

SEPP No. 33 - Hazardous and Offensive Development (SEPP 33) regulates, amongst other things, the determination of development applications to carry out what is defined in SEPP 33 as development for the purposes of a "potentially hazardous industry" or "potentially offensive industry". With the continued implementation of best management practices for chemicals used at the Project's infrastructure sites as well as effective implementation of the approved EMS and occupation health and safety management systems, the proposed modification would not pose any significant risk, in relation to its locality, to human health, life or property or to the biophysical environment over and above that currently approved in the Project.

The proposed modification elements would not result in the emission of a polluting discharge in a manner which would have a significant adverse impact in its locality or on the existing or likely future development on other land.

On the above bases, the proposed modification is not considered to comprise a "potentially hazardous industry" or a "potentially offensive industry" within the meaning of these expressions in SEPP 33. Therefore a preliminary hazard analysis was not prepared as required by Clause 12 of SEPP 33 and nor does Clause 13 of SEPP 33 apply to the consent authority's determination of the modification.

5.5 Lithgow Local Environmental Plan 2014

Local Environmental Plans (LEPs) are instruments that guide planning decisions for Local Government Areas (LGAs) and allow Councils to manage the ways in which land is used through zoning and development consents. The *Lithgow Local Environmental Plan 2014* (Lithgow LEP 2014) was gazetted on 19 December 2014, after development application for SSD 5579 had been submitted on 29 July 2013.

The aim of the Lithgow LEP 2014 is to make local environmental planning provisions for land in Lithgow in accordance with the relevant standard environmental planning instrument under Section 33A of the EP&A Act. In particular, the aims of the Lithgow LEP 2014 include the encouragement of sustainable and planned development that complements the unique character and amenity of Lithgow, and to provide for a range of development opportunities that contribute to the social, economic and environmental resources of Lithgow through the implementation of the principles of ecologically sustainable development.

The land use zonings of the Project Application Area pursuant to the Lithgow LEP 2014, as illustrated on **Figure 4**, are:

- RU1 Primary Production
- RU3 Forestry
- SP2 Infrastructure
- IN1 General Industrial.

The objectives of Zone RU1 Primary Production are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource lands
- To minimise conflict between land uses within this zone and land uses within adjoining zones

- To minimise the environmental and visual impact of development on the rural landscape
- To provide for recreational and tourist development and activities of an appropriate type and scale that do not detract from the economic resource, environmental or conservation value of the land
- To maintain or improve the water quality of receiving water catchments

The objectives of Zone RU3 Forestry are:

- To enable development for forestry purposes
- To enable other development that is compatible with forestry land uses.

The objectives of Zone SP2 Infrastructure are:

- To provide for infrastructure and related uses
- To prevent development that is not compatible with or that may detract from the provision of infrastructure
- To maintain or improve the water quality of receiving water catchments.

The objectives of Zone IN1 General Industrial are:

- To provide a wide range of industrial and warehouse land uses
- To encourage employment opportunities
- To minimise any adverse effect of industry on other land uses
- To support and protect industrial land for industrial uses
- To maintain or improve the water quality of receiving water catchments.

Development for the purposes of "open cut mining" is permissible with development consent under the Lithgow LEP 2014 within Zone RU1 Primary Production and Zone RU3 Forestry. Mining is prohibited within Zone SP2 Infrastructure and Zone IN1 General Industrial. Notwithstanding, it is noted Clause 1.8A 'Savings provision relating to development applications' of Lithgow LEP 2014 states:

> *"If a development application has been made before the commencement of this Plan in relation to land to which this Plan applies and the application has not been finally determined before that commencement, the application must be determined as if this Plan had not commenced."*

The development application was made on 29 July 2013 and determined on 04 April 2014, before the commencement of the Lithgow LEP 2014 on 19 December 2014.

Furthermore, Sub-clause 7(1)(d) of the Mining SEPP (**Section 5.4.2**) states that development for the purposes of processing or transportation of minerals or mineral bearing ores on certain land are permissible with development consent. The transport and processing of minerals, in this case coal, is permissible under the Mining SEPP because coal from the Springvale Mine Extension Project (SSD 5594) is processed at the SCSS. In relation to any inconsistency between the Mining SEPP and an LEP, Clause 5(3) of Mining SEPP provides that the Mining SEPP prevails to the extent of the inconsistency. On this basis, any provision in the Lithgow LEP 2014 that would otherwise operate to prohibit the Project has no effect, and accordingly, the Western Coal Services Project is permissible with development consent on the land in which the Project will be carried out that is within the Lithgow LGA.

5.6 Other Considerations

5.6.1 Lithgow Land Use Strategy 2010 – 2030

Lithgow City Council's *Lithgow Land Use Strategy 2010-2030* (LLUS) was adopted by Council on 31 October 2011 and endorsed by the NSW Department of Planning and Infrastructure on 24 May 2012.

The LLUS is a combined *Land Use Issues Paper and Strategy*. It explores the issues that currently face the Lithgow LGA and recommends a new planning approach to address these issues. The Strategy will be implemented through the planning system, primarily through the Lithgow LEP 2014 and Development Control Plan, as well as Council's other policy, regulatory and governance functions. This Strategy is significant to Council and the community because it will set directions and policy for the LGA's settlement and land use management for the next 20 years. The Strategy will be reviewed throughout this period every five years to ensure that its findings and recommendations remain relevant, are in keeping with sound planning principle and are continuing to meet the needs and expectations of the community.

5.6.2 Water Sharing Plans

Water Sharing Plans (WSP) prepared in accordance with the *Water Management Act 2000* include rules for protecting the environment, extractions, managing licence holders' water accounts, and water trading within defined areas and specified water sources. The WSPs provide the basis for equitable sharing of surface water and groundwater between water users, including the environment.

The following two WSPs made under Section 50 of the WM Act are relevant to the Project:

- Greater Metropolitan Region Groundwater Source 2011
- Greater Metropolitan Region Unregulated River Water Sources 2011.

For groundwater, the Project is located within the Greater Metropolitan Region Groundwater Source WSP. This WSP covers 13 groundwater sources on the east coast of NSW. The Project is located within the Sydney Basin Coxs River Groundwater Source.

For surface water, the Project is located within the Greater Metropolitan Region Unregulated River Water Sources WSP. This WSP covers six water sources which are made up of a total of 87 management zones. The Project is located within the Wywandy Management Zone of the Upper Nepean and Upstream Warragamba Water Source.

There is no direct extraction of surface water or groundwater from either WSP by the Project as approved. The Project will seek a water access licence for the transfer of mine water from the Springvale Mine to the SCSS and the Lidsdale Siding, along the existing overland conveyor, when required.

The proposed modification will not result in any take of surface or groundwater and will not require any water access licences under the above-noted WSPs.

5.6.3 Strategic Regional Land Use Policy

The NSW Government's *Strategic Regional Land Use Policy* (DP&I, 2012) was introduced in September 2012 and sets out a range of initiatives to better balance growth in the mining industry with the need to protect agricultural land and water resources. The Policy includes a package of measures including the following key elements.

- The preparation of Strategic Regional Land Use Plans (SRLUPs) for both the Upper Hunter and the New England North West regions of NSW which identify and map Strategic Agricultural Land (SAL) and Critical Industry Clusters (equine and viticulture land uses) within these areas.

- The introduction of the NSW Aquifer Interference Policy (**Section 5.6.4**).
- The requirement for Agricultural Impact Statements to accompany SSD applications for mining projects that have the potential to affect agricultural resources.

The proposed key policy response for resolving land use conflict between mining and coal seam gas proposals and agricultural land is a 'gateway process'. Under this process, a panel of independent experts would assess proposals involving mining or coal seam gas development on mapped SAL at an early stage before the lodgement of a development application. The outcome of the 'gateway process' would be that the proposal either meets the gateway criteria relating to agricultural and water impacts, or the proposal does not meet the criteria and therefore stringent requirements will be imposed that must be addressed at the development application stage. The 'gateway process' has commenced.

The existing SRLUPs do not apply to the Project Application Area. Notwithstanding, matters relating to soil landscapes, land use impacts, land capability and agricultural suitability had been addressed within the WCS EIS. There is currently no agricultural production or forestry within the SCSS and no Strategic Land in accordance with the *Strategic Regional Land Use Policy*.

5.6.4 NSW Aquifer Interference Policy

The *NSW Aquifer Interference Policy* (AIP) (DPI, 2012) is a key component of the NSW Government's *Strategic Regional Land Use Policy*. The AIP clarifies the water licensing and approval requirements for aquifer interference activities, including the taking of water from an aquifer in the course of carrying out mining, and defines the considerations for assessing potential impacts to key water-dependent assets.

The AIP indicates that where mining results in the loss of water from an overlying source that is covered by a Water Sharing Plan, a water access licence is required under the *Water Management Act 2000* to account for this take of water. According to the AIP, proponents of a mining project seeking development consent under Part 4 of the EP&A Act must provide estimates of all quantities of water likely to be taken from any water source during and following cessation of the activity and all predicted impacts associated with the activity. No water will be taken from any water source due to the proposed modification.

The AIP requires that potential impacts on groundwater sources, including their users and Groundwater Dependent Ecosystems (GDE), be assessed against minimal impact considerations. If the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable. The Project Application Area does not include any GDEs (RPS, 2013a,b). Hence, there are no potential impacts on groundwater sources, groundwater users and GDEs due to the proposed modification.

No aquifer interference activities are predicted as a result of the modification. No pressure head decline would occur as a result of the modification, and no change in the groundwater quality which would lower the beneficial use of the groundwater (as agricultural or industrial water) is predicted.

5.7 Commonwealth Legislation

5.7.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment and Energy (DoE), and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as matters of 'national environmental significance' (MNES). An action that "*has, will have or is likely to have a significant impact on a matter of National Environmental Significance*" may not be undertaken without prior approval from the Commonwealth Environment

Minister, as provided under Part 9 of the EPBC Act. Approval under the EPBC Act is also required where actions are proposed on, or will affect, Commonwealth land and its environment.

The EPBC Act identifies MNES as follows.

- World heritage properties
- National heritage places
- Wetlands of international importance (Ramsar wetlands)
- Threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- Nuclear actions (including uranium mining)
- Great Barrier Reef Marine Park
- A water resource in relation to coal seam gas development and large coal mining development

Potential impacts on any MNES are subject to assessments of significance pursuant to the EPBC Act *Significant Impact Guidelines 1.1* (DoE, 2013a). If a significant impact is considered likely, a referral under the EPBC Act must be submitted to the Commonwealth Environment Minister.

The *Significant Impact Guidelines 1.3* (DoE, 2013b) includes general criteria for whether an action is likely to have a significant impact on water resources, which are for the possibility for direct or indirect changes to:

- the hydrology of a water resource
- the water quality of a water resource.

The proposed modification has no potential to impact on any MNES.

5.7.2 Native Title Act 1993

The *Native Title Act 1993* recognises that Aboriginal people have rights and interests to land which derives from their traditional laws and customs. Native title rights can include rights to: live on the land, access the land for traditional purposes, protect important places and sites, collect food and medicinal resources from native plants, hunt and fish, teach traditional law and customs, and to have input into land use practices and development planning. Where it is proposed to carry out an act which may affect the exercise of native title rights it is necessary to validate this act under the 'future act' validation procedures set out in the Act. The applicable validation procedures depend on the nature of the future act. One way a future act can be validated is through an Indigenous Land Use Agreement (ILUA).

An ILUA is an agreement between a native title group and other parties who use or manage the land and waters. The ILUA process allows for negotiation between indigenous groups and other parties over the use and management of land and water resources, and the ability to establish a formal agreement. An ILUA is binding once it has been registered on the Native Title Tribunal's Register of Indigenous Land Use Agreements.

The proposed modification will not trigger a new mining lease application as all required mining leases are in place. Two current mining lease applications (MLA497, MLA498) are not subject to native title claims.

6.0 STAKEHOLDER ENGAGEMENT

6.1 Introduction

This chapter provides information on consultation undertaken with stakeholders with respect of the proposed modification.

6.2 Western Coal Services Stakeholder Engagement Strategy

Springvale Coal has an ongoing consultation strategy with all stakeholders, identified in the *Western Coal* Services *Stakeholder Engagement Plan* (WCS SEP). The WCS SEP provides a framework to identify and appropriately consult with stakeholders that may be influenced by or have an interest in the Project's operations. The WCS SEP identifies the following groups as the Project's stakeholders.

- Local community
- Indigenous stakeholders
- Non-government organisations
- Government (Local, State, Commonwealth)
- Forestry Corporation of NSW (FCNSW)
- Springvale Coal workforce and workforce at other Centennial Coal operations
- EnergyAustralia NSW Pty Ltd

The WCS SEP is underpinned by Centennial Coal's Environment and Community Management Standards which set out the minimum requirements for effective consultation and engagement with all stakeholders. The WCS SEP requires consultation with stakeholders on proposed modifications to the consent SSD 5579. A targeted Community Engagement Strategy was developed for the modification.

Springvale Coal is committed to the timely, orderly, consistent and credible dissemination of appropriate information within the constraints of legal and regulatory requirements to all interested stakeholders. To date, no major complaints have been received on the Project from the community.

6.3 Consultation for the Modification

6.3.1 Consultation with Government

Department of Planning and Environment

A letter was sent to DPE on 21 September 2016 to advise DPE of Springvale Coal's intention to modify the Project's consent SSD 5579. The letter included a description of the modification elements, the proposed approval pathway for the modification, and the technical assessments proposed to be undertaken for the preparation of the SEE supporting the modification application. DPE provided a response to the letter on 11 October 2016 (**Appendix B**) to confirm that (i) Section 96(2) of the EP&A Act was the applicable approval pathway for the modification application, and (ii) the Department considered the proposed assessment approach was reasonable.

Department of Planning and Environment, Environmental Protection Authority, Department of Resources and Geosciences, Lithgow City Council

Table 9 presents a summary of consultation undertaken with DPE, Environment Protection Authority (EPA), Department of Resources and Geosciences (DRG) and Lithgow City Council (LCC) to discuss the proposed modification, specifically the need to address the recurring noise non-compliance issues in the Project. Discussions with DPE and EPA also included aspects of the proposed noise impact assessment methodology and the proposed application of the current noise criteria in SSD 5579 to SCSS operations only.

Table 9 – Summary of Government Consultation

Date	Government Agencies	Consultation Mode	Purpose
26 July 2016	DPE, EPA	Meeting	To discuss the need for the modification to the WCS consent to address noise non-compliance issues.
07 February 2017	DPE	Meeting	To discuss noise assessment approach, mitigation strategy to achieve compliance and need for community engagement in accordance with the *Voluntary Land Acquisition and Mitigation Policy* (DPE, 2014).
15 March 2017	DPE	Meeting	To discuss: • Initial noise modelling outcomes provided to DPE on 17 February 2017, and options assessment study for reasonable and feasible engineering noise controls. • Noise impact assessment to assess the noise impacts from each of the four Project components individually (SCSS, Mount Pier Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area, overland conveyor system) and developing mitigation strategy for each Project component to reduce noise emissions. • Low frequency noise assessments using both the current methodology in the *Industrial Noise Policy* (EPA, 2000) and the proposed methodology in the draft *Industrial Noise Guideline* (EPA, 2015). • Timing of modification application (31 July 2017) to ensure modification is by end of the year.
28 March 2017	DPE, EPA	Meeting	To discuss further the approach of assessing impacts from the four individual Project components.
05 April 2017	DPE	Meeting	To discuss: • Results from the noise modelling approach assessing the noise emissions individually from the four Project components, report provided to DPE on 04 April 2017. • Approach to be utilized in the Noise Impact Assessment to support the proposed modification. • Noise mitigation and management of noise as applicable to mobile and fixed plant within the four Project components to achieve compliance with the current noise criteria in SSD 5579 and/or reduce noise emissions to the environment. • Mitigation and management strategy to be included in a Works Program Progress to be supplied to DPE by 30 June 2017. • Need for community engagement, however no acquisition.
20 April 2017	DPE	Email	Scope of works for the Noise Impact Assessment provided for confirmation.
05 May 2017	DPE	Email	DPE confirmed the scope of works for the Noise Impact Assessment was adequate.
02 June 2017	DPE, DRG	Meeting	Modification discussed at the WCS Annual Review meeting and included discussions on the engineering controls investigated and noise modeling completed.
30 June 2017	DPE	Meeting	• To provide an overview of the progress made on the noise impact assessment, investigations of engineering noise controls undertaken and timing on the implementation of the noise controls.

Date	Government Agencies	Consultation Mode	Purpose
			• To request the Department considers the submission date for the modification application date be delayed by one month to 31 August 2017.
17 July 2017	DPE	Email	DPE granted an extension of time for the submission of the modification application to 31 August 2017.
09 August 2017	LCC	Meeting	Provide a brief on the proposed modification including the reasons why the modification is required, incidences of non-compliance with the SSD 5579 noise criteria, and subsequent need to mitigate noise sources and manage operations to achieve compliance and reduce noise emissions to the environment.

6.3.2 Consultation with Community

6.3.2.1 Centennial Western Region Community Consultative Committee

As noted above, Springvale Coal has ongoing consultation with the local community. Meetings are held on a regular basis with the Centennial Western Region Community Consultative Committee (CCC). The CCC includes five community representatives and two LCC representatives.

A description of the WCS MOD 2 modification elements and the justification for the modification was included in a presentation at the CCC meeting of 04 April 2016. No issues were raised by the CCC members.

An extraordinary meeting of the CCC was held on 09 August 2017 to provide an update on Centennial Western Region projects and upcoming modifications to consents. The WCS Modification 2 was discussed, including the modification elements and the technical assessments supporting the SEE, and the need for the modification. Specifically, the mitigation measures and operational controls proposed to be implemented to allow the Project to achieve compliance with the consent noise criteria were discussed. No issues relating to the proposed modification elements, impact assessments undertaken and the proposed mitigation measures were raised.

6.3.2.2 Private Landholder Engagement

Additional community consultation has been undertaken specifically as part of Modification 2 stakeholder engagement and comprised the following forms.

- **Landholder notifications** – commenced on 17 July 2017. The notification comprised postal box drops of hardcopy letters describing the proposed modification, specifically to articulate, incidences of non-compliance with the SSD 5579 noise criteria, and subsequent need to mitigate noise sources and manage operations to achieve compliance and reduce noise emissions to the environment.
- **Landholder consultation meetings** – commenced on 17 July 2017 and are ongoing. Face to face meetings were held with landowners during postal box drops, landholders who made contact following the notification of the proposed modification, and landholders who have the potential to be affected by the proposed modification.

Private landowner engagement included face to face meetings with those landholders who have previously been notified of noise non-compliances, as required by the WCS Noise Management Plan or live in close proximity to the SCSS and / or receptors where a minor (1 – 2 dB) exceedances are predicted from the SCSS operations **(Section 7.1.7**).

A summary of the consultation undertaken and matters raised are included in **Table 10**, which also provides comments on how issues raised have been addressed.

