Appendix B

Noise Impact Assessment

BRIDGES
ACOUSTICS

ABN: 73 254 053 305

78 Woodglen Close
P.O. Box 61
PATERSON NSW 2421

Phone : 02 4938 5866
Mobile: 0407 38 5866
E-mail: bridgesacoustics@bigpond.com

19 September 2013
Ref: J0130-69-L2

Hansen Bailey Pty Ltd
P.O. Box 473
SINGLETON NSW 2330

Attn: Ms Melissa Walker

Dear Mel,

MODIFICATION TO THE BOGGABRI COAL MINE PROJECT APPROVAL

BACKGROUND

The Boggabri Coal Mine is an existing open cut coal mine located approximately 15 km north east of Boggabri in the Gunnedah Basin of New South Wales. The proponent for the Boggabri Coal Project (the project) is Boggabri Coal Pty Limited (Boggabri Coal).

An application for Project Approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), including the Boggabri Coal Project Environmental Assessment (Boggabri EA) (Hansen Bailey, 2010) was submitted to the NSW Department of Planning & Infrastructure (DP&I) in December 2010. Project Approval (PA) 09_0182 was granted on 18 July 2012 by the Planning Assessment Commission to facilitate:

- Continuation of mining operations via open cut methods up to 7 Mtpa product coal to the Merriown coal seam;
- Open cut mining fleet including excavators and fleet of haul trucks, dozers, graders, water carts and other equipment with the flexibility to introduce a dragline as required utilising up to 500 employees;
- Modifications to existing and continuation of approved (but not yet constructed) infrastructure including:
  - CHPP;
  - Modifications to existing site infrastructure capacities including: Run of Mine (ROM) coal hopper, second crusher, stockpile area, coal loading facilities, water management and irrigation system;
  - Rail loop and 17 km rail line across the Namoi River and flood plain including overpasses across the Kamilaroi Highway, Therribri Road and Namoi River;
  - Upgrading and relocating site facilities including offices, car parking and maintenance sheds as and when required;
- Closing a section of Leard Forest Road; and
- Upgrading the power supply capacity to 132 kilovolt (kV) high voltage lines suitable for dragline operations.

THE MODIFICATION

This assessment considers acoustic issues associated with the following components:

- Construction of permanent mine access from the Kamilaroi Highway;
- Temporary storage of processed mine overburden material at the existing Rock Quarry and the reuse of this material during the construction of the rail spur embankments; and
- Reuse of the existing Daisymede laydown compound.

NOISE CRITERIA

The Project Approval for the Boggabri Coal Project includes Condition 5 of Schedule 3 which specifies an operating noise criterion of 35 LAeq,15min at all privately owned residences that are not subject to an agreement with Boggabri Coal.

Condition 2 of Schedule 3 specifies construction noise criteria of 50 LAeq,15min at Property 27, 45 LAeq,15min at Property 23 and 40 LAeq,15min at all other privately owned residences from any construction work associated with the approved rail spur. All other construction work associated with the Project is subject to the operational noise criteria noted above.

Construction noise associated with the access roads would be subject to the construction noise criteria, as these components are located adjacent to the rail spur and would be constructed concurrently with the rail spur. Noise associated with transport of overburden material from the mining area to the rail spur embankments, whether directly to the embankments or after temporary storage within the Rock Quarry, would also be subject to the construction noise criteria.

Adopted noise criteria are consistent with, or more stringent than, the NSW Industrial Noise Policy (INP) and the Interim Construction Noise Guideline (DECC, 2009).

MODIFICATION ASSESSMENT

CONSTRUCTION OF PERMANENT MINE ACCESS FROM KAMILAROI HIGHWAY

The Modification includes development of access road intersections from the Kamilaroi Highway to the existing Boggabri private haul road. Construction vehicles travelling to the Kamilaroi Highway access intersections would share the private haul road with coal haul trucks until the rail spur and associated train loading infrastructure is constructed and commissioned, at which time the coal haul trucks would cease operations and the Private Coal Haul Road would function only as a Mine Access Road for the majority of operational traffic.

