



# Traffic Impact Assessment

**Western Coal Services Project**

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## EXECUTIVE SUMMARY

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Centennial Coal proposes to construct new infrastructure to support its ongoing operations in the Western Coalfield of NSW. Specifically, the Western Coal Services Project - Blackmans Flat involves:

- Upgrading the existing washery, workshops and infrastructure within the Springvale Coal Services site by constructing a new washery adjacent to the existing facility that will remain operational to provide a total processing capacity of up to 7 Mtpa.
- Construction of processing infrastructure such as additional conveyors and transfer points and other coal handling requirements to cater for the upgraded washery facility within the existing disturbance footprint of the Springvale Coal Services site.
- Extending and enlarging an existing reject emplacement area to enable sufficient reject disposal capacity for a 25 year life.
- Increasing the utilisation of the return side of the existing overland conveyor system to enable up to 6.3 Mtpa of coal to be delivered to Lidsdale Siding.
- Constructing a private haul road, approximately 1.3 km in length, linking the Springvale Coal Services site with the existing private haul road from Angus Place Colliery to Mt Piper Power Station. This private road will cross a section of the existing Pine Dale Mine operation and over the Castlereagh Highway.
- Improving the current water management systems on the Springvale Coal Services site by separating clean and dirty water streams prior to either reuse or discharge off site
- Integrating the existing approved transport and processing of coal at Springvale Coal Mine and Angus Place Colliery into the one consent.
- Integrating the remaining rehabilitation, monitoring, water management and reporting requirements associated with the Lamberts Gully Mine which occupies the Springvale Coal Services Site.
- Continued use of all existing approved infrastructure, facilities and activities associated with the transport and processing of coal from each mine gate and the point of delivery to the Springvale Coal Services site. This infrastructure includes the existing conveyors, private haul roads, Kerosene Vale Stockpile area, reject emplacement areas, services, access roads, car parks and buildings.

The Project will enable a total of 7 Mtpa of coal to be processed on site, yielding up to 6 Mtpa of product coal available for export. The delivery capacity of the overland conveyor system to Lidsdale Siding is 6.3 Mtpa which can be used for both processed and unprocessed coal.

It has been assessed that for the infrastructure upgrade and project(s) consolidation, the major impact on the existing traffic environment would be during the construction phase only as no additional haul truck movements on public roads are proposed. In addition, current transport of up to 50,000 tpa of coal to domestic customers using the public road network will cease.

It is therefore recommended that:

- 1) Centennial to construct a haul road overpass in accordance with AUSTROADS guidelines;
- 2) All construction sites to prepare and implement a construction traffic management plan;
- 3) Upgrade Springvale Coal Services intersection line-marking to RMS standards.

## 1.0 INTRODUCTION

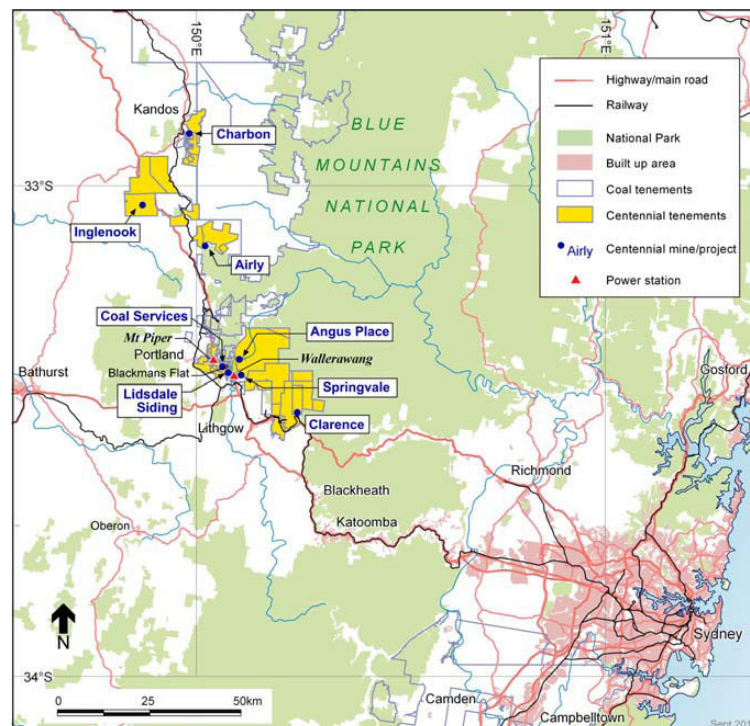
### 1.1 Project Overview

Centennial has developed a long term strategy for its future operations in the Western Coalfield. This strategy is in response to future marketing opportunities for both domestic and export coal sales. The strategy centres on the transport and processing of coal from both Springvale Coal Mine and Angus Place Colliery but also facilitates receipt of coal supplies from other areas.

In line with the Centennial strategy the Project will involve building a new additional washery adjacent to the existing washery within the Springvale Coal Services site, linking the facility to the Angus Place Colliery via a new haul road link and separating the transport and logistics function of the facility away from the source mines.

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

A locality plan of the area is shown in Figure 1.



**Figure 1 - Locality Plan**



In order to provide flexibility to meet future markets, both export and domestic from both key mines as well as future projects, Centennial is seeking approval to upgrade its existing facilities.

## 1.2 Project Objectives

A key part of the Project is the integration of the transport and processing infrastructure into a single development consent rather than portions of coal logistics contained within Springvale Coal Mine, Angus Place Colliery and Lamberts Gully Open Cut. This Project therefore covers the infrastructure upgrades from each “mine gate” to Mount Piper, Wallerawang Power Stations or to Lidsdale Siding for export as well as the continued use of all existing approved infrastructure and facilities.