Table 10 – Private Landholder Engagement Summary

Theme	Matters Raised or Comments Made	Comments and SEE Reference
WCS operations and noise	**Wallerawang and Lidsdale Receptors** (in the vicinity of overland conveyors OL1 and OL2 sections and Haul Roads) • No specific issues raised in relation to WCS operations. • The non-operation of the haul roads (due to Angus Place Colliery placed under care and maintenance from March 2015) and closure of Wallerawang Power Station (decommissioned in November 2014) has changed the noise profile in the area (ie quieter noise environment). • No issues raised in relation to the past operations of the haul roads. • No issues raised in relation to the proposed restriction of haul road operations to day time only during Angus Place Colliery's development phase (when that commences) under current project approval). **Lidsdale and Blackmans Flat Receptors** (southern side of Castlereagh Highway) • Landowners closest to the overland conveyors consistently noted that the conveyors were 'audible at times', specifically during evening and night periods, and was exacerbated during conveyor start-ups from a stationary position or from faulty conveyor rollers. • Overall, the noise impacts described were not considered offensive. • The installation of low noise idlers was well received. **Blackmans Flat Receptors** (northern side of Castlereagh Highway – away from conveyors) • Landowners described an audible sound from the direction of the SCSS and MPSS. • The noise was not described as constant or offensive but the operations of the two sites could be heard.	**Mitigation of Overland Conveyor Noise** Springvale Coal has already commenced installation of low noise idlers at identified OL1 and OL2 sections of the overland conveyor system in the vicinity of Lidsdale and Wallerawang receptors (**Section 7.1.7.2**). Replacement of the identified OL2 and OL3 sections of the overland conveyor and CW01 and CW02 sections of the internal conveyors within the SCSS (**Section 7.1.7.1**) will commence in early 2018 and be completed by approximately June 2018 (**Section 7.1.9.1**). **Mitigation of Noise Sources at SCSS** A wide range of engineering noise controls on fixed and mobile plant and operational management of mobile plant at SCSS will be implemented (**Section 7.1.6.2**). The implementation of the noise controls will be staged over a two-year period. Use of the dozer on stockpiles has been restricted to day period only (**Section 7.1.9.1**). **Ongoing Maintenance of Conveyors** Operational controls and management strategies (**Section 7.1.9.2**) will be implemented to ensure regular review of sound power levels of fixed and mobile plant (including conveyors) occurs to determine if maintenance and replacement of noise controls are required. Any faulty conveyor roller will be replaced as soon as practicable.

Theme	Matters Raised or Comments Made	Comments and SEE Reference
Property acquisition	Written requests received from two Blackmans Flat receptors, B04 and B13.	B04 receptor is acquisition on request under SSD 5579. Centennial's internal process for acquisition has commenced for this property. Schedule 4 Condition 5 of SSD 5579 on land acquisition requirements will be followed. B13 receptor is not acquisition on request under SSD 5579. In consultation with DPE mitigation measures to all acoustically significant noise sources within SCSS (both fixed and mobile plant) will be mitigated. In addition it is proposed there will be restrictions in the operation of mobile plant in the evening and night periods. The mitigation measures and operational controls have been modeled. All mitigated predictions for the day, evening and night periods are within 2 dB of the noise criteria on SSD 5579 at all receptors. Predictions for B13 show a potential exceedance of 2 dB for the night period (**Table 18**) against the consent criterion. Global Acoustics (2015) do not consider the predicted exceedance significant, and in accordance with Table 1 of *Voluntary Land Acquisition Policy* (DPE, 2014) the 2 dB predicted exceedance is considered negligible, and would not be discernible by the average listener. The predicted exceedance would therefore not warrant receiver based treatment or controls at the residence or fall within the acquisition zone. The request for acquisition by B13 is not justified.
Traffic noise	Traffic noise from Castlereagh Highway, especially in areas where the road surface is uneven.	WCS Project is not approved to haul coal or reject materials on Castlereagh Highway, and no road haulage occurs under SSD 5579.
Future noise impact – SCSS operations	Potential noise impacts from the operation of the approved Link Haul Road overbridge on Castlereagh Highway	The construction and operation of the overbridge is not in Springvale Coal's current 5-year business plan. Prior to the commencement of construction works of the Link Haul Road, the community will be advised through the CCC meetings and postal box drop notifications (**Section 6.4**) as relevant.
Future noise impact – Neubeck Coal Project	Potential noise impacts from the development of the Neubeck Coal Project.	Development of the Neubeck Coal Project is not in Centennial's current 5-year business plan. When work on the Neubeck Project is is recommenced a Stakeholder Engagement Strategy for the project will be developed and consultation will be undertaken appropriately at the project design and assessment phases to allow community concerns to be captured and addressed in the project as much as practicable and reasonable.

6.3.2.3 Consultation with Registered Aboriginal Parties

The Centennial Western Region operations engage with 11 Registered Aboriginal Parties (RAPs) on Aboriginal cultural heritage matters pertinent to approvals and including Aboriginal cultural heritage identification, monitoring and management across the operations. A six-monthly meeting with the RAPs is also organized, in accordance with the approved *Western Region Aboriginal Cultural Heritage Management Plan* (Centennial Coal, 2015), to provide information on the activities undertaken in each operation and the approvals being prepared. The proposed modification was discussed at the six-monthly meeting held on 29 March 2017. Modification elements were discussed. It was specifically noted at that meeting the modification is not proposing any surface disturbance and that no new mining leases will be required following the approval of the modification.

6.4 Future Consultation

The proposed implementation of the mitigation noise engineering controls will be undertaken in a priority sequencing of noise controls staged over a two-year period (**Section 7.1.9.1**). It is proposed to re-run the noise model after implementation of each mitigation measure, and after the mitigated sound power levels of the mitigated noise sources have been measured. The revised noise predictions will be reported to the community via a number of mechanisms.

- **Meetings with Potentially Affected Residents**. Meetings will be set up with landholders already consulted with on Modification 2 (**Section 6.3.2.2**). Information to be provided (in a letter form and verbally) will include the mitigation works completed (**Table 21**) and the updated modelled results.
- **Western Regional Community Consultative Committee**. A report will be provided at each Western Region CCC meeting and will include discussions of mitigation works completed and the most up to date modelled results.
- **Centennial Coal Website**: An update on the mitigation works program and updated modelled results will be updated at each stage of the mitigation works program.
- **Newspaper Notification**. A 6-monthly community update will be placed in the Lithgow Mercury and Village Voice outlining the progress of the works program and the most up to date noise predictions.

In general, Springvale Coal's consultation with the broader community and other identified stakeholders will be ongoing to ensure the community remains informed of the Project's operations and the outcomes of modification applications including Modification 2.

The local community will be notified of the proposed modification through an advertisement placed in the local newspaper (Lithgow Mercury) following lodgment of the modification application. The community will also be asked to take part in the modification assessment process through the public exhibition process, whereby the community will be invited to make formal submissions on the modification.

7.0 ASSESSMENT AND MANAGEMENT OF KEY ENVIRONMENTAL ISSUES

7.1 Noise

7.1.1 Introduction

A Noise Impact Assessment (NIA) for the modification titled *Western Coal Services Project: Noise Impact Assessment* (Global Acoustics, 2017) was prepared by Global Acoustics Pty Ltd and the full report is attached as **Appendix D**. This assessment builds on the Noise and Vibration Impact Assessment that was prepared by SLR Consulting Australia Pty Ltd (SLR, 2013) for the WCS EIS. The primary objectives of the NIA are to quantify potential noise impacts from the WCS Project, and the assessment considers operational, low frequency, road traffic and cumulative noise.

The NIA supports Springvale Coal's proposal in the modification to restrict the current noise criteria in SSD 5579 (Schedule 3, Condition 7) to SCSS operations only and to preclude their application to the other project components, namely, the overland conveyor system, Mount Piper Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area. Accordingly, the NIA proposes and models reasonable and feasible mitigation measures that can be implemented within the SCSS fixed and mobile plant to facilitate in achieving compliance at that site. The assessment also proposes mitigation measures for the overland conveyor system at Lidsdale and operational management of coal haulage on private haul roads to reasonably reduce noise emissions on the environment.

The following documents were used in the preparation of the NIA:

- *NSW Industrial Noise Policy,* NSW Environment Protection Authority, Sydney NSW, January 2000 (EPA 00/1)
- *Draft Industrial Noise Guideline*, NSW Environment Protection Authority, Sydney NSW, September 2015 (EPA 2015/0185)
- *NSW Road Noise* Policy, NSW Department of Environment, Climate Change and Water, March 2011 (DECCW 2011/236).

7.1.2 Study Area

The study area encompasses the Project Application Area and the nearby residential areas with sensitive receptors with the potential to be impacted by the operation of the Project. There are 168 sensitive receptors with the potential to be impacted by noise emissions from the Project (**Section 2.11**), and which are shown in **Figure 6**, **Figure 7** and **Figure 8**.

7.1.3 Existing Environment

7.1.3.1 Western Coal Services Operations and Noise Sources

The WCS operations are comprised of four discrete project components described below, each with defined noise sources with the potential to impact on its own select sensitive receptors.

Springvale Coal Services Site

The SCSS consists of an existing coal preparation plant (CPP) of 2 Mtpa capacity, coal stockpiles, emplacement facilities for coarse and fine reject materials (tailings), and a coal distribution network of conveyors. The OL2 (part) and OL3 sections of the overland conveyor system also traverse the SCSS. A new CPP with a 5 Mtpa capacity is approved but has not yet been constructed, however has been assessed as a future potential noise source in the NIA

The CPP, conveyors and mobile plant (loaders, dozers and haul trucks) operating at SCSS are noise sources with the potential to impact sensitive receptors in Blackmans Flat.

Overland Conveyor System

The overland conveyor system traverses from the Springvale Mine pit top to Mount Piper Power Station, and links these sites with SCSS, Lidsdale Siding and Wallerawang Power Station. The operation of the overland conveyor has the potential to impact on a number of sensitive receptors in Springvale, Lidsdale, Wallerawang and Blackmans Flat.

The overland conveyor system is an existing industrial noise source with a likely unchanged legacy. The conveyors have been acceptable for over 20 years within the community and industrial noise impact due to them is likely unchanged. It is also noted there has been very few complaints regarding the overland conveyors from the surrounding community. This indicates the community's acceptance of a noise environment that has existed for a long time, and prior to the establishment of new residential areas in the region. It is important to note the attended noise monitoring data conducted by Global Acoustics since July 2014 (**Table 13, Section 7.1.3.2**) is generally consistent with the historical noise data presented in **Table 11** and **Table 12**.

Wallerawang Haul Road and Kerosene Vale Stockpile Area

The Wallerawang Haul Road is used for traversing between Angus Place Colliery, Kerosene Vale Stockpile Area and Wallerawang Power Station. Haul trucks and loaders are noise sources with the potential to impact sensitive receptors on Wolgan Road and parts of Lidsdale. There is currently no haulage occurring on this haul road due to Angus Place Colliery being on care and maintenance. No loaders are operating at Kerosene Vale Stockpile Area since no coal stockpiling is currently occurring at the site.

Springvale Coal is currently undertaking a feasibility study investigating alternative surface and underground coal clearance (coal transfer) options for when Angus Place Colliery re-commences mining under their current project approval.

Mount Piper Haul Road

The Mount Piper Haul Road is used for traversing between Angus Place Colliery and Mount Piper Power Station. A private haul road linking SCSS to Mount Piper Haul Road is approved but not yet constructed. Haul trucks are a noise source with the potential to impact sensitive receptors on Wolgan Road and Blackmans Flat. There is currently no haulage occurring on this haul road due to Angus Place Colliery being on care and maintenance.

7.1.3.2 Noise Environment

WCS operations (SCSS, Mount Piper Haul Road) and the Mount Piper Power Station contribute to the noise environment in Blackmans Flat. Historically at Lidsdale, the contributing noise sources have been Lidsdale Siding operations, Wallerawang Power Station, Wallerawang Haul Road and the overland conveyor system. Both the overland conveyor system and SCSS have existed for over 20 years and were constructed to facilitate Springvale Mine operations. Wallerawang Power Station was decommissioned in November 2014, however existed for over 50 years before then. It should be noted that the haul roads, overland conveyor system, Wallerawang and Mount Piper Power Stations, Lidsdale Siding, Springvale Mine and Angus Place Colliery all existed, were operational, and were a part of the local noise environment at the time of the Project's development application in 2013.

Historical Attended Noise Monitoring Data 2007 – 2008

Monitoring data from other Centennial operations are provided in **Table 11** for the period 2007 – 2008. The data provide an understanding of the noise levels on the surrounding communities from the private haul roads and overland conveyors prior to the preparation of the noise impact assessment for the WCS EIS (SLR, 2013) and the grant of the WCS consent in April 2014.

Table 11 – Historical Attended Noise Monitoring Data 2007 to 2008

Receptor	Monitoring Date	Period	Noise Level L_{Aeq}, dB	Noise Source	Reference
R4	29/05/2008	Day	49-50	Overland conveyor	Lidsdale Siding Upgrade Project, Hatch 2012
B17	04/09/2007 23/09/2008	Day Day	44-45 44-46	Overland conveyor	Springvale Lamberts Gully Mine Attended Monitoring Data – Metford Labs
L8 (Duncan St)	29/05/2008	Evening	48 (L_{A90})	Overland conveyor and Wallerawang Power Station (specific contributions unknown)	Lidsdale Siding Upgrade Project, Hatch 2012
L27	20/07/2007	Day	46-49, Maximum 58	Haul trucks on Wallerawang Haul Road	Stage 2 Kerosene Vale Ash Repository, Technical Report 5, Noise and Vibration – Parsons Brinckerhoff, 2008
L32	01/08/2007	Night	39-41, Maximum 50	Haul trucks on Wallerawang Haul Road	Stage 2 Kerosene Vale Ash Repository, Technical Report 5, Noise and Vibration – Parsons Brinckerhoff, 2008
L82	02/08/2007	Night	45	Haul trucks on Wallerawang Haul Road	Stage 2 Kerosene Vale Ash Repository, Technical Report 5, Noise and Vibration – Parsons Brinckerhoff, 2008

Attended Noise Monitoring Data 2010 – 2013

Quarterly attended noise monitoring are undertaken by SLR for Springvale Mine at Lidsdale corresponding to receptor location S3 in Lidsdale, and which commenced in 2013 prior to the decommissioning of the Wallerawang Power Station. Overland conveyor noise levels have been quantified in the monitoring reports. A summary is presented in **Table 12**.

Table 12 – Attended Noise Monitoring Data 2010 to 2013

Receptor	Monitoring Date	Period	Overland Conveyor Noise Level L_{Aeq}, dB
S3[1]	14/12/2010	Evening	43 to 44
	06/09/2012	Night	42
	11/03/2013	Evening	46 to 47
	25/06/2013	Evening	46
	25/06/2013	Night	44 to 46
	24/09/2013	Evening	46
	24/09/2013	Night	47

Receptor	Monitoring Date	Period	Overland Conveyor Noise Level L_{Aeq}, dB
	12/12/2013	Day	44
	12/12/2013	Night	44

Note: 1. Receptor S3 is listed as location 3 in the SLR monitoring reports.

Attended Noise Monitoring Data 2014 – Present

As part of WCS consent condition (Schedule 3, Condition 7) Global Acoustics have undertaken monthly attended noise monitoring since July 2014. A selection of measurements where noise levels were above WCS consent criteria (refer **Table 14**) at locations noise monitoring locations NM1 (Blackmans Flat), NM4 (Blackmans Flat) and NM6 (Lidsdale) are presented in **Table 13**.

Historical conveyor levels at S3 in Duncan Street (refer **Table 12**) are consistent with recent attended monitoring data from Global Acoustics and well above the day (L_{Aeq} = 36 dB), evening (L_{Aeq} = 36 dB) and night (L_{Aeq} = 39 dB) noise criteria in the WCS consent for this receptor. Background noise levels at S3 in SLR (2013) were also up to L_{A90} 54 dB, attributable (although not quantified) to a likely combination of Wallerawang Power Station and the overland conveyors. These observations confirm that historically the area in the vicinity of S3 in Lidsdale has been subject to background noise levels above the maximum amenity criterion at night.

Table 13 – Select Attended Noise Monitoring Data 2014 to Present

Monitoring Location ID	Representative Receptors	Monitoring Date	Period	WCS Noise Level L_{Aeq}, dB	Noise Source
NM1	B12, B13	23/06/2015	Evening	39	CPP continuum
		19/10/2016	Evening	39	CPP continuum
		15/11/2016	Evening	38	CPP continuum
		5/9/2016	Night	41	CPP continuum
		15/11/2016	Night	41	CPP continuum
NM4	B16	30/7/2014	Evening	40	CPP continuum and haul trucks
		30/7/2014	Night	40	CPP continuum and haul trucks
		15/10/2014	Evening	39	CPP continuum and haul trucks
		16/10/2014	Night	44	CPP continuum, overland conveyors and haul trucks
		16/8/2016	Evening	41	Overland conveyors
		15/11/2016	Evening	39	CPP continuum and overland conveyors

Monitoring Location ID	Representative Receptors	Monitoring Date	Period	WCS Noise Level L_{Aeq}, dB	Noise Source
NM6	S3	10/3/2016	Day	44	Overland conveyors
		17/5/2016	Day	47	Overland conveyors
		27/4/2015	Evening	48	Overland conveyors
		10/3/2016	Evening	46	Overland conveyors
		13/1/2016	Night	45	Overland conveyors
		10/3/2016	Night	46	Overland conveyors

7.1.4 Noise Criteria

7.1.4.1 WCS Noise Intrusiveness Criteria

The noise criteria for the WCS Project in SSD 5579 (Schedule 3, Condition 7) applicable to residences on privately owned lands are provided in **Table 14**.

Table 14 – Western Coal Services SSD 5579 Noise Criteria

Receptor	Day $L_{Aeq,15\ minute}$, dB	Evening $L_{Aeq,15\ minute}$, dB	Night $L_{Aeq,15\ minute}$, dB	Night $L_{A1,1minute}$, dB
B12	40	35	35	47
B13	41	36	36	50
B14	41	35	35	55
B15	36	35	35	45
B16	35	35	36	45
B17	42	44	45	45
R3	35	35	36	45
R4	37	37	41	45
L1	42	35	35	45
L2	40	39	35	45
WR1	41	38	36	57
WR2	38	37	35	48
S3	36	36	39	45
All other privately owned residences	35	35	35	45

7.1.4.2 Low Frequency Noise Criteria

An assessment of low frequency noise (LFN) in general accordance with the *Draft Industrial Noise Guideline* (dING) (EPA, 2015) was undertaken considering all receivers, across two operational scenarios assessed, across all time periods. Receivers with predicted C minus A results greater than or equal to 15 dB were assessed against the dING third octave thresholds using a typical received spectrum. The total C-weighted level of the maximum allowable received spectrum was adopted as the limiting criterion and used to assess total C-weighted level predictions.

Receivers with A-weighted predictions less than or equal to $L_{Aeq,15minute}$ 30 dB were excluded, as application of a modifying factor penalty would not result in exceedance of any criterion, and both A-weighted and C-weighted predictions are low level in these cases.

7.1.4.3 Cumulative Noise Criteria

The *Industrial Noise Policy* (INP) (EPA, 2000) recommends acceptable amenity criteria for various land uses. Urban areas, as defined by the INP, are dominated by industrial noise and have through traffic with characteristically heavy and continuous traffic flows during peak periods. Suburban areas have limited industry and decreasing noise levels in the evening period. Based on this, suburban amenity criteria has been determined to be applicable for the day, evening and night periods. **Table 15** presents the amenity criteria.

