



Traffic & Rail Impact Assessment

Lidsdale Siding Upgrade Project

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LIST OF CONTENTS

EXECUTIVE SUMMARY	5
1.0 INTRODUCTION	6
1.1 Project Overview	6
1.2 Project Objectives	7
2.0 CONSULTATION	8
3.0 SITE DESCRIPTION	9
3.1 Site Location	9
3.1.1 Lidsdale Siding	10
4.0 PROPOSED TRANSPORT OPERATIONS	11
4.1 Coal Receival	11
4.2 Coal Stockpiling	11
4.3 Coal Conveying from Stockpile to Rail Bin	11
4.4 Train Loading	12
4.5 Coal Dispatch	12
4.6 Weighing	12
4.7 Fuelling	12
5.0 PROPOSED CONSTRUCTION ACTIVITIES	13
5.1 Earthworks	13
5.2 Concreting	13
5.3 Infrastructure	13
6.0 EXISTING RAIL & TRAFFIC ENVIRONMENT	14
6.1 Existing traffic volumes on public and private roads	14
6.1.1 Castlereagh Highway traffic	14
6.1.2 Lidsdale Siding	14
6.1.3 Summary of current traffic volumes	14
6.2 Existing rail volumes	15
6.2.1 Lidsdale Siding	15
6.2.2 Summary of current train volumes	15
6.3 Current Intersection design and pavement	15
6.3.1 Lidsdale Siding Intersection	15
6.3.2 Level rail crossing	15
6.4 Public Transport	16
6.4.1 Castlereagh Highway	16
6.4.1 Worgan Road	16
6.5 Traffic Safety	16
6.5.1 Castlereagh Highway & Main St	16

6.6	Rail Safety.....	16
6.6.1	Lidsdale Siding.....	16
6.7	Operating Hours.....	16
7.0	FUTURE RAIL & TRAFFIC ENVIRONMENT ANALYSIS	17
7.1	Proposed traffic volumes.....	17
7.1.1	Lidsdale Siding.....	17
7.1.2	Castlereagh Highway traffic.....	17
7.1.3	Summary of proposed peak traffic volumes	17
7.1.4	Operating Hours.....	18
7.2	Traffic Analysis.....	18
7.3	Proposed Rail Volumes.....	18
7.3.1	Main Street railway crossing.....	18
7.3.2	Brays Lane railway crossing	19
7.3.3	External railway crossings.....	19
7.4	Rail Capacity.....	19
7.5	Level Crossing Safety Issues.....	20
8.0	CUMULATIVE IMPACTS.....	21
8.1	Mount Piper Power Station	21
8.1.1	Western Rail Corridor.....	21
8.1.2	Base Load Power Station.....	21
8.1.3	Ash Emplacement Project.....	22
8.2	Wallerawang Power Station DA – New Storage Silos.....	22
8.3	Angus Place Mine.....	22
8.4	Pine Dale Coal Mine	23
8.5	Commercial Hotel Wallerawang.....	23
8.6	Royal Hotel, Wallerawang	23
8.7	Blackmans Flat Waste Management Facility.....	24
9.0	MITIGATION OF RAIL & TRAFFIC IMPACTS.....	25
9.1	Traffic Impact Mitigation Measures	25
9.2	Rail Impact Mitigation Measures	25
10.0	CONCLUSION.....	26

LIST OF TABLES

Table 1 – Traffic & Transport DGR Requirements & Consultations	8
Table 2 – Summary of existing project traffic volumes	14
Table 3 – Summary of existing project train volumes	15
Table 4 – Summary of general traffic volumes during construction phase.....	17
Table 5 – Summary of peak traffic volumes during construction phase.....	17

LIST OF FIGURES

Figure 1 - Locality Plan	7
Figure 2 - Site Location.....	9

APPENDICES

Appendix A – Proposed Site Plan
Appendix B – Plates
Appendix C – Accident History

EXECUTIVE SUMMARY

Centennial Ivanhoe proposes to upgrade the existing Lidsdale Siding rail loading facility by automating the train loading facility. This would significantly reduce the need for mobile plant and equipment to load rail wagons by establishing a main elongated conical stockpile with underground reclaimers feeding a ground conveyor elevating to a train loading bin. Trains would then be automatically loaded in a continuous operation as the train drives under the bin. A key feature of the proposed upgrade is the removal of coal received by truck. Although some truck traffic will occur for normal deliveries and maintenance activities, the removal of up to 700,000 tpa of coal delivered by road will significantly reduce the impacts on the local road network.

It has been assessed that with the infrastructure upgrade of Lidsdale Siding, the impact on the existing traffic environment is primarily for the construction phase only and can be managed by the implementation of a construction traffic management plan.

The impact on the existing rail network is negligible. The existing road linemarking on Main Street does not comply with AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings and needs to be upgraded. No additional train safety mitigation measures are recommended.

1.0 INTRODUCTION

This assessment of the potential impact of the Lidsdale Siding upgrade Project on the local rail and road network was undertaken for RPS Group on behalf of the Proponent, Centennial Coal.

