RE: DA2020/0073 – Extractive industry (Gravel Quarry) – Lot 24 DP 753920, Lot 15 DP 753928 and Crown Roads, 746 Mellburra Road.

I refer to the additional information requested on 28th April 2020.

1. Land affected by Development

a) Added additional land to DA – Updated DA application - attached

b) Consent from Crown lands - attached

c) Landowner for Lot 24 reflects land ownership – Updated DA application - attached

2. Development details

a. The number of staff to be employed

The staff to be employed will be casual staff as the quarry will only be operated for a small portion of the year. It is anticipated that at maximum production the quarry will employ 3 casual staff for approximately 40 days per year.

b. **Justification of how the development will operate in the absence of a site office/lunchroom**

The development is a small scale quarry that will only be operated for short periods of the year. Administration tasks will be undertaken at a home office that is remote to the quarry operation. Staff will be required to have lunch remotely similar to road construction crews that operate for short periods of time. Toilet facilities will either be portable as required or access made available at one of the farm residences on the property.

c. It is anticipated that the quarry will be staged generally in accordance with the site layout plan (attached)

i. Topsoil will be stripped and stockpiled on the eastern boundary of the development

ii. Ripping and winning the gravel commencing on the existing batter from the western side and progressing eastwards.

iii. Gravel stockpiles and processing on the western side of the development

iv. Rehabilitation will involve spreading the topsoil stockpiles evenly across the disturbed area utilising the existing seedbank in the soil. Consultation will be undertaken with the landowner to ensure rehabilitation is satisfactory.

d. Details of rehabilitation of the quarry, including both progressive and final rehabilitation

Due to the small scale and size of the quarry, progressive rehabilitation would not allow for the safe and efficient operation of the quarry. Final rehabilitation will involve ensuring that the final landform does not pose any safety risks to the final land use of the development. The slope of the development will ensure that no additional management measures are required to manage the land than that of the surrounding landscape. The topsoil stockpile will be re spread over the development to encourage the natural seedbank to germinate. The area will then be ripped to break up compaction and allow rainfall infiltration. To assist with achieving satisfactory groundcover, reseeding may be necessary and this will be done in consultation with the landowner.

e. Details of how quarry machinery and any other site vehicles will be refuelled and serviced

Fuel usage is anticpated to be approximately 800L per day, and this will be transported as required to site in a fuel trailer or portable tank on the back of a vehicle each day. Should any spills occur they will be appropriately contained and cleaned up. If required they will be reported to relevant agencies and disposed of in accordance with waste classification guidleines. As the quarry will only be operating for approximately 40 days per year major servicing will be scheduled so that it occurs offsite at an appropriate facility.

f. Details of the storage of any fuels, other petroleum, hydrocarbons, oils, lubricants, gas products, or combusitible goods onsite.

All fuels, oils, lubricants, hydrocarbons, gas products and combusitible goods if required will not trigger the threholds required for dangerous goods codes of pratise to apply. If required they will be in small quantities and transportable by a light vehicle.

g. Details of dust management for both operation of the quarry and traffic

Dust management will be undertaken to allow safe passage of trucks along the haul road and reduce potential nuisance dust. A number of factors are involved in the generation of dust for example, recent rainfall, moisture content, temperature, wind speed, inversions and frequency of truck movements which require active and adaptive management. Adaptive management of dust generation through communication with truck drivers will provide guidance as to wether measures are satisfactory. A water truck will be available when trucks are required to pass on the haul road. Trucks when leaving the quarry will not be able to travel in the dust plume of the previous truck. The dust generated from the ripping and processing of gravel will be minimised through the use a water cart as required.

h. Evidence is to be provided to demonstrate that the development does or will not disturb more than 2 Ha.

Area has been pegged by a surveyor as shown in site layout plan. All development related disturbance will be inside of the pegged area.