Table 15 – Amenity Noise Criteria

Receptor	Day $L_{Aeq,period}$, dB Acceptable/Maximum	Evening $L_{Aeq,period}$, dB Acceptable/Maximum	Night $L_{Aeq,period}$, dB Acceptable/Maximum
Privately owned residences	55/60	45/50	40/45

7.1.4.4 Road Traffic Noise

The *NSW Road Noise Policy* (RNP) (DECCW, 2011) is applicable to road traffic noise generated by WCS Project. A traffic impact assessment was undertaken (ARC, 2016) for WCS Modification 1 (**Section 7.2**), which indicates 7 additional vehicle trips per day would occur during AM and PM peak periods for a proposed increase in workforce from the approved 18 FTE personnel to 25 FTE personnel. Given ARC (2017) concluded the traffic increase on the Castlereagh Highway would be minor, the resulting road traffic noise would be negligible and hence road traffic noise impacts was not considered further in the NIA.

7.1.5 Methodology

7.1.5.1 Noise Modelling Assessment

Noise levels were predicted using RTA Technology's *Environmental Noise Model* (ENM) to determine the acoustic impact of the WCS activities. ENM Terrain Category 2, representing a rural land environment, was adopted for model input. The predictions are for a potential worst-case 15-minute period, for each period in the worst-case season.

A meteorological dataset consisting of 195 combinations of meteorological parameters (wind speed, wind direction and vertical temperature gradient) was modelled. The predicted results provide an indication of likely impact under all possible atmospheric conditions. Results were determined for atmospheric conditions pertinent to the season under consideration.

This cumulative distribution methodology of meteorological conditions differs from that used in the SLR NIA (2013), which used the prevailing meteorological method as outlined in the INP and

assessed potentially enhancing conditions if they occur more than 30% of a time period (day, evening, night) in any season.

The cumulative distribution methodology provides a range of results whereas a single value is required for comparison with the limiting criterion. The NIA has provided the 90th percentile results at the receptors (i.e. 10% of results are higher than this number) to represent intrusive noise impact.

INP requires consideration of modifying factors, namely, tonal noise, low frequency noise, impulsive noise, intermittent noise and duration (if single event). Environmental noise monitoring undertaken for the WCS operations over the past 3 years has shown that of these modifying factors, only low frequency noise is likely. Only low frequency noise has been considered in this assessment.

7.1.5.2 Cumulative Impact Assessment

The cumulative impact assessment has considered only the MPPS operations only. Other operations in the vicinity of SCSS such as Lidsdale Siding and Angus Place Colliery were not considered in the cumulative impact assessment, as they are geographically located at sufficient distance from SCSS, and directionally such that during periods of noise enhancement from SCSS, cumulative noise impact from Lidsdale Siding Project and Angus Place Colliery is not considered possible.

The following MPPS projects were considered in the cumulative impact assessment:

1. Extension Project
2. Ash Emplacement Project
3. Western Rail Coal Unloader Project.

Given the cumulative noise (amenity) criteria are period based (day, evening, night), that is, assessment noise levels are averaged over the entire time period rather than a single 15 minute interval in intrusive noise assessment, the predicted levels are required to be adjusted. An adjustment of minus 2 dB has been made to convert model predictions from $L_{Aeq,15minute}$ to $L_{Aeq,period}$ levels.

7.1.5.3 Sleep Disturbance

The proposed mitigation measures **(Section 7.1.9**) restrict the dozer from operating during the night period at the SCSS. There are no other mobile plant items operating at night at the SCSS that are expected to generate noise that stands out above the general mining continuum. Given this, the potential for sleep disturbance from SCSS is unlikely. Sleep disturbance was not assessed further in the NIA.

7.1.6 Noise Model Parameters

7.1.6.1 Meteorology

Meteorological datasets between September 2011 and January 2014 from the Bureau of Meteorology Bathurst AWS weather station were analysed to determine the frequency of occurrence of each of the modelled meteorological conditions, by season and time period. Appendix C of Global Acoustics (2017) lists the 195 meteorological conditions included in the noise modelling.

7.1.6.2 Operational Scenarios and Model Assumptions

SLR (2013) considered noise emissions from all Project components, described in **Section 7.1.3.1**. As noted in **Section 7.1.1** Springvale Coal is proposing in this modification that the WCS consent noise criteria be restricted to the SCSS operations only, and to preclude their application to the other Project components, namely the overland conveyor system, Mount Piper Haul Road, Wallerawang Haul Road and Kerosene Vale Stockpile Area. Accordingly, the modelling undertaken in the NIA is consistent with that proposal.

Springvale Coal has investigated a wide range of noise controls for the fixed (conveyors, drives, CPP) and mobile (dozers, loaders) plant at the SCSS, in order to achieve compliance with the noise criteria.

All acoustically significant noise sources within the SCSS are proposed to be mitigated. The sound power levels (SPL) modelled for the fixed and mobile plant are based on either actual measured levels or levels have been adopted from similar plant items where test data were not available. The SPL data are included in Table 4.2 of Global Acoustics (2017).

The feasible and reasonable mitigation measures included in the noise modelling comprised the following:

- installation of low noise idlers on identified sections of conveyors (CW01, CW02, OL2, OL3) within the SCSS
- installation of a barrier surrounding the western side of the OL3 conveyor drive
- cladding of the new 5 Mtpa capacity CPP building
- upgrading the cladding on the existing CPP (2 Mtpa) building
- use of an attenuated dozer operating in the day period only
- use of an attenuated loader operating in the day and night periods only.

Figure 15 shows the entire overland conveyors system from the Springvale Mine pit top to the MPPS, comprising of 5 sections OL1 – OL5. **Figure 16** shows the OL2 and OL3 sections of this conveyor system through the SCSS, and other internal conveyors used for coal (ROM and product) and reject materials handling. The figure also shows sections of the conveyors within the SCSS that is proposed to be installed with low noise idlers in the future.

For completeness, the OL1 and OL2 sections of the overland conveyor system in the vicinity of the Lidsdale and Wallerawang receptors that have been installed / or are currently being installed with the low noise idlers are shown in **Figure 17**. This will be further discussed in **Section 7.1.7.2**.

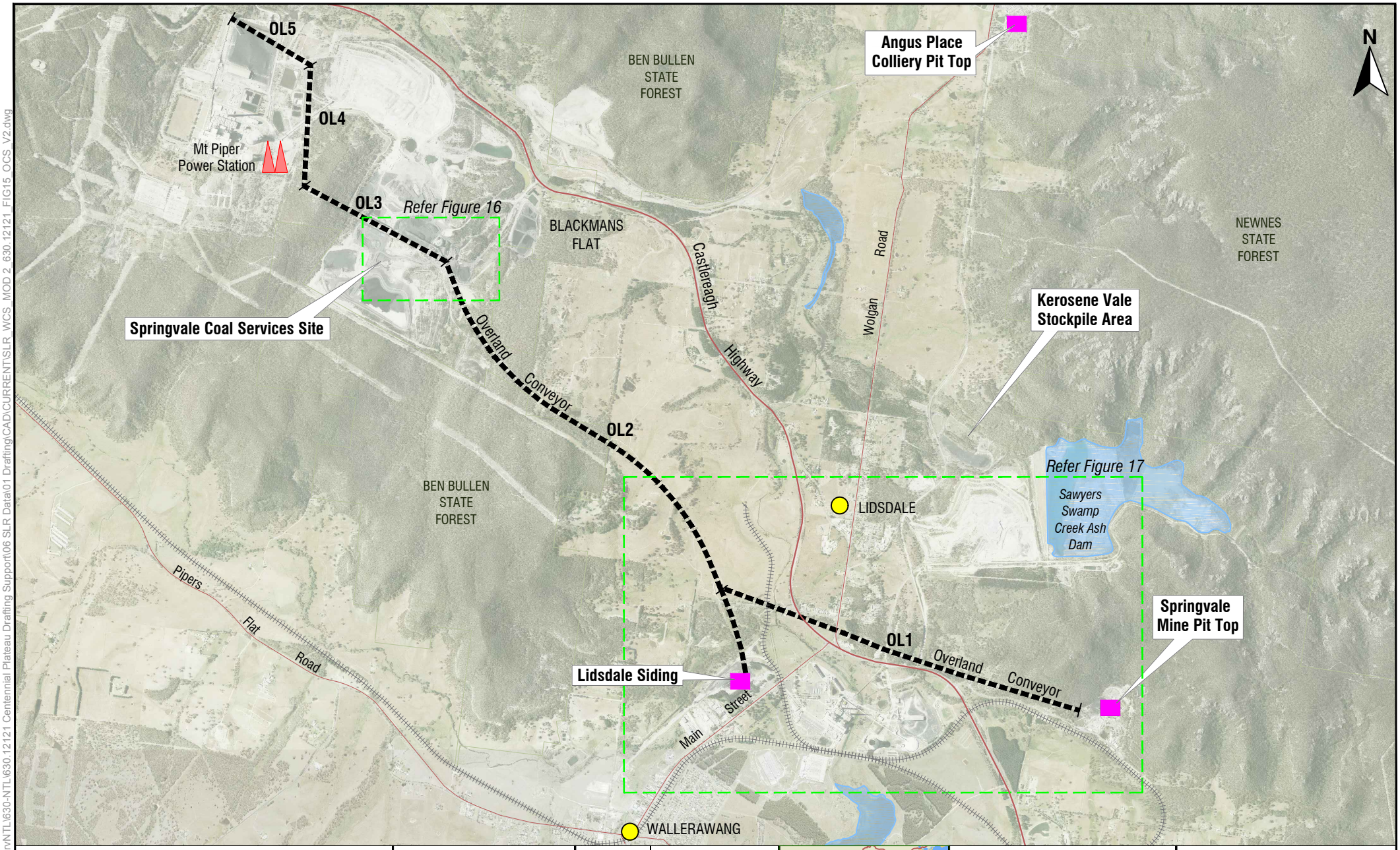
Modelling was undertaken with and without noise controls for the SCSS operations noted above, and the noise predictions are presented for two scenarios:

- Scenario 1 – SCSS approved operations without mitigation measures
- Scenario 2 – SCSS approved operations with mitigation measures.

Table 16 lists representative typical plant type and specifications included in the SCSS model Scenarios 1 and 2.

Table 16 – Plant Items Modelled at Springvale Coal Services Site for Nominated Modelling Periods

Description	Scenario 1			Scenario 2		
	Day	Evening	Night	Day	Evening	Night
Upgraded (new and existing) CPP (7 Mtpa)	Yes	Yes	Yes	Yes (mitigated)	Yes (mitigated)	Yes (mitigated)
CPP conveyors and drives	Yes	Yes	Yes	Yes (mitigated)	Yes (mitigated)	Yes (mitigated)
Haul trucks on site	Yes (2)	Yes (1)	Yes (1)	Yes (2)	Yes (1)	Yes (1)
100 tonne dozer	Yes	Yes	Yes	Yes	No	No
50 tonne wheel loader	Yes	Yes	Yes	Yes	No	Yes



LEGEND:

- Project Application Area
- Major Roads
- Railway
- Overland Conveyor System
- Town / City

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.11495_FIG15_OCS_V2.dwg
SCALE	1:40000

Figure 15
Overland
Conveyor System

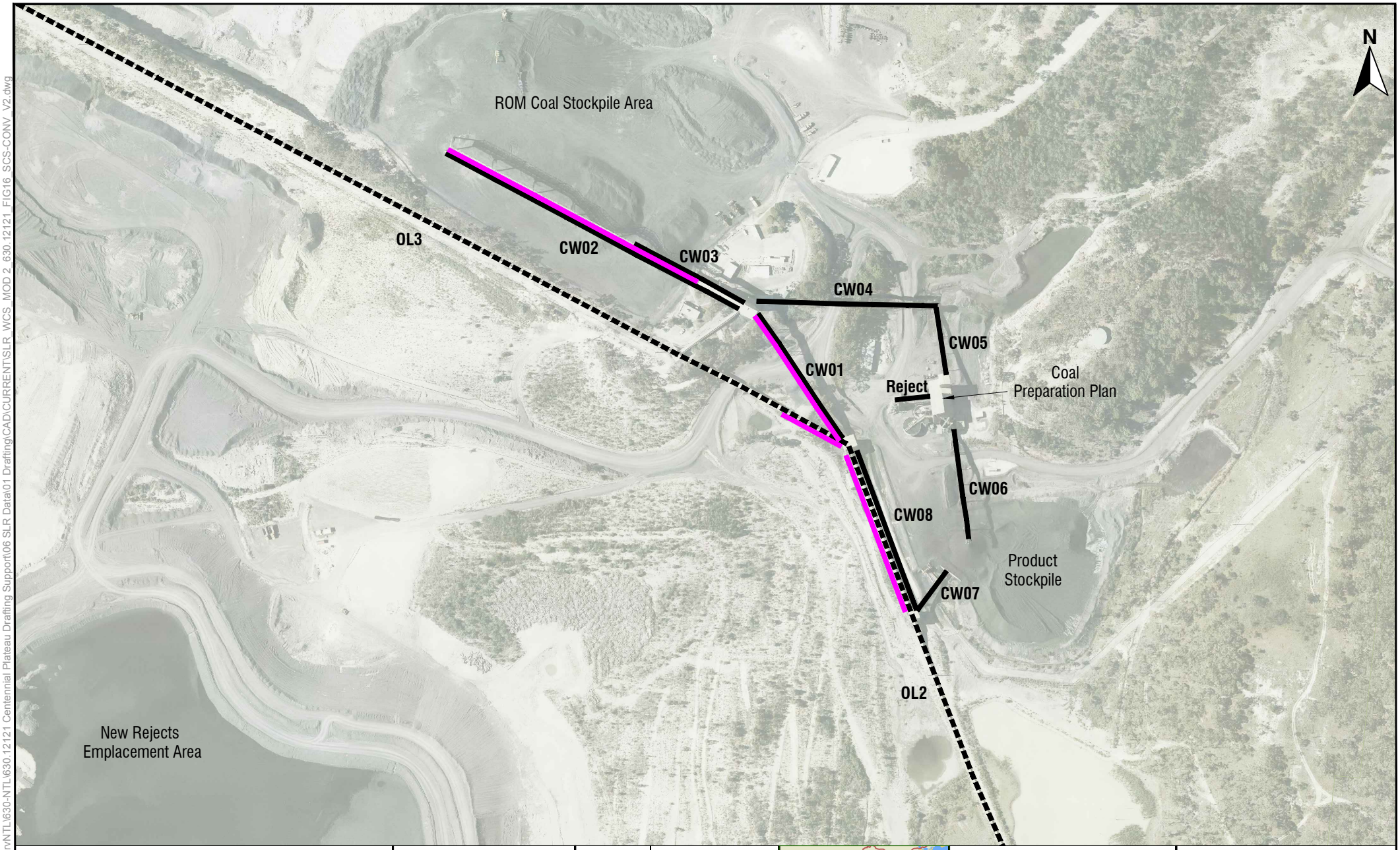
0.0 0.75 1.5 KM

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

H:\Projects-SLR\630-SrvNTL\630-NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG15_OCS_V2.dwg



LEGEND:
- Overland Conveyor System
- Internal Conveyors
- Low Noise Idler Sections

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIGB_SCS-CONV_PAA_V2.dwg
SCALE	1:4000

Figure 16
Conveyors within Springvale Coal Services Site

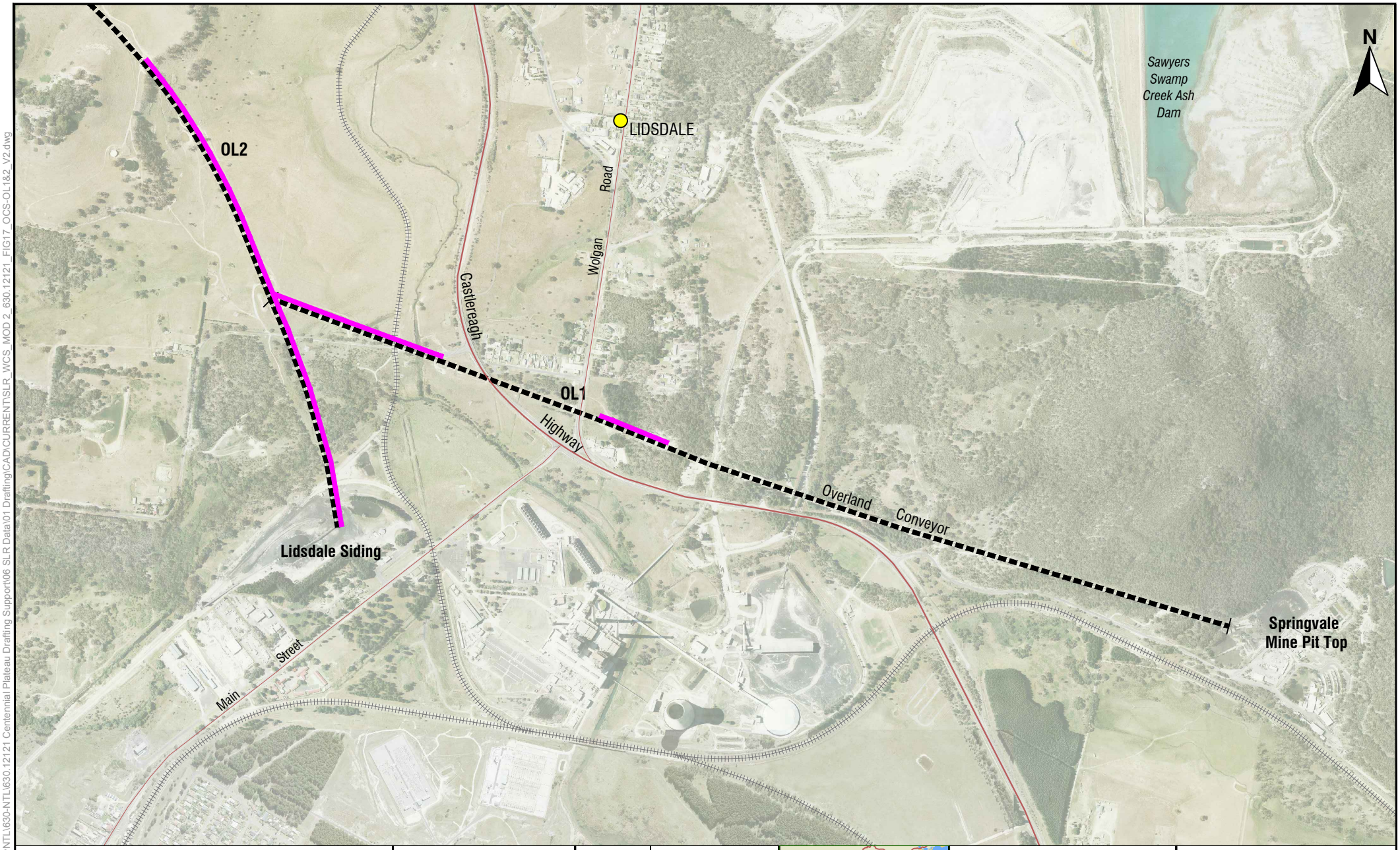
0 75 150 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

H:\Projects-SLR\630-SrvNTL\630-NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG16_SCS-CONV_V2.dwg



LEGEND:

- Railway
- Major Roads
- Overland Conveyor System
- Low Noise Idler Sections
- Town / City

DATE	11.08.2017
SEAM	LITHGOW
REFERENCE	SLR_WCS_MOD 2_630.12121_FIG17_OCS -OL1&2_V2.dwg
SCALE	1:15000

Figure 17

Mitigated Overland Conveyor System at OL1/OL2 Intersection

0 300 600 M

Centennial Coal
Western Coal Services

Prepared by: SLR

A4

H:\Projects-SLR\630-Srv\NTL\630.12121 Centennial Plateau Drafting Support\06 SLR Data\01 Drafting\CAD\CURRENT\SLR_WCS_MOD 2_630.12121_FIG17_OCS-OL1&2_V2.dwg

7.1.7 Impact Assessment

7.1.7.1 Springvale Coal Services Site

Intrusiveness Results

Appendix A of Global Acoustics (2017) contains unmitigated and mitigated 90th percentile SCSS noise results for all 168 private receptors included in the assessment. **Table 17** presents 90th percentile SCSS noise results for sensitive receptors, which are specifically listed in the WCS Consent. The WCS consent criteria are also included in this table.

