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Planning and Assessment Division
Department of Planning, Industry and Environment
Returned via the Major Projects Portal

2 July 2021

Attention: James McDonough

EPA Advice on Submissions Report
Martins Creek Quarry Extension Project (SSD-6612)

Dear Mr McDonough

Thank you for the request for advice from Public Authority Consultation (PAE-21368016), requesting the review by the NSW Environment Protection Authority (EPA) of the Response to Submissions Report for the proposed Martins Creek Quarry Extension Project (Application SSD-6612) at Martins Creek near Paterson.

The EPA has reviewed the *Amended Development Application and Response to Submissions* (**RtS**), Umwelt, May 2021 including the following documents:

- Appendix D – Noise Impact Assessment, Umwelt ref: 3957/R04, dated May 2021 (**the NIA**)
- Appendix E – Air Quality Assessment, Martins Creek Quarry Expansion Project, Jacobs Group (Australia) Pty Ltd dated November 2020 (**the AQIA**)
- Appendix G – Blasting Impact Assessment, Peter Bellairs Consulting dated 7 May 2021
- Appendix N - Rail Logistics Options Report, Plateway dated 25 May 2021
- Appendix H – Groundwater Impact Assessment, Australasian Groundwater and Environmental Consultants Pty Ltd, March 2021
- Appendix I – Surface Water Impact Assessment, Umwelt, May 2021

Martins Creek Quarry is an existing hard rock quarry and holds Environmental Protection Licence 1378 to process up to 200,000 tonnes per annum. In 2014 a development application was submitted to consolidate existing approvals and expand the quarry. In 2016 the EPA sort further information to adequately assess the proposal.

The EPA understands the proposal is for:

- an increase in the rate of extraction and processing of hard rock material to 1.1 million tonnes per annum,
- an increase in the rate of road haulage of Quarry product up to 500,000 tonnes per annum,
- rail haulage up to 600,000 tonnes per annum,
- capping the maximum number of laden trucks dispatched per hour (20 from 7am to 3pm and 15 from 3pm to 6pm) and per day (140),
- construction and use of a new access road,
- the extension of the rail spur to facilitate train loading; and

- noise mitigation works including new noise barriers and cladding of processing infrastructure.

Based on the information provided in the RTS the EPA is unable to provide recommended conditions of approval for the proposal. These matters are discussed below in further detail.

Application of VLAMP and residential noise impacts

The new access road from Dungog Road is not anticipated to be built until Year 4, so the existing road access on Station Street is included in Scenario 1 (at Year 2). Scenario 1 also includes the existing rail loading facility until the new rail loading facility is built.

The EPA notes the predicted noise levels for Scenario 1 are greater than 5 dBA at twelve residential receivers. No further mitigation is proposed as the NIA (Section 5.1.1) states that under the NSW *Voluntary Land Acquisition and Mitigation Policy* (**VLAMP**) the site is 'an existing development with a legacy noise issue'. The NIA implies that the VLAMP does not apply to the premises under Scenario 1 as it represents a reduction in noise impact from the existing operation. The EPA notes that VLAMP only does not apply to existing developments '*where the modification would have beneficial or negligible noise impacts*'.

Due to the extent the predicted noise level exceeds the Project Noise Trigger Levels (**PNTL**s), the Department of Planning, Industry and Environment (Planning) should implement VLAMP to the proposal unless the proponent can implement mitigation to the extent that the VLAMP provisions do not apply.

Although Scenario 1 is a 'transitional' scenario (as described in Section 5.1.1) while the new access road and rail loading facility are built, it represents a significant noise impact on those twelve receivers for a period of up to 4 years.

Information Needed

1. Assess and advise if any other operational management measures can be implemented during the transitional time until year 4 when the new access road from Dungog Road is built. For example, can the operation be scaled back from what is proposed until the new access road and rail loading facility are built.

Evening and night time activities noise impacts

There are marginal, moderate and significant residual noise impacts described in Section 7 of the NIA. Section 8 describes proposed noise management measures for the premises, but not specifically to address the residual noise impacts. The predicted operational noise levels during the evening and night time period exceed the PNTLs by up to 9dBA at the nearest receivers to the rail loading facility. These are new activities for the evening and night time period, so should be assessed under the residual noise assessment methodology described in the Noise Policy for Industry (**NPfI**) and VLAMP.

Information Required

2. Further discussion to address the residual noise impacts should be provided. The EPA will not set noise limits that are greater than 5 dBA above PNTLs, so negotiation with affected receivers is recommended.

Further mitigation measures and controls are required to reduce predicted large increments

Modelling results exhibited in the AQIA show that large daily and annual increments (project–only) are predicted due to the proposal. For instance, based on Table 1 below, maximum predicted concentrations can be up to 100 % of the EPA's impact assessment criteria.