3. **Development Plans**

a. **A survey plan of the quarry area to show esisting contours (minimum 1m contour). This needs to extend to all parts of the quarry area required to enable to quarry to function.**

See attached plan

b. **A site layout plan, to a scale that is legible, that shows all components of the proposed development overlain over an aerial image. This is to include: Area to be quarried, stockpile areas, processing areas, access roads, amenities, water supply, any bunding**

See attached plan

c. **A concept soil and water management plan, prepared to a legible scale and utilising the contours from the survey plan, demonstrating how the run off from the quarry will be managed**

See attached plan

d. **If any new signage is proposed, a plan showing the location and dimensions of the proposed signage and signage structure.**

No signage proposed

4. **Traffic Assessment**

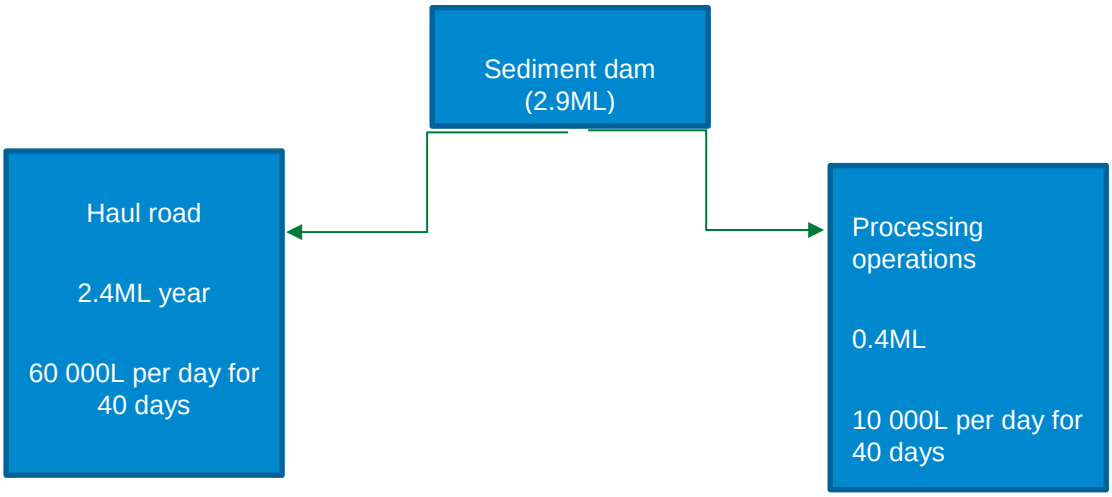
See attached Traffic Assessment

5. Water Supply

a. It is expected that a water supply will be required for dust management on site and on the haul road. In this regard, a water balance is to be provided outlining water demandof the development and supply available. It is necessary to demonstrate that the development can obtain sufficient water supply from legal sources for operation and development

Water will preferentially be sourced from the sediment dam at the quarry which has a surveyed capacity of 2.9ML In the event that this water is not sufficient for the operations then additional water will be sought from farm dams on the properties 'Glencairn' and 'Myall Valley'. It is expected that annual water use of for dust suppression will be approximately 2.8ML/year The maximum harvestable rights calculated for these properties is calculated at 167ML and attached a calculation provided in Appendix 1

Water balance



b. Details of any approvals required for the required water supply or demonstration that the supply can be obtained through harvestable rights.

Harvestable rights calculated for Glencairn and Myall Valley are 167ML, this calculation is attached in Appendix 1

6. Noise and Air Quality impacts

a. Sensitive receptors within 5km of the development site are to be identified on a plan that shows their location in relation to the quarry site.

Attached in Appendix 2

7. **Sepp 33 Hazardous & offensive development**

Further information is to be provided to demonstrate whether or not the development constitutes either a potentially hazardous industry or a potentially offensive industry as defined by SEPP 33.

In accordance with the risk screening method and management measures provided by the Department of Planning and Infrastructure (DP&I) document "Applying SEPP 33 Final" (2011), this appendix presents the details of the determination regarding the classification of the Quarry under SEPP 33. Industries or projects determined to be hazardous or potentially hazardous require the preparation of a Preliminary Hazard Analysis (PHA) in accordance with Clause 12 of SEPP 33. No further assessment under SEPP 33 is required for projects not considered potentially hazardous following a SEPP 33 Risk Assessment.