Key objectives of the Project are to:

- Provide infrastructure to enable flexibility of supply to both domestic and export markets from nominated mines within the Western Coalfield.
- Upgrade of the existing Washery at the Springvale Coal Services Site.
- Integrate into one approval the access, processing and distribution of Coal from Springvale Mine, Angus Place Colliery, Lamberts Gully Open Cut and the Springvale Coal Services Site.

The Project will enable Centennial to supply either Mount Piper or Wallerawang Power Stations or the export market via Lidsdale Siding with variable quantity and quality coal in order to meet future market expectations.

## 1.3 Director Generals Requirements

This assessment identifies the potential impacts to road traffic and transport associated with the project. The scope of the Traffic and Transportation Impact Assessment was designed to address the Director-Generals Requirements (DGR's) and other government agencies requirements for the proposal with regard to traffic and transport. A synopsis of the requirements is given in Table 1 together with a record of where each requirement is addressed in this document.

**Table 1 – Director Generals Requirements Pertaining to Traffic and Transport**

Government Agency	Traffic and Transportation- DGR's	Relevant Section(s)
Department of Planning and Infrastructure (6 <sup>th</sup> November 2012)	a detailed economic justification of transporting coal on public roads, including assessment of the costs and benefits of alternative transport methods;	By others
	a consideration of alternative locations for haul	5.3.2



	road access to the site including alternative locations for the proposed haul road bridge crossing the Castlereagh Highway, and the impacts of each alternative for traffic on the Highway and noise and dust impacts for residents of Blackmans Flat;	
	an assessment of potential traffic impacts on the capacity, efficiency and safety of the road network;	5.2
	a description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road network in the surrounding area over the life of the development.	7.0



## **2.2 Centennial Western Operation**

Centennial's western operations that are associated with the Project (as shown in Figure 2) are:

- The Springvale Coal Services Site including all existing and proposed infrastructure on Consolidated Coal Lease 733 and Mining Lease 1448;
- A new haul road link between the Springvale Coal Services Site to the existing private haul road between Angus Place Colliery and Mount Piper Power Station. This link road crosses the existing Pine Dale Lease ML 1569;
- The existing Private Haul Road between Angus Place Colliery and Mount Piper and Wallerawang Power Stations;
- The existing overland conveyor from Springvale Mine to Mount Piper Power Station, associated link conveyor to Wallerawang Power Station and the extension to Lidsdale Siding
- The application includes integrating the existing transport and processing of coal from Springvale Mine and Angus Place Colliery and rehabilitation activities at Lamberts Gully Open Cut.

Key components of these operations are briefly described below.

### **2.2.1 Springvale Coal Services Site**

This site controls the overland conveyor system and is the main subject of this Project. The site receives coal from the Springvale Coal Mine by overland conveyor where it can be stored and processed (washed). Coal can then be sent directly to Mount Piper Power Station or washed coal can be sent to Lidsdale Siding for export.

Historically, the Springvale Coal Services Site has been used for the following activities:

- Underground extraction from Western Main and Eastern Main Collieries;
- Open cut coal extraction;
- Coal preparation and handling;
- Reject disposal;
- Coal stockpiling;
- Export coal handling; and
- Control of coal feed from the Springvale Mine to the Mount Piper Power Station and Lidsdale Siding.

Mining operations commenced with an open cut in 1940. Underground extraction commenced in 1942 and mined the Lithgow seam until the 1990's. Between 1980 and 1994, three separate open cuts were developed which extracted the remaining coal south of the Castlereagh Highway from Mount Piper Power Station to the Springvale Coal Services Site entrance.

The Centennial Coal Services operation employs 18 full time employees over 3 shifts. There is also currently up to 50,000 tpa dispatched from the site via the Castlereagh

Highway. Vehicle access to the site is via a local access road off the Castlereagh Highway.

### **2.2.2 Springvale Coal Mine**

Springvale Coal Mine is an underground longwall operation currently producing up to 3.4 Million tonnes per annum (Mtpa) of thermal coal from the Lithgow Seam. Springvale supplies coal to Mount Piper and Wallerawang Power Stations via overland conveyor. Export coal is also delivered by conveyor to Lidsdale Siding from the Springvale Coal Services Site.

The mine commenced in 1995 and employs approximately 270 personnel. Approval is currently being sought to increase production up to 4.5 Mtpa.

Vehicle access to the site is via a local access road off the Castlereagh Highway.

### **2.2.3 Angus Place Colliery**

Angus Place Colliery is an underground longwall operation producing up to 4 Mtpa of thermal coal from the Lithgow Seam. The Angus Place surface facilities are joined to Wallerawang and Mount Piper Power Station by private haul roads, as shown in figure 2. At present, all production is sold to the local power stations.

The operation has current approval for 225 permanent staff and 75 temporary contractors engaged in underground development and coal transport. The operation includes a satellite coal storage area at the old Kerosene Vale mine site which is located along the private haul road to Wallerawang Power Station.

Vehicle access to the site is via Wolgan Road off the Castlereagh Highway.

### **2.2.4 Lidsdale Siding**

The Lidsdale Siding was originally constructed in the 1950's. It receives coal from the overland conveyor from the Springvale Coal Services Site as well as by truck. As shown on Figure 2, the Lidsdale Siding is located approximately 500m from the township of Wallerawang and is joined to the Main Western Rail Line via a separate spur line.

Vehicle access to the site is via Main Street off the Castlereagh Highway.

Centennial are currently proposing to upgrade this site which will involve receiving up to 6.3 Mtpa via the existing overland conveyor. A key part of this project is the elimination of any further transport of coal by truck using the public road system.