Table 17 – Unmitigated and Mitigated Noise Predictions for Springvale Coal Services Site in $L_{Aeq,15minute}$ dB

Receptor	WCS Consent Criteria			Scenario 1 Predictions (Unmitigated)			Scenario 2 Predictions (Mitigated)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
B12	40	35	35	37	**41**	**39**	34	34	34
B13	41	36	36	41	**43**	**42**	38	36	**38**
B14	41	35	35	37	**39**	**38**	34	33	34
B15	36	35	35	**40**	**41**	**40**	**37**	**36**	**37**
B16	35	35	36	**40**	**42**	**40**	**37**	**37**	**37**
B17	42	44	45	**45***	**46***	**46***	41	43*	43*
R3	35	35	36	27	29	29	25	26	27
R4	37	37	41	22	26	26	20	19	22
L1	42	35	35	31	33	31	28	27	27
L2	40	39	35	29	30	29	27	25	27
WR1	41	38	36	28	30	29	26	24	25
WR2	38	37	35	31	32	32	28	28	28
S3	36	36	39	28	28	28	25	25	25
All other privately-owned residences	35	35	35	Refer to Appendix A of Global Acoustics (2017)					

Notes: Bolded results are greater than the WCS Consent noise criteria
***** indicates a low frequency penalty has been applied (**Table 21**)

With reference to results presented in **Table 17**, the following points are noted.

- **Scenario 1 Unmitigated Results:** The model results indicate noise would exceed the relevant day, evening and night criterion at 22, 29 and 27 receptor locations, respectively, out of the 168 receptors assessed.

- **Scenario 2 Mitigated Results:** The model results indicate noise would exceed the relevant day, evening and night criterion at 9, 5 and 7 receptor locations, respectively, out of the 168 receptors assessed. All of the mitigated predictions are within 2 dB of current WCS consent criteria.

Receptors for which predictions exceed WCS consent criteria are categorised in **Table 18**. It can be seen that with the proposed mitigation measures implemented, all predicted exceedances for SCSS are within 2 dB of current WCS consent criteria.

As noted above all acoustically significant noise sources within the SCSS are proposed to be mitigated. From **Table 18** there are 21 potential exceedances of the consent criteria by 1 to 2 dB at properties on private lands, with exceedances predicted for all three periods. Global Acoustics (2017) do not consider these predictions at the receptors to be significant, and in accordance with Table 1 of *Voluntary Land Acquisition Policy* (DPE, 2014) the predictions are considered negligible. The predicted exceedances would not be discernible by the average listener and therefore would not warrant receiver based treatment or controls. For this reason no voluntary mitigation or land acquisition has been considered for any residence on privately owned land. However, in the event these minor exceedances are recorded at receptors during compliance noise monitoring then the usual notification and investigation process will be followed by Springvale Coal as required by the WCS consent.

Table 18 – Categorised Exceedance Counts

Level above criterion	Scenario 1 Predictions (Unmitigated) Exceedance Counts			Scenario 2 Predictions (Mitigated) Exceedance Counts		
	Day	Evening	Night	Day	Evening	Night
1-2 dB	8	7	8	9	5	7
3-5 dB	14	15	18	0	0	0
Greater than 5dB	0	7	1	0	0	0
Total	22	29	27	9	5	7

Low Frequency Noise Assessment Results

Table 19 presents the count, by time period, of receivers predicted to receive levels greater than $L_{Aeq,15minute}$ 30 dB, and a C minus A result greater than or equal to 15 dB in accordance with dING methodology. Only mitigated SCSS results from Scenario 2 have been assessed.

Table 19 – Low Frequency Noise Results (C – A) for Springvale Coal Services Site

Count of Receivers > $L_{Aeq,15minute}$ 30 dB and C – A ≥ 15 dB		
Day	Evening	Night
29	30	29

Table 20 provides receivers with a C minus A result greater than or equal to 15 dB, and with C - weighted levels $L_{Ceq,15minute}$ dB predicted to be greater than the derived criterion (dING based) for all periods of 58 dB. Only one receptor, B17, exceeds the dING based criterion for evening and night periods. However, when an adjustment /penalty as required by dING of the evening and night period

predictions is made then there is no exceedance of the WCS consent criteria of 44 dB (evening) and 45 dB (night) for the B17 receptor.

Table 20 – Low Frequency Noise Results (dING) for Springvale Coal Services Site

Receptor	$L_{Ceq,15minute}$ dB			Derived C-Weighted Criterion (dING-based)	Adjusted $L_{Aeq,15minute}$ dB (adjustment/penalty in brackets)		
	Day	Evening	Night	All Periods	Day	Evening	Night
B17	58	**60**	**59**	58	41 (0)	43 (2)	43 (2)

Summary of Springvale Coal Services Site Results

The SCSS operations are predicted to be not more than 1 to 2 dB above WCS consent criteria at all assessed sensitive receptors when the modelled mitigation measures noted above have been implemented. Global Acoustics (2017) consider these predicted exceedances as not significant.

Low frequency noise assessments based on the SCSS operation show that when the mitigated noise predictions are assessed against the dING (EPA, 2015) no exceedances at any receptor are predicted for the day, evening and night periods.

Consideration of the cumulative impact of SCSS mitigated operations with the MPPS operations for the day, evening and night periods showed that no cumulative impact is predicted for the SCSS operations for all periods.

Springvale Coal has developed a priority sequencing of installation of the modelled mitigation measures at SCSS discussed in **Section 7.1.6.2** and detailed in **Section 7.1.9.1**. Springvale Coal is proposing to complete the installation of these mitigation measures within a two-year period. Given that the noise sources making the greatest contributions to the predictions will be mitigated in a priority order the proposed sequencing will facilitate SCSS to achieve compliance in the shortest possible time frame.

Re-modelling of the noise predictions after implementation of the proposed controls will inform the success of the implementation of the mitigation measure (**Section 7.1.9.1**). Implementation of the proposed mitigation measures (**Table 21**) will continue until compliance is achieved. In conjunction with the implementation of operational controls and strategies the noise levels in the surrounding communities will be the lower than current levels in the long term.

Given that noise reductions shown in **Table 18** and Appendix A of Global Acoustics (2017) are potentially achievable through the implementation of engineering noise controls and management of noise emissions from fixed and mobile plant, Global Acoustics (2017) do not consider Springvale Coal's proposal to request in this modification that WCS Consent noise criteria be only applicable to the SCSS operations as unreasonable. The approval of the Springvale Coal's proposal will allow WCS operations to achieve compliance.

7.1.7.2 Overland Conveyor System

Springvale Coal has been proactive in the recent past, investigating engineering noise controls with the potential to reduce noise emissions from the overland conveyor system in the vicinity of Lidsdale and Wallerawang sensitive receptors. The initial mitigation investigations, undertaken by Hatch (2016), evaluated the efficacy of the installation of sound walls or sound barriers along the OL1 and OL2 sections (**Figure 15** and **Figure 17**) of the overland conveyor system, and replacement of the existing standard idlers with the low noise idlers for the conveyor belts.

Modelling by Global Acoustics of both sound walls and low noise idlers as noise controls, in an iterative manner in isolation and in combination, identified that the installation of sound walls would

provide minimal benefit in reducing noise in the region, however the installation of the low noise idlers would prove more effective as noise controls at OL1 and OL2 along sections shown in **Figure 17**. The modelling results also identified that installation along other sections of the overland conveyor system in the vicinity of the Lidsdale and Wallerawang receptors would not result in significant reduction in noise emissions to the environment.

Springvale Coal is currently upgrading the identified reasonable and feasible sections of the overland conveyor (**Figure 17**) with low noise idlers are expected to reduce noise emissions and provide the greatest benefit to residents. The installation of the low noise idlers commenced in 2016. A staged approach for the installation of these idlers was required for minimal business interruption however the installation for the identified OL1 and OL2 sections is planned to be completed by December 2017.

With Springvale Coal committed to maintaining the low noise idlers, noise levels in the surrounding community is expected to be the lowest since the establishment of the overland conveyor system (refer **Section 7.1.3.1**). Given this commitment Global Acoustics (2017) support Springvale Coal's proposal that the overland conveyor system is regulated via the installation and maintenance of the low noise idlers as opposed to noise criteria which would restrict or preclude its operation.

7.1.7.3 Private Haul Roads and Kerosene Vale Stockpile Area

Springvale Coal is currently undertaking a feasibility study investigating alternative surface and underground coal clearance (coal transfer) options for when Angus Place Colliery commences mining in the future under existing approvals. The aim of these investigations is to determine the optimal coal clearance option that will have the least impact on the environment, however will be reasonable and feasible for Springvale Coal to implement and will meet the company's business requirements.

Springvale Coal is proposing to operate the Mount Piper and Wallerawang Haul Roads during the day period only when development works re-commence at Angus Place Colliery. Restricting haul road operations to the day period should significantly improve the noise environment. Daytime noise is not usually a community concern given other activities (eg other industry, farming, road traffic) are taking place. The number of trucks (80 tonne trucks) on each haul road will not exceed 12 at any one time, which historically, is the maximum that has been used during the day period. Additionally, prior to the resumption of trucking coal via the haul roads, Springvale Coal will establish contracts with the haul truck providers requiring monitoring and tracking of haul truck speeds. With these commitments in place, the potential for noise impact from haul roads is likely to be reduced.

Prior to utilising the haul roads during evening and night time periods when longwall extraction commences at Angus Place Colliery, Springvale Coal will provide the Secretary of the Department of Planning and Environment with the outcomes of the coal clearance feasibility study. Should the outcomes from this study identify the need for continued use of the Wallerawang Haul Road (evening period only) and/or Mount Piper Haul Road during evening and night time periods, Springvale Coal will ensure all proposed noise mitigation and management measures for their uses are to the satisfaction of the Secretary prior to trucking operations commencing during these periods.

Operations at the Kerosene Vale Stockpile Area will only be undertaken during the day period as approved but limited to a maximum operation of two loaders (50 tonne) at any one time.

Given the implementation of the commitments discussed above Global Acoustics (2017) recommend that the Mount Piper and Wallerawang Haul Roads and Kerosene Vale Stockpile Area are regulated via operational constraints pertaining to truck numbers (haul roads) and loaders (Kerosene Vale Stockpile Area) as opposed to application of noise criteria to these Project elements.

7.1.8 Cumulative Impact Assessment

The cumulative impact of SCSS mitigated operations and the MPPS operations were considered for the day, evening and night periods. Cumulative results are provided in Appendix A of Global Acoustics (2017). The results can be summarised are as follows.

- Noise levels at all receptors are predicted to meet the acceptable day period amenity criterion of L_{Aeq} 55 dB.
- Noise levels at all receptors are predicted to meet the acceptable evening period amenity criterion of L_{Aeq} 45 dB.
- Predictions at two receptors, B4 and B17, are expected to exceed the acceptable night period criterion of L_{Aeq} 40 dB, however, the cumulative prediction for B17 meets the WCS Consent night criterion of 45 dB (**Table 17**), and B4 is acquisition upon request in the WCS Consent.

From these results, no cumulative impact is predicted for the SCSS operations for all periods.

7.1.9 Management and Mitigation

The Project will achieve compliance with the WCS noise criteria through:

- implementation of all feasible and reasonable noise mitigation controls to fixed and mobile plant at SCSS staged over a two-year period (**Section 7.1.9.1**)
- implementation of operational and management strategies at all Project components (**Section 7.1.9.2)**.

7.1.9.1 Sequence of Mitigation Measures at Springvale Coal Services Site

Springvale Coal will implement mitigation measures modelled in the NIA in a priority sequencing shown in **Table 21** to be staged over a two-year period.

Table 21 – Staged Implementation of Noise Mitigation Controls at Springvale Coal Services Site

Stage	Noise Mitigation Control	Indicative Timing of Implementation of Noise Control
1.	Restrict dozer operations to day time periods only.	Immediately
2.	Install low noise idlers along the CW01 and CW02 sections of the internal onsite Conveyor System (refer **Figure 16**).	June 2018
3.	Install low noise idlers along the OL2 and OL3 sections of the Overland Conveyor System traversing through SCSS, as required in conjunction with other noise attenuation measures to achieve compliance (refer **Figure 16**).	June 2018
4.	Install noise barrier around the OL2/OL3 transfer point drive, as required in conjunction with other noise attenuation measures to achieve compliance.	December 2018
5.	Clad the existing coal preparation plant (CPP) with noise attenuating panels, as required in conjunction with other noise attenuation measures to achieve compliance..	June 2019
6.	Upgrade modelled mobile plant used on site to meet, as a minimum, the sound power level used in the WCS Noise Model (Loader 109 dB (A-weighted) / 11 3 dB (linear); Dozer 108 dB (A-weighted) / 117 dB (linear)).	December 2019

In addition, should Springvale Coal construct the approved 5 Mtpa CPP in the future it will be designed and constructed to meet the mitigated sound power levels included in the noise modelling in Global Acoustics (2017).

After each stage of noise control implementation noted in **Table 21** the following steps will be implemented:

- Measurement of SPL of mitigated fixed or mobile plant at SCSS
- Noise model validation with the ongoing attended noise monitoring data and new SPL data

- Re-run of the noise model for revised noise level predictions and comparison against WCS noise criteria.

The above process will allow determination of the noise level reduction achieved from the implemented noise control after each stage. An evaluation of whether further implementation of noise controls is required will also be undertaken at the same time.

7.1.9.2 Operational Controls and Management Strategies

Springvale Coal will implement the following operational controls and management strategies:

- Haul truck movements on the Mount Piper and Wallerawang Haul Roads during Angus Place Colliery's development phase under the existing approvals will be limited to the day period only and constrained to a maximum of 12 trucks operating on each at any one time.
- Haul trucks will be installed with facilities to monitor and track truck speeds.
- The Project will continue to investigate surface and underground coal transfer options for when Angus Place Colliery commences longwall extraction for optimal operations and concurrent reduction in noise emissions to the environment as far as practicable. If a need for road haulage in the evening and night periods is ascertained for the extraction phase then mitigation and management measures to be implemented will be identified and provided to the Secretary of the Department of Planning and Environment for their agreement prior to any evening and night time haulage commencing.
- Low noise idlers will continue to be implemented on the OL1 and OL2 sections of the overland conveyor system shown in **Figure 17**.
- Regular and systematic maintenance of the entire overland conveyor system will be undertaken to identify and replace or repair noisy idlers as necessary.
- Regular sound power screening testing will be continued to assist in managing equipment sound power levels, and identify plant items requiring maintenance.
- Noise monitoring will be continued in accordance with the WCS consent conditions SSD 5579 and the approved WCS Noise Management Plan.
- Real time continuous noise monitoring will be continued at the installed noise compass to provide real time feedback to the SCSS operations team for noise management, specifically to manage compliance during the evening period mobile plant use. Mobile plant will not be used on site during the evening period, when meteorological conditions indicate the likelihood of non-compliance with noise criteria (e.g. during adverse meteorological conditions).
- Monitoring of real time meteorological conditions and forecasts will be continued to assist in noise management at SCSS.
- When all noise mitigation measures have been implemented, the SCSS operations will be progressively managed in order to comply with the consent noise criteria.

7.1.10 Consequences of Potential Impacts

Modelling predictions of the SCSS operations show that, with the implementation of the proposed noise controls (**Section 7.1.6.2**), the total exceedances for all three periods at the assessed 168 receptors will reduce from 78 to 21. The predicted 21 exceedances (9 for day period, 5 for evening period and 7 for night period) are within 2 dB of the WCS noise criteria at the potentially impacted receptors. Predictions of exceedances of 1 – 2 dB at the residences are not considered significant. In accordance with Table 1 of *Voluntary Land Acquisition Policy* (DPE, 2014) these predicted exceedances are considered negligible, and would not be discernible by the average listener and therefore would not warrant receiver based treatment or controls at residences. For this reason no

voluntary mitigation or land acquisition has been considered for any residence on privately owned land.

The sequencing of implementation of the mitigation noise controls at the SCSS over a two-year period means that the Project may not achieve compliance to up to another two years. However, a priority order sequencing has been developed whereby the noise sources with the greatest noise contributions to predictions (i.e. conveyors) will be mitigated first. This will allow SCSS to achieve compliance in the shortest possible timeframe. The proposed re-modelling of the noise predictions with the mitigated conveyors will inform the success of the implementation of the mitigation measure (**Section 7.1.9.1**). Implementation of mitigation measures will be continued at the SCSS until compliance with the consent noise criteria is achieved.

While the implementation of the proposed mitigation measures could take up to two years it is noted that in the long term, following the completion of all mitigation works (**Section 7.1.9.1**) and in conjunction with the proposed implementation of operational management controls and strategies (**Section 7.1.9.2**) the noise levels in the surrounding communities will be the lowest since the establishment of the overland conveyor system and the commencement of the SCSS operations.

7.1.11 Conclusion

Noise modelling of the SCSS operations has been undertaken with mitigation and without mitigation of all acoustically significant noise sources, comprising both fixed and mobile plant. Unmitigated SCSS model results indicate noise would exceed the relevant day, evening and night criterion at 22, 29 and 27 receptor locations respectively, out of the 168 sensitive receptors assessed. Springvale Coal has investigated and proposed to implement a wide range noise mitigation measures at SCSS. Mitigated SCSS model results reduce the exceedance counts to 9, 5 and 7 receptor locations for the day, evening and night periods respectively. All of the mitigated predictions are within 2 dB of current WCS Consent criteria. The 1 – 2 dB predicted exceedances are not considered significant. In accordance with Table 1 of *Voluntary Land Acquisition Policy* (DPE, 2014) these predicted exceedances will be negligible, and would not be discernible by the average listener and therefore would not warrant receiver based treatment or controls at residences. For this reason no voluntary mitigation or land acquisition has been considered for any residence on privately owned land.

A cumulative assessment of the SCSS mitigated model results with existing predictions for Mount Piper Power Station operations indicated noise at all receptors meets the acceptable day period criterion of L_{Aeq} 55 dB and the acceptable evening period criterion of L_{Aeq} 45 dB. Noise at receptors two receptors(B4 and B17) in Blackmans Flat is predicted to exceed the acceptable night period criterion of L_{Aeq} 40 dB, however B17 has a WCS Consent criterion of L_{Aeq} 45 dB, and B4 is acquisition upon request under SSD 5579. Given this, no cumulative noise impact is predicted.

An assessment of low frequency noise in general accordance with the draft Industrial Noise Guideline of SCSS mitigated results was undertaken for all receivers, across all time periods. Predictions for B17 triggered a 2 dB penalty during the evening and night periods, however, even with this penalty applied, evening and night results were less than the current WCS Consent criterion for this receptor.