This report provides:

- the existing and projected rail/traffic levels of the proposed transport routes (the Castlereagh Highway) assuming traffic generating activities in the local area remained constant over the life of the project;
- an assessment of the existing road pavement and safety conditions of the proposed transport routes;
- an assessment of the constraints to the safe and minimal impact use of the proposed transport route;
- an assessment of the potential impact of the project, and cumulative impact of both the project and the other current applications, on rail/traffic levels and the local rail/road network; and
- details of safeguards and management measures recommended to minimise the potential impact of the project.

1.1 Project Overview

Centennial Coal (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 around the transport and processing of coal from both Springvale Coal Mine and Angus Place Colliery but may involve coal supplies from other areas.

The upgrading of Lidsdale Siding forms part of this strategy which will involve automating the transfer of coal from the existing overland conveyor onto trains. The project will remove the existing manual loading of trains by front end loader and the removal of the existing deliveries of coal by road. All coal will be delivered to site by overland conveyor from the Centennial Coal Services Site. A locality plan of the area is shown in Figure 1.

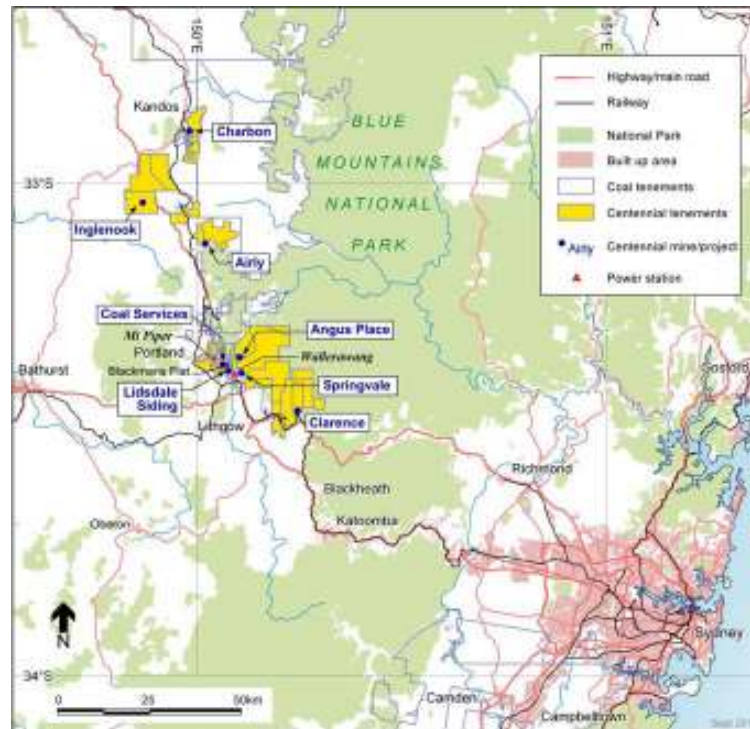


Figure 1 - Locality Plan

1.2 Project Objectives

Centennial Ivanhoe has a number of objectives in upgrading the Lidsdale Siding rail loading facility:

- To significantly reduce the need for mobile plant and equipment to load rail wagons and for stockpile management
- To reduce the operating costs on a per tonne basis
- To minimise environmental impacts such as noise from stockpile and loading operations and dust generation
- To provide access to the export market for production capacity from the local area above future domestic sales
- To assist in the provisioning and storage of the rolling stock and locos required for coal transport to port by providing an additional shunt.

2.0 CONSULTATION

Issues relating to traffic and transport have been raised in the Director General Requirements (DGR's) and the requirements of government agencies consulted during the DoP's preparation of Environmental Assessment Requirements for the project. **Table 1** lists the issues pertaining to the traffic and transport and indicates the section of this study where each issue is addressed.

Table 1 – Traffic & Transport DGR Requirements & Consultations

Director General's requirements	
Traffic & Transport	Relevant Section(s)
Accurate predictions of the rail traffic of the project;	6.2, 7.3
Detailed assessment of the potential impacts of this traffic on the safety and efficiency of the rail networks, including the railway crossings that would be impacted.	6.3.2, 7.3.2
Detailed description of the measures that would be implemented to maintain and/or upgrade these networks over the life of the project.	9.0
Key Consultations	
Roads and Maritime Services;	6.1.1
Australian Rail Track Corporation, and downstream coal chain operators including Railcorp and Port Kembla Coal Terminal.	6.6.1

3.0 SITE DESCRIPTION

3.1 Site Location

The Centennial Coal Lidsdale Site is adjacent to Wallerawang Power Station, Main St, Wallerawang as shown on **Figure 2**. The Castlereagh Highway borders the site on its northern side while Ben Bullen State Forest lies to the west.