The southern access intersection, comprising a connecting road approximately 170 m long between the Kamilaroi Highway and the private haul road, would be constructed approximately 750 m south of the existing overpass bridge carrying the private haul road over the Kamilaroi Highway. The northern access intersection, comprising a connecting road approximately 800 m long, would be constructed approximately 800 m north of the overpass bridge. Both intersections would include appropriate left in and left out turning lanes at the Kamilaroi Highway and private haul road intersections.

Worst case construction noise levels during development of the proposed access intersections would be generated during the earthmoving phase, which would typically include the following machines:

- An excavator;
- A backhoe loader;
- A fleet of three trucks;
- Two rollers;

- A grader; and
- A water cart.

A total sound power level of 114 LAeq,15min would be produced assuming all of the above listed equipment operates simultaneously within proposed the construction areas. While the total fleet may be spread over both road construction sites, this assessment assumes a worst case situation with the entire fleet concentrated within each site.

Closest privately owned residential receivers to each construction site are listed in Table 1 with predicted construction noise levels and approved noise criteria at each receiver. Predicted construction noise levels assume no topographical or other shielding and only consider distance attenuation to present a reasonable worst case assessment.

Table 1: Worst Case Access Road Construction Noise Levels, LAeq,15min.

Receiver	Access Road Construction		Cumulative Noise		Construction Noise Criteria
	Receiver Distance, m	Predicted Noise Level Range	Rail Spur Construction	Cumulative Noise Level	
23	1300 – 2100 m	44 – 39	36	45 - 41	45
27	1450 – 1960 m	43 – 40	38	44 - 42	50
32	2800 – 3850 m	37 – 34	<35	38 - 37	40
4	3150 – 4250 m	36 – 33	<35	37 - 36	40

Predicted noise levels in Table 1, from access road construction activities and from access road and rail spur construction combined, indicate no exceedances of the approved construction noise criteria at the closest assessed receivers. Construction noise levels would be lower than the worst case predicted levels for most of the time as the fleet is distributed over the access road work areas rather than concentrated at the closest point.

Predicted construction noise levels, during normal construction hours of 7 am to 6 pm Monday to Friday and 8 am to 1 pm on Saturday excluding public holidays, are therefore considered acceptable at all receivers. Construction work required outside the standard hours would be subject to an Out of Hours Work protocol as specified in Schedule 3 Condition 2 of the Project Approval.

Construction related traffic would primarily access the construction sites via the Kamilaroi Highway, therefore construction traffic noise issues are unlikely to occur at any receiver.

KAMILAROI HIGHWAY ACCESS OPERATIONS NOISE

Noise from coal trucks travelling along the private haul road was considered in the Boggabri EA, assuming up to 7 trucks operated along the road simultaneously to produce a combined truck sound power level of up to 120 dBA.

The Kamilaroi Highway access intersections would carry up to 300 cars and 4 trucks in the worst case hour, for a combined sound power level of 120 dBA which is similar to the sound power level produced by coal truck movements.

During construction of the Boggabri Rail Spur, it is anticipated that a significant proportion of construction traffic (including heavy vehicles) will use the proposed left in / left out intersections to access the site, including:

- Pre-approved construction related heavy vehicles associated with oversize and over mass vehicles;
- Pre-approved construction related light vehicles suitable for use on construction sites (i.e. vehicles that are certified for use on the respective construction sites);

- Operational heavy vehicles that either exceed 42.5 t or are oversize;
- Deliveries associated with the Boggabri Rail Spur; and
- Major deliveries associated with the CHPP.

Therefore worst case noise levels associated with primarily light vehicles accessing the Kamilaroi Highway would not coincide with worst case noise levels from coal trucks.