HAZARDOUS MATERIALS ON THE PROJECT SITE

Hazardous materials are defined within DP&I (2011) as substances falling within the classification of the Australian Code for Transportation of Dangerous Goods by Road and Rail (Dangerous Goods Code). Based on this definition, there will be no dangerous goods stored on site. No explosive will be stored or used on site. Diesel will be transported to site each day as required in portable trailer and is not classified as a dangerous good for transport.

Quarry personnel would be provided with instruction as to the correct refuelling, vehicle maintenance and other activities involving these materials to minimise the potential for spillage. Smoking or hot work within and around refuelling would be strictly prohibited.

Based upon the information presented SEPP 33 does not apply to the Quarry

8. **As the DA was lodged after 1 March 2020, SEPP 44 does not apply to the development; instead KHP SEPP applies.**
As there is no approved Koala Plan of Management for the site and the site is identified on the Koala Development Application Map and has an area of more than 1 hectare, clause 9 of the KHP SEPP applies to the proposed development.
In this regard, further information is to be provided, prepared by a suitably qualified and experienced person in accordance with the *Koala Habitat Protection Guideline* (prepared by the Department of Planning, Industry and Environment), demonstrating that:

   a. **the land does not include any trees belonging to the feed tree species listed in Schedule 2 for the relevant koala management area, or**

   b. **the land is not core koala habitat as defined by the SEPP and the Guideline.**

See attached assessment

9. **SEPP Mining, Petroleum Production & Extractive Industries 2007 (Mining SEPP)**

   a. **Clause 14 of the Mining SEPP requires the consent authority to consider an assessment of greenhouse gas emissions. In this regard, an assessment of greenhouse gas emissions is to be prepared by a suitably qualified person and submitted to Council for consideration. The GHG Emissions Assessment is to include consideration of downstream emissions and is to have regard to applicable State or national policies, programs or guidelines concerning greenhouse gas emissions.**

GREENHOUSE GAS EMISSIONS ASSESSMENT

A quantitative greenhouse gas assessment has been undertaken to estimate potential greenhouse gas (GHG) emissions associated with the Quarry. The developments electricity use will be minimal as no plant equipment will be electrically operated. Therefore, only fuel consumption is addressed in this assessment. Fuel consumption rates have been calculated based on an average extraction volume of 29,000 tonnes per annum and an upper limit extraction volume of 29,000T tonnes per annum over a Project lifetime of 10 years in relation to ripping, loading, handling of overburden and transport activities. As defined under the Kyoto Protocol, greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. As these gases vary in their global warming potential, their impacts are reported in equivalent quantities as tonnes or millions of tonnes of carbon dioxide (or t CO_2-e or Mt CO_2-e respectively).

Greenhouse gas emissions for the development were calculated by application of the Commonwealth Government's *National Greenhouse and Energy Reporting (Measurement) Determination 2008* and *National Greenhouse Accounts Factors* (Commonwealth Department of Environment and Energy 2016a).

GREENHOUSE GAS EMISSION SCOPES

The NGA Workbook defines three greenhouse gas emission scopes, which are defined as follows:

- Scope 1 emissions are those which result from activities under a company's control or from sources which they own (e.g. on-site generation of electricity, use of fuel in company-owned vehicles). Scope 1 emissions are also termed 'direct emissions'.
- Scope 2 emissions are those which relate to the generation of purchased electricity consumed in its owned or controlled equipment or operations.
- Scope 3 emissions are defined as those which do not result from the activities of a company although arise from sources not owned or controlled by the company (e.g. off-site transportation of purchased fuels, the use of sold products and services).

Scope 2 and 3 emissions are also termed 'indirect emissions'.

GREENHOUSE GAS CALCULATION METHODOLOGY

Quantification of potential Project emissions has been undertaken in relation to both Carbon Dioxide (CO2) and other non-CO2 GHG emissions. For comparative purposes, non-CO2 greenhouse gases are awarded a “CO2-equivalence” based on their contribution to the enhancement of the greenhouse effect. The CO2-equivalence of a gas is calculated using an index called the Global Warming Potential (GWP). The GWPs for a variety of non-CO2 greenhouse gases are contained within Table 24 of the NGA Workbook. The GWPs of relevance to this assessment are:

- Methane (CH4): GWP of 21 (21 times more effective as a greenhouse gas than CO2).
- Nitrous Oxide (N2O): GWP of 310 (310 times more effective as a greenhouse gas than CO2).