Table 1: Summary of the maximum predicted concentrations due to the proposal.

	PM_{10}	$PM_{2.5}$
Criteria	**50**	**25**
Maximum predicted 24-hr increment (*Percentage of the EPA's criterion*)	50 (*100 %*)	8.1 (*32 %*)
Criteria	**25**	**8**
Maximum predicted Annual increment (*Percentage of the EPA's criterion*)	19.1 (*76 %*)	3.1 (*39 %*)

These results are based on an annual throughput and a revised worst-case modelling scenario based on maximum daily material handling (including the proposed maximum truck movements) is likely to result in higher project-related increments.

In light of the above and considering the proximity to the most impacted receptors, a detailed review of best practice dust control measures is necessary to demonstrate that the proponent has evaluated and/or committed to all reasonable and feasible mitigation measures to prevent and minimise air pollution. Emphasis should be given to the largest emissions sources and the sources that contribute to the predicted incremental ground level concentrations.

Information Required

3. The proposed mitigation and management measures are benchmarked against best practice.
4. The AQIA takes incorporates all reasonable and feasible best practice mitigation and management measures. Justification must be provided for any identified best practice mitigation measures that are not proposed for implementation.

5. Consider project alternatives and/or further mitigation measures to manage any predicted significant incremental or cumulative impacts resulting from any revisions to the AQIA.

6. Any revised predicts significant incremental/cumulative impacts the proponent must consider project alternatives and/or further mitigation measures to manage those predicted impacts

The methodology adopted for assessing cumulative impacts has not been conducted in accordance with the Approved Methods for the Assessment and Modelling of Air Pollution in NSW

The AQIA states that a Level 1 assessment has been undertaken for assessing potential cumulative impacts. A Level 1 assessment requires that the maximum background concentration of the pollutant being assessed is added to the maximum 100th percentile dispersion model prediction to obtain the total impact for each averaging period.

Section 8 of the AQIA briefly discusses the methodology adopted for assessing cumulative impacts, however, is limited on information describing the method in detail. The EPA assumes that maximum PM_{10} (24 hour) background levels are captured with the ambient air monitoring data recorded at the 'Station Street Monitor". This monitor is a high-volume air sampler (HVAS) that records PM_{10} concentrations. The HVAS is a non- continuous monitoring instrument that only collects 24-hour averaged PM_{10} data every 6 days. The HVAS data collection cycle only covers approximately 17 % of the days within a year. A cumulative assessment method based on 1 monitoring location, conducted on a limited cycle, is not robust for adequately assessing potential worst-case cumulative impacts.

The maximum 100th percentile dispersion model prediction at each receptor is not used to estimate cumulative impacts as required for a Level 1 assessment. Instead, the predicted incremental change (i.e. difference between maximum predicted impacts from operations in 2015 and proposed operations) is used to estimate cumulative impacts. This approach is not consistent with a Level 1 assessment method and is not consistent with the cumulative assessment methods contained in Approved Methods for Modelling and Assessment of Air Pollutants in NSW.

The EPA cannot interpret the potential for exceedances of the EPA's cumulative impact assessment criteria. However, given the predicted significant project increments, it is likely that cumulative exceedances of the impact assessment criteria would be predicted.

Information Required

7. Provide a detailed cumulative impact assessment as per the Approved Methods.

The AQIA does not demonstrate that a reasonable worst-case scenario has been assessed

The estimated emissions from truck movements taking material off-site are based on the proposed annual throughput (1.1 Mtpa). Using the assumed truck capacity of 30 tonnes and based on truck haulage of quarry product only to occur Monday - Friday as proposed, this equates to approximately 64 loaded trucks per day (i.e. 128 daily trucks movements - in and out). However, the proposed maximum number of loaded trucks per day is 140 (i.e. 280 trucks movements per day - in and out). As such the AQIA has potentially underestimated worst-case emissions and hence worst-case potential impacts.

The inclusion of a worst-case modelling scenario based on maximum daily material handling (including the proposed maximum truck movements) is likely to result in higher project-related increments. Worst-case modelling scenario based on maximum daily material handling is necessary to understand the potential 24-hr PM_{10} and $PM_{2.5}$ impacts due to the proposal.

Information Required

8. Demonstrate that the assessed scenario is a reasonable worst- case scenario. Where robust demonstration & justification cannot be provided, revise the assessment to include a reasonable worst-case scenario.

All reasonable and practical measures to avoid a discharge are not demonstrated.

