WHITEHAVEN COAL

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5 December 2012

Mr David Kitto
Director, Mining and Industry
NSW Department of Planning and Infrastructure
22-33 Bridge Street
SYDNEY NSW 2001

Dear Mr Kitto

RE: NARRABRI COAL MINE (08_0144) – SECTION 75W MODIFICATION APPLICATION FOR EMERGENCY TRUCKING

This is a Section 75W modification application under the *Environmental Planning and Assessment Act, 1979* (EP&A Act) for the Narrabri Coal Mine Project Approval (08_0144).

The Narrabri Coal Mine is located approximately 25 kilometres (km) south of Narrabri in north-west NSW (Figure 1). The Narrabri Coal Mine is an underground operation currently employing approximately 163 full time employees and 189 long term contractors, approved to extract up to 8.0 million tonnes of ROM coal per annum. The mine is located immediately adjacent to the Kamilaroi Highway.

On 28 November 2012 a laden coal train derailed from the Werris Creek Mungindi Railway between Boggabri and Gunnedah. This incident has significantly damaged rail infrastructure to the point where no rail movements are possible between Boggabri and Gunnedah until the damaged railway is rebuilt. The Australian Rail Track Corporation (ARTC) is currently considering options to allow rail movements to recommence, however no date forecast for the completion of repair works has been provided. Whitehaven Coal Limited (Whitehaven) anticipates the rail network could be disrupted for a period of 2 to 3 months.

Whitehaven's Narrabri Coal Mine is located approximately 35 km north of the damaged section of railway and is therefore unable to transport coal from the mine site to the Port of Newcastle for export. Condition 7, Schedule 2 of the Narrabri Coal Mine Project Approval (08_0144) requires all coal to be transported offsite by rail:

> *7. The Proponent shall transport all coal from the site by rail.*

Without the permitted ability to transport coal offsite, Whitehaven anticipates that coal stockpile capacity at the Narrabri Coal Mine will be reached during December 2012, at which stage operations at the mine will have to cease. Should this occur, Whitehaven would incur loss of production, significant economic penalty and would need to dislocate employees to its other operations. While Whitehaven are undertaking numerous other measures to mitigate against the impact of the rail outage these actions cannot be ruled out. This would result in flow-on effects to contractors, service providers and support industries in the region, resulting in significant economic impacts until such time as operations recommence.

To prevent this scenario occurring, Whitehaven is seeking modification of the Project Approval (08_0144) to allow emergency transport of coal from the Narrabri Coal Mine by road to the Whitehaven Coal Handling and Preparation Plant (CHPP), located approximately 5 km west of Gunnedah (downstream of the damaged rail infrastructure), where it would be loaded onto trains and transported to Newcastle.

GTA Consultants and Wilkinson Murray have conducted assessments of potential road transport and noise impacts associated with the proposed temporary trucking arrangement. The results of these assessments are summarised in this letter and the specialist studies are provided as Attachments 1 and 2.

Summary of Proposed Modification

Method of coal transport	Fleet of 59 on-highway coal haulage trucks (contractor operated).
Hours of coal transport	6.00 am[1] to 10.00 pm Monday to Saturday. No coal transport Sundays or Public Holidays.
Volume of coal transported	Up to 80,000 tonnes per week.
Duration of road transport campaign	Anticipated to be 2 – 3 months.
Transport route	Narrabri Mine Access Road. Kamilaroi Highway. CHPP Access Road.
Key management measures	Development of a Temporary Transport Management Plan. Dedicated campaign Project Manager (assisted by trucking contractor Project Managers). Driver training and compliance with Whitehaven's existing contractor driver trucking policy. Regular reporting of campaign updates, incidents, complaints and management. Community notification through newspaper advertisements, Whitehaven website, letterbox drop and hotline.

[1] 6.00 am departure from Narrabri Coal Mine arriving at the Whitehaven CHPP after 7.00 am.

Consultation to Date

Whitehaven has discussed the proposed road transport arrangement with the NSW Roads and Maritime Services, Narrabri Shire Council, Gunnedah Shire Council, ARTC, the Hunter Valley Coal Chain Coordinator and the NSW Department of Planning and Infrastructure.

The Gunnedah Shire Council has provided in-principle support for the proposal for emergency truck haulage, while identifying the need to provide detail of trucking movements and impacts particularly associated with the intersection between the Kamilaroi Highway and the Whitehaven CHPP. The Gunnedah Shire Council also identified the need to consider cumulative impacts associated with trucks transporting coal from other operations, and the capability of the Whitehaven CHPP to handle additional throughput. The Gunnedah Shire Council suggested the development of a management plan for the haulage program. At the time of submission responses had not yet been received from NSW Roads and Maritime Services or Narrabri Shire Council. These will be forwarded when received.

Rail schedulers from the Hunter Valley Coal Chain Coordinator have indicated that additional trains and capacity on the rail network are available to service the Gunnedah CHPP to move additional coal during the trucking campaign. This will ensure continuity of coal loading and avoid stockpile capacity constraints. It is noted that sufficient capacity exists within Whitehaven's CHPP approval conditions to transport additional coal by rail during this campaign.

Whitehaven has notified the Narrabri and Tarrawonga Community Consultative Committees. Relevant local, State and Federal Members of Parliament have also been briefed.

Coal Transport Requirements

Whitehaven currently transports run-of-mine (ROM) coal from its existing Tarrawonga and Rocglen Coal Mines by road to the Whitehaven CHPP for processing and loading onto trains. The Whitehaven CHPP holds approval to accept coal between 7:00 am and 10:00 pm Monday to Saturday. No coal is received on Sundays or public holidays.

The Whitehaven CHPP has capacity to handle approximately 80,000 tonnes (t) of coal per week from the Narrabri Coal Mine, while maintaining processing capabilities for Whitehaven's open cut operations (i.e. the Tarrawonga and Rocglen Coal Mines). Whitehaven has identified a fleet of trucks to transport this volume of coal from the Narrabri Coal Mine to the CHPP. It is anticipated that this fleet would comprise of approximately 10 B-Double trucks (40 t capacity), 19 truck and dog combinations (34 t capacity) and 30 single trailer trucks (30 t capacity).

It is proposed to road haul coal from the Narrabri Coal Mine to the Whitehaven CHPP, consistent with currently approved delivery periods described above. To transport the proposed volume of coal between the mine and the Whitehaven CHPP between the above hours, the haulage fleet would be required to conduct seven return journeys per day. This would equate to a total of approximately 420 return truck movements per day.

