Our ref: DOC21/457135-7
Your ref: SSD-6612

Mr James McDonough

Team Leader – Energy Resource Assessments
Planning and Assessment Division
Department of Planning, Industry and Environment
james.mcdonough@dpie.nsw.gov.au

Dear Mr McDonough

Martins Creek Quarry Project (SSD-6612) – Review of EIS

I refer to your e-mail dated 3 June 2021 in which the Planning and Assessment Division (P&A) of the Department of Planning, Industry and Environment (the Department) invited Biodiversity and Conservation Division (BCD) for advice in relation to the Martins Creek Quarry project (SSD-6612).

BCD have reviewed the Environmental Impact Statement, including relevant appendices, in relation to impacts on biodiversity (including matters of national environmental significance [MNES] under the *Environment Protection and Biodiversity Conservation Act 1999*) and flood risk assessment. BCD also reviewed information provided from the proponent for the biodiversity assessment received on 21 and 24 June 2021.

BCD's recommendations are provided in **Attachment A**. Detailed comments are provided in **Attachment B**. Information requirements for the assessment of Matters of National Environmental Significance are provided in **Attachment C**. If you require any further information regarding this matter, please contact Robert Gibson, Regional Biodiversity Conservation Officer, on 4927 3154 or via email at huntercentralcoast@environment.nsw.gov.au

Yours sincerely

STEVEN CRICK
Acting Senior Team Leader Planning
Hunter Central Coast Branch
Biodiversity and Conservation Division

Enclosure: Attachments A, B and C

Attachment A

BCD's recommendations

Martins Creek Quarry Project (SSD-6612)

Biodiversity

1. BCD recommends that further details are provided on the survey effort for *Cymbidium canaliculatum*, *Cynanchum elegans*, *Diuris pedunculata*, *Grevillea parviflora* ssp. *parviflora*, *Pterostylis chaetophora* and *Senna acclinis*.

2. BCD recommends that details of the biodiversity offset strategy are provided to the Biodiversity Conservation Trust, so that its details can be verified.

Matters of National Environmental Significance

3. BCD recommends that additional information on the assessment of Matters of National Environmental Significance is provided in Section 8 of the Biodiversity Assessment Report.

Flooding and flood risk

4. The impact of the interception of flows, concentration and frequency of discharge on receiving waters should be considered. Riparian vegetation and bank stability need to be monitored together with development of appropriate remedial actions if impacts are predicted.

5. The impact of changes in groundwater hydrology on riparian vegetation and any ground water dependent ecosystems should be considered.

6. The impact of local flooding on the safety of quarry workers including likely rate of rise and evacuation should be considered.

7. The hydraulic impacts of inclusion of large mine voids in the final landform on downstream flooding and streambank erosion should be assessed.

Attachment B

BCD's detailed comments

Martins Creek Quarry Project (SSD-6612)

Biodiversity

1. Further details are required of survey effort for six threatened plants

The Biodiversity Development Assessment Report (BDAR) does not provide enough detail about how the targeted survey effort for six threatened plant species meets BCD's threatened plant survey guidelines ('NSW Guide to Surveying Threatened Plants', February 2016). Chapter 4 of the 'Biodiversity Assessment Report Prepared for the Revised Martins Creek Quarry Extension project: Martins Creek' by Conacher Consulting (dated May 2021), presented as part of Appendix J of the Environmental Impact Statement, summarise previous flora surveys on the quarry site, and new surveys conducted for the extension project.

The survey methods described for threatened flora species do not state how transect spacing was chosen, particularly in relation to vegetation density. Several of the photos in Chapter 3 of the report show that vegetation communities include areas of dense vegetation, and more information is required on how those areas were adequately searched for threatened plants.

BCD's threatened plant survey guidelines (2016) require different transect spacing according to plant growth form, as summarised below.

Medium shrubs (1-6 metres) – transects up to 20 metres apart in open vegetation, or up to 10 metres apart in dense vegetation. The proponent used transects 20 metres apart, which is considered to be too far apart in areas of dense vegetation for the following species:

- *Grevillea parviflora ssp parviflora*
- *Senna acclinis*.

Orchids, epiphytes and climbers – transects up to 10 metres apart in open vegetation or up to 5 metres apart in dense vegetation. The proponent used transects 10 metres apart to survey for smaller plants. This is considered to be too far apart in areas of dense vegetation for the following species:

- *Cynanchum elegans*
- *Diuris pedunculata*
- *Pterostylis chaetophora*
- *Cymbidium canaliculatum*.

The description of the survey effort for *Eucalyptus glaucina* and *Rhodamnia rubescens* satisfies BCD's survey requirements.