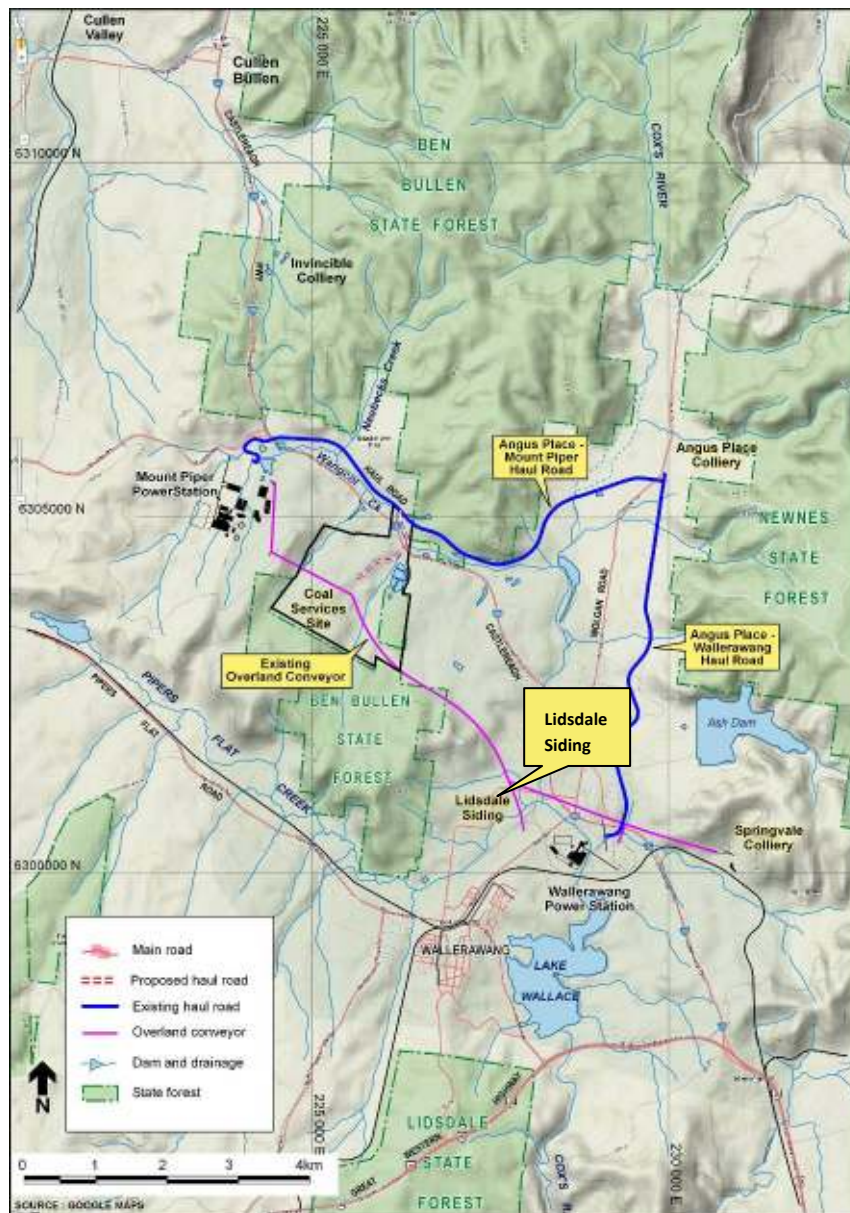


Figure 2 - Site Location

3.1.1 Lidsdale Siding

The Lidsdale Siding was originally constructed in the 1950's. It receives coal from the overland conveyor from the Centennial Coal Services Site as well as by truck. Vehicle access to the site is via Main Street off the Castlereagh Highway.

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. The Main Western Rail Line was operated by Australian Rail Track Corporation until 15th January 2012. It is now operated by John Holland Rail.

4.0 PROPOSED TRANSPORT OPERATIONS

A description of the key transport operations that would be undertaken at the site is provided below.

4.1 Coal Receipt

All coal delivered to the site will be via the existing overland conveyor at a minimum rate of 650 tonnes per hour (tph) and up to 900tph. The amount of coal delivered to the site via this conveyor could be up to a maximum of 6.3 million tonnes per annum (Mtpa), requiring 24 hours a day, seven days a week access and utilisation as is the current situation. The maximum throughput of the site would be 6.3 Mtpa.

4.2 Coal Stockpiling

The stacking conveyor, which receives coal from the overland conveyor, would form an extended conical stockpile of approximately 50,000 tonne, with a nominal height of 28 metres. The conical stockpile would comprise the main storage of coal on the site. Main stockpile replenishment would occur as required on a 24 hour basis.

Pushing operations, using mobile equipment front end loaders and/or bulldozers, would be required for stockpile management. Pushing operations and general stockpile management operations (including movement from the diversion stockpile) would be maximised during daylight hours but would be required during the evening and night on an "as required" basis to ensure coal feed to the train loading operations. Night time stockpile operations are minimised by the capacity of live draw down at approximately 12,000 tonnes.