Total onsite storage is in excess of runoff containment requirements of *Managing Urban Stormwater – Soils and Construction Volume E: Mines and Quarries.* However, Dam 3 which has a capacity in excess of 400ML cannot hold large quantities of water without impeding extractive operations. The RtS has not indicated what the operational storage capacity of Dam 3 is before it impedes extractive operations.

The water balance for an average rainfall year indicates that the site currently discharges 138.7 ML per year (including 2.3 ML/year as an uncontrolled discharge). Under the current proposal, average discharges from the site would increase to 192.5ML per year (including 1.5ML/year as an uncontrolled discharge). The average number of controlled discharge days would increase from 60 to a maximum of 93 days per year.

It is unclear if all reasonable and practical measures have been explored to avoid or minimise discharges from site. The water balance indicates the site currently imports an average of 35.8ML of potable water per year, increasing to 76.9ML under the current proposal. Potable water is used for both processing and haul road dust suppression. The RtS notes that *'expanding the range of processing demands that may utilise captured stormwater rather than potable water only and maintaining higher water inventories within the WMS would reduce potable water demands.'*

Consideration should be given to increasing onsite storage capacity to enable all rainfall events to be captured within the storages, enabling greater reuse of water, and avoiding or minimising the need to discharge. The proponent's large land holding could also potentially accommodate a larger basin than the recommended minimum design criteria in Volume 2E to allow for longer management periods and therefore increased reuse.

If a discharge can be avoided further information (such as a discharge impact assessment) would not be required.

Information Required

9. Consider and discuss options to increase the onsite storage to enable increased reuse, reducing potable water demand, and avoiding or minimising the need for a discharge.
10. Provide an updated water balance detailing the predicted frequency, duration and volumes of water to be discharged under a range of scenarios (including typical and worst case).

A discharge characterisation and impact assessment for all likely pollutants has not been provided

The assessment includes recent water quality data from upstream, downstream and the onsite Dams 1 and 3. Monitored parameters include pH, electrical conductivity, TSS, turbidity, and nutrients. There is no characterisation of all pollutants that may be present at non-trivial levels, such as metals (including aluminium, iron, manganese, cadmium, copper, nickel, lead and zinc). Dam 3 also receives inflows of groundwater, which may also impact surface water quality.

The RtS indicated the ponds are dosed with a flocculent (Hifloc 20) and coagulant (Nalkat 7607). A Safety Data Sheet for the coagulant Nalkat 7607 is provided, however no further assessment of their potential impact on water quality has been provided. Chemical additives including flocculants can contain toxicants such as aluminium that also have the potential to cause harm to the environment.

Information Required

11. If the water balance indicates discharges from site are unavoidable, complete an updated discharge impact assessment for all pollutants that may be present at non-trivial concentrations.

    The Discharge Impact Assessment must include, at a minimum:

    a) identification of all the potential pollutants at non-trivial levels which may be present in a discharge from the site
    b) an assessment of the potential impact of discharges on receiving waters based on the discharge characterisation and with reference to the ANZG (2018) assessment criteria for slightly to moderately disturbed ecosystems and the NSW Water Quality Objectives
    c) specify the analytical limits of reporting used for any data that is being assessed
    d) compare the analytical limits of reporting to the relevant ANZG (2018) assessment criteria for slightly to moderately disturbed ecosystems
    e) where the limit of reporting does not provide a suitable basis for assessing risk, propose alternative options to characterise the risk, including more sensitive laboratory testing or risk mitigation options
    f) where pollutants have the potential to cause non-trivial harm in discharges, an investigation of practical measures that could be taken to avoid or minimise pollution.

The existing water quality within the onsite dams has the potential to cause non-trivial harm.

The RtS water quality data has identified high nutrient concentrations within Dam 1 and Dam 3. Total Nitrogen (TN) within Dam 1 (3.3-13 mg/L) and Dam 2 (2-17mg/L) is significantly higher the ANZECC (2000) guidelines (0.35mg/L). Oxides of Nitrogen (NOx) within Dam 1 (2.7 – 11mg/L) and Dam 2 (2 -17mg/L) is also significantly higher than the ANZECC (2000) guidelines (0.04mg/L).

While the nutrient concentrations upstream and downstream of the facility occasionally exceed the ANZECC (2000) guidelines, the maximum observed concentrations are still several orders of magnitude lower than those within Dam 1 and Dam 3.

The water quality results outlined above indicate the potential for non-trivial harm to receiving waters if discharged. If revised onsite management practices cannot avoid, mitigate and minimise discharges of elevated nutrients from site, a Pollution Reduction Program (PRP) may be needed to investigate the extent of the pollution and potential impacts to the environmental values of the receiving water.

If you have any questions about this request, please contact me on 02 4908 6891 or via email at jenny.lange@epa.nsw.gov.au.

Yours sincerely

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