## **3.0 CURRENT APPROVED OPERATIONS**

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The current approved operations that are associated with this Project are:

- Springvale Mine which extracts the Lithgow Seam by longwall methods but includes the transporting of coal by overland conveyor to both Mount Piper and Wallerawang Power Stations as well as coal processing and reject disposal at a satellite site referred to as Springvale Coal Services.
- Angus Place Colliery which also extracts coal from the Lithgow Seam by longwall methods and includes the transport of coal to Wallerawang and Mount Piper Power Stations by private haul roads and the storage of coal at the satellite site referred to as Kerosene Vale.
- Lamberts Gully Open Cut which is located at the Springvale Coal Services Site which has now ceased coal production and being rehabilitated.

These operations are further described in the following sections.

### **3.1 Springvale Mine**

Springvale Mine received development approval in 1992 which provided for the construction of an underground longwall operation and associated surface infrastructure. Springvale Mine currently has approval to produce up to 3.4 Mtpa but is seeking approval to produce up to 4.5 Mtpa.

This Project does not involve any changes to the underground mining operation, coal production rates or mine related infrastructure.

### **3.2 Angus Place Colliery**

Operating under a recent consent modification, Angus Place Colliery has approval to extract coal by longwall methods at a rate of up to 4.0 Mtpa. The approval allows for up to 4 Mtpa to be transported by private haul road to either Mount Piper or Wallerawang Power Stations. This Project does not involve any changes to the underground mining operation or support infrastructure. This Project does however involve the operation of the private haul roads commencing at the truck loading bin at the Angus Place Colliery pit top. The current approved operation of the private haul roads is described below.

#### **3.2.1 Private Haul Roads**

Private haul roads link Angus Place Colliery with Wallerawang and Mount Piper Power Station. All coal produced at Angus Place Colliery is loaded into trucks, from the final product bin after stockpiling and sizing and transported directly to either Wallerawang or Mount Piper Power Stations.

The private hauls roads are shown on **Figure 2** and the transport activities are governed by planning consents held by Angus Place Colliery while Coal Link Pty Limited who own

the private haul road to Mount Piper Power Station hold the consent for its original construction.

### **3.3 Lambert's Gully Open Cut Operations**

Open cut activities ceased in 2010 after 70 years in total of open cut extraction. The most recent open cut was referred to as Lamberts Gully and there are still some relevant activities which will need to be included in the future consolidated consent for Springvale Coal Services Site.

The Lamberts Gully Open Cut although now closed still holds a separate Project Approval with conditions relevant to the ongoing operation and rehabilitation of the site.

Specifically, Springvale holds planning approval to emplace coal Washery reject into the currently proposed emplacement area while Lamberts Gully Open Cut provided planning approval to mine the coal beneath the approved REA and prepare the area to receive reject produced from the Springvale Washery.

Other relevant open cut operations include those associated with ML 1569 which will be crossed by the proposed haul road link. Now incorporated into the Pine Dale Mine operation, these open cuts extracted coal around the original Wallerawang underground mine surface facilities area.

## **4.0 EXISTING TRAFFIC ENVIRONMENT**

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### **4.1 Existing traffic volumes on public and private roads**

#### **4.1.1 Castlereagh Highway traffic**

The Annual Average Daily Traffic (AADT) on the Castlereagh Highway south of the Boulder Road intersection is 4,300 vpd\* (vehicles per day), including 17% heavy vehicles. The average hourly rate is therefore 430 vph (vehicles per hour).

*\* Source: Mr Neil Peden, RSTM Western Region.*

#### **4.1.2 Springvale Coal Services Site traffic**

The Springvale Coal Services Site currently employs 15 employees over 3 shifts. This corresponds to 36vpd (light vehicles, both directions). If we assume that 5 employees per shift arrive and leave within 10mins of each other in separate vehicles, the hourly rate is 10 vph (combined entry and exit) during peak times.

There is also 50,000 tpa dispatched from the site via the Castlereagh Highway. Assuming 30T per vehicle over 260 days, the annual average daily traffic 14 vpd (both directions). Vehicle access to the site is via a local access road off the Castlereagh Highway. The hourly rate is 2 vph (combined entry and exit) during peak times.

#### **4.1.3 Springvale Coal Mine traffic**

The Springvale Coal Mine site currently employs approximately 280 employees and up to 70 contractors over 3 shifts. This corresponds to 700vpd (light vehicles, both directions). If we assume that all shift employees per shift arrive within 20mins of each other in separate vehicles, the hourly rate is 116 vph during peak times in each direction. Vehicle access to the site is via a local access road off the Castlereagh Highway.

Approval is currently being considered to increase production up to 4.5 Mtpa. No coal is dispatched from the site via the public road network from the main mine site surface facilities.

#### **4.1.4 Angus Place Colliery**

The Angus Place Colliery currently employs 225 permanent staff and 75 temporary contractors over 3 shifts. This corresponds to 600 vpd (light vehicles, both directions). If we assume that all shift employees per shift arrive within 20mins of each other in separate vehicles, the hourly rate is 150 vph during peak times in each direction. Vehicle access to the site is via Wolgan Road off the Castlereagh Highway.

No coal is dispatched from the site via the public road network.



#### 4.1.5 Lidsdale Siding

The Lidsdale Siding currently employs 20 permanent staff and contractors. This corresponds to 40 vpd (light vehicles, both directions). If we assume that all employees arrive within 20mins of each other in separate vehicles, the hourly rate is 20 vph during peak times. Vehicle access to the site is via Main Street, Wallerawang.

Exact traffic volumes for Main Street, Wallerawang are not known. For the purposes of analysis, it has been assumed there are 2,000vpd, or 200vph (combined for both directions) at the Lidsdale Siding entrance.

#### 4.1.6 Summary of current traffic volumes

A summary of the existing traffic volumes is shown in **Table 2**.