4.3 Coal Conveying from Stockpile to Rail Bin

Coal would be drawn down from the full conical stockpile, via four reclaimers, positioned to maximise the live draw down potential of the stockpile, in sufficient quantity to fill a train. Coal would be delivered to the bin feed conveyor via four stockpile dischargers and then conveyed at a rate of 3,800 tph to the rail bin.

The rail bin would have an operational capacity of 250 tonnes. Coal will be pushed to the feeders as required if there is insufficient capacity in the 'live' portion of the stockpile. Coal from the diversion stockpile would be transported to a stockpile feeder / reclaimer to clear the overrun or diverted coal as required.

Additional stockpile capacity adjacent to the rails could be used for product separation or additional stockpile volume, or temporary storage to access a feeder. This coal can be reclaimed by pushing and discharged onto the bin conveyor as a separate product or as a partial feed when the main stockpile is being drawn down.

Coal conveying from stockpiles to the bin would be required prior to and during train loading operations, which may be anytime seven days a week, 24 hours a day.

4.4 Train Loading

Trains would be loaded automatically, in a continuous operation as the train propels to the western end of the siding away from the bin. Coal feed to the wagons, from the bin, will be via a hydraulically operated guillotine gate at the base of the cone of the bin.

Operation of the infrastructure will occur, as required, seven days a week, 24 hours a day including the use of existing rail and associated rail infrastructure. Train loading would take between 1 and 1.5 hours.

4.5 Coal Dispatch

Coal would be transported from the site via the rail network, requiring access 24 hours a day, seven days per week. The average frequency would be five trains per day with a peak of seven trains per day, at a nominal net tonnage of 3,800 per train.

4.6 Weighing

Load weights would be measured and recorded electronically at the rail bin. Trucks will be weighed, as required, on entry and exit from the site at the existing weighbridge.

4.7 Fuelling

On-site machinery would be refuelled using mobile tankers or from a Trans-Tank located near the bin.

5.0 PROPOSED CONSTRUCTION ACTIVITIES

The main construction activities that would be undertaken as part of the Project include:

- 1) Earthworks;
- 2) Concreting;
- 3) Infrastructure modification and installation;
- 4) Extension of existing and construction of additional track.

5.1 Earthworks

Earthworks would be undertaken for the following aspects of the Project;

- Foundation work;
- Stockpile and reclaim tunnel construction;
- Spillage Pit construction;
- Drainage and erosion and sediment control;
- General site profiling;
- Trenching for pipes and cables;
- Foundation works for track.

5.2 Concreting

Concreting will be undertaken for the following aspects of the Project:

- Foundation work;
- Stockpile, pad and reclaim construction.

5.3 Infrastructure

Infrastructure modification would include changes to the head arrangement of the existing conveyor to provide a chute to divert product at the head when required.

Installation of this infrastructure would require the transport of oversize loads to the site. The analysis of this traffic generation is shown in section 7.

6.0 EXISTING RAIL & TRAFFIC ENVIRONMENT

6.1 Existing traffic volumes on public and private roads

6.1.1 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.

6.1.2 Lidsdale Siding

The Lidsdale Siding currently employs 15-20 permanent staff and contractors. This corresponds to 30 vpd (light vehicles combined movements). If we assume that all employees arrive within 10 minutes of each other in separate vehicles, the hourly rate is 15 vph during peak times. Vehicle access to the site is via Main Street off the Castlereagh Highway. There are also 5 heavy vehicles per day currently accessing the site (10 vpd combined movements). In recent years there has been a greater number of coal trucks accessing the site. Under the proposed development, all coal will be received by overland conveyor. Trucks accessing the site in future will generally be limited to deliveries of stores and equipment. Access to the truck wash and weighbridge will continue on an as needs basis.

No increase in personnel is proposed other than during the construction phase. No coal is dispatched from the site via the public road network.

6.1.3 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

Location	Vehicles per day ¹	Vehicles per hour ¹
Castlereagh Highway ²	4,300	430
Lidsdale Siding	20 ⁴	20 ⁴

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

2) Castlereagh Highway at Centennial Coal Services site;

3) Includes light vehicles and coal delivery trucks;

4) Includes light and heavy vehicles.

6.2 Existing rail volumes

6.2.1 Lidsdale Siding

The average number of trains entering and exiting the facility is approximately 2 per day with a maximum of 5 per day in and out of the facility. The turn around time for each train is about 2 hours. Approaching trains, starting from the level crossing on Main Street entering the facility, can spend anywhere in the vicinity of 20 minutes to complete the entry manoeuvre. The normal time that the Main Street rail level crossing is blocked is approximately 6 minutes.

Trains use the Brays Lane level crossing to reverse into the facility. The time that Brays Lane level crossing is blocked is approximately 14 minutes.

Empty trains accessing the site are labelled LS-XX, (where XX is an odd number). The loaded trains accessing the site are labelled LS-YY, (where YY is an even number).

6.2.2 Summary of current train volumes

A summary of the existing train volumes is shown in **Table 3**.

Table 3 – Summary of existing project train volumes

Location	Average Trains per day ¹	Peak Trains per day ¹
Lidsdale Siding	2	5

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

6.3 Current Intersection design and pavement

6.3.1 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, and a general description has been provided in section 4.2.3.