The proposed transport route along the Kamilaroi Highway (Figure 1) is approximately 65 km long, and it is expected to take approximately two hours to complete a return journey. As such, the first haul trucks would leave the Narrabri Coal Mine at approximately 6:00 am to arrive at the Whitehaven CHPP after 7:00 am. The last truck would leave the mine no later than 9:00 pm to ensure the final delivery arrives at the Whitehaven CHPP before 10:00 pm.

Trucks would be loaded by front end loader from washed coal and bypass coal stockpiles within the coal handling facility at the Narrabri Coal Mine. Loaded trucks would travel along the Mine Access Road (which leads onto the final 100 metres of Kurrajong Creek Road) and turn right onto the Kamilaroi Highway (Figure 2) and travel along the Highway to the intersection of the highway with the CHPP Access Road. Trucks would then turn right off the Kamilaroi Highway via the dedicated turning lane into the Whitehaven CHPP Access Road (Figure 3). Trucks leaving the CHPP would turn out left onto the Kamilaroi Highway using the acceleration lane and return to the Narrabri Mine by the same route in reverse. A deceleration lane exists at the left turn in from the Highway to Kurrajong Creek Road and subsequently the Mine Access Road where haul trucks would complete the round trip at the Narrabri Mine.

Road Transport Impacts

An assessment of potential road transport impacts associated with the proposed temporary transport of coal by road has been conducted by GTA Consultants and is included as Attachment 1 to this letter.

GTA Consultants consider that the Kamilaroi Highway and its intersections with the Narrabri Coal Mine Access Road (Figure 2) and the Whitehaven CHPP Access Road (Figure 3) are all designed and constructed to accommodate the type and volume of trucks proposed to be used for coal transport. GTA Consultants have assessed the existing Level of Service of the Kamilaroi Highway and consider that there will be no change as a result of the proposed coal haulage campaign (Attachment 1).

The Kamilaroi Highway provides channelised left and right turn lanes and deceleration tapers at its intersection with the Narrabri Coal Mine Access Road and pavement conditions are considered excellent. Heavy vehicles regularly associated with the construction and operation of the mine regularly use the intersection. As the trucking campaign would only be until such time as trains can once again access the mine, there would be no potential interaction between coal haulage trucks and trains.

The intersection between the Whitehaven CHPP Access Road and the Kamilaroi Highway is currently used by Whitehaven to transport coal from its Tarrawonga and Rocglen Coal Mines to the CHPP and was recently upgraded to specifically cater for haulage trucks. The upgraded intersection provides a 140 metre channelised right turn lane on the Kamilaroi Highway (sufficient to accommodate up to five B-double trucks waiting to turn), and a 400 metre acceleration lane for vehicles turning left out of the CHPP Access Road (Figure 3).

Road Noise Impacts

An assessment of potential road noise impacts associated with the proposed temporary transport of coal by road has been conducted by Wilkinson Murray and is included as Attachment 2 to this letter.

Wilkinson Murray has modelled the existing traffic volumes along the Kamilaroi Highway at two locations, namely to the north of Boggabri near the Rangari Road intersection, and between the Blue Vale Road and CHPP Access Road intersections with the Kamilaroi Highway. This modelling was undertaken using traffic monitoring data presented in the Tarrawonga Coal Mine Environmental Assessment (Tarrawonga Coal Pty Ltd, 2011). The predicted movements associated with the proposed road transport of coal from the Narrabri Coal Mine were then added to the existing traffic volumes and the model was re-run to estimate the potential incremental increase in road noise levels as a result of the proposed coal haulage.

The modelling indicates that an increase in noise levels of up to 3.8 A-weighted decibels (dBA) could be expected at the modelling location on the Kamilaroi Highway to the north of Boggabri, and an increase of up to 1.9 dBA could be experienced at the modelling location on the Kamilaroi Highway near the entrance to the Whitehaven CHPP. The increase in noise levels at the modelling point to the north of Boggabri could be expected to be experienced by residents living adjacent to the Kamilaroi Highway in Boggabri.

The Environment Protection Authorities *Road Noise Policy* (2011) (RNP) prescribes noise criteria for traffic associated with new developments. The RNP does not prescribe noise level criteria for short term traffic movements (such as this proposal), but describes that an increase of up to 2 dB associated with a long term traffic increase represents a minor impact that is barely perceptible to the average person. Near the Whitehaven CHPP, the road noise increase is less than 2 dBA and is considered minor.

Whitehaven acknowledges that there would be a temporary increase in road noise between the Narrabri Coal Mine and Blue Vale Road on the Kamilaroi highway, particularly in the vicinity of Boggabri and predominantly during the daytime. Whitehaven would strictly adhere to the proposed trucking hours of 6.00 am and 10.00 pm to reduce amenity effects at the most noise sensitive times of day (i.e. night time). In addition, a 24 hour community feedback line would be maintained during the temporary trucking campaign.

Whitehaven would also inspect all trucks prior to use to ensure there is no excessive noise generation from the engine, exhaust or brakes. In addition, drivers would be instructed to avoid use of engine brakes and horns unless in the event of emergencies.

Cumulative Impacts

The Boggabri Coal Mine relies on the same rail system to transport coal to port that has been affected by the train derailment. It is understood that Idemitsu Boggabri Coal will are also seeking to modify the Boggabri Coal Mine Project Approval to allow temporary road transport of coal offsite. At this stage Idemitsu Boggabri Coal's proposed transport arrangements are not clear and as such it is difficult to conduct a cumulative assessment of potential impacts.

It is understood that Idemitsu Boggabri Coal are proposing to transport coal along Blue Vale Road (Figure 1), with the intention of using any excess capacity available through the Whitehaven CHPP and/or other rail loading facilities on the outskirts of Gunnedah. Therefore potential exists that cumulative impacts could occur along the 800 metre section of the Kamilaroi Highway between the Blue Vale Road and the Whitehaven CHPP Access Road. Given this section of road has been constructed to a high standard and the intersections are designed to handle high volumes of heavy vehicle movements, it is anticipated that the road infrastructure will be able to adequately handle the two campaign trucking proposals.

It is noted that while trucking from the Narrabri Coal Mine is being undertaken there would be an increased number of vehicles turning right from the Kamilaroi Highway to the Whitehaven CHPP Access Road (Figure 3). Notwithstanding that several waiting trucks can be accommodated in the dedicated right turn lane on the highway, trucks at the Blue Vale Road/Kamilaroi Highway intersection intending to access the Whitehaven CHPP (from the Tarrawonga and Rocglen Coal Mines, and any approved road transport from the Boggabri Coal Mine) would be required to visually check (and through radio contact if necessary) that there is sufficient space in the right turn lane for them to 'stack-up' and not impact on through traffic using the highway. This management measure addresses the Gunnedah Shire Council's comment regarding potential impacts at intersections.