The NIA proposes the following recommendations in order to allow the WCS operations to operate in accordance with the WCS Consent noise criteria and reasonably reduce noise emissions on the environment.

- WCS Consent noise criteria be applicable to the SCSS operations only
- Operational constraints be applicable to the overland conveyor system, Mount Piper and Wallerawang Haul Roads and Kerosene Vale Stockpile Area, as opposed to noise criteria in SSD 5579 which would limit or preclude their operations.
- Engineered noise controls on the SCSS fixed and mobile plant be implemented in a timely manner.

- Operational management of mobile plant at SCSS and on the Mount Piper and Wallerawang Haul Roads be undertaken.
- A real time noise monitoring and management system be developed and implemented to manage off-site noise levels.

Springvale Coal is committing (refer **Chapter 8.0**) to the implementation of the modelled engineering noise controls to the fixed and mobile plant at the SCSS in order to achieve compliance, and the operational management of mobile plant at the SCSS and Mount Piper and Wallerawang Haul Roads to reduce noise emissions to the environment.

7.2 Traffic and Transport

7.2.1 Introduction

A Traffic Impact Assessment (TIA) for the proposed modification has been undertaken by ARC Traffic+Transport (ARC, 2017) *Western Coal Services Project Modification 1: Traffic Impact Assessment*, which is provided in full in **Appendix E**. The scope of this assessment was to review the existing traffic conditions, assess the likely changes to the access, traffic and parking characteristics, and the potential impact upon the road network as a result of the modification Specifically, the TIA has assessed the impact of increasing the workforce by seven FTE personnel from the approved 18 FTE to 25 FTE personnel. It also identifies mitigation measures as required to minimise potential impacts.

The TIA undertook reviews of the *Western Coal Services Project Traffic Impact Assessment* (Barnson, 2013) prepared to support the WCS EIS, and additional reports prepared by ARC Traffic+Transport between 2010 and 2016 in regard to a number of sub-regional mining projects including proposals from Angus Place Colliery and Springvale Mine.

The following documents were used in the preparation of the TIA:

- *RTA Guide to Traffic Generating Developments* (RTA Guide)
- *AustRoads Rural Road Design Guide* (AustRoads RRDG)
- *AustRoads Guide to Road Design Part 4A Unsignalised and Signalised Intersections* (AustRoads GRD4A).

7.2.2 Existing Environment

7.2.2.1 Site Access and Intersection

The primary traffic generation of the Project is generally limited to the private haul roads, except for staff access (ie. trip generation) to the SCSS. The site is accessed from Castlereagh Highway via the Access Road at Blackmans Flat.

The Access Road operates as a private access road and generates no traffic flows other than accessing the SCSS. From the Castlereagh Highway, access is readily available to the sub-regional and regional road network.

The Castlereagh Highway (State Highway 18, State Route 86) is a regional highway connecting the Great Western Highway at Marrangaroo to Mudgee and Gulgong and then further through north-west NSW. The Castlereagh Highway provides two traffic lanes and well-designed at-grade and grade separated intersections appropriate to the through and turning traffic demands.

The SCSS provides a priority T-intersection to Castlereagh Highway via which all staff travel to and from the site. The Castlereagh Highway and Access Road intersection provides an Auxiliary Right (AUR) right turn treatment whereby an eastbound vehicle is provided with an additional lane through the intersection to pass a right turning vehicle. In addition, an Auxiliary Left (AUL) lane is provided, allowing a decelerating vehicle (entering the SCSS from the east) to decelerate without impacting a westbound through vehicle.

The line markings at the intersection were re-painted as required by Schedule 3 Condition 33 of SSD 5579, and are generally in good condition, however the priority stop line on the SCSS approach is faded and requires re-painting.

The Access Road is sealed only for 30 m from the intersection. As a result during periods of heavy rain loose material (sand/gravel), from the adjacent verges and / or the unsealed sections of the Access Road, can become deposited at the intersection. This issue will be addressed (**Section 7.2.5**) to ensure the safety of the intersection is not compromised.

7.2.2.2 Traffic Flows

The TIA for the WCS EIS (Barnson, 2013) reported the RMS traffic data for 2013 and which showed an Annual Average Daily Traffic (AADT) flow in the Castlereagh Highway south of the Boulder Road intersection at Portland (northwest of SCSS) of 4,300 vehicles per day (vpd), including 17% heavy vehicles. This AADT will have included the peak trip generation from Angus Place Colliery and Wallerawang Power Station, with the former under care and maintenance since March 2015 (and operating currently with minimal staff) and the latter in the process of being demolished.

The 2013 RMS data noted above is consistent with the results of surveys undertaken in November 2015 for *Springvale Mine Extension Project Modification 1* (Centennial Coal, 2016) in Castlereagh Highway southeast of Main Street in Wallerawang which indicated an Average Daily Traffic (ADT) flow of 5,500 vpd, and an Average Weekday Traffic (AWT) flows of 5,800 vpd, noting that the higher flow reported at this survey location reflects the additional primarily southeast distribution between the Castlereagh Highway and key trip generation roads such as Main Street (Wallerawang) and Wolgan Road for Lidsdale and the Angus Place Colliery.

Given that the following staff shift structure currently exists at SCSS for the approved 18 FTE personnel:

- 5 FTE administration and management staff generally working 7:00 am to 5:00 pm
- 9 FTE day shift staff: 6:00 am – 6:00 pm
- 4 FTE night shift staff: 6:00 pm – 6:00 am

then with reference to the 2015 survey data noted above the following statements can be made.

- Castlereagh Highway traffic flows during the SCSS AM peak hour (6:00 am) are estimated to represent 6% of AADT, or approximately 260 vehicles per hour (vph).
- Castlereagh Highway traffic flows during the SCSS AM peak hour (6:00 am) are estimated to represent 7% of AADT, or some 300 vph.
- A slightly higher proportion of AM peak period trips are southeast bound, while a slightly higher proportion of PM peak period trips are northwest bound.

The peak generation of the SCSS would occur during shift changeover periods (6:00 am and 6:00 pm). During these periods the potential exists for the generation of a total of 13 vph, being 9 arrival trips and 4 departure trips in the AM peak hour, and 4 arrival trips and 9 departure trips in the PM peak hour. This peak generation assumes all staff arrive/depart in their own private vehicle, and that all trips occur in single AM and PM peak periods.

It is expected that the majority to these trips occur to and from the southeast direction from Wallerawang and Lithgow.

7.2.2.3 Intersection Performance

Intersection performance analyses was undertaken using the SIDRA model based on the traffic flow estimates provided in **Section 7.2.2.2** for Castlereagh Highway and assigning a distribution profile of 80% of trips to and from the southeast to the traffic flow estimates for SCSS trips. The analysis

indicated the Access Road / Castlereagh intersection operates at a high or 'A' level of service with essentially no delays or queueing, and retains very significant spare capacity. It is noted the existing design of the intersection conforms to current warrant requirements as provided in GRD4A, and provides auxiliary infrastructure in excess of the warrants when considering the AUL lane.

7.2.2.4 Onsite Car Parking

The existing on-site staff car park provides capacity for some 50 staff vehicles, and based on current peak staff demands provides significant spare capacity. The available car park capacity has in the past provided parking for construction staff and continues to provide parking for a small number of contractors (maintenance and servicing) who are on site daily.

The car park provides only a road base or gravel surface spaces are not line-marked. However, it is noted that there is not scarcity of 'parking spaces' such as might warrant line-marking to maximise capacity.

7.2.3 Impact Assessment

7.2.3.1 Site Access and Intersection

The modification is proposing to increase the workforce from the approved 18 FTE to 25 FTE personnel. Of the proposed increase by seven FTE personnel five of the additional FTE personnel will be assigned to the day shift, while two FTE personnel will be assigned to the night shift. No changes are proposed to the existing management and administration staffing levels.

Access to the SCSS, via the intersection between Access Road and Castlereagh Highway, will not change due to the modification. This intersection will continue to be utilized for access to the sub-regional network as described in **Section 7.2.2.1**. Use of the private haul roads as approved will remain unchanged by the modification.

7.2.3.2 Future Traffic Flows

2010 RMS data sourced for the Lidsdale Count Station (Station 99.253) indicates traffic flow increases in the Castlereagh Highway by approximately 1.7% per year. As no longer term AADT data is provided in Barnson (2013) for the WCS TIA for the 2013 Portland count station (i.e. to show average annual growth) the average growth rate of 1.7% for the 2010 RMS data has been applied to the more recent Portland count station AADT, noting again that it is reasonable to suggest the two count station sites would experience similar growth.

A 10-year forecast to 2027 from the RMS 2013 AADT (**Section 7.2.2.2**) suggests traffic flows in the Castlereagh Highway (south of Boulder Road at Portland) past the SCSS will likely increase to approximately:

- 5,200 vpd
- 310 vph in the SCSS AM peak period
- 360 vph in the SCSS PM peak period.

Additional staff movements due to the increased workforce proposed in the modification will be generated to and from the SCSS via the Access Road and Castlereagh Highway intersection, and the peak traffic generation will continue to occur at shift changeover times (6:00 am and 6:00 pm). During these periods, the potential exists for the SCSS to generate an additional 7 vehicle trips per hour, comprising:

- In the AM arrival peak hour (5:30 am – 6:30 am):
  - 5 additional day shift staff arrival trips
  - 2 additional night shift staff departure trips

- In the PM arrival peak hour (5:30 pm – 6:30 pm):
  - 5 additional day shift staff departure trips
  - 2 additional night shift staff arrival trips.

The total trip generation will increase from the existing 13 vph to 20 vph in both the AM and PM peak hours due to the proposed modification. Again, this total assumes all staff drive their own private vehicles, and that all shift staff arrive/depart in a single (AM and PM) peak hour. It is expected that the majority to these trips will be to and from the southeast (Wallerawang and Lithgow).

A review of the approved and proposed sub-regional projects with the potential to generate additional trips in the Castlereagh Highway at the SCSS intersection to Castlereagh Highway and through the broader road network suggests there is little potential for additional trip generation in the foreseeable future or only very minor additional traffic generation.

7.2.3.3 Future Intersection Performance

A SIDRA analyses for the Access Road and Castlereagh Highway intersection was undertaken for the future traffic flow estimates included in **Section 7.2.3.2** for Castlereagh Highway with an assumed distribution profile of 80% of trips to and from the southeast to the traffic flow estimates for the future SCSS trip generation. This analysis indicates that the intersection will continue to operate at a high or 'A' level of service with essentially no delays or queueing, and still retaining significant spare capacity. It can be concluded the additional staff trips due to the additional seven FTE personnel will have no significant impact on any of the key intersection performance measures. Additionally, despite the increase in the background or regional traffic flows and the proposed staff trip generation due to the modification, the existing intersection will conform to current warrant requirements as provided in GRD4A.

7.2.3.4 Onsite Car Parking

The onsite car park will continue to be accessed via the Access Road. As noted in **Section 7.2.2.4** the existing car park provides capacity for up to 50 vehicles. The peak parking demand, estimated at 25 spaces assuming all staff is on site for a short period before the end of a shift (either day or night), will be entirely accommodated within the existing car park.

7.2.4 Management and Mitigation

The following mitigation measures will be implemented to further enhance the safety of the Access Road and Castlereagh Highway intersection.

- The SCSS approach priority stop-line will be re-marked in accordance with the appropriate RMS guidelines.
- Regular cleaning of the intersection will be undertaken to remove loose materials (sand and gravel) from the intersection, particularly after periods of heavy rain.

7.2.5 Consequence of Potential Impacts

The proposed modification will result in seven additional staff vehicle trips to SCSS, which is considered a minor impact. There will be no significant impact on the SCSS access intersection to Castlereagh Highway, nor will there any significant impact on the broader local and sub-regional road network due to the minor increase in vehicle generation. The Access Road and Castlereagh Highway intersection will continue to operate at a high or 'A' level of service with essentially no delays or queued vehicles, and with significant spare capacity. This level of service will not be altered through to the forecast year of 2027. As such, the future traffic flows will not require any higher order intersection treatment to that currently provided in accordance with the AustRoads guidelines.

No changes to existing onsite staff access are proposed, and the peak parking demand, estimated at 25 spaces, will be entirely accommodated within the existing car park.

7.2.6 Conclusion

The additional seven vehicle trips generated as a result of the proposed increase in workforce will not have a significant impact upon the capacity, efficiency and safety of the local, sub-regional and regional road network. The Access Road and Castlereagh Highway intersection will continue to operate at a high or 'A' level of service with essentially no delays or queued vehicles, and with significant spare capacity. This level of service will not be altered through to the forecast year of 2027.

7.3 Air Quality

7.3.1 Introduction

An Air Quality Impact Assessment for the modification was undertaken by SLR Consulting Australia Pty Ltd "*Air Quality Impact Assessment: Western Coal Services Project – Modification 2"* (SLR, 2017), which is provided in full in **Appendix F.** The air quality assessment and has been prepared in accordance with the "*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*" (EPA, 2017), (Approved Methods).

The assessment involved the modelling of local meteorology and the dispersion of potential emissions from the Project components to predict the level of impact that may be experienced in the surrounding environment due to the proposed modification elements. The proposed modification elements with the potential to contribute to the air quality impacts of the Project are as follows.

- Increase in the amount of ROM coal to be received at the SCSS from the Springvale Mine pit top from 4.5 Mtpa to up to 5.5 Mtpa, however total amount of coal to be handled will not increase above the current approved limit of 9.5 Mtpa in the Project.
- Establishment of an 80,000 tonne product stockpile. It is noted that this stockpile already exists but needs to be assessed and approved as a separate stockpile, instead of part of the ROM coal stockpiles discussed in **Section 4.2.5**.

Air quality goals for the modification as identified within the Approved Methods, are presented in **Table 22**. The Approved Methods specify assessment criteria for Total Suspended Particulate (TSP) and PM_{10} and $PM_{2.5}$. This assessment is based on the assessment goals set out in the Ambient Air Quality NEPM (NEPC, 2016).

Table 22 – Modification Air Quality Goals

Pollutant	Averaging Period	Criteria (µg/m^3)	Source
TSP	Annual	90	EPA 2017
PM_{10}	24 hours Annual	50 25	EPA 2017
$PM_{2.5}$	24 hours Annual	25 8	EPA 2017
Criteria (g/m^2/month)			
Deposited dust	Annual	2 (maximum incremental increase in deposited dust level) 4 (maximum total deposited dust level)	EPA 2017

7.3.2 Study Area and Sensitive Receptors

The study area encompasses the Project Application Area (**Figure 2**) and the nearby residential areas with sensitive receptors with the potential to be impacted by the operation of the Project. There are 168 sensitive receptors with the potential to be impacted by the Project (**Section 2.11**), are shown in **Figure 6**, **Figure 7** and **Figure 8**.

7.3.3 Existing Environment

The air quality in the region surrounding the WCS operations is influenced by emissions generated by a range of sources, originating from both within and outside of the local area. Specifically, air quality will be influenced by emissions from power stations and associated ash emplacement areas, other coal mining and coal processing operations, pollution transported into the area from more distant sources, and pollution generated by the existing WCS operations itself. The SCSS is the source of the largest emissions in the Project.

7.3.4 Emissions Estimation

The air quality assessment for the modification is based on the five operational scenarios assessed in the Air Quality and Greenhouse Gas Assessment (PEL, 2013) that supported the WCS EIS. For the purpose of this current assessment, the emission inventories compiled in PEL (2013) for the Scenarios 1b, 2b and 2c were used in this assessment as the 'Approved' scenario. This approach assumes that all the approved activities are being performed concurrently at their maximum approved capacity which will in turn provide a conservative representation of impacts due to the currently approved WCS operations. It is noted that not all approved activities have been constructed and are operational. In addition, not all existing operations occur concurrently as has been assumed in this assessment.

Additional emissions sources due to the relevant proposed modification elements (**Section 7.3.1**) with the potential to contribute to the air quality impacts comprise:

- loading of the conveyor at Springvale pit top with an additional 1 Mtpa ROM coal
- unloading the conveyor at SCSS with the additional 1 Mtpa ROM coal
- wind erosion and dozer operations at the product coal stockpile (**Figure 10**) located in the vicinity of the CPP within the SCSS (approximately 1.1 ha).

It is noted that the handling of additional ROM coal (1 Mtpa) at the Springvale pit top and the SCSS will be undertaken using the existing fleet of dozers and within the approved hours of operation.

7.3.5 Air Dispersion Modelling Methodology

Emissions from the WCS operations have been modelled using the CALPUFF (Version 6.267) air dispersion modelling system in 3D. For the meteorological data, wind field data generated by the meteorological pre-processor CALMET was used with CALPUFF. For this assessment the Weather Research and Forecast (WRF) modelling system was used to produce the meteorological field required as an input to the CALMET meteorological model over the domains described in detail in Section 5.4.1 of SLR (2017). The WRF model is a next generation mesoscale numerical weather prediction system designed for both atmospheric research and operational forecasting needs. Although, no specific guidance is prescribed as to the meteorological year to be used in air quality impact assessments, the Approved Methods suggests adopting a 'representative' meteorological year within the last five years. For this reason the meteorological year modelled in the assessment was 2014. Further, the Approved Methods prescribe the use of same background air quality data year to that used for modelled year for contemporaneous analysis. Therefore, the background data used for this assessment is 2014 (refer **Section 7.3.6.1**).

7.3.6 Background Air Quality Data

7.3.6.1 Suspended Particulate Matter

Onsite ambient TSP and PM_{10} monitoring had been undertaken in the vicinity of SCSS in Blackmans Flat from 2005 to 2016, using one co-located high volume air sampler (HVAS) measuring TSP and PM_{10} concentrations on a 1-in-6-day cycle.

The monitored air quality data for 2014 (refer **Section 7.3.5**) have been reviewed for use in this air quality assessment as background levels. The annual average TSP and PM_{10} concentrations during 2014 are 20.4 µg/m^3 and 9.5 µg/m^3, respectively at the HVAS. The maximum 24-hour average PM_{10} concentration during 2014 is 34 µg/m^3. The ratio of mean TSP to PM_{10} measurements in 2014 is 2.2:1.

A Tapered Element Oscillating Microbalance (TEOM) measuring PM_{10} in Blackmans Flat near the B4 receptor has been operational since 22 December 2015 and has replaced the HVAS. The 2016 (the only year with the complete one year dataset) annual average PM_{10} concentration from this TEOM is 11.3 µg/m^3 and the maximum 24-hour average concentration is 37.8 µg/m^3.

It is noted that the monitoring data from the WCS HVAS and WCS TEOM will include the impact of dust emissions from the existing operations at SCSS and therefore is a conservative measure of actual background levels for the entire WCS operations given the Project has a large footprint, and comprises other components, namely Mount Piper and Wallerawang Haul Roads, Kerosene Vale Stockpile Area and the overland conveyor system traversing from the Springvale Mine pit top and MPPS.

Total Suspended Particulate Concentration

The annual average background TSP concentration was estimated based on the annual average PM_{10} concentration recorded at Bathurst in 2014 and the TSP to PM_{10} ratio derived from the WCS HVAS data, discussed above.