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 an 8m sealed pavement width at the intersection and there is no specialised intersection treatment. Plates are shown in Appendix B.

6.3.2 Level rail crossing

Approximately 480 m from the intersection of Castlereagh Highway and Main Street, there is a rail level crossing on Main Street that the facility uses to dispatch coal. The rail

level crossing displays warning flashing lights, which are manually activated by the driver of the train approaching to the level crossing. Plates are shown in Appendix B. It is noted however, that the existing road linemarking does not comply with AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings.

Another rail level crossing is located north of the facility along Brays Lane to the west of Castlereagh Highway. This rail level crossing displays stop signs. This rail level crossing is used when trains are completing the reversing manoeuvre to enter the facility. Adjacent to this level crossing is a narrow bridge with a give way sign for westbound vehicles.

6.4 Public Transport

6.4.1 Castlereagh Highway

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

6.4.1 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).

6.5 Traffic Safety

6.5.1 Castlereagh Highway & Main St

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

For the highway section adjacent to the 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.

6.6 Rail Safety

6.6.1 Lidsdale Siding

Rail accident history of the project area has been provided by ARTC (Broadmeadow). For the Lidsdale Siding and surrounding rail network, there have been no reportable incidents in the last 3 years.

6.7 Operating Hours

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

7.0 FUTURE RAIL & TRAFFIC ENVIRONMENT ANALYSIS

7.1 Proposed traffic volumes

7.1.1 Lidsdale Siding

No increase in personnel is proposed other than during the construction phase. During construction, it is expected that an additional 20 light vpd will access the site (40 vpd combined entry/exit movements) over a 12 month period.

It is also expected 2 heavy vpd (4 vpd combined) will access the site over a 12 month period but will peak at 100 heavy vpd (200 vpd combined) for a 1 month window during installation of concrete linings for the reclaim tunnel. The construction haulage route will be via the Castlereagh Highway into Main Street.

The construction hours will be 8.00am – 4.00pm. Assuming all construction vehicles enter and leave the site over 4 hours only, the hourly rate is 50 vph.

7.1.2 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 and heavy vehicles is expected during the construction phase only.

7.1.3 Summary of proposed peak traffic volumes

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

Table 4 – Summary of general traffic volumes during construction phase

Location	Existing/Proposed VPD	Existing/Proposed VPH
Lidsdale Siding	20/60	20/25

A summary of the proposed traffic volumes during the peak construction phase is shown in **Table 5**.

Table 5 – Summary of peak traffic volumes during construction phase

Location	Existing/Proposed VPD	Existing/Proposed VPH
Lidsdale Siding	20/220	20/70

7.1.4 Operating Hours

Operating hours will be the same as current, that is, 24 hours per day, 7 days per week.

7.2 Traffic Analysis

Exact traffic volumes for Main Street, Wallerawang are not known. For the purposes of analysis, it has been assumed there are 2,500vpd, or 250vph (combined for both directions) at the Lidsdale Siding entrance. The construction traffic peak volumes have been analysed using gap acceptance theory.

As shown in table 6, the peak number of construction vehicles will be 70vph. Assuming all construction vehicles will access the Lidsdale Siding facility via a right hand turn from Main Street, the critical acceptance gap (t_a , sec) and follow-up headway (t_f , sec) will be 5sec and 3sec respectively.

Using figure 4.4.2 of the NSW Road Design Guide (NSW RDG), the practical absorption capacity of Main Street is in excess of 500vph. Using figure A4.2(d) of the NSW Road Design Guide (NSW RDG), the average delay at the intersection will be less than 1.5secs. Therefore, the entrance will continue to operate at a "Class A" Level of Service. As such, no additional traffic safety mitigation measures are recommended.

7.3 Proposed Rail Volumes

7.3.1 Main Street railway crossing

Coal would be transported from the site via the rail network, requiring access 24 hours a day, seven days per week. The average frequency would be five trains per day with a peak of seven trains per day, at a nominal net tonnage of 3,800 per train.

The queuing at the Main Street railway crossing is predicted to be minimal due to the following reasons:

- The frequency of the proposed incoming/outgoing number of trains (average of 5 per day and maximum 7 per day) is minimal.
- Queuing along Main Street is controlled by the operational capacity of the Castlereagh Highway/Main Street intersection. Since the existing performance of the Castlereagh Highway/Main Street intersection is considered to be acceptable, the possibility of queuing along Main Street from the Castlereagh Highway/Main Street intersection to block the rail level crossing located 480 m from the intersection is minimal.
- During the peak hour period, a train could block Main Street at the railway crossing only once due to the proposed frequency of incoming/outgoing trains.

The existing road linemarking on Main Street does not comply with AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings and needs to be upgraded.

The upgrading involves road marking which would normally be a requirement of the road managers (Lithgow City Council) in consultation with Roads and Maritime. No additional train safety mitigation measures are recommended.