Traffic noise levels associated with use of the proposed Kamilaroi Highway access intersections and the private haul road would then be:

- Similar to the coal truck noise levels calculated in the EA during shift change periods, for a total of approximately 2 hours in each 24 hours. The noise contour figures in the Boggabri EA, which include noise from coal haulage trucks, therefore represent these maximum noise level periods; and
- Substantially lower than the coal truck noise levels predicted in the Boggabri EA during the remaining 22 hours of the day.

Noise levels from the proposed access intersections would therefore remain within the currently approved operational noise levels from the private haul road as assessed in the Boggabri EA.

Cumulative noise levels, from combined operation of the Kamilaroi Highway access intersections and the rail spur, would not occur during the majority of 15 minute periods as train noise from the rail spur would only occur intermittently and significant traffic noise would only occur during the shift change periods. While it is possible that train noise may occur during a period of peak traffic noise, such an occurrence would not occur regularly.

In addition, Appendix 3 of the recently released Rail Infrastructure Noise Guideline (EPA, 2013) recommends the INP amenity criteria apply to train noise from private rail spurs. For rural receivers, the INP amenity criteria are

- 50 LAeq,11hr day;
- 45 LAeq,4hr evening; and
- 40 LAeq,9hr night.

A train passby noise level of less than 40 LAeq,15min at all receivers, as shown in the Boggabri EA, is equivalent to a noise level below 28 LAeq,4hr evening and below 25 LAeq,9hr night. No cumulative noise impacts from simultaneous operation of the Kamilaroi Highway access intersections and the rail spur are expected to occur.

TEMPORARY STORAGE AND REUSE OF OVERBURDEN MATERIAL

Processed mine overburden material, principally containing crushed rock, is proposed to be temporarily stored within the existing Rock Quarry site approximately 500 m west of the private haul road and approximately 2,500 m from Receiver 27 which is the nearest privately owned residence.

Overburden material would be transported to the quarry using one or more truck and dog combinations which would produce a similar or lower noise level per truck passby than the approved coal haul trucks. With significantly fewer overburden truck movements, total noise from combined coal and overburden trucks would not be noticeably higher than the approved noise levels from coal trucks travelling on the private haul road.

Overburden material would be deposited on the ground within the quarry and a dozer may be required to operate intermittently within the quarry to consolidate the material stockpile. If required, the dozer would operate only during the day and would therefore produce a maximum noise level of 35 LAeq,15min at any privately owned receiver. Reuse of the processed overburden material would require a loader operating within the quarry to load the material into construction trucks, which would transport the material along the rail spur alignment to form the required embankments.

As the Boggabri EA considered rail spur construction noise levels from a large earthmoving fleet including trucks and scrapers, vehicle movements to transport embankment material have been adequately considered in the Boggabri EA and no additional construction noise is expected to occur at any receiver.

REUSE OF THE DAISYMEADE LAYDOWN COMPOUND

The Daisymede laydown compound is located adjacent to the private haul road approximately 450 m east of the Namoi River and would be used to store vehicles and materials during the construction and operational phases of the Project. Nearest receivers to the compound are Receiver 23 located approximately 1000 m to the south and Receiver 27 located approximately 1400 m to the south.

Intermittent vehicle movements within the compound would produce a similar noise level at each of the closest receivers as a coal haul truck travelling along the private haul road. Occasional use of a mobile crane to transfer materials or a front end loader to load bulk materials into trucks, during normal daytime construction hours, would produce a noise level up to 37 LAeq,15min at closest receivers which is well within the construction noise criteria at all receivers. Noise levels associated with the Daisymede Compound are therefore expected to be acceptable at all receivers.

Traffic noise levels associated with four vehicle movements per day or two vehicle movements per hour, would not contribute significant traffic noise or exceed relevant traffic noise criteria at any receiver.

CONCLUSION

This assessment has indicated noise levels from the Modification would have only a minor and acceptable effect on construction and operating noise levels at all privately owned receivers. No additional noise mitigation measures are required.

We trust this assessment provides sufficient information to assist in determining the Modification. Please contact the undersigned for any further information or discussion.

Yours faithfully,

MARK BRIDGES BE (Mech) (Hons) MAAS
Principal Consultant