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By email
18 July 2022

President
Hunter Thoroughbred Breeders Association

Your ref Mount Pleasant Optimisation Project
Our ref 263477-12

Dear Sir/Madam

Confidential and Without Prejudice

Mount Pleasant Optimisation Project
Preliminary Review of Noise and Blasting Impacts

Arup Pty Ltd (Arup) has been retained by the Hunter Thoroughbred Breeders Association (HTBA) to undertake a review of the noise impact assessment for the proposed Mount Pleasant Optimisation Project.

Arup has undertaken a high-level review of Wilkinson Murray's *Mount Pleasant Optimisation Project, Noise & Blasting Assessment, Version A*, dated 14 December 2020 (WM Report).

Further, Arup has reviewed *Chapter 6.2 Noise* prepared by NSW Department of Planning and Environment dated May 2022 (NSW DPIE Report).

Arup's summary findings are listed below.

- The project is predicted to exceed the project noise limits at residential receivers (including those not subject to acquisition or noise mitigation rights).
- Arup has concerns with the methodology used to calculate the noise limits.
- The proposed mitigation measure: real time noise monitoring and cease to work have proven impracticable and not enforceable in other industries, there is no reason to suggest that it would be effective for this project.
- The cumulative noise assessment is deficient and fails to take into account significant noise sources at recently approved nearby extractive industries (mines) site.
- The nominated blasting criteria is based on minimising damage to structures. It does not take into account human comfort.

WM Report

Section 5.2 Background Noise Surveys

In previous application associated with Mount Pleasant application, MACH Energy and Wilkinson Murray relied on back ground noise measurements published in previous noise studies associated with Mount Pleasant Coal Mine. Although, this may be an acceptable practise, there was no clear and concise understanding that links the relevance of background noise measurements undertaken during the feasibility stage of Mount Pleasant which may be over two decade ago, to the current Application.

It is our standing that the WM Report continues to rely on data obtained prior to the submission of the Environmental Impact Statement (EIS) completed in 1997. If so, there is no definitive understanding within the WM Report that a noise assessment undertaken leading up to the submission of the EIS in 1997 is relevant for the current application.

It is acknowledged within the WM Report that background noise level measurements were undertaken between August and September 2020. It is understood to be a period when NSW was experiencing "lock-down". It is unclear, of the intent of "reconnaissance survey" as described in WM Report – while the NSW is experienced lock-down periods.

Since, MACH Energy and Wilkson Murray continue to rely on historical background noise levels undertaken by others for previous application compared to WM Report background noise levels undertaken during NSW lock-down periods, there remains uncertainly with regards to representation of the measured background levels when compared to unobstructed current day background noise levels.

Based on our experience, State Planning and Transportation Departments have excluded background noise measurements undertaken during the Covid-19 Pandemic, in particular during periods of lockdowns. For the NSW Department of Planning and Environment to accept the measured background noise levels undertaken in August – September 2020, further investigation is required to detail that the background noise measurement period was unimpacted by economic and transport activity as a result of the NSW lockdown.

It is best practise to undertake background noise level measurements to verify noise limits set by the NSW INP[1] and Development Consent DA 92/97. However, the timing of the background noise measurements detailed in the WM Report were conducted during a periods of lock-down uncertainty and without clarification and comparison between NSW lockdown periods and "normal-operating" periods there remains uncertainty of the usefulness of the background noise levels.

Section 5.5 Modifying Factor Adjustment & Section 6.8 Low-Frequency Noise Assessment Results

This section speculates about the impact of low frequency noise associated with the proposed expansion to the coal mine. The WM Report suggests that noise penalties may be applied *if* a future

[1] NSW EPA Industrial Noise Policy 2000

scenario demonstrates excessive low frequency noise. Since, low frequency noise is known to be common to mining activities an assessment acknowledging the impact of low frequency noise is to be included within the assessment. The assessment must demonstrate clearly how intrusive low frequency noise will be managed prior the commencement of operations.