PM_{10} Concentration

The Approved Methods requires the use of *"ambient monitoring data that includes at least one year of continuous measurements and is contemporaneous with the meteorological data used in the dispersion modelling".*

Given the TSP to PM_{10} monitoring data using the onsite HVAS were measured on a 1-in-6-day cycle (and not daily measurements) the SCSS data were not suitable for use in a contemporaneous cumulative impact analysis in SLR (2017). Instead the continuous (daily varying) PM_{10} monitoring data from the OEH operated monitoring site at Bathurst has been used for the year 2014.

A comparison of the measured 24-hour average PM_{10} concentration data for the year 2014 from Bathurst and WCS HVAS showed that the Bathurst data provide a conservative approximation of the background air quality experienced at the SCSS and surrounding receptors. Similarly, a comparison of the PM10 data from Bathurst for the year 2016 against the WCS TEOM data for the same year shows again that the Bathurst data are conservative.

A sensitivity analyses was undertaken in SLR (2017) to assess the sensitivity of the modelling results for the 24-hour maximum PM_{10} concentration to the use of ambient monitoring data from the Bathurst monitoring site compared to the background PM_{10} data from the WCS TEOM data. The sensitivity data analyses presented in Section 6.5 of SLR (2017) showed the 24-hour maximum PM_{10} concentration using the WCS TEOM daily varying PM_{10} background levels are generally lower than when the Bathurst daily varying PM10 background levels are used.

$PM_{2.5}$ Concentration

No ambient background monitoring data for $PM_{2.5}$ are available in the local area or at the nearest OEH monitoring sites. Therefore a background $PM_{2.5}$ dataset cannot be used within this assessment and comparison of the incremental concentrations to the criteria has been performed.

7.3.6.2 Deposited Dust

Deposited dust monitoring is undertaken in the vicinity and within the SCSS using three gauges D1 – D3 which are part of the Pine Dale Coal Mine monitoring program, and additionally using three WCS dust deposition gauges DG3 – DG5. These gauges are located in the vicinity of the SCSS (D1, D2, DG5) in Blackmans Flat or within SCSS itself (D3, DG3, DG4).

Data from dust deposition gauges (D1 – D3) were used in this assessment for consistency with PEL (2013). A background level of 0.9 g/m^2/month comprising the maximum annual average recorded by any gauge D1 – D3 during 2014 has been adopted in the assessment.

7.3.6.3 Summary of Air Quality Data

The adopted background air quality data are presented in **Table 23**.

Table 23 – Summary of the Adopted Background Air Quality Data

Pollutant	Period	Value	Unit	Basis
Dust Deposition	19/12/13 to 16/12/14	0.9	g/m^2/month	Maximum of dust deposition monitoring data recorded at D1, D2, D3 dust gauges
TSP (HVAS)	04/01/14 to 30/12/14	20.4	µg/m^3	Annual average
PM_{10} (HVAS)	04/01/14 to 30/12/14	34	µg/m^3	Maximum 24-hour average
		9.5	µg/m^3	Annual average (2014)
PM_{10} (TEOM)	01/01/16 to 31/12/16	37.8	µg/m^3	Maximum 24-hour average
		11.3	µg/m^3	2016 Annual average
Ratio of TSP:PM_{10} (HVAS data)	04/01/14 to 30/12/14	2.2	-	-

7.3.7 Impact Assessment

Dispersion modelling predictions of dust deposition rates and TSP, PM_{10} and $PM_{2.5}$ concentrations at the sensitive receptors are presented below in tables labelled **Table 24** to **Table 30**. The tables provide incremental impacts from the Approved operations (refer **Section 7.3.4**) and Modification 2, and cumulative impacts for majority of pollutants as relevant, except $PM_{2.5}$ concentration where only maximum increments are provided due to a lack of availability of the background $PM_{2.5}$ concentration (**Section 7.3.6.1**).

A total of 168 sensitive receptors were included in the modelling, however the results for the top 12 worst potentially impacted receptors (B04, B12 – 14, B19, L023 – L027, L031, S1, S2) plus additional representative receptors (S3 to S5, WR1, WR2 and B16) are only presented.

Predicted contour plots showing maximum incremental impacts (Approved plus Modification 2) for the assessed pollutants, namely, TSP (annual average), PM_{10} (annual average and 24 hour average), $PM_{2.5}$ (annual average and 24 hour average) and dust deposition rates, are included in SLR (2017).

7.3.7.1 Dust Deposition

Table 24 provides the dust deposition rates predicted at the identified sensitive receptor locations due to the particulate emission rates estimated for the Approved WCS operations and Modification 2.

The results indicate that incremental and cumulative annual average dust deposition rates at the identified receptors are predicted to be well below the criterion of 2 g/m^2/month (incremental increase in dust deposition) and below 4 g/m^2/month (cumulative dust deposition). The incremental increases predicted as a result of the proposed modification operations are negligible and would not result in a measureable increase above background levels.

Table 24 – Predicted Annual Average Dust Deposition Rate

Receptor ID	Background (g/m²/month) (Table 23)	Annual Average Dust Deposition Rate (g/m²/month)		
		Increment (Approved)	Increment (Modification 2)	Cumulative
B04	0.9	0.5	<1.5	<1.5
B12	0.9	0.3	<1.3	<1.3
B13	0.9	0.3	<1.3	<1.3
B14	0.9	0.3	<1.3	<1.3
B19	0.9	0.2	<1.2	<1.2
L023	0.9	0.2	<1.2	<1.2
L024	0.9	0.2	<1.2	<1.2
L025	0.9	0.2	<1.2	<1.2
L027	0.9	0.2	<1.2	<1.2
L031	0.9	0.2	<1.2	<1.2
S1	0.9	0.2	<1.2	<1.2
S2	0.9	0.2	<1.2	<1.2
S3	0.9	<0.1	<1.1	<1.1
S4	0.9	<0.1	<1.1	<1.1
S5	0.9	<0.1	<1.1	<1.1
WR1	0.9	0.1	<1.1	<1.1
WR2	0.9	0.1	<1.1	<1.1
B16	0.9	0.1	<1.1	<1.1
Criterion	-	**2.0**	**2.0**	**4.0**

7.3.7.2 Suspended Particulates

TSP – Annual Average Concentration

Table 25 provides the annual average TSP concentration predicted by the dispersion modelling at each of the nominated receptors. The results indicate that cumulative annual average TSP concentrations are predicted to be well below the criterion of 90 µg/m^3 at all identified sensitive receptor locations. The incremental increase predicted as a result of the modification operations are very low and are not predicted to give rise to a significant increase above existing background levels.

Table 25 – Predicted Annual Average TSP Concentration

Receptor ID	Background (µg/m³) (Table 23)	Annual Average TSP Concentration (µg/m³)		
		Increment (Approved)	Increment (Modification 2)	Cumulative
B04	32.1	10.8	0.1	43.0
B12	32.1	8.4	0.1	40.6
B13	32.1	8.7	<0.1	<41.0
B14	32.1	7.0	<0.1	<39.2

Receptor ID	Background (µg/m³) (Table 23)	Annual Average TSP Concentration (µg/m³)		
		Increment (Approved)	Increment (Modification 2)	Cumulative
B19	32.1	6.4	<0.1	<38.6
L023	32.1	4.6	<0.1	<36.8
L024	32.1	5.9	<0.1	<38.1
L025	32.1	6.0	<0.1	<38.2
L027	32.1	6.1	<0.1	<38.3
L031	32.1	6.3	<0.1	<38.5
S1	32.1	5.8	<0.1	<38.0
S2	32.1	6.0	<0.1	<38.2
S3	32.1	2.9	<0.1	<35.1
S4	32.1	1.2	<0.1	<33.4
S5	32.1	0.8	<0.1	<33.0
WR1	32.1	7.2	<0.1	<39.5
WR2	32.1	6.3	<0.1	<38.5
B16	32.1	2.9	<0.1	<35.1
Criterion	-	**-**	**-**	**90**

PM_{10} – Maximum 24-Hour Average Concentration

Table 26 presents the maximum 24-hour average PM_{10} concentration predicted by the dispersion modelling at each of the nominated receptors. As discussed in **Section 7.3.6.1** and noted in **Table 19** daily varying background concentrations were adopted from the Bathurst monitoring station for contemporaneous analysis of the cumulative assessment.

The maximum increment due to the Approved operations was predicted to occur at receptor B04 (26.1 µg/m^3) and for Modification 2 operations, the maximum increment was predicted to occur at receptor B12 (0.5 µg/m^3).

The maximum cumulative 24-hour average PM_{10} concentration is predicted to exceed the criterion of 50 µg/m^3 at receptors B04, B12, B13 and B14. Receptors B04, B12 and B13 are located closest to the SCSS, while receptor B14 is located further to the east. Also shown in **Table 26** are the 2nd highest cumulative concentration, and the total number of predicted exceedances at the assessed receptors. A total of three exceedances are predicted to occur at receptor B04 within the modelled period (one year).

Receptor B04 is predicted to be the worst impacted receptor. It is noted that this receptor is acquisition on request on SSD 5579. In accordance with the Approved Methods, a contemporaneous analysis of the maximum predicted concentrations at the worst impacted receptor (B04) was performed and is presented in **Table 27**.

Table 26 – Predicted Maximum 24 Hour Average PM_{10} Concentration

Receptor ID	Maximum 24-Hour Average PM_{10} Concentration ($\mu g/m^3$)				2nd Highest Cumulative Concentration ($\mu g/m^3$) (Background + Approved + Modification 2)	Predicted Number of Exceedances per year
	Increment (Approved Operations)	Increment (Modification 2)	Maximum Cumulative (Background+ Approved)	Maximum Cumulative (Background+ Approved + Modification 2)		
B04	26.1	0.4	60.0	60.0	53.1	3
B12	24.6	0.5	54.4	54.4	49.8	1
B13	24.9	0.4	53.7	53.7	48.6	1
B14	19.7	0.3	50.6	50.6	45.6	1
B19	17.2	0.3	49.6	49.6	45.0	0
L023	12.9	0.2	47.1	47.1	44.4	0
L024	13.0	<0.1	44.2	<44.3	43.8	0
L025	13.2	<0.1	44.2	<44.3	43.9	0
L027	13.2	<0.1	44.3	<44.4	43.8	0
L031	13.6	<0.1	44.4	<44.5	44.0	0
S1	12.4	<0.1	44.4	<44.6	43.4	0
S2	13.0	<0.1	44.6	<44.7	43.7	0
S3	6.5	<0.1	43.5	43.5	42.4	0
S4	3.9	<0.1	44.1	44.1	43.7	0
S5	3.3	<0.1	43.4	43.5	43.3	0
WR1	11.7	0.1	46.6	46.6	44.7	0
WR2	12.2	0.1	47.8	47.8	44.7	0
B16	7.2	0.2	43.9	43.9	43.9	0
Criterion	-	-	**50**	**50**	-	-

Table 27 – Summary of Contemporaneous Analyses at Receptor B04

Date	PM_{10} 24-Hour Average ($\mu g/m^3$)			Date	PM_{10} 24-Hour Average ($\mu g/m^3$)		
	Highest Background	Increment (Approved + Modification 2)	Total		Background	Highest Increment (Approved + Modification 2)	Total
17-12-2014	42.8	3.6	46.4	18-05-2014	15.3	26.1	41.4
14-11-2014	41.0	4.3	45.3	16-01-2014	37.6	22.4	60.0
24-11-2014	38.3	5.8	44.1	07-03-2014	17.7	21.4	39.1
15-11-2014	37.7	4.5	42.2	08-02-2014	31.4	20.9	52.3
16-01-2014	37.6	22.4	60.0	05-03-2014	19.9	20.5	40.4
23-11-2014	37.4	6.2	43.6	30-10-2014	19.5	20.5	40.0
17-01-2014	36.4	4.3	40.7	18-01-2014	32.9	20.2	53.1

The contemporaneous analysis shows that on the days of exceedances, the contribution from background concentration was 60%-63%. Further, it can be seen that the contribution of Modification 2 towards the maximum cumulative PM_{10} 24-hour average concentration is negligible at all the receptors assessed and presented in **Table 26**. It is also noted that the TEOM data from SCSS has showed no exceedances to date since it became operational on 22 December 2015. As discussed in **Section 7.3.6.1** from the 2016 TEOM data (the only year with the complete one year dataset) the maximum 24-hour average concentration is 37.8 µg/m^3.

A sensitivity analyses undertaken in SLR (2017) to compare the 24-hour average PM_{10} concentration results using the daily varying PM_{10} background levels from the WCS TEOM and the Bathurst data showed the cumulative PM_{10} concentration at the identified receptors are generally greater when the Bathurst data are used. From the sensitivity results SLR (2017) concluded that the reported suspended particulate cumulative results presented in their report should be viewed as conservative and that in reality the concentrations are likely to be lower.

PM_{10} – Annual Average Concentration

Table 28 presents the annual average PM_{10} concentration predicted by the dispersion modelling at each of the assessed receptors areas. The assumed background PM_{10} concentration has been discussed in detail in **Section 7.3.6.1**.

The annual average PM_{10} concentration is predicted to be well below the criterion of 25 µg/m^3 at all identified sensitive receptor locations. As noted in **Section 7.3.6.1** the WCS TEOM data for 2016 showed an annual average PM_{10} concentration of 11.3 µg/m^3. Also, a detailed analyses contained in SLR (2017) has concluded the Bathurst PM_{10} data use in the predictions is consistently greater than the WCS TEOM data.

Table 28 – Predicted Annual Average PM_{10} Concentration

Receptor ID	Annual Average PM_{10} Concentration (µg/m^3)			
	Increment (Approved)	Increment (Modification 2)	Background (Table 23)	Cumulative
B04	5.2	<0.1	14.6	<19.9
B12	4.1	<0.1	14.6	<18.8
B13	4.2	<0.1	14.6	<19.0
B14	3.3	<0.1	14.6	<18.0
B19	3.1	<0.1	14.6	<17.8
L023	2.3	<0.1	14.6	<17.0
L024	2.9	<0.1	14.6	<17.6
L025	3.0	<0.1	14.6	<17.7
L027	3.0	<0.1	14.6	<17.7
L031	3.1	<0.1	14.6	<17.8
S1	2.9	<0.1	14.6	<17.5
S2	3.0	<0.1	14.6	<17.7
S3	1.4	<0.1	14.6	<16.1
S4	0.6	<0.1	14.6	<15.3
S5	0.4	<0.1	14.6	<15.1

Receptor ID	Annual Average PM_{10} Concentration ($\mu g/m^3$)			
	Increment (Approved)	Increment (Modification 2)	Background (Table 23)	Cumulative
WR1	3.5	<0.1	14.6	<18.2
WR2	3.1	<0.1	14.6	<17.8
B16	1.5	<0.1	14.6	<16.2
Criterion	**-**	**-**	**-**	**25**

$PM_{2.5}$ – Maximum 24-Hour Average Concentration

Table 29 shows the maximum 24-hour average $PM_{2.5}$ concentration predicted by the dispersion modelling at the identified sensitive receptors. Background $PM_{2.5}$ concentration data are not available for the area surrounding SCSS, and therefore an analysis of cumulative $PM_{2.5}$ concentration cannot be performed.

The combined incremental 24-hour average $PM_{2.5}$ concentration for the approved and modification operations are predicted to be well below the criterion of 25 $\mu g/m^3$ at the identified sensitive receptors. Further it can be seen that the contribution of Modification 2 towards the maximum 24-hour average $PM_{2.5}$ concentration is negligible.

Table 29 – Predicted Maximum 24 Hour Average $PM_{2.5}$ Concentration

Receptor ID	Maximum 24-Hour Average $PM_{2.5}$ Concentration ($\mu g/m^3$)		
	Increment (Approved)	Increment (Modification 2)	Total Maximum Increment (Approved+Modification 2)
B04	3.2	<0.1	<3.3
B12	3.0	0.1	3.1
B13	3.1	0.1	3.2
B14	2.4	<0.1	<2.5
B19	2.1	<0.1	<2.2
L023	1.6	<0.1	<1.7
L024	1.6	<0.1	<1.7
L025	1.6	<0.1	<1.7
L027	1.6	<0.1	<1.7
L031	1.7	<0.1	<1.8
S1	1.5	<0.1	<1.6
S2	1.6	<0.1	<1.7
S3	0.8	<0.1	<0.9
S4	0.5	<0.1	<0.6
S5	0.4	<0.1	<0.5
WR1	1.4	<0.1	<1.5
WR2	1.5	<0.1	<1.6

Receptor ID	Maximum 24-Hour Average $PM_{2.5}$ Concentration (µg/m^3)		
	Increment (Approved)	Increment (Modification 2)	Total Maximum Increment (Approved+Modification 2)
B16	0.9	<0.1	<1.0
Criterion	-	-	

$PM_{2.5}$ – Annual Average Concentration

Table 30 shows the annual average $PM_{2.5}$ concentration predicted by the dispersion modelling at the identified receptors. The combined incremental annual average $PM_{2.5}$ concentration for the approved and modification operations are predicted to be well below the criterion of 8 µg/m^3 at the sensitive receptor locations. Further it can be seen that the contribution of Modification 2 towards the annual average $PM_{2.5}$ concentration is negligible.

Table 30 – Predicted Annual Average $PM_{2.5}$ Concentration

Receptor ID	Annual Average $PM_{2.5}$ Concentration (µg/m^3)		
	Increment (Approved)	Increment (Modification 2)	Total Maximum Increment (Approved+Modification 2)
B04	0.7	<0.1	<0.8
B12	0.5	<0.1	<0.6
B13	0.5	<0.1	<0.6
B14	0.4	<0.1	<0.5
B19	0.4	<0.1	<0.5
L023	0.3	<0.1	<0.4
L024	0.4	<0.1	<0.5
L025	0.4	<0.1	<0.5
L027	0.4	<0.1	<0.5
L031	0.4	<0.1	<0.5
S1	0.4	<0.1	<0.5
S2	0.4	<0.1	<0.5
S3	0.2	<0.1	<0.3
S4	0.1	<0.1	<0.2
S5	<0.1	<0.1	<0.2
WR1	0.4	<0.1	<0.5
WR2	0.4	<0.1	<0.5
B16	0.2	<0.1	<0.3
Criterion	-	-	-

7.3.8 Cumulative Impact Assessment

Industrial facilities in the vicinity of SCSS that have the potential to generate particulate matter emissions and may contribute to the cumulative impacts on the local airshed are:

- Wallerawang Power Station (being decommissioned and deconstructed)
- Mount Piper Power Station
- Angus Place Colliery (under care and maintenance since March 2015)
- Lidsdale Siding Rail Loading Facility
- Springvale Mine pit top
- Pine Dale Coal Mine (under care and maintenance).

As noted in **Section 7.3.6.1** the predictions presented have used the continuous particulate matter monitoring data from Bathurst OEH monitoring site as the background air quality data. The Bathurst data encapsulate the particulate emissions from the WCS operations as well as the cumulative contributions from the surrounding industrial facilities noted above. For this reason it is considered that the cumulative air quality impacts of the industries in the vicinity of the WCS operations have been taken into account in the predictions presented in the assessment.

Additionally, it is noted that the proposed development does not result in a cumulative annual average level greater than 30 µg/m^3 of PM_{10} concentration (**Table 28**) for private dwellings, as required by Clause 12AB(4) of Mining SEPP relating to non-discretionary development standards for mining.

7.3.9 Management and Mitigation

Given the contribution of the proposed Modification 2 activities to the predicted air quality impacts at the sensitive receptors are negligible no new mitigation or management measures have been recommended. Thus the current monitoring undertaken by the WCS Project is considered adequate for appropriately addressing the risk of any air quality impacts upon the identified residential receptors.