**Table 2 – Summary of existing project traffic volumes on public roads**

Location	Vehicles per day <sup>1</sup>	Vehicles per hour <sup>1</sup>
Castlereagh Highway <sup>2</sup>	4,300	430
Springvale Coal Services	50 <sup>3</sup>	12 <sup>3</sup>
Springvale Coal Mine	700	233
Angus Place Colliery	600	300
Lidsdale Siding	40	20

1) All vehicle rates shown are for combined entry/exit movements;

2) Castlereagh Highway at Springvale Coal Services Site;

3) Includes light vehicles and coal dispatch trucks.

## 4.2 Current Intersection design and pavement

### 4.2.1 Springvale Coal Services Site intersection

Access to the Springvale Coal Services Site is via a 90° T-Junction intersection with the Castlereagh Highway. The speed environment at the intersection is 100km/hr.

For vehicles entering the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for an Auxiliary Left turn (AUL) manoeuvre. For vehicles entering the site via a right turn, there is an outside slip lane for passing vehicles. The length and dimension of the slip lane generally comply with AUSTROADS Guidelines for an Auxiliary Right turn (AUR) manoeuvre; however the current line-marking does not.

For vehicles exiting the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic left turn treatment (BAL) manoeuvre. For vehicles exiting the site via a right turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic right turn treatment (BAR) manoeuvre.

There is also an entrance to the Pine Dale Coal mine approximately 50m east of the intersection, on the northern side of the Castlereagh Highway. The stagger distance between the two intersections does not comply with AUSTROADS Guidelines.

The road pavement at the intersection is a two coat seal and is in reasonable condition, however is showing signs of deterioration. The access road to the Springvale Coal Services Site is gravel. There is also culvert with guardrails adjacent to the southern approach to the intersection.

Sight distances from the access road intersection with the Castlereagh Highway are in excess of 300m in both directions.

Plates of the intersection are shown in Appendix A.

#### **4.2.2 Springvale Coal Mine intersection**

Access to the Springvale Coal Mine site is via a 90° T-Junction intersection with the Castlereagh Highway. The speed environment at the intersection is 100km/hr.

For vehicles entering the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a Channelised Left turn (CHL) manoeuvre. For vehicles entering the site via a right turn, there is an outside slip lane for passing vehicles. The length and dimension of the slip lane generally comply with AUSTROADS Guidelines for an Auxiliary Right turn (AUR) manoeuvre.

For vehicles exiting the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic left turn treatment (BAL) manoeuvre. For vehicles exiting the site via a right turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic right turn treatment (BAR) manoeuvre.

The road pavement at the intersection is asphaltic concrete (AC) and is in excellent condition. There are sealed road shoulders with concrete dish drains both sides. The access road to the Springvale Coal Services Site is a two coat sealed road.

Sight distances from the access road intersection with the Castlereagh Highway are in excess of 300m in both directions.

Plates of the intersection are shown in Appendix A.

#### **4.2.3 Angus Place Colliery Intersection**

Angus Place Colliery is located on Wolgan Road, Lidsdale. Access to Wolgan Road is via the Castlereagh Highway. The intersection also provided access to local residents of Lidsdale. The speed environment at the intersection is 80km/hr.

The intersection forms a staggered T arrangement with Main Street, Wallerawang. Combined, the intersection has a combination of acceleration/deceleration lanes, as well as channelised left and right turns.

The road pavement at the intersection is asphaltic concrete (AC) and is in excellent condition. There are sealed road shoulders with concrete dish drains, guard-railing and lighting.

Wolgan Road is a two coat sealed road which passes through Lidsdale. The colliery site is approximately 5.4km north of the intersection. Wolgan Road has varying lane widths (3.25m – 3.5m) and is reasonable condition. There is centreline marking through to the Colliery entrance. There are edge line markings through Lidsdale village but no edge lines after the Maddox Lane intersection. The speed limit is 50km/hr up until the Maddox Lane intersection. Beyond Maddox lane, the speed limit is 80km/hr.

Plates of the intersection of the Castlereagh Highway and Wolgan Road are shown in Appendix A.

#### **4.2.4 Lidsdale Siding Intersection**

Lidsdale Siding is located off Main Street, Wallerawang. The Main Street intersection forms a staggered T with the Castlereagh Highway and Wolgan Road. The Lidsdale Siding entrance is approximately 675m south of the Castlereagh Highway.

The entrance to the Lidsdale Siding is a 90° T, in a 50km/hr speed zone with street lighting. Main Street has a 10m sealed pavement width at the intersection and there is no specialised intersection treatment, however there is street lighting.

### **4.3 Public Transport**

#### **4.3.1 Castlereagh Highway**

There is a daily Countrylink bus service operates between Lithgow and Mudgee via the Castlereagh Highway, however there is no bus stop for this service within the project area.

Jones Brothers operates a school bus service which has a bus stop at Blackmans Flat, approximately 600m east of the Springvale Coal Services Site.

#### **4.3.1 Wolgan Road**

Jones Brothers operates a school and regular bus service which services Lidsdale via Wolgan Road. This bus service does not operate north beyond the residential part of Lidsdale (north of Maddox Lane).

### **4.4 Traffic Safety**

#### **4.4.1 Castlereagh Highway**

Traffic accident history of the project area has been provided by Mr Neil Peden, from RSTM Western region. This data is shown in Appendix B.

For the highway section adjacent to the Springvale Coal Services Site, there have been no accidents at the access road intersection; however there have been 4 accidents within 500m of the intersection. Of these, 3 involved injury whilst the other was a tow-away only.

For the highway section adjacent to the Springvale Coal Mine and Lidsdale Siding entrance, there have been no accidents in the last 5 years. There have also been no accidents within 500m of the existing intersections.

#### **4.4.2 Wolgan Road**

Traffic accident history of Wolgan Road is also shown in Appendix B.

For Wolgan Road, there have two accidents in the last 5 years. One accident was alcohol related whereas the other involved a kangaroo.