The short-lived gases such as CO, NO2, and NMVOCs vary spatially and it is consequently difficult to quantify their global radiative forcing impacts. For this reason, GWP values are generally not attributed to these gases nor have they been considered further as part of this assessment.

In accordance with the NGA Workbook, the greenhouse gas emissions that are required for measurement from the development are Direct (Scope 1) emissions relating to fuel combustion (for stationary energy and transport purposes), and Indirect (Scope 3) emissions associated with employee travel to and from the Project Site. Scope 2 emissions resulting from emissions associated with the purchase of electricity are not discussed further due to the minimal amount of electricity consumed during the operation.

Scope 1: Direct Emissions

Scope 1 GHG emissions attributable to diesel relate to the use of mobile equipment on site (e.g. Dozer, crushing plant etc.) The primary fuel source for the vehicles operating at the development site would diesel. Figures provided by the Proponent indicate annual diesel consumption at the development site of 35 kL/year for 29 000T per year.

Annual Scope 1 emissions of CO2 and other GHG from diesel combustion have been estimated using emission factors contained in Table 4 of the NGA Workbook. The emission factor of 69.9 kg CO2-e / GJ has been used, with the energy content of diesel oil 38.6 GJ/kL as per Table 4 of the NGA Workbook. The calculated Scope 1 diesel combustion related emissions for the development are presented in Table 1.

Table 1 Scope 1 Diesel Combustion Related GHG Emissions

Extraction Rate	**Consumption Rate (KL/Year)**	**GHG Emissions (t CO_{2-e}/ year)**			**Total Emissions (t CO_{2-e}/ year)**
		CO_2	**CH_4**	**N_2O**	
29 000T pa	35	93	1	1	95
10 000T pa	11	23	1	1	25

Scope 2: Electricity Indirect Emissions

GHG emissions associated with the consumption of electricity have not been calculated within this assessment as the Proponent has identified that electricity consumption will be minimal, powering only a small number of minor office based equipment not on site.

Scope 3: Other indirect Emissions

EMPLOYEE TRAVEL GHG emissions resulting from employee travel to and from the development Site can be calculated and accounted for under Scope 3 emissions. Employee vehicle movements have been estimated based on full-time staff numbers provided by the proponent and the following broad assumptions:

- Car fuel consumption rate of 10 L/100km.
- Average employee round trip distance of 30 km (assuming staff travel from Narrabri each day).

The annual emissions of CO2 and other GHG from this source have been estimated using Table 4 of the NGA Workbook. It has been assumed that an energy content of 34.2 MJ/L for petrol is applicable for employee travel (DCC 2009a). The Scope 3 emission factor for liquid fuel consumption (5.3 kg CO2-e/GJ, as per Table 38 of the NGA Workbook) has been applied to calculate total GHG emissions. Total annual Scope 3 GHG emissions related to employee travel are presented in Table 2.

Table 2 Scope 3 GHG Emissions – Product Transportation and Employee Travel

Scenario	**Petrol Consumption Rate (L/Year) Employee vehicles**	**Total $CO_{2\text{-}e}$ Emissions (T/Year)**
29 000T pa	360	65
10 000T pa	130	22

EXTRACTION, PRODUCTION AND TRANSPORT OF DIESEL CONSUMED

Scope 3 GHG emissions attributable to diesel used at the development relate to its extraction, production and transport. These emissions are associated with the diesel consumed by mobile equipment and transport and are separate from the emissions calculated in Table 1. The Scope 3 emission factor for liquid fuel consumption (5.3 kg CO2-e/GJ, as per Table 38 of the NGA Workbook) has been applied to calculate total GHG emissions. The calculated Scope 3 diesel combustion related emissions for the Project are presented in Table 3.

