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8 May 2023

Tony Dwyer
Whitehaven Coal Limited
231 Conadilly Street
Gunnedah NSW 2380

**Re: Tarrawonga Coal Mine
Road Haulage Hours Modification – Noise Impact Assessment
RWDI Reference No. 2304829**

Dear Tony,

Introduction

RWDI Australia (RWDI) has been commissioned by Whitehaven Coal Limited (Whitehaven) to prepare a noise impact assessment in support of a modification to Project Approval (PA) 11_0047 for the Tarrawonga Coal Mine (TCM).

The proposed modification (the Modification) would seek an extension of hours for the use of the Approved run-of-mine (ROM) Coal Transport Route between TCM and the Whitehaven Coal Handling and Preparation Plant (CHPP) at Gunnedah (**Figure 1**).

This letter has been prepared to review potential changes to the noise impacts on existing residences on privately-owned land along the Approved ROM Coal Transport Route.

Proposed Modification

Whitehaven is proposing a modification to PA 11_0047 to authorise additional road haulage hours on the Approved ROM Coal Transport Route (**Figure 1**).

If approved, the additional road haulage hours would enable the TCM to achieve the currently consented 3.5 million tonnes per annum (Mtpa) ROM coal transport from the TCM to the Whitehaven CHPP¹.

¹ In consideration of the cumulative coal transport limit of 3.5 Mtpa along the Approved ROM Coal Transport Route for the Rocglen, Vickery and Tarrawonga coal mines under PA 11_0047 Schedule 2, Condition 7a.