7.3.2 Brays Lane railway crossing

As previously mentioned in Section 6.3.2, the potential for traffic queues at the Brays Lane railway crossing is expected to be minimal due to the low level of local traffic associated with this lane.

As such, no additional train safety mitigation measures are recommended.

7.3.3 External railway crossings

Other road rail level crossings along the rail line are located at:

- Bundarra Street, Blackheath;
- Clarinda Street, Faulconbridge;
- Park Road, Woonona;
- Bellambi Lane, Bellambi.

These crossings are not on roads classified as Freeways, State Highways or Main Roads, and are considered as local roads only. The additional rail traffic over these crossings is not likely to affect their safety or efficiency, nor the road efficiency of significant roads.

7.4 Rail Capacity

The Lidsdale Siding is located on a dedicated spur line off the Main Western Line at Wallerawang. The Main Western Line is a westwards continuation of the Main Suburban Line between Sydney Central Station and Parramatta. The line passes through the suburbs of Sydney and traverses the Blue Mountains, passing through the townships of Katoomba and Mount Victoria before descending the western side of the Blue Mountains to the town of Lithgow. Lithgow is the extent of electric passenger train services, although the electric wires extend to the town of Bowenfels west of Lithgow. The line proceeds through Wallerawang where the line becomes single track.

There are currently 72 to 82 total rail movements from Lithgow on any day. As trains get closer to Penrith, there are an increased number of services each day, with 184 to 190 movements on a weekend and 252 to 256 movements on a weekday at Penrith.

Centennial currently has a secured 6 train paths per day between Lithgow and Port Kembla and would require approximately 3 additional train paths per day to cater for the increased tonnage from Lidsdale Siding. Additional train paths need to avoid peak hour commuter trains (referred to as white out periods) which are generally 6am to 9am and 5pm to 7pm weekdays. Centennial is currently in the process of securing the additional train paths which would see a nominal increase in total daily train movements of less than 2% at Penrith.

7.5 Level Crossing Safety Issues

New South Wales rail agencies and roads authorities are responsible for level crossing safety. Regulatory oversight is provided by the NSW Independent Transport Safety Regulator (ITSR) for rail operations/infrastructure and the road/rail interface, and by the Roads and Maritime Service, Local Government and NSW Police Force for roads. Coordination of level crossing activities in NSW is provided through the Level Crossing Strategy Council. This is an interagency forum to promote coordination between agencies to improve level crossing safety. The council coordinates the development and oversees implementation of the Level Crossing Improvement Program.

The Level Crossing Improvement Program (LCIP) provides funding to accelerate improvements to level crossings at priority sites across NSW as agreed by all road and rail agency stakeholders and for other level crossing safety initiatives. It is additional to the funds road and rail agencies spend on upgrading level crossings on their networks.

The methodology to determine the level crossings to be included for LCIP funding was developed by the Level Crossing Working Group and approved by the Level Crossing Strategy Council. In the first instance the methodology considers historical crash risk for each of the level crossing control types (active controls – lights and bells, and lights, bells and boom gates; and passive controls - stop signs and give way signs).

The Australian Level Crossing Assessment Model (ALCAM) is then used to assess and rank the comparative risks of crossings within the control type groups to assist identify the priority crossings for inclusion in the LCIP. ALCAM is scoring algorithm which considers each level crossings physical properties (characteristics and controls) including consideration of the related common human behaviours, to provide each level crossing with a "Likelihood Factor" score. This score is then multiplied by the level crossings "Exposure" score (a factor taking into account the volumes of Vehicles / Pedestrians & Trains) & finally multiplied by the Consequence score to give the ALCAM Risk Score. The ALCAM Risk Score, enables the comparison of the relative scores across level crossings within a given jurisdiction. This provides an overall risk rating for the level crossing however each individual hazard needs to be considered in its own right.

An ALCAM assessment has not been undertaken for the Main Street or Brays Lane crossings but could be considered in future if there is uncertainty regarding the level of controls provided at each intersection. Factors that are considered in an ALCAM assessment which would be relevant to these two crossings are the low speed of trains (generally walking pace) and the low speed of traffic (50 km/hr), good sight distances on approach to the crossing and low road traffic volumes.

8.0 CUMULATIVE IMPACTS

There are other existing and approved projects/applications in the site area, as summarised below.

8.1 Mount Piper Power Station

8.1.1 Western Rail Corridor

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.

8.1.2 Base Load Power Station

An application for a new Base Load Power Station (MP 09_0119) was 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 closed cycle gas turbine or ultra-supercritical 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.

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.

8.1.3 Ash Emplacement Project

The application for the Ash Emplacement project (under part 3A (MP 09_0186)) has not yet been determined. 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.

8.2 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.

8.3 Angus Place Mine

An Environmental Assessment (EA) for a proposed modification of the existing Project Approval for two new longwalls (910 and 900W) and an increase to production was lodged in November 2010 and approved in 2011. Currently a second proposed modification is being prepared for a ventilation facility.