Should the right turn lane on the Kamilaroi Highway become congested with vehicles turning into the Whitehaven CHPP, trucks travelling down the highway would be advised via UHF radio and be instructed to pull off the highway into a truck lay down area located on the Kamilaroi Highway approximately 1 km prior to the CHPP Access Road Intersection until such time as the congestion clears.

It is understood that Idemitsu Boggabri Coal will present a more detailed cumulative assessment in their modification application once there is more certainty around Boggabri Coal Mine's trucking requirements, and once negotiations regarding capacity at the Whitehaven CHPP have progressed.

Management Measures

Whitehaven will develop a Temporary Trucking Management Plan which will include a risk assessment and identify management measures to minimise potential impacts associated with the temporary trucking campaign.

A Whitehaven Project Manager would be responsible for the coordination of the temporary trucking campaign (including implementation of the Temporary Trucking Management Plan), and would be assisted by specialist managers from the trucking contractors at both the Narrabri Coal Mine and the Whitehaven CHPP. The Project Manager would be responsible for providing feedback to the drivers and the staff responsible for loading and unloading to increase efficiency and minimise impacts to other road users.

All truck drivers will be suitably licensed and will be instructed to comply with Whitehaven's existing contractor driver policy.

As with Whitehaven's existing protocol, coal haulage truck drivers maintain positive communication between themselves and the school bus drivers via UHF radio.

Whitehaven would regularly communicate with landholders near the CHPP during the trucking campaign to monitor impacts associated with the greater than usual CHPP throughput.

Whitehaven will provide fortnightly updates to the Department of Planning and Infrastructure regarding the trucking campaign, including:

- a summary of the truck movements conducted;
- an update of the anticipated duration of the campaign and status of the rail line repairs;
- any incidents related to the trucking campaign; and
- a summary of any complaints received.

Whitehaven will provide notice of the trucking campaign and regular updates to the public through weekly advertisement and/or public notice in local newspapers and on the Whitehaven website during the campaign, and via individual notification to landholders immediately adjacent to the proposed haul route. A hotline will be established (number to be advised in newspaper advertisement and on Whitehaven's website) to allow the community to access information regarding the trucking or to lodge complaints.

Proposed Modification

Whitehaven proposes that an additional condition be added to the Narrabri Coal Mine Project Approval (08_0144) regarding the emergency transport of coal by road:

> *During emergencies (such as the disruption of rail services) the Proponent may exceed the restriction in condition 7 above and transport coal by road to the Whitehaven Coal Handling and Processing Plant located in Gunnedah via the Kamilaroi Highway until such time as regular rail services are restored.*

Whitehaven would appreciate the Department of Planning and Infrastructure's timely assistance in this matter to ensure continuity of the Narrabri Coal Mine operations.

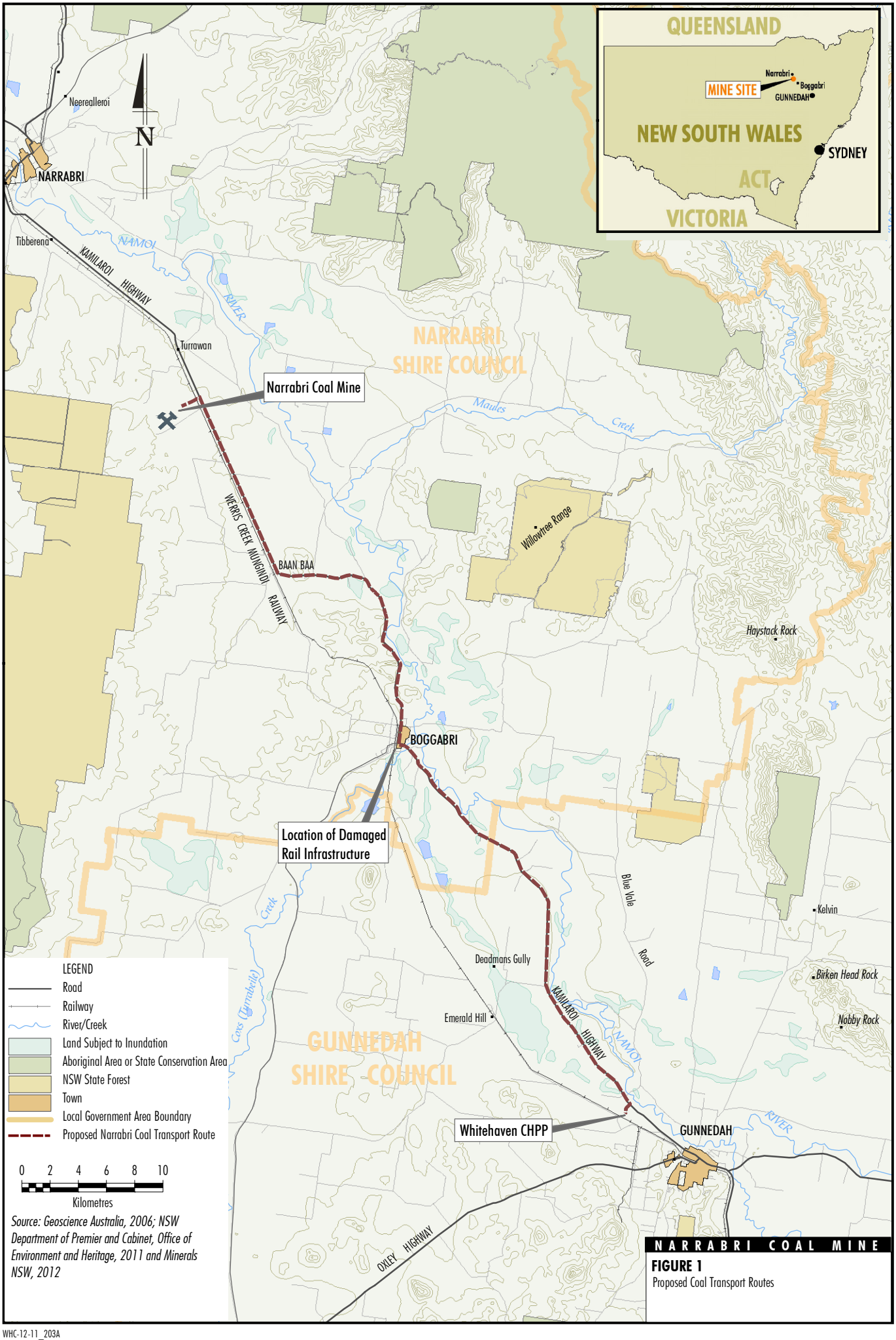
Please do not hesitate to contact the undersigned on (02) 6742 4337 if you would like to discuss.