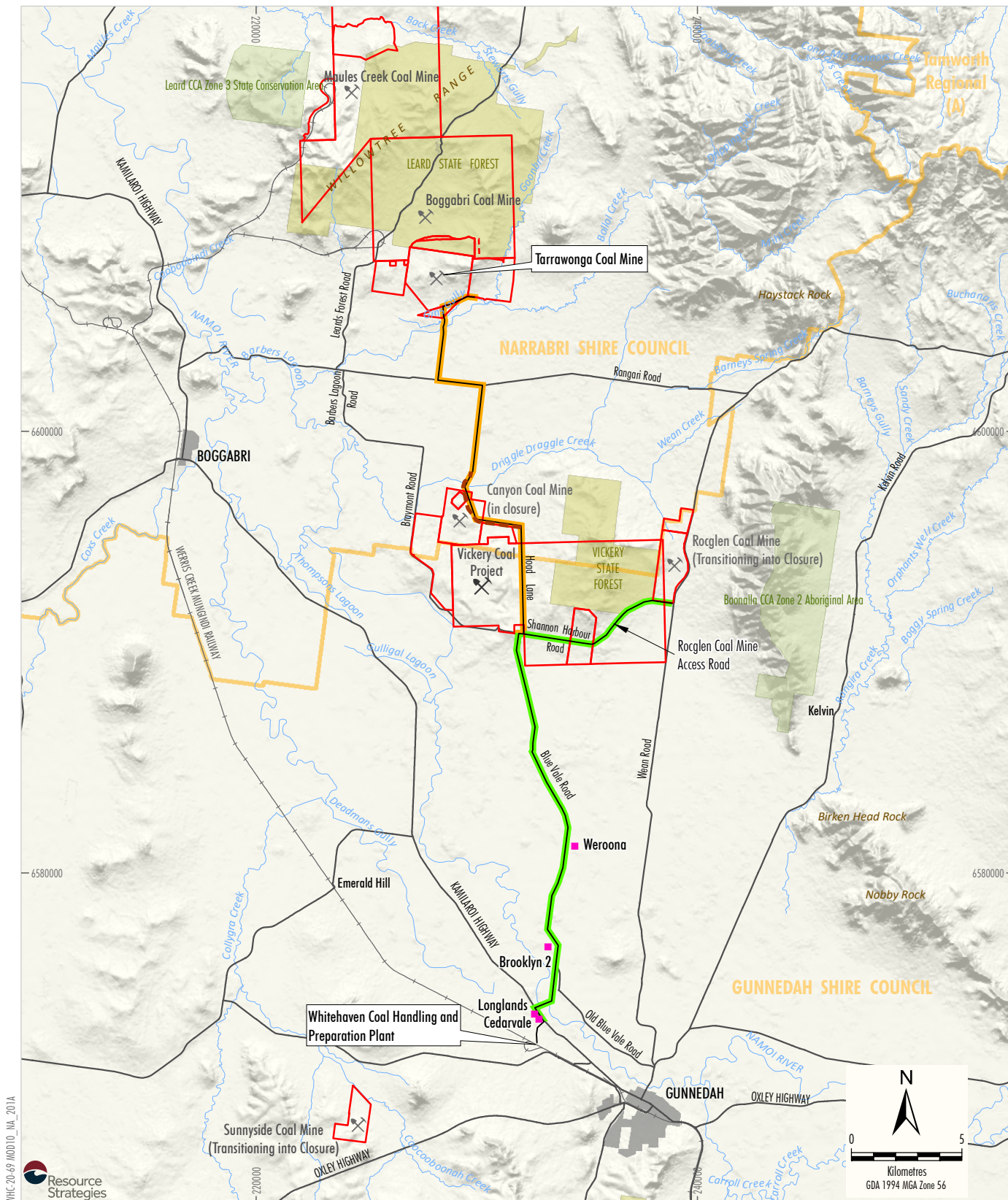


Figure 1

Table 1 summarises the changes to road haulage hours.

Table 1: Proposed Modification to Road Haulage Hours

TCM Component	Approved Hours	Proposed Hours
Road Haulage Hours	ROM Coal dispatch hours: 6:00 am to 9:15 pm Monday to Friday; and 7:00 am to 5:15 pm Saturday.	ROM Coal dispatch hours: 4:00 am to 11:15pm Monday to Friday; and 5:00 am to 7:15 pm Saturday.

Noise Criteria

Section 8 of the consolidated PA 11_0047 outlines the road traffic noise criteria. The Project Approval states:

The Proponent, together with the owners of the Rocglen and Vickery coal mines, shall ensure that the noise generated on public roads by the Project and the other mines, does not exceed the criteria in Table 4 at any existing residence on privately-owned land.

Table 4: Road traffic noise criteria dB(A)

Land	Day and Evening <i>L_{Aeq} (15 hour)</i>	Night <i>L_{Aeq} (9 hour)</i>
All privately-owned residences	60	55

However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

At the time of this assessment, ROM coal mining operations at the Rocglen Coal Mine has been completed and the mine is now transitioning to closure. Whitehaven has been granted approval for the Vickery Extension Project (VEP) (Development Consent SSD 7480) which has not yet commenced operation. Notwithstanding, this assessment will consider traffic contribution from the VEP. This is conservative as traffic movements associated with the TCM would be expected to reduce after commencement of the VEP to accommodate the cumulative coal transport limit of 3.5 Mtpa along the Approved ROM Coal Transport Route.

Review of Previous Compliance Noise Monitoring

As part of the TCM Road Noise Management Plan (Whitehaven, 2012), road traffic noise compliance monitoring is conducted every six months at the nearest residential locations to the Approved ROM Coal Transport Route. **Table 2** presents the measured road traffic noise levels associated with the TCM for the last four compliance monitoring sessions.

Table 2: Road Traffic Noise Compliance Results

Completed By	Period	Criteria Day and Evening ($L_{Aeq,15hour}$)	Measured $L_{Aeq,15hour}$		
			Brooklyn 1 (90 m)	Brooklyn 2 (480 m)	Weroona (280 m)
RWDI	June 2021	60	52	35	42
RWDI	December 2021	60	53	45	50
RWDI	June 2022	60	54	46	51
Spectrum Acoustics	November 2022	60	41	-	39

Table 2 indicates that the existing road traffic noise from mine vehicles are compliant with the road traffic noise criteria.

Noise Assessment

Noise Modelling

Traffic noise levels have been predicted using the *Calculation of Road Traffic Noise* (CoRTN) model developed by the Welsh Office of the UK Department of Transport (1988). The CoRTN method considers the following factors:

- Traffic flow volumes
- Average vehicle speed
- Percentage of heavy vehicles
- Gradient of road
- Type of road pavement
- Distance from receiver location to road
- Shielding from barriers / building and intervening topography
- Reflections from barriers / buildings
- Angle of view
- Building facade reflection correction
- Ground absorption

Traffic Volumes

The cumulative ROM coal haulage limit for the TCM, VEP and Rocglen Coal Mine is 3.5 Mtpa. The currently approved road transport rate of 3.5 Mtpa corresponds to a daily traffic volume of 612 and 412 trips for weekdays and Saturdays, respectively (where a truck moving from the mine to Whitehaven CHPP and back to the mine is counted as two trips). This corresponds to an average of approximately 40 trips per hour for a 15-hour period.