Table 3 Scope 3 Diesel Combustion Related GHG Emissions

Scenario	**Consumption Rate (KL/Year)**	**Total Emissions (t $CO_{2\text{-}e}$/ year)**
29 000T pa	*37*	*2*
10 000T pa	*10*	*1*

GREENHOUSE GAS EMISSIONS SUMMARY

Calculated Scope 1 and Scope 3 emissions of greenhouse gas resulting from the emissions sources outlined above are summarised in Table 4.

Table 4 Total GHG Emissions by development Scenario

Scenario	GHG Emissions (t $CO_{2\text{-}e}$/ year)		Total Emissions (t $CO_{2\text{-}e}$/ year)
	Scope 1	Scope 3	
29 000T pa	95	67	162
10 000T pa	25	23	48

In order to derive an indicative value for total project life GHG emissions, the following broad assumptions are made:

- Project lifetime of 10 years

. • Annual extraction rate remains constant over the development lifetime.

The application of the assumptions above returns total GHG emissions of approximately 1,620 tonnes over the Project lifetime. However, this value may be variable given the variable nature of extraction per annum and the project lifetime. Nevertheless, a comparison of the annual Scope 1 GHG emissions from the Project against published net total GHG emissions for NSW and Australia during 2019 has been conducted. Net emissions of approximately 135 Mt CO2-e and 540 Mt CO2-e were reported for 2019 for NSW and Australia respectively.

CONCLUSION

The assessment considers emissions of greenhouse gas emissions from the Glencairn Quarry and includes estimates of direct and indirect GHG emissions for both an average and maximum yearly extraction rate. It is noted that Scope 2 emissions due to electricity consumption have not been assessed. Calculated direct (Scope 1) emissions from the development associated with diesel combustion would generate between approximately 95 t CO2-e/annum and 25t CO2-e/annum. Indirect (Scope 3) emissions would be through employee travel. Annual indirect emissions from the Project were calculated to range between approximately 67 t CO2-e/annum and 23 t CO2-e/annum. A comparison of the calculated direct (Scope 1) emissions against Australia's 2019 net emissions of 540 Mt CO2-e demonstrates the development would represent an increase of approximately 0.00001% of the total Australian emissions. A comparison of the calculated Scope 1 emissions against NSW emissions in 2019 (135 Mt CO2-e) demonstrates that the Project would represent an increase of approximately 0.00002% of NSW emissions.

b. Pursuant to clause 15 of the Mining SEPP, it needs to be demonstrated to Council that the development will be carried out in such a way as to

i. optimise the efficiency of recovery of minerals, petroleum or extractive materials; and

ii. to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials

This development will efficiently recover the gravel resource as the entire conglomerate formation will be extracted. The location and staging has been considered so that only the conglomerate gravel and topsoil will be removed with no waste material. At this particular location there is no overburden material and the gravel conglomerate outcrops at the surface allowing for efficient recovery. The topsoil will be reused onsite during rehabilitation. There will be no sterilisation of future resources as a result of this activity, nor will there be any waste material as topsoil will be required for rehabilitation.

10. Bushfire

The subject site is mapped as being bushfire prone on Councils' Bushfire Prone Lands Map. In this regard, a Bushfire Assessment Report is required to be provided by a suitably qualified and experienced person to demonstrate that the development complies with Planning for Bushfire Protection 2019.

Bushfire Assessment Report

In accordance with Planning for Bushfire Protection 2019 all development on BFPL must satisfy the aim and objectives of Planning for Bush Fire Protection (PBP). The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.

The objectives are to:

- afford buildings and their occupants protection from exposure to a bush fire;
- provide for a defendable space to be located around buildings;
- provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;
- ensure that appropriate operational access and egress for emergency service personnel and occupants is available; provide for ongoing management and maintenance of BPMs;
- and ensure that utility services are adequate to meet the needs of firefighters.