Existing monitoring measures will continue for SCSS as described in the WCS Air Quality and Greenhouse Gas Management Plan in the short term, and consisting of the TEOM (measuring TSP and PM_{10} concentrations) and three dust deposition gauges located within or in the vicinity of the SCSS in Blackmans Flat. In the long term the air quality monitoring in the project will be undertaken in accordance with the monitoring schedule described in the WCS Air Quality and Greenhouse Gas Management Plan.

The potential air quality impacts will be mitigated through the continued implementation of existing management measures such as water spraying, minimisation of exposed areas and ceasing work during adverse weather conditions.

7.3.10 Consequences of Potential Impacts

The air quality predicted results show that the Modification 2 activities are unlikely to cause any additional exceedances of the relevant ambient air quality criteria for TSP and $PM_{2.5}$ concentrations or dust deposition at any identified surrounding sensitive receptors. Exceedances of PM_{10} criterion have been predicted for four sensitive receptors (B04, B12, B13 and B14), however on further investigations it was found that the exceedances were dominated by the high regional (Bathurst monitoring station) background PM_{10} concentration used in the modelling. The contribution of Modification 2 activities to the predicted cumulative impacts at these receptors is negligible.

7.3.11 Conclusion

A dispersion modelling exercise has been performed to assess the potential impacts of fugitive particulate emissions from the approved WCS operations (Approved Scenario) and the following proposed Modification 2 elements:

- an increase in the amount of ROM coal that can be received at the SCSS via conveyors from the Springvale Mine from 4.5 Mtpa to up to 5.5 Mtpa

- assessment of an 80,000 tonne product (beneficiated) coal stockpile near the Coal Preparation Plant within the SCSS.

The air quality predicted results show that the Modification 2 activities are unlikely to cause any additional exceedances of the relevant ambient air quality criteria for TSP and $PM_{2.5}$ concentrations or dust deposition at any identified surrounding sensitive receptors. Exceedances of PM_{10} criterion have been predicted for four sensitive receptors (B04, B12, B13 and B14), however on further investigations it was found that the exceedances were dominated by the high regional (Bathurst monitoring station) background PM_{10} concentration used in the modelling. The contribution of Modification 2 activities to the predicted cumulative impacts at these receptors is negligible.

The results presented should be considered conservative given the following assumptions have been made in the dispersion modelling.

- The Approved Scenario for the Project has been modelled representing all approved activities in the Project operating concurrently over a year. In reality not all approved activities have been constructed as yet within the Project and not all existing activities operate concurrently.
- The assessment of the Approved Scenario has included coal handling activities at the Angus Place Colliery pit top and Springvale Mine pit top, and the coal and reject handling operations of the proposed Neubeck Project. These non-WCS Project operations have been included only to be consistent with PEL (2013), the Air Quality and Greenhouse Gas Assessment that supported the WCS EIS.
- The Bathurst PM_{10} daily varying concentration datasets for the year 2014 were used as background levels in the predictions for the PM_{10} concentrations at the identified receptors. A comparison of the Bathurst PM_{10} datasets against the equivalent data from the WCS TEOM and WCS HVAS showed the Bathurst PM_{10} datasets are consistently higher. Therefore the predicted PM_{10} concentrations (maximum 24-hour average, annual average) are conservative with actual levels expected to be lower than those presented.

Based on the results presented, SLR (2017) concluded there are no constraints in relation to air quality impacts at sensitive receptors assessed in the air quality assessment due to the changes proposed in Modification 2. The Project is predicted to comply with the relevant air quality criteria at the identified receptors for the SCSS operations and with regard to potential cumulative impacts.

7.4 Social

7.4.1 Introduction

The Social Impact Assessment (Centennial Coal, 2017) has been completed by James Marshall of Centennial Coal Company Limited and provided in **Appendix G**. The assessment titled *Western Coal Services Project Modification 2: Social Impact Assessment* provides for a systematic approach to the identification, consideration and assessment of the social impacts of the proposed modification. The Social Impact Assessment (SIA) includes the community consultation that has been undertaken to date and the future consultation strategy that has been developed to keep the potentially affected landowners informed of the progress on the commitments made by Springvale Coal specifically relating to the proposed noise mitigation works.

The SIA has taken into account the *Social impact assessment – Draft guidelines for State significant mining, petroleum production and extractive industry development* (DPE, 2016). These guidelines state (in part) that:

> "*…a 'social impact assessment' is the process of analysing, assessing and responding to the potential social impacts of a proposed development, with a view to minimising negative social impacts and enhancing positive social impacts. The resulting analysis is an input to the overall environmental impact assessment process for the proposed development. If the proposed*

development is approved, the social impact assessment can provide a foundation for ongoing monitoring and adaptive management of predicted and unforeseen impacts over the life of the project"

The core steps employed in the development of the SIA are:

1) **Profiling**: Understanding the scale and scope of the modification, parameters of the SIA and identifying the potentially affected people and groups (**Section 7.4.3.1**)

2) **Scoping**: Identifying the potential impacts as a result of the modification and includes consultation outcomes (**Section 7.4.3.2**).

3) **Social Impact Assessment**: This section (**Section 7.4.3.3**) explores the likely social impacts that will arise. The scope of the assessment is determined by the likely impacts of the proposed modification and as a guide may include, but not be limited to changes to:

   - general population and characteristics of the area
   - the community structure, its character or beliefs
   - the health and safety of those living and working in the vicinity of the development
   - an assessment of safety as it relates to crime, anti-social and nuisance behaviour
   - social cohesion, in particular the quality of life of those living in the vicinity of the development
   - cost of living, including housing affordability.
   - accessibility
   - sense of place and community.
   - existing services

4) **Management**: Identification and development of mitigation measures where feasible for adverse or detrimental effects. These management measures are for not only potential adverse or detrimental social impacts, but also where those identified as positive can be capitalised upon and developed further. This allows for an assessment on whether the modification meets a net community benefit criteria. (**Section 7.4.4**)

5) **Monitoring**: Strategies to monitor identified impacts need to be developed to ensure that management strategies are adhered to and those cumulative impacts are identified, monitored and taken into account with further development. (**Section 7.4.4**)

7.4.2 Existing Environment

7.4.2.1 Community Profile and Local Characteristics

According to the most recent Australian Bureau of Statistics (ABS) Census 2016, the Lithgow LGA population on census night was 21,090, an increase of 916 individuals, representing an approximately 4.4% increase in population since 2011. The majority of the population live in Lithgow urban area (12,818 people (ABS Statistical Area 2, SA2), Wallerawang (1,980 people) and Portland (2423 people). The remainder of the population live across the smaller villages, hamlets and rural localities across the LGA.

The Lithgow LGA's population has undergone slight fluctuations since 1996. There was a small decrease in population recorded between the 1996 and 2001 Census period and a slight increase in population between the 2006 and 2011 and 2011 and 2016 Census periods. The median age in Lithgow LGA in the 2016 census is 45 years (slight increase from the 42 years in the 2011 census) and the average house is 2.3 persons, which remains unchanged from the 2011 census.

The characteristics of the Project Application Area and surrounds include the town of Wallerawang which is the closest retail and commercial centre (however Lithgow remains the main centre meeting higher order retail, commercial and professional service needs), Lidsdale which is a residential area and utilises day to day services from the nearby Wallerawang, and the locality of Blackmans Flat.

Rural land and isolated rural residents, transport infrastructure and State Forest (Ben Bullen State Forest and Newnes State Forest), coal mines (Angus Place colliery, Springvale Mine), rail loading infrastructure (Lidsdale Siding), power generation facilities (Mount Piper Power Station, Wallerawang Power Station (decommissioned and currently a demolition site), sub-regional road network including Castlereagh Highway are also characteristics of the general area.

7.4.2.2 Economic Profile

The Lithgow region has a long history with mining and power generation, and today the economic base of Lithgow is still recognised as being the energy and resources sector. These sectors are major employers and subsequently make a significant contribution to the overall economy including retail and accommodation via direct and indirect employment opportunities occurring.

The mining and energy sectors also present some challenges brought about by fluctuations in coal prices, production costs and market demand. However, the importance of the coal mining industry and its related employment is clearly vital to the broader economic wellbeing of the area. The largest employment sectors in the Lithgow LGA as follows (ID Profile Source: www.lithgow.nsw.gov.au).

- Mining
- Public administration and safety
- Health care and social assistance
- Retail trade
- Accommodation and food services

Mining remains the largest employer generating 1,342 local jobs and is also contributes to the most economically productive industry generating $304 Million in 2015 / 2016. An analysis of the valued added by industry sectors in Lithgow LGA in 2015 / 2016 shows the three largest industries were as follows.

- Mining ($304 Million or 27.4%)
- Electricity, gas, water and waste services ($162 million or 14.7%)
- Public administration and safety ($109 million or 9.9%)

In combination these three industries accounted for approximately $576 million in total or 52.0% of the total value added by industry in Lithgow LGA. In comparison, the same three industries in NSW accounted for 2.3% in mining, 2.9% in electricity, gas, water and waste services, and 6.1% in public administration and safety.

It is also noted that the mining employment sector in the region offers a higher wage compared with other sectors. The emerging sectors in the Lithgow LGA comprise the following.

- Artisan food producers – saffron, chocolates, baked products, olives, hazel nuts, condiments, fruit and vegetables
- Creative industries – IT, graphic design, marketing, craft, photography, candles, soaps, music and performance
- Financial Services, employment and training – accounting and conveyancing, industrial and mining sector labour hire and training services
- Tourism services – bed and breakfast, short term accommodation, niche recreation providers

- Independent main street retailers – home wares, clothing, cafes, lifestyle

7.4.3 Impact Assessment

7.4.3.1 Profiling

Understanding Modification Elements and Technical Assessments

A number of meetings were held with the project team to understand the modification elements, the outcomes of the impact assessments and mitigation measures proposed to minimise any potential impacts. These meetings discussed all environmental impact assessments (noise, traffic, air quality) undertaken to assess the proposed modification elements.

Sensitive Receptors

The proposed modification elements have the potential to impact on the identified 168 receptors for the Project (**Section 2.11**) located in Blackmans Flat, Lidsdale, Wallerawang, Springvale Lane and Wolgan Road. These receptors are shared with other Centennial Coal operations and Energy Australia's power stations, Wallerawang Power Station (decommissioned) and Mount Piper Power Station.

Consultation for this Project and other Centennial Coal projects in the region (Lidsdale Siding Upgrade Project (PA 08_0223), Angus Place Mine Extension Project (SSD 5602), Springvale Mine Extension Project (SSD 5594), Springvale Water Treatment Project (SSD 7592), and a number of modifications to Springvale Mine's old consent (DA 11/92) and Angus Place Colliery's project approval (PA 06_0221) have been ongoing since 2012.

The SIA specifically considered and engaged with the following sensitive receptors.

- Landholders on privately owned land who have previously been notified of exceedances at noise monitoring locations in the vicinity of their residences.
- Landholders who could be potentially affected by the 1 – 2 dB exceedances predicted in the noise impact assessment.

A summary of issues raised by these landholders has been included in **Table 10**. Comments have been provided to the issues raised.

7.4.3.2 Scoping

A review of the technical assessments was undertaken to understand the potential noise, traffic and air quality impacts to the environment and mitigation measures as applicable proposed to minimize impacts. The outcomes of the technical assessments are summarized below.

- **Noise**: Following implementation of engineering noise controls to fixed and mobile plant at the SCSS and placing restrictions on the use of mobile plant (loaders and dozers) in the evenings and night periods the mitigated noise predictions fall within 2 dB of the consent criteria of all 168 sensitive receptors assessed. Global Acoustics (2017) do not consider these exceedances significant. The proposed implementation of the mitigation measures over a two year period could result in continued exceedances at a number of receptors. However, the priority sequencing of the implementation of the mitigation measures could potentially result in SCSS achieving compliance in a much shorter timeframe. In the long term the noise levels in the region will be the lowest they have been since the commencement of the SCSS and the overland conveyor operations.
- **Traffic**: A minor impact to the traffic flows on Castlereagh Highway, comprising an increase in no more than 7 additional vehicle trips to the SCSS during the AM and PM peak periods, due to the proposed increase in workforce by 7 FTE personnel has been predicted.

- **Air quality:** The overall conclusion in the air quality assessment is that there are no predicted air quality impacts at the sensitive receptors due to the proposed modification.

Details of the scoping exercise, initiative events and the reactive controls that have been or proposed to be implemented in the modification are provided in Tables 8 to 17 of Centennial Coal (2017).

7.4.3.3 Assessment of Social Impacts

A social impact is something that is experienced or felt (either real or perceived) by an individual, social group economic unit (Franks, 2012). Social impacts can be positive or negative and are the result of an action (or lack of action) undertaken by a person, company or group. Social impacts can be direct or indirect and have the potential to accumulate over time as an activity progresses.

The SIA has evaluated the potential impacts of the modification against a number of potential effects (population characteristics, employment, housing, community infrastructure, community support services and demand, conflict within the community, community identity, cultural identity). The methodology employed and the results from the quantification exercise are described in detail in Section 5.2 of the SIA. A summary of the SIA findings on potential impacts on the identified effects are provided below.

- Change in general population characteristics in the local area.
  - No impact identified.
- Modification will disadvantage or benefit individuals or groups.
  - No impact identified.
- Changes to employment opportunities.
  - Positive impact identified for direct (7 FTE personnel) and indirect employment created by the modification.
  - Positive impact identified for longevity / certainty of employment for existing employees and indirect employment.
- Impacts on existing housing.
  - No impact identified.
- Additional utilization of community infrastructure.
  - Negligible adverse impact identified for increase in employee traffic to and from the site.
  - Positive impact identified for ongoing use of existing services by existing workforce.
- Additional utilization of support services and service.
  - No impact identified for new services and facilities required.
- Modification elements will cause conflict within the community.
  - No impacts identified for visual amenity.
  - Positive impact identified because the noise environment will improve due to mitigation and operational changes.
  - Negligible impact identified for transport noise caused by increased employee movements.
- Impact on community identity.
  - No impact on change in land characteristics identified.
  - Positive impact identified on change to the social amenity (air, noise, visual) once all proposed engineering and operational controls have been implemented.

Scores provided for the impacts (adverse, positive or no impact) was used to grade the degree of overall social impact or risk of the proposed modification elements. A score of 4 was obtained which corresponds to an insignificant risk in accordance with the Social Risk Consequence Assessment (Table 18 of the SIA). A score of 4 or an insignificant risk results in the following consequences:

- an improved noise environment
- no requirement to acquire properties
- no change to the land use across neighbouring / nearby residential areas
- slight economic benefit due to increased employment
- complaints may be received requiring intervention.

Overall the positive impacts outweigh the negligible adverse impacts identified.

7.4.4 Management and Monitoring

Springvale Coal will continue to monitor and respond to potential environmental impacts that could potentially affect the community over time. Reviews of the environmental monitoring data will be undertaken on a regular basis to ensure that management strategies are adhered to and that the potential cumulative impacts are identified, monitored and managed where relevant. The reviews will be especially important for the proposed noise emissions monitoring program (**Section 7.1.9.1**) to test the efficacy of the implemented noise mitigation via verification of the predicted noise levels from the SCSS operations, and the success of operational controls to be implemented (**Section 7.1.9.2**).

A key component of monitoring will be continuation of the stakeholder engagement strategy that commenced for this Project in 2012 and covered a wide range of environmental and social issues. The monitoring will comprise the following.

- Regular review and update of the noise monitoring data and noise model predictions. This will enable management and mitigation measures to be reviewed and updated to reflect any changes required to be undertaken.
- Regular liaison and consultation with the community, including face to face meetings with the potentially affected landholders.
- Communication of progress of the noise mitigation works to the community and government agency stakeholders.
- Regular updates on the noise mitigation works at the six-monthly meetings of the Western Region Community Consultative Community and Registered Aboriginal Groups.
- Regular Project updates through factsheets, Centennial Coal website and local newspaper bulletins.
- Continuation of a grievance and complaint handling system, including complaints communications channels such as a dedicated telephone line.

7.4.5 Conclusion

The potential impacts of the proposed modification elements identified and addressed in the technical assessments undertaken were considered in the SIA to assess the social impacts of the proposed modification elements. The proposed increase in the workforce will result in a minor increase in traffic flows on Castlereagh Highway, however, a positive impact due to additional job creation and associated economic flow-on effects was identified in the SIA. The SIA did not consider the air quality impacts given they were considered negligible.

In response to noise level exceedances in the vicinity of the overland conveyor system in Lidsdale and in general the SCSS operations, Springvale Coal has extensively investigated and will be

implementing a number of noise engineering controls to mobile and fixed plant at the SCSS and operational controls and strategies to the management of operations. These controls will allow noise emissions to the environment to be reduced, and the Project to be able to achieve compliance with the consent noise criteria.

A priority sequencing of the implementation of the noise controls has been developed to permit the SCSS operations to meet the noise criteria in the shortest possible timeframe within the staged two-year noise mitigation works program. It is recognised that the noise non-compliances could continue up to two years, however, once the proposed mitigation and operational controls have been implemented the background noise levels in the community will be the lowest that they ever been since the construction of the overland conveyor and the commencement of the SCSS operations. With Springvale Coal's commitment to maintain mobile and fixed plant the lower background noise environment will be sustained in the long term and will provide a positive benefit to the community.

8.0 STATEMENT OF COMMITMENTS

Table 31 provides a compilation of the mitigation controls to be implemented in the Project in order to effectively monitor, mitigate and manage the potential environmental impacts of the modification. Springvale Coal will continue to undertake the Project in accordance with the SSD 5579 consent conditions (as modified) and implement controls already at place including those noted in the Statement of Commitments in the WCS EIS (RPS, 2013a) and WCS MOD1 SEE (Centennial Coal 2016).

Table 31 – Statement of Commitments

Desired Outcome	Action
1. General	
Undertake all operations in a manner that will minimise the environmental impacts associated with the operation of The Western Coal Services Project	Operations will be undertaken in accordance with operations approved in the Western Coal Services Project (SSD 5579) as modified, and the Mining Operations Plan.
2. Hours of Operation	
Comply with the operating hours approved in SSD 5579 for the Springvale Coal Services Site, Kerosene Vale Stockpile Area and the Overland Conveyor System	**Springvale Coal Services Site** 24 hours per day, 7 days per week **Kerosene Vale Stockpile Area** Day period only (7 am – 6 pm) **Overland Conveyor System** 24 hours per day, 7 days per week
Undertake operations of the private haul roads in accordance with the proposed hours during Angus Place Colliery's development phase under current project approval (PA 06_0221)	**Mount Piper and Wallerawang Haul Roads** Operate only during the day period.
3. Noise	
Implement all feasible and reasonable noise mitigation controls to all acoustically significant noise sources (fixed and mobile plant) at the Springvale Coal Services Site, staged over a two-year period, to allow the Project to achieve compliance.	The following noise mitigation controls will be implemented, staged over a two-year period each stage and to be completed by indicative dates noted: • Restrict dozer operations to day time periods only (*Immediately*) • Install low noise idlers along the CW01 and CW02 sections of the internal onsite Conveyor System (**Figure 16**) (*June 2018*). • Install low noise idlers along the OL2 and OL3 sections of the Overland Conveyor System traversing through SCSS (**Figure 16**), as required in conjunction with other noise attenuation measures to achieve compliance (*June 2018*). • Install noise barrier around the OL2/OL3 transfer point drive, as required in conjunction with other noise attenuation measures to achieve compliance (*June 2018*) • Clad the existing coal preparation plant with noise attenuating panels, as required in conjunction with other noise attenuation measures to achieve compliance (*June 2019*) • Upgrade modelled mobile plant used on site to meet, as a minimum, the sound power level used in the WCS Noise Model (Loader 109 dB (A-weighted) / 11 3 dB (linear); Dozer 108 dB (A-weighted) / 117 dB (linear)), or as required in conjunction with other noise attenuation measures to achieve compliance (*December 2019*).