BCD recommends that further information on threatened flora survey effort is provided that describes how BCD's threatened plant survey guidelines have been met, particularly in relation to width of survey transect, and the density of the vegetation surveyed. If BCD's survey guidelines have not been met, further survey may be required, or an Expert Report may be prepared, or the species may be assumed to be present.

Recommendation 1

BCD recommends that further details are provided on the survey effort for *Cymbidium canaliculatum*, *Cynanchum elegans*, *Diuris pedunculata*, *Grevillea parviflora* ssp. *parviflora*, *Pterostylis chaetophora* and *Senna acclinis*.

2. BCD is unable to verify details of the proposed biodiversity offset strategy

The 'Biodiversity Offset Strategy: Prepared for the Revised Martins Creek Quarry Extension Project, Martins Creek' (May 2021) by Conacher Consulting Pty Ltd does not include details that can be verified. The proposed offset strategy describes estimates ecosystem and species credit yields from potential land-based offsets adjacent to current, and proposed, quarrying activities, which may meet most of the offset obligations for the project. Other means of meeting offset obligations identified by the proponent include funding a Biodiversity Conservation Action or paying into the Biodiversity Conservation Fund.

Under the Biodiversity Offset Scheme there is no requirement for the proponent to provide details of an offset package in the EIS. Further, the offset requirements for the project would need to be changed from BioBanking Assessment Methodology credits to Biodiversity Assessment Method credits by a process of reasonable equivalence, for which no details have been provided. BCD is therefore unable to comment on the offset strategy for this project. However, those details will be required by the Biodiversity Conservation Trust

Recommendation 2

BCD recommends that details of the biodiversity offset strategy are provided to the Biodiversity Conservation Trust, so that its details can be verified.

Matters of National Environmental Significance

3. Further information is required on the assessment of Matters of National Environmental Significance

Section 8 'EPBC Act Key Issues Assessment' of the Biodiversity Assessment Report is an updated assessment of Matters of National Environmental Significance (MNES) for the project. This project was considered to be a controlled action (EPBC 2016/7725), for which the assessment was based on a larger proposed new area of quarrying. This section of the Biodiversity Assessment Report (BAR) includes an updated discission on the project's likely impacts to Ramsar wetlands of international importance, of any additional Matters of National Environmental Significance (MNES) for consideration, and updated tests of significance for six threatened species.

BCD will undertake a bilateral assessment of MNES for this project for the Commonwealth Department of Agriculture, Water and the Environment (DAWE). Some of the information required for the bilateral assessment is presented in Section 8 however, additional information is required for BCD to conduct the bilateral assessment, which is summarised in **Attachment C**. Therefore, Section 8 should be updated to contain the information required for the bilateral assessment.

Recommendation 3

BCD recommends that additional information on the assessment of Matters of National Environmental Significance is provided in Section 8 of the BAR.

Flooding and flood risk

4. The impact of the proposal on downstream waterways has not been adequately considered

The proposal includes interception of a first and second order stream for the west pit expansion. The surface water management report outlines that it will not be possible to route the clean water from the upstream portion of these streams around the proposed quarry site due to steep topography. This means that all runoff from the catchment of the two streams, including 16 hectares of undisturbed catchment, will be captured by the quarry water management system and be discharged by controlled or uncontrolled flow from the mine water dams. Treatment to relevant discharge standards should be required.

The water balance assessment indicates that loss of flow will occur due to evaporation from surface water storages, use in dust suppression and loss attached to product as a result of dust suppression. These losses amount to 42% of predicted total flow across the site. The flow which reports back to the downstream waterways will be discharged as pumped flow following treatment to acceptable standards. Flow will be altered in quality by chemical and physical treatment to meet discharge requirements. Flow will also be pumped at a relatively constant rate over a number of days rather than variable natural flow containing rising and falling hydrographs.

The number and type of discharge events occurring through operation of the quarry will be a substantial change from the natural hydrology of the site and the impacts of this on streambank erosion and riparian vegetation health has not been considered.

Section 6.1.3 of the surface water assessment states that no impacts on stream stability were observed following 47 days of discharge totalling 110 megalitres (ML) which occurred from the site in 2016. This statement is not supported by any monitoring data or streambank condition reporting. No assessment of the impact of reduced total flows or changed frequency and nature of flow on the receiving environment has been made.

Recommendation 4

The impact of the interception of flows, concentration and frequency of discharge on receiving waters should be considered. Riparian vegetation and bank stability need to be monitored together with development of appropriate remedial actions if impacts are predicted.