Yours sincerely,
Whitehaven Coal Limited

Brian Cullen
General Manager – Technical Services

Figures
Attachment 1 Road Transport Assessment – GTA Consultants
Attachment 1 Road Noise Assessment – Wilkinson Murray

FIGURES



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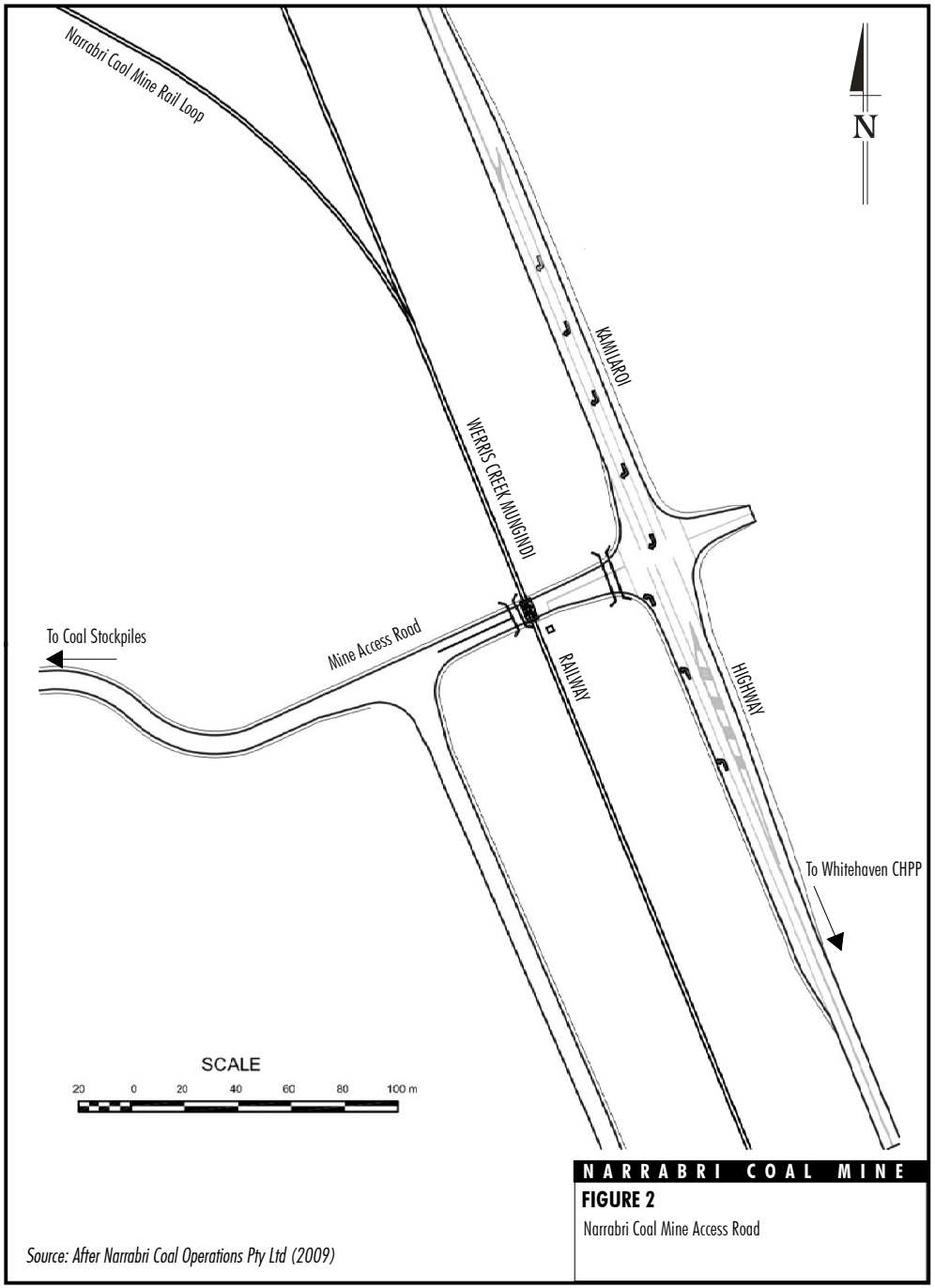

NARRABRI COAL MINE

FIGURE 2

Narrabri Coal Mine Access Road

Source: After Narrabri Coal Operations Pty Ltd (2009)

Source: Orthophoto - Department Land Property Information, Aerial Photo Flown (July 2011)

NARRABRI COAL MINE

FIGURE 3

Whitehaven CHPP Access Road

WHC-12-11_202A

ATTACHMENT 1

ROAD TRANSPORT ASSESSMENT

GTA CONSULTANTS

Our Ref: 13S1238000

5 December 2012

Whitehaven Coal Limited
c/- Resource Strategies Pty Ltd
PO Box 1842
MILTON QLD 4064

Attention: Mr. Brian Cullen

Dear Brian,

RE: NARRABRI COAL MINE MODIFICATION

This letter sets out GTA Consultants' assessment of the road transport implications of a proposed Modification to the approved operations at the Narrabri Coal Mine.

The Modification

It is understood that the derailment of a coal train between Gunnedah and Narrabri last week has stopped all rail transport on this section of the Main Northern Railway line. The rail line is expected to remain closed for an extended period to allow for reconstruction of the Cox's Creek Bridge structure.

Whitehaven Coal Limited's (Whitehaven) Narrabri Coal Mine is located approximately 25 km north-west of Boggabri. The Narrabri Coal Mine is approved to transport ROM coal using trains on the Main Northern line to the Port of Newcastle. The temporary closure of the railway line prevents the transport of Narrabri Coal Mine's ROM coal by rail.

The Modification proposes temporary haulage of coal from the Narrabri Coal Mine to the Whitehaven Coal Handling and Processing Plant (CHPP) near Gunnedah, where it will be loaded onto trains.

Under the proposed modification, loaded trucks would exit the Narrabri Coal Mine on the existing access road, turn right onto Kamilaroi Highway and travel approximately 65 kilometres south, then turn right into the Whitehaven CHPP access road just outside of Gunnedah. Empty trucks would return along the same route. The southernmost portion of the proposed temporary haulage route south of Blue Vale Road forms part of the approved Whitehaven haulage route for the Tarrawonga Coal Mine.

Coal transport by road is proposed between the hours of 6.00 am and 10.00 pm Monday to Saturday. No coal haulage would occur on Sundays or public holidays.

Coal haulage by road is proposed to commence as soon as possible, and thus is expected to occur over the upcoming school holiday period and into 2013, until such time as the railway line is reopened.