The Modification proposes 19 hours and 14 hours of haulage on weekdays and Saturdays, respectively. This corresponds to an average of approximately 32 hourly trips on weekdays and 29 hourly trips on Saturdays. When considering the recently upgraded fleet with higher payload, this would be reduced to approximately 23 hourly trips on weekdays and 21 hourly trips on Saturdays. However, for assessment purposes, the former fleet with lower payload was conservatively assumed. Although, the newer fleet incorporates larger vehicles, it is expected there would be marginal difference in noise levels generated by the two truck types. This is because receivers are exposed to vehicles travelling at a high speed of 80 to 100 kilometres per hour, where tyre/road noise dominate vehicle noise emissions. As such, modelling of the former fleet with higher volumes would provide a more conservative assessment.

Table 3 presents the daily haulage volumes from the TCM with and without the Modification.

Table 3: TCM Haulage Volumes

Road	Number of Trips			
	Approved Operation		Modification	
	Day	Night	Day	Night
Weekday				
Blue Vale Road	572	40 ¹	477	136 ²
Kamilaroi Highway	572	40 ¹	477	136 ²
Weekend				
Blue Vale Road	412	0	355	58 ³
Kamilaroi Highway	412	0	355	58 ³

Notes:

Trip = movement to or from the TCM.

Day = 7:00 am – 10:00 pm; Night = 10:00 pm – 7:00 am.

Note 1: Night trips between 6:00 am and 7:00 am.

Note 2: Night trips between 4:00 am and 7:00 am, and between 10:00 pm and 11:15 pm.

Note 3: Night trips between 5:00 am and 7:00 am

Predicted Road Traffic Noise Levels

Noise predictions were completed to four of the most impacted receivers along the Approved ROM Coal Transport Route. “Brooklyn 1”, “Brooklyn 2”, and “Weroona” are receivers identified in the Road Noise Management Program, however receiver “Brooklyn 1” has been demolished and is not considered in this assessment. “Longlands” is located on Kamilaroi Highway and was assessed in the VEP Noise and Blasting Assessment (Wilkinson Murray, 2018). In addition, “Cedarvale” located on the Kamilaroi Highway, has been assessed in this report.

The location of these receivers is shown on **Figure 1**.

Table 4 presents the predicted noise levels under the conservative assumptions noted above. The predictions have assumed trips would be evenly distributed across the haulage period. **Table 4** indicates that the noise levels generated by mine vehicles along the Approved ROM Coal Transport Route are not expected to exceed the relevant road traffic noise criteria with the Modification in place.

Table 4: Predicted Road Traffic Noise Levels

Receiver	Predicted Noise Level (dBA)			
	Weekday		Weekend	
	Day LAeq,15hr	Night LAeq,9hr	Day LAeq,15hr	Night LAeq,9hr
Criteria	60	55	60	55
Brooklyn 2	44	37	43	31
Weroona	47	41	46	34
Longlands	56	49	54	42
Cedarvale	54	48	53	41



Conclusion

RWDI has completed a noise impact assessment in support of the proposed modification to PA 11_0047 for the TCM. The Modification is for the extension of hours for the use of the Approved ROM Coal Transport Route.

The assessment has confirmed that the proposed extension of hours for the use of the Approved ROM Coal Transport Route would result in no adverse noise impacts, and noise emissions would remain compliant with the Project Approval.

Regards

A handwritten signature in grey ink, appearing to read 'Peter Thang', with a horizontal line drawn through it.

Peter Thang
Project Engineer
RWDI

This letter-style report entitled "Tarrawonga Coal Mine Haulage Hours Modification – Noise Impact Assessment", dated 2 May 2023, was prepared by RWDI Australia Pty Ltd ("RWDI") for Resource Strategies Pty Ltd ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared.

Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.