As such, Angus Place proposes a Section 75W Modification to continue underground mining operations at the APC, which are supported by existing surface infrastructure, through the development and extraction of two additional longwall panels. The modification would extend the life of the APC to 2016, and includes: -

- Development and extraction of longwalls 910 and 900 west (900W);
- An increase of the production limit to four (4) million tonnes per annum (mtpa);
- Installation of a dewatering bore facility at the eastern end of longwall 910 and infrastructure required to support the operation of this installation;
- Assessment of the current APC Pit Top water management controls;
- An increase in personnel from the currently approved 215 to 225; in addition, up to 75 temporary contractors will be required to assist with underground development activities for up to 15 months.

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

8.4 Pine Dale Coal Mine

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

This project essentially extended the mining area rather than changed the existing transport arrangements. The Stage 2 Project which has now received Director General Requirements involves increasing production to up to 2 Mtpa over 15 years whereby 500,000 tpa would be transported to local power stations using the existing private haul roads, 100,000 tpa using the public roads (Castlereagh Highway) and 1.4 Mtpa using the re-established Wallerawang Spur line which used to terminate at the Wallerawang Coal Mine (now Pinedale). This line is used by Lidsdale Siding as the access to the main rail line. Pinedale propose an average of 9 trains per week.

The additional 1 to 2 trains per day using the Wallerawang Spur line may have some impact on Centennial's existing use of the line in the vicinity of Brays Lane. At present, trains accessing the siding stop north of Brays Lane on the Wallerawang Spur line prior to reversing into the site. Exiting trains rejoin the Wallerawang Spur line before crossing Main Street. This project will result in an average of 2 additional closures of Main Street for up to 6 minutes each with a potential 4 closures around twice a week to make up the 9 train loads.

Train paths over the Blue Mountains and Sydney Urban Area, generally restrict goods train movements during peak commuter times. The ample rail capacity outside these peak commuter periods tend to limit the impact of delays at level crossings also to outside peak hours. However, the total combined closures at Main Street will need to be monitored, to determine if adverse delays are occurring.

8.5 Commercial Hotel Wallerawang

The Commercial Hotel, Wallerawang had an application for a tourist facility (040/10DA) approved by Lithgow City Council in March 2011. No additional information is available but the project is unlikely impact on, or be impacted by, the proposed upgrade of Lidsdale Siding.

8.6 Royal Hotel, Wallerawang

The Royal Hotel, Main Street, Wallerawang application for construction of 10 cabins (050/08DA) approved by Lithgow City Council in December 2010 and application for Stage 1 and 2 cabins (006/11CC) approved by Lithgow City Council in April 2011. No additional information is available but the project is unlikely impact on, or be impacted by, the proposed upgrade of Lidsdale Siding.

8.7 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:

- There would be 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.

9.0 MITIGATION OF RAIL & TRAFFIC IMPACTS

9.1 Traffic Impact Mitigation Measures

As per section 7.1, 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.

No additional traffic safety mitigation measures are recommended.

9.2 Rail Impact Mitigation Measures

As per section 7.3, the impact on the existing rail network is negligible. The existing road linemarking on Main Street does not comply with AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings and needs to be upgraded.

No additional train safety mitigation measures are recommended.

10.0 CONCLUSION

Centennial Ivanhoe proposes to upgrade the existing Lidsdale Siding rail loading facility by automating the train loading facility.

A key feature of the proposed upgrade is the removal of coal received by truck. Although some truck traffic will occur for normal deliveries and maintenance activities, the removal of up to 700,000 tpa of coal delivered by road will significantly reduce the impacts on the local road network.