### **4.5 Private Haul Roads**

Private haul roads link Angus Place Colliery to both Wallerawang and Mount Piper Power Stations as shown on figure 2. The planning controls covering the operation of the roads is held under the Angus Place Colliery consent for the road leading from the Angus Place truck loading bin to Wallerawang Power Station and Coal Link Pty Limited being the owner of the haul road to Mount Piper Power Station.

Centennial has a commercial agreement with Coal Link for the use of the Mount Piper Power Station haul road.

### **4.6 Operating Hours**

Operating hours for each site are currently 24 hours per day, 7 days per week.

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## 5.0 FUTURE TRAFFIC ENVIRONMENT

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The primary purpose of the Project is to develop suitable infrastructure to enable flexibility to supply both domestic and export markets from nominated mines within the Western Coalfield.

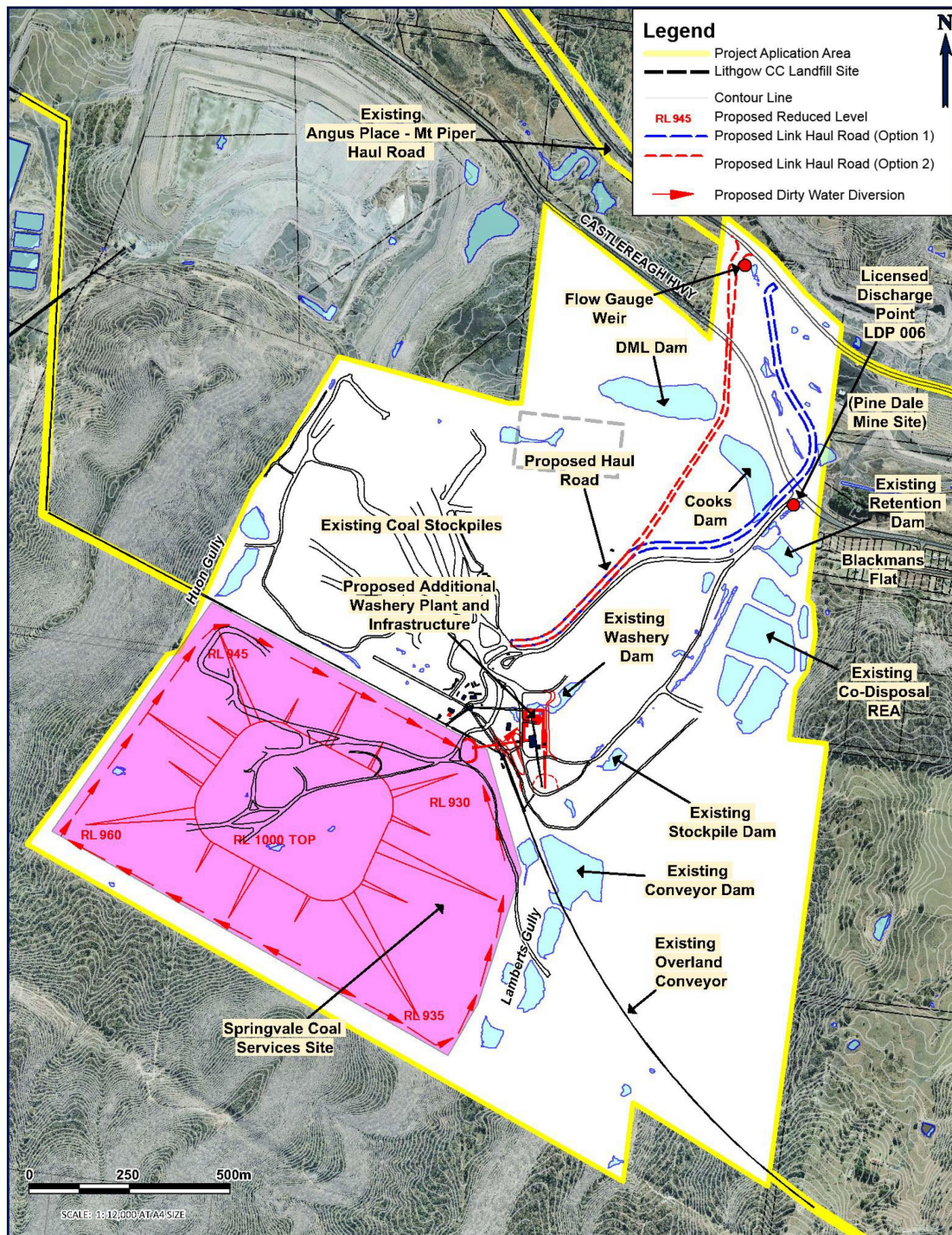
The major traffic elements of this project include:

- Upgrading the existing Washery at the Springvale Coal Services Site by constructing additional processing infrastructure adjacent to the existing facility which is capable of processing 7.0Mtpa;
- Construction of a private haul road linking the Springvale Coal Services Site with the existing private haul road from Angus Place Colliery to Mount Piper Power Station. This private road will cross a section of the existing Pinedale Mine operation and over the Castlereagh Highway. At present, there are two (2) routes for the coal services haul road. These are shown in **Figure 3**;
- Current transport of up to 50,000 tpa of coal to domestic customers using the public road network to cease.

Additional ongoing traffic elements to be considered are:

- The remaining rehabilitation, monitoring, water management and reporting requirements associated with the Lamberts Gully Mine which occupies the Springvale Coal Services Site; and,
- The continued use of all existing approved infrastructure, facilities and activities associated with the transport and processing of coal from each mine gate and the point of delivery to either power station and/or the Lidsdale Siding including private haul roads and access roads.