Table 6-10 clearly details that most catchment areas will experience adverse low-frequency impacts. The WM Report does not apply the low frequency noise penalties to the noise assessment, however, aims to justify their actions by suggesting that low-frequency noise associated with mining operations from other sites has been accepted as normal practise and on that basis excluded the penalties from the assessment. The WM Reports states:

> *The low-frequency contents of the resultant spectra are generally found to be consistent with results from other low-frequency desktop assessments of comparable operations and to not reflect uncharacteristically high energy in the low frequencies of total noise emissions or unusual sound propagation pathways resulting in highly unbalanced spectra.*

Applying noise penalties once the project commences is inappropriate and reactive to a known noise source that has been demonstrated to contain adverse low-frequency component. The "worst-case" assessment has not been completed for the project. Further acknowledgement to low frequency noise impacts is likely to enhance and increase the number impacted noise sensitive receivers.

In addition, the assessment does not acknowledge surrounding extractive industry low frequency noise operations and the accumulative impacts from other like sources to the noise sensitive community.

In our opinion, this assessment fails to adequately assess the impacts of low-frequency noise to the community.

Section 6.1 Noise Modelling Methodology

The WM Report uses a software package known as ENM. ENM was developed in the early in 1990's, however is no longer supported, maintained or distributed by the developer RTA Technology (RTA). Further, RTA encourages the use of modern environmental noise modelling software such as SoundPlan or CadnaA.

ENM is no longer commercially available, hence updates from International Standards Organisation (ISO) are and NSW EPA Fact Sheet D are not included. It is unlikely the EPA or NSW Planning & Environment have the capability to operate ENM and on that basis are unable to verify noise predictions completed within the WM Report. For these reasons ENM is not considered *best practise*.

It should be noted that the 2017 NSW EPA *Noise Policy for Industry* (NSW INP) acknowledges the following:

- The NSW INP considers noise mitigation at *receiver* to be the least-preferred option and should only be considered once all other options have been exhausted. The VM Report applies the at-receive mitigation sparingly and widely.
- The assessment of temperature inversion conditions is described using stability category instead of temperature lapse rate. Hence, since ENM is no longer supported it is unlikely to have been adopted.

Further, although the WM Report presents validation process for onsite measurements undertaken 1 – 2 April 2020[2] and 15 – 16 April 2020. This period is considered too narrow and restrictive for the duration and extent of the proposed project. A valid period is to be in order of multiple weeks and months to appreciate repeatability of the data.

In our opinion the noise modelling and validation is incomplete. The noise modelling within the WM Report does not reflect best practise methodology.

Section 6.9 Operational Noise Levels Assessment

The WM Report identifies more than eighty (80) noise sensitive receivers where operational noise levels will exceed the project limits. The WM Report also counteracts the noise assessment for time correction, metrological conditions, "fleet" noise mitigation and (incomplete) cumulative noise level assessment. It is likely that *if* the above variables are considered then there will be an increase in the adversely impacted noise sensitive receivers.

It is unclear how the NSW Department of Planning and Environment suggests that the *"noise impacts of the project can be adequately minimised, managed or at least compensated"* – when it is clear from the WM Report that breaches of the Consent Conditions and Project Noise Limits are documented to occur.

To be clear, the NSW Department of Planning and Environment proposes to approve an application acknowledging that based on the EIS and the WM Report exceedances of the project noise limits will occur.

There are inconsistencies between WM Report with regards to rail movements and the expected extraction and delivery rate along the rail corridor. The WM Report is not consistent with the likely rail movements. In our opinion the WM Report has underestimated rail noise to the noise sensitive community.

Section 6.11.2 Cumulative Noise Level Assessment

The section refers to the assessment of cumulative noise from nearby extractive industry sites, to include Bengalla Mine, Mt Arthur Coal Mine, Mangoola Coal, Dartbrook Mine (approved in 1991).

However, the WM Report does not incorporate the Maxwell Mine – CHPP at Musewellbrook and the updated and now approved operations at Dartbrook – CHPP at Aberdeen (it was understood in 2018 that the assessment considered the CHPP would not operate). However, in 2020 it was

[2] Data impacted by adverse metrological conditions

acknowledged by Dartbrook that it would operate, and an additional noise impact assessment was completed. These two sites have not been considered however will contribute to the cumulative noise impacts.

It is likely that when Maxwell and Dartbrook are included in the Mount Pleasant Optimisation assessment the noise emissions from Maxwell and Dartbrook, will contribute to the cumulative noise levels and potentially increase the number of impacted noise sensitive receivers.