5. Impacts on ground water dependent ecosystems have not been given due consideration

The existing quarry operation is primarily being carried out above the water table level. The proposal involves a much deeper excavation. The groundwater assessment outlines that the proposal will excavate to 13.0m Australian Height Datum (AHD) although the schematic in Figure 5.13 and Figure 3.2 indicate that the deepest section of the pit will be of the order of 5.0m AHD. Clarification as to whether the stated depth is an average or maximum endpoint of the excavation is required.

In any event this extent of excavation effectively form a dam to which both surface flows and groundwater flows may report and subsequently require treatment and discharge via site water management facilities. This will change the nature of flow to the ephemeral waterways in a similar manner to the interception of the first and second order streams. The assessment of the interception of groundwater has been limited to the likely impact on groundwater licensing requirements. No assessment on hydrology or riparian vegetation has been carried out.

It should also be noted that existing bores do not appear to be at a depth which permits baseline monitoring of groundwater at the proposed final excavation depth.

Recommendation 5

The impact of changes in groundwater hydrology on riparian vegetation and any ground water dependent ecosystems should be considered.

6. Safety of quarry users and equipment in the event of flooding has not been considered

The quarry is outside of the mapped probable maximum flood (PMF) extent of the Paterson River based on the Paterson River Vacy to Greenrocks Flood Study 2017. However, this study only considered the main river and major tributaries. The minor water courses which pass through the quarry site were considered as catchment only.

The surface water assessment has concentrated on average flows in wet and dry years, and no assessment of the impact of a local flood event has been carried out. The pit void is noted to have significant storage volume (Section 3.0 of the Surface Water Study indicates 400ML), however; the depth of storage within the pit may pose significant risk to personnel and equipment together with extensive time to dewater in the event of a flood.

Recommendation 6

The impact of local flooding on the safety of quarry workers including likely rate of rise and evacuation should be considered.

7. Final rehabilitation strategy includes large permanent ponds of unknown hydrological and hydraulic impact

Figure 5.1 of the rehabilitation strategy indicates that two permanent voids will remain in the rehabilitated landscape. The west pit void is very large in size and the Surface Water Impacts Assessment indicates it will take approximately 22 years to fill. The smaller east pit is estimated in the report to take 8 years to fill. This means that water from within the catchment will not report to the downstream waterway for the full duration of the time taken to fill the remaining voids. During operation this water would be returned to downstream areas via pumping. These impacts will be exacerbated by ongoing evaporation loss from the voids.

Loss of water to the downstream ephemeral waterway is likely to have an impact on the riparian vegetation which has not been considered.

In addition, the manner of discharge to the downstream waterways in a flood event will also change post-rehabilitation. Once the storage fills discharge will be via weir flow to the receiving environment with unknown effect on downstream flooding and erosion. No assessment has been made on the changed hydraulic behaviour post rehabilitation.

Recommendation 7

The hydraulic impacts of inclusion of large mine voids in the final landform on downstream flooding and streambank erosion should be assessed.

Attachment C

BCD's information requirements for a bilateral assessment

Martins Creek Quarry Project (SSD-6612)

1. Identifying Matters of National Environmental Significance (MNES)

a) List all *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)-listed matters considered for the project. This may include threatened species, threatened communities, migratory species, and other environmental matters listed under the Act (as per the Commonwealth Department of Water, Agriculture and the Environment's (DAWE's) Referral Decision).

b) Provide a copy of the MNES Protected Matters Search Tool results, and the parameters used for the search. Discuss any changes to listed MNES between when the search was done and the referral decision was made.

c) List and discuss any other MNES that are additional to the Protected Matters Search Tool results. These include:

d) MNES specified in the Secretary's Environmental Assessment Requirements (SEARs)

e) MNES entities identified by DAWE as being likely or possibly significantly impacted by the project, that are listed in the Referral Decision Brief; and

f) any threatened species, threatened communities and migratory species identified as having the potential to be on or near the project site based on local knowledge, desk-top analysis (e.g. new BioNet records), and site surveys.

g) Provide an assessment of the likelihood of occurrence on, or near, the Project area for all MNES considered for the project, and a decision (with justification) by the proponent about whether an assessment of significance is required for those entities.

h) Describe how the 'significant impact criteria' has been applied to all MNES considered the be likely or possibly significantly affected from '4' (above), as well as all MNES identified by DAWE in the referral decision brief and in the SEARs. These criteria are provided in the 'Matters of National Environmental Significance: Significant impact guidelines 1.1 *Environment Protection and Biodiversity Conservation Act 1999*' (DoE, 2013).