TITLE: FIGURE 22: PROPOSED INFRASTRUCTURE SPRINGVALE COAL SERVICES SITE	LOCATION: MOUNT PIPER WALLERAWANG	DATUM: (GDA 94) PROJECTION: MGA ZONE 56	DATE: 26/03/2013 PURPOSE: PLANNING	LAYOUT REF: Wallerawang03_Drafting/MapInfo/Workspaces VERSION (PLAN BY) B A4 (RD-NW)
CLIENT: CENTENNIAL COAL JOB REF: 110910		RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762) 241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303 T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au		RPS

**Figure 3 – Western Coal Services Project – Blackmans Flat**

## **5.1 Proposed traffic volumes on public and private roads**

### **5.1.1 Castlereagh Highway traffic**

The current Annual Average Daily Traffic (AADT) on the Castlereagh Highway south of the Boulder Road intersection is 4,300 vpd, including 17% heavy vehicles, which is 430 vph.

A slight increase in both light vehicles is expected due to additional staff numbers whilst there would also be a slight increase in heavy vehicles during the construction phase. To offset this, there would be no coal will be transported on the public road network after construction is complete.

### **5.1.2 Springvale Coal Services Site traffic**

The project will create an additional 3 permanent employees, bringing the total to 18 over 3 shifts per day. Assuming that is 1 per shift, the increase in traffic volumes is 2 vpd, and 2 vph.

During the construction phase, it is expected that an additional 50 vpd will access the site (100 vpd combined entry/exit movements) over an 18 month period. For a 3 month window during construction, this will peak at 120 vpd (or 240 vpd combined).

The majority of construction activities will occur between 7.00am – 6.00pm. Assuming all construction vehicles enter and leave the site over 4 hours only, the hourly rate is 60 vph.

In addition, the current transport of up to 50,000 tpa of coal to domestic customers using the public road network will cease, reducing traffic volumes by 14vpd and 2vph respectively.

### **5.1.3 Springvale Coal Mine traffic**

Approval is currently being considered to increase production up to 4.5 Mtpa. This will result an increase in an additional 30 full-time employees, bringing the total to 310 with 70 contractors.

### **5.1.4 Angus Place Colliery**

No increase in personnel is proposed, nor any construction activities planned as a result of this project.

### **5.1.5 Lidsdale Siding**

The project will create an additional 10 full-time employees and/or contractors.



### 5.1.6 Summary of proposed peak traffic volumes

A summary of the proposed traffic volumes during the construction phase is shown in **Table 3**.

**Table 3 – Summary of general traffic volumes during construction phase**

Location	Existing/Proposed VPD	Existing/Proposed VPH
Springvale Coal Services	50/38	12/12
Springvale Coal Mine	700/760	233/253
Angus Place Colliery	600/600	300/300
Lidsdale Siding	40/60	20/30

A summary of the proposed traffic volumes during the peak construction phase is shown in **Table 4**.

**Table 4 – Summary of peak traffic volumes during construction phase**

Location	Existing/Proposed VPD	Existing/Proposed VPH
Springvale Coal Services	50/88	12/72
Springvale Coal Mine	700/760	233/253
Angus Place Colliery	600/600	300/300
Lidsdale Siding	40/60	20/30

## 5.2 Road/Intersection Analysis

### 5.2.1 Springvale Coal Services

As per section 4.2.1, access to the Springvale Coal Services Site is via a 90° T-Junction intersection with the Castlereagh Highway. The speed environment at the intersection is 100km/hr.

For vehicles entering the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for an Auxiliary Left turn (AUL) manoeuvre. For vehicles entering the site via a right turn, there is an outside slip lane for passing vehicles. The length and dimension of the slip lane generally comply with AUSTROADS Guidelines for an Auxiliary Right turn (AUR) manoeuvre; however the current line-marking does not.

For vehicles exiting the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic left turn treatment (BAL) manoeuvre. For

vehicles exiting the site via a right turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic right turn treatment (BAR) manoeuvre.

As per table 3 above, the existing and proposed traffic volume would be 12 vph as the increase in traffic movements due to additional staff numbers is offset by the elimination of coal transport via the public road network.

If we assume that 100% of all vehicles would arrive from the east, the critical turning movements for vehicles would be the right turn out onto the Castlereagh Highway. Therefore, the minor stream traffic would be approximately 6vph (exit movements). The major stream flow would be 4300vpd, or 430vph.

From Table 3.4 of Austroads, the critical acceptance gap ( $t_a$ ) and follow up headway ( $t_f$ ) are 5 seconds and 3 seconds respectively. From Figure A4.2 (d) of the NSW Road Design guide, the average delay to minor stream vehicles per vehicle ( $W_m$ ) would be in excess of 14 seconds, therefore no additional treatment is required.

Similarly, if we assume all vehicles would arrive from the east, from figure 4.9a of Austroads, no intersection upgrade is required as the current intersection generally complies with a BAR/BAL arrangement.

It is acknowledged however, that up to 72vph will access the site during the construction phase which could be managed by the implementation of a construction traffic management plan.

### **5.2.2 Springvale Coal Mine**

As per section 4.2.2, access to the Springvale Coal Mine site is via a 90° T-Junction intersection with the Castlereagh Highway. The speed environment at the intersection is 100km/hr.

For vehicles entering the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a Channelised Left turn (CHL) manoeuvre. For vehicles entering the site via a right turn, there is an outside slip lane for passing vehicles. The length and dimension of the slip lane generally comply with AUSTROADS Guidelines for an Auxiliary Right turn (AUR) manoeuvre.

For vehicles exiting the site via a left turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic left turn treatment (BAL) manoeuvre. For vehicles exiting the site via a right turn, the intersection generally complies with AUSTROADS Guidelines for a rural basic right turn treatment (BAR) manoeuvre.

As per table 3 above, the proposed traffic volume would be 253 vph (116vph in each direction) due to additional staff numbers. If we assume 75% of all vehicles would arrive from the east, the critical turning movements for vehicles would be the right turn into the site from the Castlereagh Highway. The minor stream (turning) volume would therefore be 87vph. The major traffic volume would be 430vph.