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Temporary Coal Haulage Route

Kamilaroi Highway (State Highway 29) is a State Road which provides a link between the upper Hunter region and the north-west of NSW, providing access to regional centres such as Gunnedah, Boggabri, Narrabri and Bourke. In the vicinity of the proposed temporary haulage route, Kamilaroi Highway typically has a single travel lane in each direction, with auxiliary turn lanes at some intersections, and a posted speed limit of 100 kilometres per hour (km/hr). At the Kamilaroi Highway intersection with the Whitehaven CHPP access road, Kamilaroi Highway is widened to provide a dedicated 140 metre (m) long right turn lane and a 400 m long left turn acceleration lane for the trucks turning into and out of the CHPP Access Road. These lanes accommodate the slower moving coal trucks on the Whitehaven haul route with minimum disruption to the through traffic on Kamilaroi Highway. This intersection is designed to accommodate the movement of the large coal trucks into and out of the CHPP.

Kamilaroi Highway passes through the town of Boggabri. Travelling from the north, Kamilaroi Highway extends southwards through the centre of the town, where it is known as Narrabri Road and Wee Waa Street, then passes through a left hand bend near the southern end of the town, exiting the town area near its south-eastern extent, where it is known as Grantham Street. Vehicles travelling along Kamilaroi Highway from south to north therefore turn right after entering town from the east. Priority at the intersection of Wee Waa Street and Grantham Street lies in the east-west route of Grantham Street. The northern and western approaches to this intersection are flared to accommodate the swept path of B doubles turning left and right between these approaches. Vehicles following Kamilaroi Highway through Boggabri are therefore required to "give way" at this intersection. Wee Waa Street has right of way at its intersections north of Grantham Street.

Between Caxton Street and Brent Street, adjacent to Boggabri Public School, Kamilaroi Highway is subject to a school zone speed limit of 40 km/hr. Elsewhere within the town, the posted speed limit on Kamilaroi Highway is 50 km/hr.

The intersection of Kamilaroi Highway and the Narrabri Coal Mine provides a left turn deceleration lane for vehicles turning into Kurrajong Creek Road (which joins the Mine Access Road) from the south. The intersection has regularly been used by heavy vehicles associated with the construction and operation of the Narrabri Coal Mine.

Along the length of the proposed temporary haulage route, Kamilaroi Highway is an RMS approved route for 25m/26m long B double vehicles and 4.6m high vehicles. It is noted that a parallel north-south route through Boggabri township is also approved for use by B doubles. This route is made up of Walton Street and Boston Street, and lies to the west of Kamilaroi Highway and the Main Northern Railway. Boston Street crosses the Main Northern Railway at a level crossing. Grantham Street west of Kamilaroi Highway is also an approved B double route, and crosses the Main Northern Railway via an overbridge.

The proposed coal haulage route is therefore considered to be designed to accommodate the movement of B doubles.

Surveyed Traffic Volumes on Proposed Haulage Route

Traffic surveys (*Tarrawonga Coal Project Road Transport Assessment*, Halcrow, 2011) were conducted on Kamilaroi Highway and the Whitehaven CHPP access road over one week during November-December 2010. These survey results provide data on the background traffic conditions along the proposed haulage route. The results are summarised in Table 1 for average weekday conditions.

Table 1: Surveyed Average Weekday Two Way Traffic 2010

Location	Kamilaroi Hwy North of Whitehaven CHPP	Kamilaroi Hwy North of Blue Vale Rd	Kamilaroi Hwy South of Rangari Rd	Whitehaven CHPP Access Rd
Daily Traffic Volumes[A]	3,188	2,488	2,028	673
AM Peak Hour Volume[B]	233	179	146	52
AM Peak Hour	8am to 9am	9am to 10am	8am to 9am	7 am to 8 am
PM Peak Hour Volume[B]	244	202	154	55
PM Peak Hour	3pm to 4pm	4pm to 5pm	4pm to 5pm	12pm to 1pm 5 pm to 6 pm
Percent Heavy Vehicles	31.9	54.9	18.8	80.1

[A] vehicles per day [B] vehicles per hour

With regard to the distribution of the peak hour traffic volumes near the intersection on Kamilaroi Highway and the Whitehaven CHPP Access Road, the following one way volumes noted Kamilaroi Highway and the CHPP access road during the key peak hours identified in Table 1.

Table 2: Surveyed Average Weekday Peak Hour Traffic by Direction 2010

	7-8am	8-9am	9-10am	3-4pm	4-5pm	5-6pm
Kamilaroi Highway north of Whitehaven CHPP						
Northbound	91	86	86	120	116	112
Southbound	105	147	126	124	122	121
Kamilaroi Highway north of Blue Vale Rd						
Northbound	70	73	72	105	102	88
Southbound	77	95	107	86	100	103
Whitehaven CHPP Access Road						
Westbound (in)	20	21	27	22	24	34
Eastbound (out)	32	27	24	24	19	21

It is noted that the primary turning movements in this area are associated with the "dog leg" movement between Blue Vale Road and the Whitehaven CHPP access road. A large proportion of the inbound traffic on the CHPP access road is thus expected to have turned right from the highway, and similarly, a significant proportion of the outbound traffic is expected to turn left onto the highway.

Traffic Growth and Holiday Traffic Conditions

Narrabri Shire Council has indicated that traffic data in the region suggests that the Average Daily Traffic tends to decrease during holiday periods, which is typically due to a decrease in heavy vehicle traffic.

It would be expected that some growth in traffic on Kamilaroi Highway may have occurred since the surveys were conducted two years ago. Historic AADT data for Kamilaroi Highway published by Roads and Maritime Services indicate that daily traffic volumes have tended to fluctuate without resulting in significant increases or decreases over time.

On balance it is considered that the survey results from late 2010 are a reasonable reflection of the current traffic conditions on Kamilaroi Highway, and on conditions expected over the upcoming school holiday period.

Midblock Level of Service on Proposed Haulage Route

The Austroads (2009) *Guide to Traffic Management Part 3: Traffic Studies and Analysis* provides guidelines for the capacity of two lane, two way rural roads, which in turn, refers to the *Highway Capacity Manual* (Transportation Research Board, 2000), known as HCM 2000.

The capacity of a road is defined as the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under the prevailing roadway, traffic and control conditions. The capacity of a single traffic lane will be affected by factors such as the pavement width and restricted lateral clearances, the presence of heavy vehicles and grades.

Level of Service (LOS) is defined as a qualitative measure describing the operational conditions within a traffic stream as perceived by drivers and/or passengers. A LOS definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. LOS A provides the best traffic conditions, with no restriction on desired travel speed or overtaking. LOS B to D describes progressively worse traffic conditions. LOS E occurs when traffic conditions are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre in the traffic stream. The service flow rate for LOS E is taken as the capacity of a lane or roadway.