2. Application of the Biodiversity Assessment Method to MNES

a) Discuss how the Biodiversity Assessment Method has been applied to all MNES considered in '5' (above), including survey effort. Targeted survey effort must include the use of any available species-specific guidance in the Threatened Biodiversity Data Collection. This discussion can be shorted by use of cross-references to relevant sections of the BDAR. However, the discussion must demonstrate how survey effort for EPBC Act-listed threatened species has met any available Commonwealth survey requirements – such as the 'Draft Survey Guidelines for Australia's Threatened Orchids: Guidelines for detecting orchids listed as 'threatened' under the *Environment Protection and Biodiversity Conservation Act 1999*' (DoEE, 2013). The discussion must also:

i. Include a list of all MNES threatened species considered for the project, and state whether they are 'Species Credit' species, 'Ecosystem Credit' species or dual credit species

ii. Include the EPBC Act and *Biodiversity Conservation Act 2016* status of each MNES

iii. Show how EPBC Act-listed threatened species that are 'Ecosystem Credit' species were adequately considered for the project

iv. Show how EPBC Act-listed threatened ecological communities (TECs) that are not also included in the BC Act, or differ in definition to comparable TECs in the BC Act were adequately considered; and

v. Show how dual credit species were assessed, and whether breeding habitat, 'core' habitat, or DPIES's 'Important Area Mapping' is present on the Project area.

b) If targeted surveys are not undertaken, then the proponent must provide an Expert Report to make a case of the presence or absence of a MNES entity on site or assume that they are present on Project site.

c) Provide the areas of occurrence or area of habitat and BAM credit liabilities for each MNES entity assessed for the Project.

d) Where EPBC Act-listed species are not addressed by the BAM (e.g. migratory species) show how those species have been assessed in accordance with the SEARs.

e) Where the proponent disagrees with DAWE's assessment in the Referral Decision brief that a particular species or ecological community is likely to be, or may be, significantly impacted by the project then a case needs to be made in the MNES assessment report.

3. Assessment of the impacts to MNES

a) Describe the nature and extent of all likely significant impacts to MNES by the Project.

b) Discuss the likely direct, indirect, cumulative and consequential impacts relevant to MNES.

c) Describe the size and nature of the impacts on the species, the populations and/or the extent of the community (including discussion of the scale of impact in relation to local, regional, state and national populations / habitat).

d) Discuss the nature and significance of impacts in the context of any relevant Approved Conservation Advice.

e) Include a statement whether any relevant impacts to MNES entities are likely to be unknown, unpredictable or irreversible; and

f) Include reference to any relevant policies or plans such as Recovery Plans and Threat Abatement Plans for each MNES.

g) Provide a table of all EPBC Act-listed TECs that may be significantly impacted by the project. For each Endangered Ecological Community, list the associated Plant Community Type (PCT) in the development footprint. Provide the area and number of ecosystem credits for each PCT.

h) Provide a table of all EPBC Act-listed species that may be significantly impacted by the project. For each species identify its credit type in BAM, list the associated PCTs that contain habitat for each species, and provide the area of impact and credits required by each PCT.

4. Measures to Avoid, mitigate and offset

a) Identify measures to avoid ad minimises impacts to relevant EPBC Act listed threatened species and communities. This section can be shorted by cross-referencing sections of the BDAR.

b) Discuss measures that are particular to the EPBC Act, such as Approved Conservation Advice, Recovery Plans and Threat Abatement Plans.

5. The Proposed Offset Package

NOTE: The BAM does not require details of the Biodiversity Offset Strategy for a project to be provided in the Environmental Impact Statement (EIS). However, those details will be required for assessment before a consent is likely to be granted. Therefore, the EIS can contain a commitment to offset impacts to MNES in a way that is compatible with EPBC Act requirements (unless the SEARS or DAWE's Referral Decision requires those details in the EIS). If details of the Biodiversity Offset Strategy are included in the EIS the BCD recommends that it includes the following:

a) Provide details of any offsets proposed in relation to residual significant adverse impacts, describe how they provide a like-for-like outcome, and how any land-based offsets will be secured. This must include an analysis of how the proposed offsets will contribute to the conservation and long-term protection of the species and communities. This must include an assessment of any indirect impacts that may require offsetting.

b) Discuss how like-for-like offsets will be provided for impacted MNES threatened species and TECs This must include MNES entities that are not fully considered under the BAM (e.g. ecosystem credit species, species not listed under the BC Act (e.g. migratory species), and Threatened Ecological Communities that have a different definition under the EPBC Act).

c) Show how the biodiversity values for the proposed offset components have been determined using the BAM.

d) Provide a table of the offset requirements for the project that lists for each MNES entity the credit obligation to be offset, the credits generated from offsets in remnant vegetation, the credits generated from any other means, and a discussion on how the offset meets the like-for-like requirements of the EPBC Act.