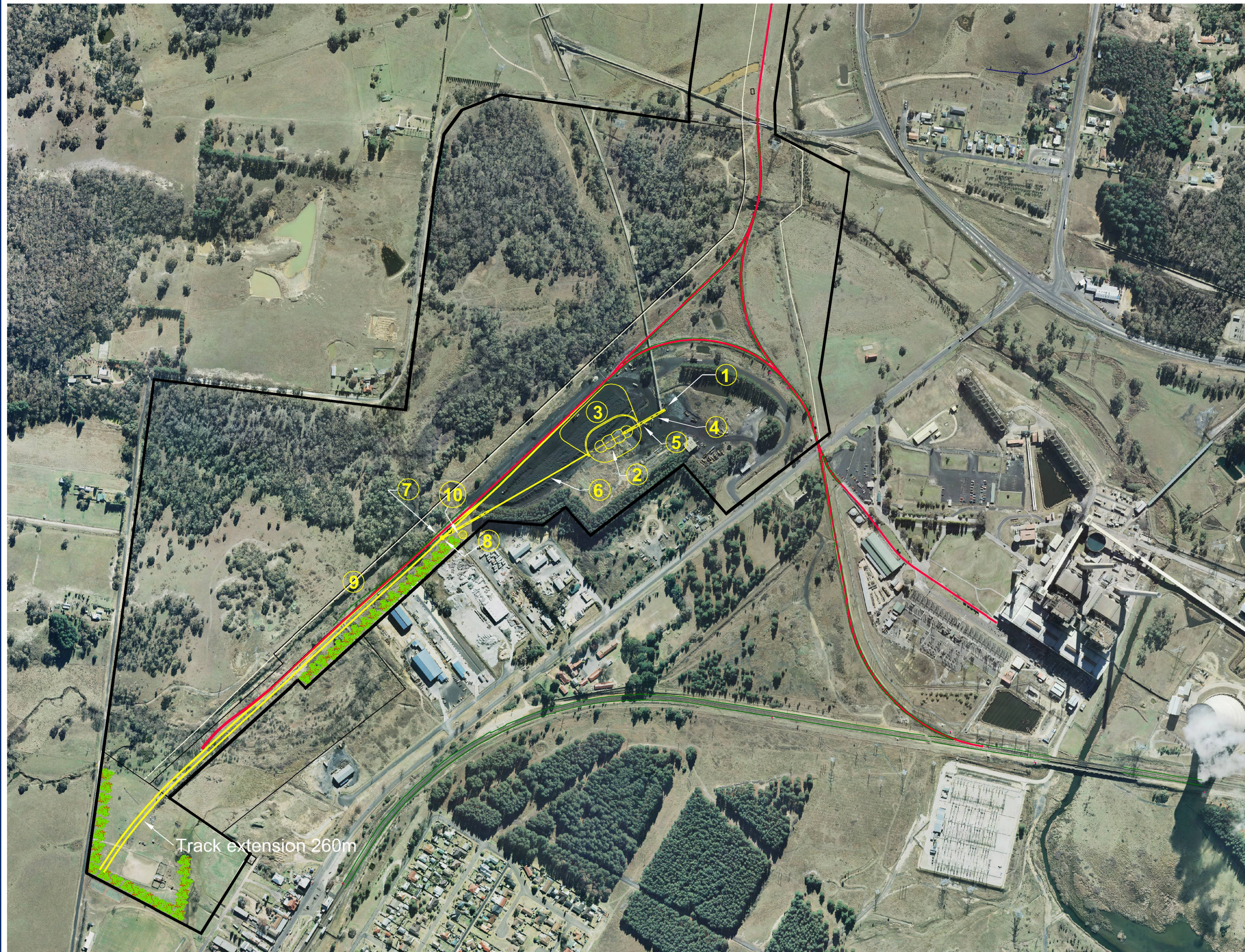
It has been assessed that with the infrastructure upgrade of Lidsdale Siding, the impact on the existing traffic environment is primarily for the construction phase only and can be managed by the implementation of a construction traffic management plan.

The automated train loading facility would also significantly reduce the need for mobile plant and equipment to load rail wagons by establishing a main elongated conical stockpile with underground reclaimers feeding a ground conveyor elevating to a train loading bin. Trains would then be automatically loaded in a continuous operation as the train drives under the bin.

The impact on the existing rail network is negligible. The existing road linemarking on Main Street does not comply with AS1742.7-2007, Manual of Uniform Traffic Control, Part 7: Railway Crossings and needs to be upgraded.

No additional traffic or train safety mitigation measures are recommended.

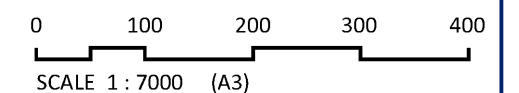
Appendix A – Proposed Site Plan



Proposed Components:

- ① Diversion chute at the end of the existing overland conveyor (Auxiliary Stockpile beneath)
- ② 50 000 t elongated conical stockpile
- ③ General Pushout Area for elongated conical stockpile
- ④ Elevating conveyor to elongated conical stockpile
- ⑤ Reclaim tunnel beneath the stockpile.
- ⑥ Ground conveyor from the reclaim tunnel, elevating to the train loading bin
- ⑦ A train loading bin (nominal 250 tonne capacity)
- ⑧ Control room adjacent to the loading bin
- ⑨ Notional alignment of New Rail Line and adjacent shunt
- ⑩ Self banded transportable fuel tank

- Lidsdale Siding Study Area
- EXISTING RAIL LINE
- PROPOSED COMPONENTS
- LANDSCAPING BUFFER



TITLE: LIDSDALE SIDING UPGRADE PROJECT
FIGURE 3 PROPOSED COMPONENTS

LOCATION: WALLERAWANG

DATUM: (GDA 94)
PROJECTION: MGA Zone 56

13TH JUNE 2012
ENV. ASSESSMENT

AUTOCAD REF: 110912 UPGRADES TO PROJECT AREA 3
VERSION (PLAN BY): PROPOSED 2

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JOB REF: 110912

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Appendix B – Plates



Plate #1 – Existing rail level crossing, Main Street, Wallerawang



Plate #2 – Existing road intersection, Castlereagh Highway & Main Street, Wallerawang



Plate #3 – Existing road intersection, Lidsdale Siding entrance & Main Street, Wallerawang

Appendix C – Accident History

Wolgan Road