HCM 2000 distinguishes between different categories of two lane two way roads, with Class I being roads on which motorists expect to travel at relatively high speeds. They most often serve long-distance trips or provide connecting links between facilities that serve long-distance trips. Class II roads are those on which motorists do not necessarily expect to travel at high speeds, and may function as access routes to Class I facilities, serve as scenic or recreational routes or pass through rugged terrain.

The LOS for Class I roads is defined in terms of both percent-time-spent-following (PTSF) and average travel speed. On Class II roads, LOS is defined only in terms of PTSF. Most arterial roads such as Kamilaroi Highway are considered to be Class I, however the primary determinant of a road's classification for operational analysis is the drivers' expectations, which may not necessarily agree with the functional classification. The PTSF is a measure of the level of opportunities to overtake. The LOS criteria for Class I and Class II two-lane highways are as shown in Table 3.

Table 3: Level of Service Criteria for Two Lane Highways

Level of Service	Class I Highways		Class II Highways
	Percent-Time-Spent-Following	Average Travel Speed (km/h)	Percent-Time-Spent-Following
A	≤ 35	> 90	≤ 40
B	> 35-50	> 80-90	> 40-55
C	> 50-65	> 70-80	> 55-70
D	> 65-80	> 60-70	> 70-85
E	>80	≤ 60	⟨ 85

Source: Exhibit 20-2 and Exhibit 20-4, HCM 2000

HCM 2000 presents detailed methods for calculating the PTSF, however it also presents a basic relationship between traffic flow rate and PTSF for base conditions on a two way road. This indicates that below a two way peak hourly two way volume of around 650 vehicles per hour, the PTSF would typically be below 40 percent, and LOS would be A for Class II roads (refer to Table 3). Below a two way peak hourly volume of around 550 vehicles per hour, the PTSF would typically be below 35 percent, and LOS would be A for Class I roads.

Comparing this against the peak hourly volumes presented in Table 1, it is clear that the existing peak hourly volumes on Kamilaroi Highway of around 146 to 244 vehicles per hour are well below the 550 pcu threshold for Level of Service A on Class I roads. Similarly, the existing peak hourly volumes on the CHPP Access Road of 52 to 55 vehicles per hour are well below the 650 pcu per hour threshold for Level of Service A on Class II roads. The Level of Service at each of the surveyed sites is therefore considered to be LOS A. More detailed analysis is not considered warranted in this case, as the peak hourly volumes are so far below the volume threshold where poorer service levels would result, and the terrain, traffic composition and road geometry is unlikely to result in significant impacts on the free flow speeds on the routes.

School Buses Near Proposed Haulage Route

Boggabri has two primary schools: Boggabri Public School on Merton Street and Sacred Heart Primary School on Laidlaw Street. Both schools are serviced by school buses. Sacred Heart Primary School has two bus services which operate from within the Boggabri area, which pick up and drop off children from the surrounding areas both to the north and south of Boggabri. Boggabri Primary School has one school bus, which provides a service within the Boggabri town and surrounds.

Modification Trip Generation

The Modification proposes use of the following fleet of 59 trucks:

- 10 side tip B Doubles with 40 tonnes per load
- 19 truck and dog combinations with 34 tonnes per load
- 30 single trailer trucks with 30 tonne load.

Each truck is expected to make seven deliveries per day, generating 413 trips from the Narrabri Coal Mine to the Whitehaven CHPP, and 413 return trips back to the Narrabri Coal Mine.

The first truck would depart the Narrabri Coal Mine approximately 6.00am, and would arrive at the Whitehaven CHPP at approximately 7.00am. The last truck would depart the Narrabri Coal Mine approximately 9.00pm, and would arrive at the Whitehaven CHPP before 10.00pm.

Over the proposed haulage hours, the trucks would generate an average of 26 loaded trips (southbound) and 26 empty trips (northbound) per hour. Some variation from the average number of trips per hour can be expected throughout the day.

Modification Impact on Traffic Volumes

Table 4 summarises the impacts of the Modification traffic on the background traffic conditions on Kamilaroi Highway and the Whitehaven CHPP Access Road.

Table 4: Surveyed and Modification Average Weekday Traffic

Location	Kamilaroi Hwy North of Whitehaven CHPP	Kamilaroi Hwy North of Blue Vale Rd	Kamilaroi Hwy South of Rangari Rd	Whitehaven CHPP Access Rd
Surveyed 2010				
Daily Traffic Volumes[A]	3,188	2,488	2,028	673
AM Peak Hour Volume[B]	233	179	146	52
PM Peak Hour Volume[B]	244	202	154	55
Percent Heavy Vehicles	31.9	54.9	18.8	80.1
Modification				
Daily Traffic Volumes[A]	826	826	826	826
Average Hourly Volume[B]	52	52	52	52
Percent Heavy Vehicles	100	100	100	100
Surveyed Plus Modification				
Daily Traffic Volumes[A]	4,014	3,314	2,854	1,499
AM Peak Hour Volume[B]	285	231	198	104
PM Peak Hour Volume[B]	296	254	206	107
Percent Heavy Vehicles	45.9	66.1	47.3	91.0

[A] vehicles per day [B] vehicles per hour

Table 4 indicates that based on the surveyed 2010 volumes on Kamilaroi Highway, peak hour volumes with the Modification would be expected to increase to approximately 300 vehicles per hour in the busiest section between the Whitehaven CHPP and Blue Vale Road. Farther to the north, the peak hourly volume on Kamilaroi Highway would be somewhat lower, at approximately 260 vehicles per hour north of Blue Vale Road and 210 vehicles per hour south of Rangari Road.

Table 5: Average Weekday Peak Hour Traffic by Direction With Modification

	7-8am	8-9am	9-10am	3-4pm	4-5pm	5-6pm
SURVEYED PLUS MODIFICATION						
Kamilaroi Highway north of Whitehaven CHPP						
Northbound	117	112	122	146	142	138
Southbound	131	173	152	150	148	147
Two Way	248	285	274	296	290	285
Kamilaroi Highway north of Blue Vale Rd						
Northbound	96	99	98	131	128	114
Southbound	103	121	133	112	126	129
Two Way	199	220	231	243	254	243
Whitehaven CHPP Access Road						
Westbound (in)	46	48	53	48	50	60
Eastbound (out)	58	53	50	50	45	47
Two Way	104	101	103	98	95	107

It is noted that the primary turning movements in this area are associated with the "dog leg" movements between the CHPP and Blue Vale Road, i.e., left turns out of Blue Vale Road and the CHPP access road, for which acceleration lanes are provided, and right turns into Blue Vale Road and the CHPP access road, for which right turn deceleration/storage lanes are provided.