Section 9.1.2 Criteria for the Prevention of Structural Damage to Buildings

The WM Report refers to *Australian Standard 2187.2 – 2006 Explosives – Storage and use, Part 2: Use of explosives.* The regulatory framework suggests to also consider use of *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZECC).*

ANZECC suggests similar blast limits for structures and provides further guidance to control human comfort:

> *2.2.3 Experience has shown that for almost all sites a ppv of less than 1 mm/sec is generally achieved. It is recognised that this is not practicable to achieve a ppv of this level at all sites and hence a recommended maximum of 5 mm/sec has been selected. However, it is recommended that a level of 2 mm/sec (ppv) be considered as the long term regulatory goal for the control of ground vibration.*

The WM Report only considers limits with respect to structure. It is recommended that an appropriate human comfort criteria be established.

Further, since the Mount Pleasant Coal Mine is in the vicinity of operational mines it would be more accurate to demonstrate the monitored results rather than theoretical levels predicated by the WM Report which relies on generic assumptions.

We understand that current 2018 Mount Pleasant MOD 4 Consolidated consent *Schedule 3 Condition 12* permits one blast per day and a maximum of 5 blasts per week Monday to Saturday 9am to 5pm.

The WM Report (Section 9) proposes two (2) blasts per day and a maximum of eight (8) blasts per week. This result in an increase in blast events of up to 60% weekly. It is our understanding, that Mt Pleasant Mine received a fine in February 2021 from the NSW EPA regarding blast fume travelling off-site and impacting the nearby sensitive community.

Section 3.1.2 Real-time Noise Monitoring

The WM Report proposes to undertake real-time monitoring and meteorological forecasting systems to assist with managing noise levels.

The application of this form of noise mitigation has been discussed but has not been considered practical or effective and accordingly not implemented by other industrial noise sources, including wind farms and aviation.

For real time noise monitoring associated with aviation there is a considerable lag between identifying the aircraft and published noise levels. This is likely to be a security precaution. Hence, the monitoring is not considered real time.

For the wind farm industry, the real time noise monitoring has not been developed due to the following reasons:

- Dedicated and trained staff are required to monitor and play-back the audio recording to verify the noise sources.
- The microphone captures all noise sources such as natural noise sources to include insect and bird noise and wind noise in the trees. Unless the recordings are played back there is no known process for eliminate the extractive noise sources from natural noise sources on the recording.
- The process will misrepresent the actual noise levels.

The WM Report does not provide details of the proposed methodology to undertake real-time noise monitoring. Based on Arup's experience with developing the Arup SoundLab™ technology for the past two decades it is unlikely that Mount Pleasant will be implementing an effective real-time noise monitoring process.

Metrological conditions are likely to increase extractive industries noise levels to the noise sensitive community. During these events, Wilkinson Murray and MACH Energy propose to monitor in real-time and implement changes to their extractive operations to assist with complying with the project noise limits[3]. During adverse weather conditions, extractive industries noise levels will exceed the project noise limits.

Further it is proposed to suspend the use of critical fixed and mobile equipment during forecasted adverse metrological conditions. There is a high risk that real time noise monitoring will have no direct benefit in controlling noise emissions from the Subject Site.

The preferred approach is to demonstrate continuous compliance with the NPfI noise limits.

Protection of Tranquillity

Noise sensitive receivers have developed their properties to replicate areas of tranquillity for function and success of their business. This includes operations at Godolphin and Kelvinside; and the agricultural rural townships of Aberdeen and Kayuga. Areas of tranquillity are commonly defined as places that are relatively undisturbed by noise from human sources that undermine the intrinsic character of the area and generally has the following attributes:

- Low noise levels
- Natural sounds rather than man-made sounds and
- Natural features in the area

[3] It is noted that the project noise limits are higher than permitted noise levels prescribed by *Noise Policy for Industry 2017*.

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It is common practice in the UK and European Union to complete an assessment with regards to the potential impacts to tranquillity when assessing planning applications. It is therefore essential that the need to protect tranquillity is properly considered as part of the planning process.

We trust the above information is satisfactory, should you require additional information please do not hesitate to contact me.

Yours sincerely

[redacted]

Frank Butera
Associate

[redacted]

cc Beatty Hughes & Associates