From figure 4.9a of Austroads, an intersection upgrade to a CHR/AUL intersection would normally be required. The proposed traffic increase however, is approximately 8% and the intersection was originally constructed generally in accordance with the NSW Road Design Guide where 'AUR' type arrangements were permissible. In addition, there have been no recorded accidents in the vicinity of the intersection, therefore no intersection upgrade is recommended.

### **5.2.3 Angus Place Colliery**

As per section 4.2.3, Angus Place Colliery is located on Wolgan Road, Lidsdale. Access to Wolgan Road is via the Castlereagh Highway. The intersection also provided access to local residents of Lidsdale. The speed environment at the intersection is 80km/hr.

The intersection forms a staggered T arrangement with Main Street, Wallerawang. Combined, the intersection has a combination of acceleration/deceleration lanes, as well as channelised left and right turns.

The road pavement at the intersection is asphaltic concrete (AC) and is in excellent condition. There are sealed road shoulders with concrete dish drains, guard-railing and lighting.

Wolgan Road is a two coat sealed road which passes through Lidsdale. The colliery site is approximately 5.4km north of the intersection. Wolgan Road has varying lane widths (3.25m – 3.5m) and is reasonable condition. There is centreline marking through to the Colliery entrance. There are edge line markings through Lidsdale village but no edge lines after the Maddox Lane intersection. The speed limit is 50km/hr up until the Maddox Lane intersection. Beyond Maddox lane, the speed limit is 80km/hr.

No increase in personnel is proposed, nor any construction activities planned as a result of this project.

### **5.2.4 Lidsdale Siding Intersection**

As per section 5.2.4, the Lidsdale Siding is located off Main Street, Wallerawang. The Main Street intersection forms a staggered T with the Castlereagh Highway and Wolgan Road. The Lidsdale Siding entrance is approximately 675m south of the Castlereagh Highway.

The entrance to the Lidsdale Siding is a 90° T, in a 50km/hr speed zone with street lighting. Main Street has a 10m sealed pavement width at the intersection and there is no specialised intersection treatment, however there is street lighting. The intersection would generally comply with a BAR/BAL arrangement.

Exact traffic volumes for Main Street, Wallerawang are not known. For the purposes of analysis, it has been assumed there are 2,000vpd, or 200vph (combined for both

directions) at the Lidsdale Siding entrance. From table 3 above, there would be 15vph (each direction) accessing the site.

As per figure 4.9b of Austroads, the intersection should comply with a BAR/BAL type arrangement, therefore no upgrade is required.

## 5.3 Private Haul Roads

### 5.3.1 Traffic Generation

It is proposed to construct a new private haul road or conveyor linking the Springvale Coal Services Site with the current private haul road between Angus Place and Mount Piper Power Station as broadly indicated on **Figure 3**. This road/conveyor will cross the Castlereagh Highway adjacent to the existing access road intersection. The existing intersection will remain for normal access of private vehicles from the highway.

The link crosses a portion of ML 1569 associated with the Pine Dale operation but does not interfere with the current or proposed future operation of Pine Dale. The land is owned by Enhance Place Pty Limited (Pine Dale) and use of this land for the proposed coal haulage link is included in stakeholder consultation.

The proposed haul road over the Castlereagh Highway will cater for 6Mtpa of coal transportation. Of this:

- 4Mtpa may be transported from Angus Place to the Coal Services site;
- 1Mtpa of reject may be transported from the Coal Services site to be emplaced at the Neubeck Open Cut site;
- 1Mtpa may be transported from Nuebecks (or other satellite operations) to the Coal Services site.

The private haul road trucks will have an average 60t payload.

A summary of haul road traffic volumes is shown in **Table 5**. This table provides a typical breakdown of anticipated vehicle movements; however actual hourly movements will be determined by potential noise impacts on residential receptors. Based on these numbers, the total vehicle movements on the private haul roads is well within their carrying capacity.

**Table 5 – Summary of haul road traffic volumes**

<b>Location</b>	<b>Proposed haulage vehicles per day<sup>1</sup></b>
<b><i>Angus Place to Coal Services</i></b>	<b>374</b>
Daytime	(220)
Evening	(64)
Night	(90)
<b><i>Nuebeck to Coal Services</i></b>	<b>96</b>
Daytime	(44)
Evening	(16)
Night	(36)
<b><i>Coal Services site to rejects</i></b>	<b>96</b>
Daytime	(44)
Evening	(16)
Night	(36)

1) All vehicle rates shown are for combined entry/exit movements.

### **5.3.2 Haul Road Route alternatives**

As shown in figure 3, there are two (2) alternate haul road routes that would require an overpass across the Castlereagh Highway. Option #1 is adjacent to the existing heavy vehicle entry/exit into Pinedale Mine and approximately 300m west from residences at Blackmans Flat. It is understood that Pinedale Mine are currently seeking approval for expansion, and additional traffic will be generated at this location.

Option #2 however, is approximately 650m west from residences at Blackmans Flat.

Option #2 is therefore the preferred location because:

- It will not conflict with the existing heavy vehicle entry/exit of Springvale Coal Services Site;
- It is an additional 350m further west from the proposed Option #1 location, thus reducing the impacts of dust and noise impacts for residents of Blackmans Flat;
- That section of road has been recently upgraded and there is existing 3m wide sealed shoulder both sides with guard-railing on northern side.

## **6.0 CUMULATIVE IMPACTS**

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There is other existing and approved projects/applications should be taken into consideration, particularly with regard to Cumulative effects. These are summarised below:

### **6.1 Mount Piper Power Station**

#### **6.1.1 Western Rail Unloader**

The application for a Western Rail Coal Unloader (06\_0271) was approved in June 2009. The Western Rail Coal Unloader project comprises the construction and operation of:

- A rail loop comprising a branch rail line off the Wallerawang – Mudgee Main Line;
- A coal unloader building which would allow coal to be delivered into a hopper located below the rail line;
- A conveyor system which would carry the coal to the existing coal handling facility at the Mt Piper Power Station.
- Other components of the project include a locomotive provisioning area (refuelling and sanding), a rail wagon maintenance area comprising rail sidings, hard stand areas and a shed, and an office and amenity area as part of the unloader building.