Modification Impact on Midblock Level of Service

The expected peak hourly volumes with the Modification traffic presented in Table 5 indicate that peak hourly traffic would remain well below the general threshold level of 550 vehicles per hour on Kamilaroi Highway and 650 vehicles per hour on the CHPP access road. The Level of Service experienced at each is therefore considered to be LOS A. More detailed analysis is not considered warranted in this case, as the peak hourly volumes are so far below the volume threshold where poorer service levels would result, and the terrain, traffic composition and road geometry is unlikely to result in significant impacts on the free flow speeds on the routes.

Modification Impact on Intersection Operation

The Austroads *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings* (2007) presents a general guide to determine the need for a detailed traffic analysis of the capacity of intersections. When the volumes at an intersection are less than those shown inTable 6, a detailed analysis to demonstrate adequate capacity is available is unlikely to be required. Furthermore, flaring of the approaches is unlikely to be needed based on capacity, although separate lanes for left or right turning vehicles may be desirable on the major road for safety reasons.

Table 6: Austroads Intersection Analysis Volume Thresholds

Major Road Type	Major Road Flow (vehicles per hour)	Minor Road Flow (vehicles per hour)
Two-lane	400 500 650	250 200 100
Four-lane	1,000 1,500 2,000	100 50 25

Comparing the expected peak hourly volumes in Table 5 with the thresholds in Table 6 indicates that the expected volumes on the Kamilaroi Highway of around 300 vehicles per hour and CHPP access road of around 100 vehicles per hour would remain well below the thresholds beyond which further capacity analysis is required for a two lane major road.

It is noted that the presence of a high proportion of heavy vehicles at the intersection would decrease the capacity of the intersection, as the heavy vehicles require greater gaps in order to turn. It is considered that as the forecast volumes with the Modification are well below the threshold levels and that left turn acceleration and right turn deceleration/storage lanes are already provided, sufficient capacity would be available at the intersection.

The right turn lane at the CHPP access road intersection is 140 m long, which would allow up to five B doubles to queue without blocking the southbound through traffic on Kamilaroi Highway.

Existing and future turning movements at the intersection of Kamilaroi Highway and the Narrabri Coal Mine Access Road are generally expected to be lower than those at the aforementioned intersection with the CHPP Access Road. It follows that the Narrabri Coal Mine Access Road intersection would have sufficient capacity to accommodate the Modification traffic. The left turn lane at the Narrabri Coal Mine Access Road is approximately 150 m long, which would allow up to five B doubles to queue without blocking the northbound through traffic on Kamilaroi Highway.

Modification Impact in Boggabri Township

Northbound trucks would be required to "give way" to turn right from Kamilaroi Highway/Grantham Street into Kamilaroi Highway/Wee Waa Street. Similarly southbound trucks would be required to "give way" to turn left in the reverse direction. The intersection is designed to accommodate the path of B doubles turning left and right, thus would satisfactorily accommodate the path of the coal haulage trucks.

The sealed shoulder on the southern side of Grantham Street would allow following through cars to pass around a coal truck which slows or stops in order to turn right into Wee Waa Street. Sight distances at the intersection are good, and the additional Modification trucks are not expected to significantly impact on the operation of the intersection.

Drivers would be required to slow to the posted speed limit of 50 km/hr through town, and 40 km/hr at the school zone on Wee Waa Street during school terms. The bend in the route at the southern end of town would encourage the northbound truck drivers to enter town at low speed. Southbound trucks drivers are required to slow to 50 km/hr on Kamilaroi Highway some 350 m north of the town.

Modification Impact on School Buses

The proposed Modification would increase the potential for the school buses in and around Boggabri to interact with the coal haulage trucks, noting that school term for students concludes on Wednesday 19 December, and recommences Wednesday 30 January 2013.

It is recommended that the coal trucks associated with the Modification be required to reduce speed to 40 km/hr when travelling in the vicinity of a school bus.

Boggabri Coal Mine

Boggabri Coal Mine is located north-east of Boggabri, and relies on the Main Northern Railway to transport its coal to the Port of Newcastle. It is similarly impacts by the closure of the railway line. It is understood that Idemitsu Boggabri Coal will also seek a Modification to allow the temporary transport of coal by road. At this stage, the proposed transport arrangements are not known.

The likely route to be used for the transport of coal from Boggabri Coal Mine would be via the Whitehaven haulage route along Blue Vale Road to make use of spare capacity at the Whitehaven CHPP and/or other rail loading facilities near Gunnedah. In this event, the section of Kamilaroi Highway between Blue Vale Road and the Whitehaven CHPP Access Road would carry trucks associated with both the Boggabri Coal Mine and Narrabri Coal Mine, as well as the existing Tarrawonga Coal Mine and Rocglen Coal Mine trucks.

As details of the Idemitsu Boggabri Coal's transport intentions are not known, quantitative assessment of the possible cumulative impacts on this section of Kamilaroi Highway cannot be undertaken. In general terms, should Boggabri Coal Mine transport coal via Blue Vale Road to Whitehaven CHPP, the number of trucks turning right into the Whitehaven CHPP access road would increase above the aforementioned forecast volumes. Should the increase be significant, management procedures may be required to ensure that coal trucks on Blue Vale Road do not enter Kamilaroi Highway unless there is space available in the right turn bay to store the vehicle clear of the southbound through traffic on Kamilaroi Highway. This can be appropriately dealt with once Idemitsu Boggabri Coal's coal transport arrangements are identified.

Transport Management

In summary, the temporary transport of coal from Narrabri Coal Mine to the Whitehaven CHPP would be subject to the following:

- Trucks to operate between 6.00 am and 10.00 pm Monday to Saturday. No coal haulage would occur on Sundays or public holidays.
- Trucks to use the following route: Narrabri Coal Mine Access Road – Kamilaroi Highway (Narrabri Road– Wee Waa Street – Grantham Street) – Whitehaven CHPP Access Road.
- Drivers to adhere to posted speed limits and advisory speeds, particularly noting the 40 km/hr school zone in Boggabri during school terms.
- Drivers to reduce speed to 40 km/hr in the vicinity of school buses.

Summary and Conclusions

The Modification to the approved coal transport arrangements for the Narrabri Coal Mine proposes temporary use of the Narrabri Coal Mine Access Road, Kamilaroi Highway and Whitehaven CHPP Access Road to transport coal for loading onto trains to the Port of Newcastle during closure of the Main Northern railway.

The proposed haulage protocol is consistent with the operational hours and vehicle types currently accessing the Whitehaven CHPP.

The proposed haulage route is an approved route for B doubles, and so can be expected to satisfactorily accommodate the vehicle types proposed for the Modification.

Existing levels of service along the proposed haulage route would remain good with the Modification traffic.

The intersections of Kamilaroi Highway with the Narrabri Coal Mine Access Road and the Whitehaven CHPP Access Road are expected to have sufficient capacity to accommodate the Modification traffic.