Desired Outcome	Action
Implement operational controls and management strategies to reduce noise emissions to the environment as far as practicable.	• Haul trucks will only be operated during the day period throughout Angus Place Colliery's development stage when the mine recommences operations under current project approval, and will be constrained to a maximum of 12 trucks operating at any one time. • Haul trucks on the Mount Piper and Wallerawang Haul Roads will be installed with facilities to monitor and track truck speeds. • The Project will continue to investigate surface and underground coal transport options for when Angus Place Colliery commences longwall extraction for optimal operations and concurrent reduction in noise emissions to the environment as far as practicable. If a need for road haulage in the evening and night periods is ascertained for the extraction phase then mitigation and management measures to be implemented will be identified and provided to the Secretary of the Department of Planning and Environment for their agreement prior to any evening and night time haulage commencing. • Low noise idlers will continue to be implemented on the identified reasonable and feasible OL1 and OL2 sections of the overland conveyor system in Lidsdale (refer **Figure 17)**. The works will be completed by December 2017. • Regular and systematic maintenance of the entire overland conveyor system will continue to be undertaken to identify and replace or repair noisy idlers as necessary. • Regular sound power screening testing will be continued to will assist in managing equipment sound power levels, and identify plant items requiring maintenance. • Noise monitoring will be continued in accordance with the WCS consent conditions SSD 5579 and the approved WCS Noise Management Plan. • Real time continuous noise monitoring will be continued at the installed noise compass to provide real time feedback to the SCSS operations for noise management, specifically to manage compliance during the evening period mobile plant use. Mobile plant will not be used on the site during the evening period, when meteorological conditions indicate the likelihood of non-compliance with noise criteria (e.g. during adverse meteorological conditions). • Monitoring of real time meteorological conditions and forecasts will be continued to assist in noise management at the SCSS.
Progressively verify noise model predictions after each stage of noise control implementation at the Springvale Coal Services Site	The following steps will be followed to verify noise predictions following the implementation of each type of engineered noise control on fixed and mobile plant: • The sound power levels of mitigated fixed or mobile plant at the SCSS will be measured. • The WCS Noise Model will be validated with the ongoing attended noise monitoring data and the new sound power levels of plant. • The WCS Noise Model will be re-run to evaluate the effectiveness of the implemented noise control. • Using the revised noise predictions an evaluation of whether further implementation of noise controls is required will be undertaken.

Desired Outcome	Action
Ensure the establishment of the new Coal Preparation Plant at the Springvale Coal Services will meet the noise criteria in SSD 5579	The approved 5 Mtpa Coal Preparation Plant, should it be constructed in the future, will be designed and constructed to meet the mitigated sound power levels included in the noise modelling in Global Acoustics (2017).
4. Traffic and Transport	
Further enhance the safety of the Access Road and Castlereagh Highway intersection at the Springvale Coal Services Site	• The Springvale Coal Services Site approach priority stop-line will be re-marked in accordance with the appropriate RMS guidelines. • Regular cleaning of the intersection will be undertaken to remove loose materials (sand and gravel) from the intersection, particularly after periods of heavy rain.
5. Consultation	
Provide the community with updates on the Project on a regular basis, including progress on the noise mitigation works.	Springvale Coal will continue to engage with the local community and provide Project updates through: • regular meetings • Centennial Coal website • news bulletins and newspaper articles.

9.0 JUSTIFICATION AND CONCLUSION

9.1 Introduction

This chapter provides a justification for the proposed modification having regard to environmental and social considerations. It summarises the potential environmental impacts, and considers the proposed modification against the principles of Ecologically Sustainable Development.

9.2 Substantially the Same Development

The proposed modification constitutes a minor change to an existing approved Project that has been operating successfully since the grant of consent SSD 5579 in 2014. Prior to this date, the majority of the components of the Project were constructed and / or operated under Springvale Mine's consent DA 11/92 or Angus Place Colliery's current project approval PA 06_0021.

The modification will not result in any change in the majority of the core elements approved in SSD 5579, as discussed below. The environmental impacts have been assessed and considered to be minimal and, as such, the proposed modification is characterized as a modification to the existing consent under Section 96(2) of the EP&A Act.

The air quality results presented for an increase of the amount of ROM coal that can be received by the SCSS from Springvale Mine by 1 Mtpa and for the establishment of an 80,000 tonne product stockpile in the vicinity of the coal preparation plant are conservative. SLR (2017) has concluded the results are conservative, and that there are no constraints in relation to air quality impacts at the assessed sensitive receptors due to the changes proposed in Modification 2.

The proposed increase in the workforce will result in a minor increase in traffic flows on Castlereagh Highway, however, this will not have a significant impact upon the capacity, efficiency and safety of the local, sub-regional and regional road network. Road noise from this minor increase in traffic flows is considered negligible. Moreover, a positive impact due to additional job creation and associated economic flow-on effects has been identified.

In response to noise level exceedances in the vicinity of the overland conveyor system in Lidsdale and in general the SCSS operations, Springvale Coal has extensively investigated and will be implementing a number of noise engineering controls to mobile and fixed plant at the SCSS and operational controls and strategies to the management of all operations. These controls will allow noise emissions to the environment to be reduced, and the Project to be able to achieve compliance with the consent noise criteria. A priority sequencing of the implementation of the noise controls has been developed to permit the SCSS operations to meet the noise criteria in the shortest possible timeframe within the staged two-year noise mitigation works program. It is recognised that the noise non-compliances could continue up to two years, however, once the proposed mitigation and operational controls have been implemented the background noise levels in the community will be the lowest that they ever been since the construction of the overland conveyor and the commencement of the SCSS operations. With Springvale Coal's commitment to maintain on an ongoing basis mobile and fixed plant the lower background noise environment will be sustained in the long term and will provide a positive benefit to the community.

For reasons discussed above, the Project (as modified) will remain substantially the same development as the development for which consent SSD 5579 was originally granted.

9.3 Benefits from the Proposed Modification

The small increase in workforce by seven FTE personnel will result in a positive impact due to additional job creation and associated economic flow-on effects. The increase in workforce affords the Project operational flexibility, which in turn indirectly provides benefits to three other operations, namely Springvale Mine, MPPS and Lidsdale Siding Upgrade Project.

The implementation of the identified noise engineering controls to mobile and fixed plant at the SCSS and operational controls and strategies to the management of all operations will allow an improvement in the high noise environment that has existed in the region since the commencement of mining and power generation operations and prior to the establishment of new residential areas. The proposed modification will result in a lower noise environment and the amenity in the region will be better than it has been in the last 20 years.

9.4 Alternative to Proposed Modification: Do Nothing Option

In the 'Do Nothing' option the Project will not increase its workforce. The minor impact on traffic flows on Castlereagh Highway and the small positive economic benefits will not eventuate.

If the proposed revision in the application of the noise criteria to the SCSS operations is not approved the Project is likely to remain non-compliant with the consent noise criteria. Springvale Coal has investigated all reasonable and feasible engineering noise controls to mitigate all acoustically significant noise sources in the SCSS operations. In conjunction with the proposal to further implement operational controls on a number of other Project components Springvale Coal has displayed a strong commitment in resolving the recurring non-compliance issues in the Project, and concomitantly improving the noise environment in the region than that has existed for the last 20 years.

9.5 Ecologically Sustainable Development

The principles of ecologically sustainable development (ESD) are outlined in Section 6(2) of the NSW *Protection of the Environment Administration Act 1991* and Clause 7(4) Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*. Section 5(a)(vii) of the EP&A Act adopts ESD as one of its objects.

Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

(a) *The precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*

  (i) *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*

  (ii) *an assessment of the risk-weighted consequences of various options,*

(b) *inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

(c) *conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

(d) *improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:*

  (i) *polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*

  (ii) *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*

  (iii) *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those*

best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Springvale Coal is committed to the principles of ESD and understands that environmental, social and economic objectives are interdependent. The company acknowledges that an effectively managed operation will avoid significant environmental impacts and costs through non-compliance of consent conditions.

The consistency of the modification with each of the ESD principles noted above is discussed in sub-sections below.

9.5.1 The Precautionary Principle

The precautionary principle reinforces the need to take risk and uncertainty into account, particularly in relation to threats of irreversible environmental damage. In the application of the precautionary principle for the modification, decisions on noise mitigation controls to be implemented were guided by careful evaluation of the overall improvement in the amenity of the region. In this regard noise modelling with a wide range of engineering controls and operational controls was undertaken in a systematic and iterative manner to achieve the best outcomes for the noise environment in the region. This process has enabled noise levels from the SCSS operations to be predicted with a reasonable degree of certainty. All predictions, however, contain a degree of uncertainty, which reflects the variable nature of the noise environment. Where there has been any uncertainty in the prediction of impacts throughout the assessment process, a conservative approach was adopted to ensure the worst case scenario was predicted in the assessment of noise impacts. Additional noise modelling has been proposed following the implementation of each identified noise control to ensure that the predicted noise level reductions are being progressively achieved and that within two years the SCSS operations will achieve compliance.

The continuation of non-compliance with the noise criteria for a further two years is unavoidable however it is not expected serious or irreversible harm will arise. Compliance with the applicable regulatory noise criteria within that two year timeframe will be achieved and in the long term the noise environment will be better than it has been for more than 20 years. In the case of social impact, where no regulatory criteria exist, the proposed modification will result in a positive social benefit.

9.5.2 Intergenerational Equity

The principle of intergenerational equity is centred on the concept that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The potential impact of the proposed modification elements is not considered significant, and as a consequence has negligible potential to adversely affect the health, diversity or productivity of the environment.

Minor impacts are predicted for traffic flows on Castlereagh Highway, however does not impact upon the capacity, efficiency and safety of the local, sub-regional and regional road network. Road noise from this minor increase in traffic flows is considered negligible. Air quality impacts are considered negligible. An improved noise environment will result within a two year period when all identified noise mitigation measures are implemented. For these reasons the modification will not adversely impact the current or future generations.

9.5.3 Conservation of Biological Diversity and Ecological Integrity

The principle of conservation of biological diversity and ecological integrity holds that it should be a fundamental consideration for development proposals.

The proposed modification elements will not impact on biological diversity or ecological integrity. The Project, during the preparation of the EIS sought to avoid, minimise and mitigate potential impacts on ecological values within the Project Application Area boundary through the use of existing disturbance footprint in the first instance for the siting of new infrastructure. Vegetation clearing, including the

clearing of endangered ecological communities, was thus minimised and resulted in the Project requiring a biodiversity offset strategy for only 10.67 ha of native vegetation clearing. In addition, the Project is required to implement additional rehabilitation initiatives for the Lamberts Gully Creek catchment within the SCSS by the establishment and enhancement of locally endemic native vegetation species and improvement of fauna habitat values. This initiative will result in an enhanced ecological value within the SCSS.

On the above bases, the Project is consistent with the principle of conservation of biological diversity and ecological integrity.

9.5.4 Improved Valuation, Pricing and Incentive Mechanisms

The principle of improved valuation, pricing and incentive mechanisms deems that environmental factors should be included in the valuation of assets and services, and that those who generate the pollution and waste should bear the cost of containment, avoidance or abatement. The cost associated with using or impacting upon an environmental resource, together with remediation costs is seen as a cost incurred to protect that resource.

An Economic Impact Assessment (EIA) was prepared for the Project's EIS, which estimated the monetary value of the benefits and costs associated with the Project. In the absence of clear and widely accepted standards of methods for economic assessments at the time, the EIA provided costs of all assessed environmental impacts of the Project, including traffic, air quality and noise, that were estimated using valuation methods derived from research studies accessed through relevant government bodies. In this regard, the Project's costs and benefits were estimated and the net benefit or the economic value of the Project was provided in a transparent manner during the assessment and determination stages of the Project's State significant development application.

Through the assessment of the economic value of the Project, Springvale Coal has already addressed the requirement for improved valuation and pricing of environmental resources. Additionally, the continued operation at Springvale Mine is contingent on the Western Coal Services Project (and the approved Springvale Water Treatment Project (SSD 7592)). The continued operation of the Springvale Mine will ensure the natural resources are valued both during mining and after mining has been completed.

9.6 Conclusion

Technical assessments (noise, traffic, air quality) have been prepared to assess the potential environmental impacts associated with the proposed modification elements. A Social Impact Assessment has been prepared to understand the impacts of the modification elements on the community and the amenity of the region.

The proposed increase in the workforce will result in a minor increase in traffic flows on Castlereagh Highway, however, a positive impact due to additional job creation and associated economic flow-on effects have been identified. The air quality impacts due to the establishment of the 80,000 tonne product coal stockpile and an increase in ROM coal transport by 1 Mtpa on the overland conveyor have been identified as negligible.

In response to noise level exceedances in the vicinity of the overland conveyor system in Lidsdale and in general the SCSS operations, Springvale Coal has extensively investigated and will be implementing a number of noise engineering controls to mobile and fixed plant at the SCSS and operational controls and strategies to the management of operations. These controls will allow noise emissions to the environment to be reduced, and the Project to be able to achieve compliance with the consent noise criteria. Noise predictions with all proposed noise engineering and operational controls in place at the SCSS are not more than 1 to 2 dB above the WCS consent criteria at all assessed sensitive receptors. No exceedances at any receptor are predicted for the day, evening and night periods in the low frequency noise assessments. No cumulative impact with the nearby Mount Piper

Power Station operations is predicted for the SCSS mitigated operations for the day, evening and night periods.

A priority sequencing of the implementation of the noise controls has been developed to permit the SCSS operations to meet the noise criteria in the shortest possible timeframe within the staged two-year noise mitigation works program. It is recognised that the noise non-compliances could continue up to two years, however, once the proposed mitigation and operational controls have been implemented the background noise levels in the community will be the lowest that they ever been since the construction of the overland conveyor and the commencement of the SCSS operations. With Springvale Coal's commitment to maintain mobile and fixed plant the lower background noise environment will be sustained in the long term and will provide a positive benefit to the community.

The environmental impacts have been assessed as ranging from minor to negligible and the environmental consequences are considered negligible. The social impact assessment has concluded the positive impacts will outweigh any negative impacts.

The modification meets the relevant objects of the EP&A Act and is consistent with the four principles of the ecologically sustainable development. It meets the relevant government policies. On these bases, the modification will meet the environmental performance requirements to be considered for approval.

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11.0 ACRONYMS, UNITS AND ABBREVIATIONS

Acronyms, Units and Abbreviations	Definition
%	Percent
%ile	Percentile
^{o}C	Degrees Celsius
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment Conservation Council
ARC Traffic + Transport	Anton Reisch Consulting Pty Ltd
ARI	Annual recurrence interval
AWS	Automatic weather station
BC Act	Biodiversity Conservation Act 2016
BOM	Bureau of Meteorology
CCC	Community Consultative Committee
CCL	Consolidated Coal Lease
Centennial Coal	Centennial Coal Company Limited
CPP	Coal Preparation Plant
CL	Coal Lease
cm	centimetre
DDG	Dust deposition gauge
DGV	Default guideline value
dING	Draft Industrial Noise Guideline
DoEE	Federal Department of the Environment and Energy (formerly DoE, Department of the Environment)
DPE	NSW Department of Planning and Environment
DPI	Department of Primary Industries
DPI Water	Department of Primary Industries – Water
DRG	Division of Resources and Geosciences (within DTIRIS)
DTIRIS	Department of Trade & Investment, Regional Infrastructure and Services (NSW)
EC	Electrical conductivity
EF	Emission factor
EIS	Environmental Impact Statement
EL	Exploration Licence
EMS	Environmental Management System
EMP	Environmental Management Plan
EnergyAustralia	EnergyAustralia NSW Pty Ltd

Acronyms, Units and Abbreviations	Definition
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EP&A Regulation	NSW *Environmental Planning and Assessment Regulation 2000*
EPBC Act	Federal *Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FCNSW	Forestry Corporation of NSW
FEL	Front end loader
g	gram
GDE	Groundwater Dependent Ecosystem
GIS	Geographic Information System
GHD	GHD Pty Ltd
GMR WSP	Greater Metropolitan Region Groundwater Sources Water Sharing Plan
GMRU WSP	Greater Metropolitan Region Unregulated River Water Sources Water Sharing Plan
GPS	Geographic Positioning System
ha	hectare
hr	hour
INP	Industrial Noise Policy
kg	kilogram
kL	kilolitre
km	kilometre
km^2	square kilometre
LCC	Lithgow City Council
LDP	Licensed discharge point
LEP	Local Environmental Plan
LFN	Low frequency noise
LGA	Local Government Area
LOR	Limit of Reporting
m	metre
M	million
m/s	Metre per second
m^2	Square metre
m^3	Cubic metre
min	minute
mg/L	Milligram per litre

Acronyms, Units and Abbreviations	Definition
ML	Megalitre or Mining Lease
MLA	Mining Lease Application
MNES	Matter of National Environmental Significance
mm	millimetre
Modification	Proposed modification to Western Coal Services Project and SSD 5579
MOP	Mining Operations Plan
Mt	Million tonne
MPPS	Mount Piper Power Station
Mtpa	Million tonnes per annum
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
NES	National Environmental Significance
NP&W Act	*National Parks and Wildlife Act 1974*
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NTU	Nephelometric turbidity units
OEH	NSW Office of Environment and Heritage
PEA	Preliminary Environmental Assessment
POEO Act	*Protection of the Environment Operations Act 1997*
Project	Western Coal Services Project (SSD 5579)
PRP	Pollution Reduction Programme
REA	Reject emplacement area
RMS	NSW Roads and Maritime Services (former RTA)
ROM	Run of Mine
RPS	RPS Australasia East Pty Ltd
SAL	Strategic Agricultural Land
SCSS	Springvale Coal Services Site
SDWTS	Springvale Delta Water Transfer Scheme
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SILO	Scientific Information for Land Owners
SLR	SLR Consulting Australia Pty Ltd.
SMP	Subsidence Management Plan
SoC	Statement of Commitments
Springvale Coal	Springvale Coal Pty Limited

Acronyms, Units and Abbreviations	Definition
Springvale WTP	Springvale Water Treatment Project (SSD 7592)
SSD	State significant development
SSGV	Site-specific guideline value
TARP	Trigger Action Response Plan
TDS	Total Dissolved Solids
t	Tonne
t/year	Tonne per year
TSC Act	*Threatened Species Conservation Act 1995* (now repealed)
TSS	Total dissolved solids
WAL	Water access licence
WM Act	*Water Management Act 2000*
WRIA	Water Resources Impact Assessment
µg	Microgram
µm	Micrometre or micron
µS/cm	Microsiemens per centimetre
WAL	Water access licence
WCS	Western Coal Services
WPS	Wallerawang Power Station
WRF	Weather Research and Forecast Model
WRIA	Water Resources Impact Assessment
WSP	Water Sharing Plan