The proposed rail unloader is located adjacent to Pipers Flat Road, mid-way between Wallerawang and Portland. Some additional construction traffic may be expected along Main Road, Wallerawang (passed the Lidsdale Siding Entrance); however it is a 50km/hr speed zone with excellent sight distance. The cumulative impact is therefore negligible.

#### **6.1.2 Base Load Power Station**

The application for a new Base Load Power Station (MP 09\_0119) approved in January 2010. The existing Mt Piper Power Station was commissioned in two stages over 1992 and 1993. It was originally intended to construct four generators on the site, but the extra two units were not built.

The Mt Piper Base Load extension project would comprise the installation of new CCGT or USC generation located adjacent to, but largely independent of, the existing Mt Piper Power Station.

The new power station would be located to the west of the existing plant, generally in the area previously prepared for Units 3 and 4 when Units 1 and 2 were constructed. The Mt Piper Power Station Extension project will have a total capacity of up to 2,000 MW and employ Air Cooled Condensers (ACCs) to minimise water usage.

The Mt Piper Power Station is located at the intersection of the Castlereagh Highway and Boulder Road, approximately 17km north-west of Lithgow. The project is expected to increase traffic along the Castlereagh Highway.

In the assessment, it was concluded that the Castlereagh Highway had a two-way capacity of just over 1,900 vehicles per hour. The current rate is approximately 430 vph, therefore the highway is assessed as being adequate to accommodate both projects.

### **6.1.3 Ash Emplacement Project**

The application for the Ash Emplacement project (under part 3A (MP 09\_0186)) was determined in February 2012. In 1990 Lithgow City Council granted Delta Electricity consent for ash placement in the former Western Main open cut mine void adjacent to the power station. This area is known as Area 1 and employs dry ash placement.

This assessment assumes that all transport of ash does not require access to the public road network and the only potential impacts are from the travel to and from the power station by workers or construction equipment. The cumulative impact is therefore negligible.

## **6.2 Wallerawang Power Station DA – New Storage Silos**

Development Application (024/11DA) in July 2011 for new storage silos. There is no information available for this project but is unlikely to generate additional traffic on the Castlereagh Highway in the vicinity of the Springvale Coal Services Site.

## **6.3 Angus Place Mine**

Angus Place Colliery currently has approval to produce 4 Mtpa and employ up to 225 permanent employees.

As stated in section 5.1.4, no increase in personnel is proposed, nor any construction activities planned.

## **6.4 Pinedale Coal Mine**

A Part 3A application (10\_0041) for an open cut mining extension to the Pinedale Coal Mine (Yarraboldy Extension) was approved in February 2011.

The Proponent does not plan to increase production beyond the current approval of 350 000 tpa and the total number of truck despatches from the Project Site would not increase due to the increased utilisation of the Private Coal Haul Road however staff numbers will increase. The proposed traffic generation is approximately 226vpd, or 48vph. Pinedale will utilise their existing light vehicle entrance and close the existing heavy vehicle entrance.



## **6.5 Blackmans Flat Waste Management Facility**

The Blackmans Flat Waste Management Facility Development Application was lodged by Lithgow City Council and approved in 2006. The site is adjacent to Centennial's Coal Services.

The traffic impact assessment for the development application determined that:

- A minor increase (7% above current AADT volumes) in traffic volumes on the Castlereagh Highway both during construction and operation;
- This increase would be within the capacity of this type of road;
- The development would result in a significant increase in the use of the intersection of the site access road and the Castlereagh Highway;
- The intersection is recommended to be upgraded to the RTA's "Road Design Guide" layout for "CHR" right turn treatment and "AUL" left turn treatment.

## **7.0 MITIGATION OF TRAFFIC IMPACTS**

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As per section 5.1, the impact on existing traffic environment is primarily for the construction phase only and can be managed by the implementation of a construction traffic management plan.

It is therefore recommended that:

- 1) Centennial to construct a haul road overpass in accordance with AUSTROADS guidelines;
- 2) All construction sites to prepare and implement a construction traffic management plan;
- 3) Upgrade Springvale Coal Services intersection line-marking to RMS standards.

No additional traffic safety mitigation measures are recommended.

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## **8.0 CONCLUSION**

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Centennial Coal proposes to construct new infrastructure to support its ongoing operations in the Western Coalfield of NSW.

The Western Coal Services Project will enable the existing operations of Angus Place Colliery and Springvale Coal Mine to have access to both power stations (Mount Piper and Wallerawang) and export markets.

It has been assessed that for the infrastructure upgrade and project(s) consolidation, the major impact on the existing traffic environment would be during the construction phase only and this can be managed through the controls outlined in section 7.0

## **Appendix 1 – Plates**



**Plate #1 - Existing Springvale Coal Services Access**



**Plate #2 - Existing Springvale Coal Services Access**



**Plate #3 – Wolgan Road/Castlereagh Highway Intersection**

## **Appendix 2 – Accident Map**



# HW 18 north of Lithgow

720118 Non-casualty (towaway 2010 South Car (sedan/hatch))

658981 Injury 2009 West Car (sedan/hatch)

680087 Injury 2009 South Large rigid

619543 Injury 2008 West Car (sedan/hatch)

INDOV

CASTLEFRACH

VIEW

## Legend

2006 to 2010  
DEGREE\_OF\_

- ✚ Fatal
- ★ Injury
- Non-casualty (towaway)

250 125 0 250 Meters





# Wolgan Road