Naturally, should you have any questions or require any further information, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS

Penny Dalton
Associate

ATTACHMENT 2

ROAD NOISE ASSESSMENT

WILKINSON MURRAY

WILKINSON MURRAY

5 December 2012

WM Project Number: 12347
Our Ref: WC051212 NG
Email: cberry@resourcestrategies.com.au

Mr Brian Cullen
Whitehaven Coal Limited
c/- Resource Strategies

Dear Mr Cullen

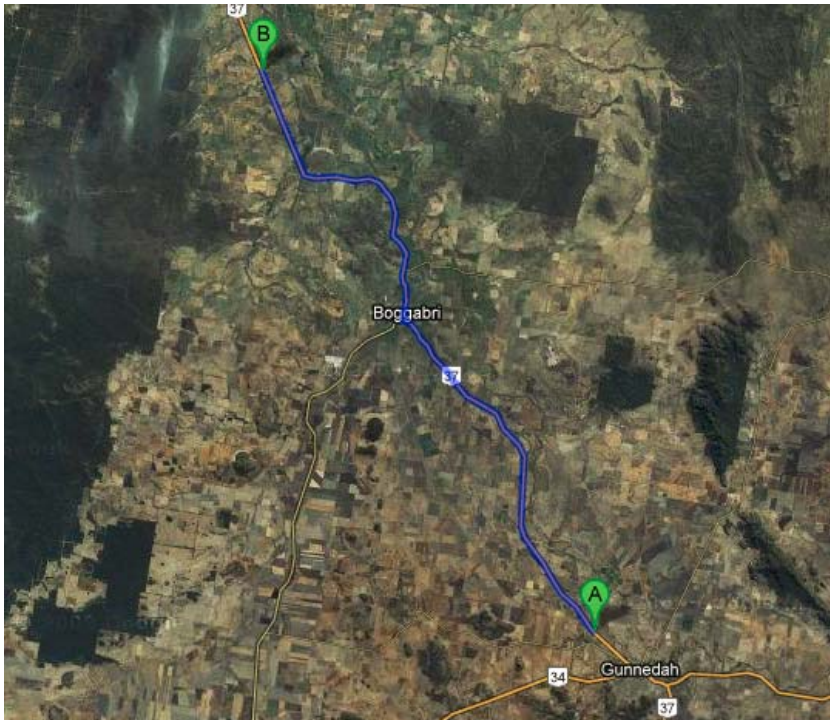
Re: Narrabri Coal - Temporary Trucking Noise Assessment

INTRODUCTION

Following the train derailment last week, until the rail line is operational, Whitehaven Coal requires temporary approval to truck coal from the Narrabri Coal Mine along the Kamilaroi Highway via Boggabri to the Whitehaven CHPP at Gunnedah.

Both the Mine and CHPP are located directly adjacent to the Highway, hence this assessment focuses on the change in traffic noise levels at residences located along the Highway.

The journey is approximately 65km and the CHPP typically receives coal from 7.00am to 10.00pm Monday to Saturday. On this basis, the first truck will leave the Mine at 6.00am.



ROAD TRAFFIC NOISE CRITERIA

Whilst the EPA *Road Noise Policy (RNP*) deals with new developments which increase traffic on the road network, there is no formal guideline which deals with a temporary change in traffic noise, such as the current proposal, and that which would occur for many projects during their construction phase.

For the permanent changes resulting from additional traffic on existing Highways generated by land use developments the criteria from Table 3 are:

- Daytime (7.00am to 10.00pm) $L_{Aeq,15hr}$ 60dBA
- Night time (10.00pm to 7.00am) $L_{Aeq,9hr}$ 55dBA

Section 2.5.5 of the *RNP* discusses shoulder periods which can be used if the existing noise environment increases to those typical of the daytime before 7.00am or after 10.00pm on a case by case basis.

Section 3.4 of the policy states:

> *In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.*

Further, Section 3.4.1, Step 4 of the *RNP* states:

> *For existing residences affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise should be limited to 2 dB above that of the corresponding "no build" option.*

TRAFFIC VOLUMES & TEMPORARAY INCREASES IN NOISE LEVEL

The following data has been made available by Whitehaven Coal in relation to the Kamilaroi Highway.

Location	Existing Traffic Volumes (Data from 2010)			
	Day (7.00am-10.00pm)		Night (10.00pm-7.00am)	
	Light	Heavy	Light	Heavy
Kamilaroi Highway – North of Boggabri, South of Rangari Road	1,448	322	211	47
Kamilaroi Highway – East of Blue Vale Road, West of CHPP Access Road	1,840	1,030	171	147

Source: Tarrawonga Coal Pty Ltd, 2011

Many of the heavy vehicles in the section between Blue Vale Road and the CHPP only apply to that short section of Highway. It is considered that the traffic volumes measured north of Boggabri would apply more generally to remaining section of the proposed haul route along the Kamilaroi Highway between the Narrabri Coal Mine and the intersection of Blue Vale Road.

Within Boggabri itself, it is expected the number of heavy vehicles would be similar, but there would be a number of light vehicle movements, particularly at daytime and evening which would decrease the proportion of coal haul trucks of the total traffic volume through the town.

The proposed two-way truck movements are summarised as follows

- Daytime (7.00am to 10.00pm) 770
- Night time (6.00am to 7.00am) 56

The predicted increase in noise levels for the proposed period of trucking is shown in the table below.

Location	Increase in Noise Level (dBA)	
	Daytime	Night Time
Kamilaroi Highway - North of Boggabri, South of Rangari Road	3.8	2.2
Kamilaroi Highway – East of Blue Vale Road, West of CHPP Access Road	1.9	1.3

The predicted noise levels show an increase in noise levels of 1.9dB and 3.8dB for the two modelling locations during daytime hours (7.00 am to 10.00 pm). For the night time period, the increase is 1.3dB and 2.2dB for the modelling locations.

The *RNP* states that:

> *In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.*
>
> *For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.*

It is clear that the increase in noise due to the temporary trucking campaign is greater than 2dB for most of the haulage route.

Whitehaven acknowledges the additional noise and will ensure all drivers contracted during this period are made aware of the situation. In this regard, the following measures will be strictly adopted:

- The proposed haulage hours of 6.00am to 10.00pm would be strictly adhered to, and would reduce amenity effects at the most noise sensitive times of day (i.e. night time).
- A 24-hour community feedback line would be maintained during the temporary trucking campaign.
- All trucks will be inspected prior to use for the trucking to ensure there is no excessive noise generation from engine, exhaust or brakes.
- No use of engine brakes except in emergencies.
- No use of horns to acknowledge other drivers.

We trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

Neil Gross
Director