The quarry site falls under other non residential development and therefore consideration should be given to any hazards and risks associated with bush fire. The hazards/risks and control measures are assessed below

Road Access to site

The haul road will proved the main access and egress point for evacuation in the event of a bushfire. Secondary access/egress will also be provided to the east of the quarry site utilising an existing track should the primary access be restricted. The road will remain open for RFS trucks and is of an adequate standard for Category 1 Fire fighting trucks

Power and other services to site

There is no power or services associated with the development

Asset Protection Zones

Rural Fire Service defines Asset Protection Zones: An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure. This can include any residential building or major building such as farm and machinery sheds, or industrial, commercial or heritage buildings. Asset protection zones and associated assessment of vegetation type and slope are not applicable to the development as no buildings or infrastructure is proposed. In addition the mobile plant will be parked >40m away from the edge of the development.

Water Supply and utilities

Water supply will be obtained primarily from the 2.9ML sediment control dam located in the development. Should this supply be unable to be accessed an alternative supply can be obtained from existing dams located nearby. A water tanker will also be onsite during operational activities. Fire extinguishers will be on heavy plant equipment while operating.

Other fire protection measures

Hot works and smoking will be prohibited from being undertaken near flammable materials. Hot works will not be undertaken on the development site during total fire bans.

Equipment will be operated and maintained in a proper and efficient manner along with fire extinguishers being located on all plant whilst in operation

Training and awareness of employees will be undertaken in the risks and hazards associated with bushfire. The owner of Glencairn and Director of the development is the acting Captain of the local RFS 'Grattai' Brigade and the category 7 truck is stationed on the property 'Glencairn'.

The bushfire risk can be adequately managed through the mitigation measures provided above, and in conjunction with any recommendations from the Rural Fire Service/ Council should be considered for approval.

11. Biodiversity

An assessment under section 7.2 of the *Biodiversity Conservation Act 2016* (BC Act) is required to be submitted to Council to demonstrate whether a Biodiversity Development Assessment Report (BDAR) is required to be submitted with the application. The assessment must consider all clearing and other impacts required for the development to operate, including impacts that may occur as a result of compliance with other legislative provisions such as road upgrades, bushfire requirements, etc. If it is determined that a BDAR is required, a BDAR is to be prepared by an appropriated accredited ecologist and in accordance with the BC Act and submitted to Council.

See attached document

Appendix 1 – Harvestable rights calculation

Maximum Harvestable Right Dam Capacity

Information provided by the user

1. The location of the proposed dam is:
   - Latitude: **-30.116973**
   - Longitude: **149.968392**
2. Total property area to use for calculating the size of the dam is **6350** **Acres**

Result

The maximum Harvestable right dam capacity for your property is **167.0343** ML (Megalitres)

Date

19/08/2020

Name

Martin Dunlop

Limitations of the calculator

a) Where to site a dam

You can only construct a harvestable rights dam where the Harvestable Rights Orders apply, refer to NSW Government Gazette 40 dated 31 March 2006 (pages 1628 to 1631).

b) First and Second order streams

The maximum harvestable right calculator does not verify that the location of the proposed dam sits on a first or second order stream. A factsheet : "Where can they be built without a licence?" is available on WaterNSW website to help you work out the stream orders.

You will need to use the legislated topographic map for your area to identify the stream order. This map is the gazetted map as per NSW Government Gazette 37 dated 24 March 2006 (pages 1500-1509).

c) Size of property and dam

The calculator does not take into account other dams already on your property. If you have existing harvestable rights dams on your property, you must take the capacity of these dams into account when constructing a new dam. In the Eastern and Central Divisions other dams must also be taken into account, as described in the NSW Government Gazette 40 dated 31 March 2006 (pages 1628 to 1631).

d) Protected wetlands

The Harvestable Rights Orders specify that you are not allowed to build a dam on or within 3 km of a RAMSAR wetland site. There are 12 RAMSAR wetlands in NSW. Further information on the location of those 12 RAMSAR sites in NSW can be found on the NSW Environment and Heritage government website.

Appendix 2 – Nearest Receptors

ID	Property Name
R1	Bobbiwaa Point
R2 (Proponent owned)	Glencairn
R3	Dalmon Downs
R4 and R5	Montana
R6	Yungella
R7 (Proponent owned)	Myall Valley