



STONE RIDGE QUARRY PROJECT

Submissions Report

FINAL

March 2024

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Submissions Report

FINAL

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

Australian Resource Development Group Pty
Limited

Project Director: David Holmes

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Date: March 2024



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Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	David Holmes	26/03/2024	David Holmes	26/03/2024

Executive Summary

What is the Project?

Australian Resource Development Group Pty Limited (ARDG) is seeking to develop a new hard rock quarry, known as Stone Ridge Quarry (the Project), located within Wallaroo State Forest at Balickera NSW, approximately 30 km north of Newcastle. The Project is located within the Port Stephens Council Local Government Area.

The Project is seeking to access a high quality, hard rock resource suitable for producing a wide range of quarry products for the Lower Hunter, Central Coast and northern Sydney construction materials markets. The Project would produce up to 1.5 million tonnes per annum (Mtpa) of saleable quarry product with approval sought for an initial 30-year quarrying period. Key components of the Project include:

- an extraction area
- processing and stockpiling area
- storage area for overburden/plant and equipment
- product loading area
- surface water management infrastructure
- weighbridge and administration area (offices, parking, amenities)
- site access and internal roadways
- buffer areas.

The Project is a State Significant Development (SSD-10432) under the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) as it is development that extracts more than 500,000 tpa of extractive material and also extracts from a resource of more than 5 million tonnes. A development application (DA) for the Project is required to be submitted under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). An Environmental Impact Statement (EIS) (Umwelt, 2022) was prepared for the Project to support the development application and the development application and EIS were publicly exhibited between 22 June 2023 and 1 August 2023 by the former NSW Department of Planning and Environment (DPE) (now the Department of Planning, Housing and Infrastructure (DPHI)).

During the public exhibition period, 163 submissions were received from members of the public, community organisations and government agencies (excluding duplicates). This included 10 government submissions, 1 from Port Stephens Council (PSC) and 152 community submissions¹. The 152 submissions received from the community included 130 submissions objecting to the Project, 17 submissions in support of the Project and 5 submissions providing comment only.

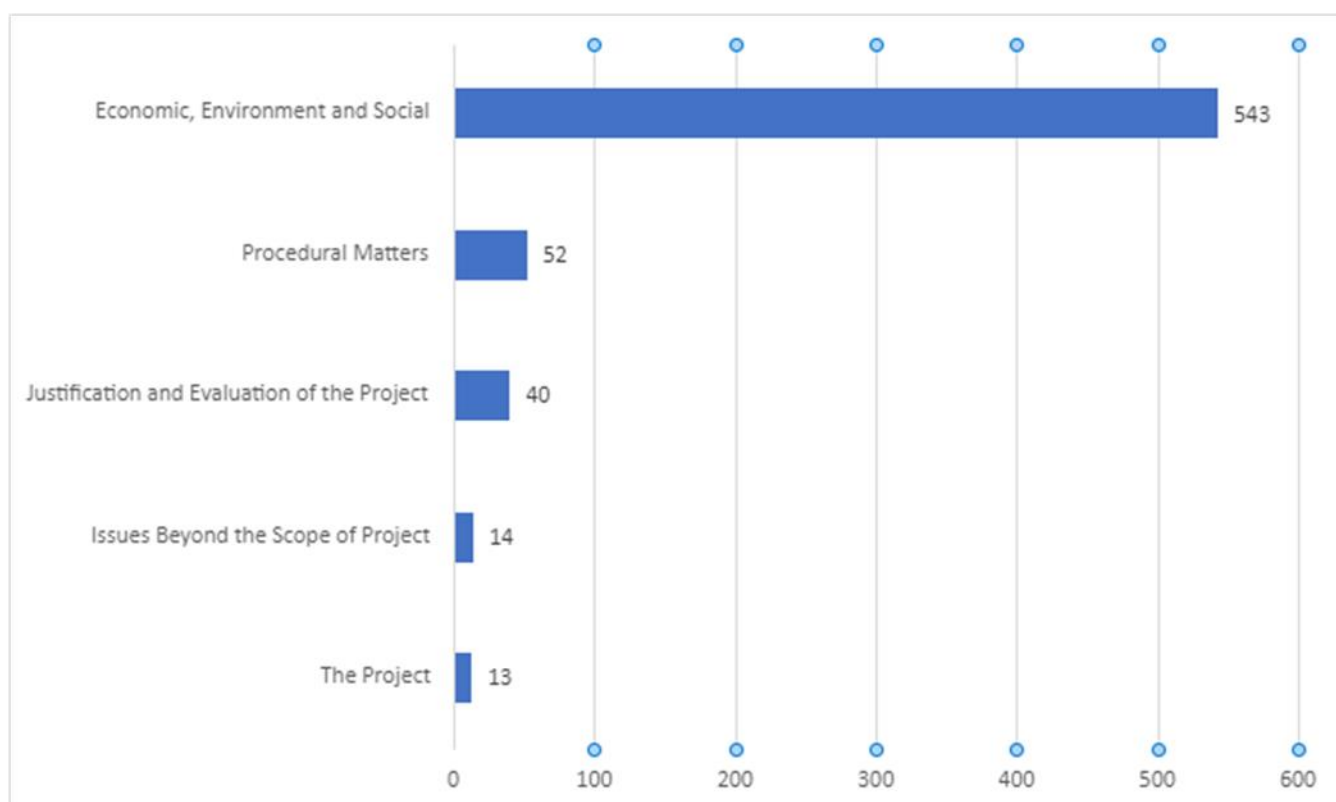
¹ 159 community submissions are recorded on the Major Project's Portal however there were 6 duplicate submissions and 1 submission which had no content; therefore these 7 submissions have been removed from the total submission numbers bringing the community submissions to 152.

Of the 152 community submissions received (including objections, supporting and comments), 14 (9%) were from the local area, 104 (68%) were from the regional area and 34 (22%) from the broader community.

130 public submissions objected to the Project, including 118 (72.8%) community members and 12 (7.4%) organisations/interest groups. It is common for Projects of this nature to receive a large number of objecting submissions. The nearby Eagleton Quarry Project received 50 submissions (most of which were local objections) and the Brandy Hill Quarry Project received 170 submissions (of which 159 were objections from local residents and 6 objections from further afield). By contrast, the majority of objections on this Project were received from persons located more than 5 km from the Project with just 13 (10%) objections received from the nearby area.

17 public submissions were received that support the Project and 5 public submissions were received that were characterised by DPHI as providing a comment on the Project (neither supporting nor objecting). Four 'comment' submissions were from members of the public and one comment submissions was received by a community or interest group.

A breakdown of the themes within the objecting submissions is provided in **Graph ES.1**. Economic, environmental, and social impacts of the Project were the most frequently raised category of issues in the 130 objecting submissions received. Issues related to procedural matters were the second most frequently raised category of issues, followed by issues related to the justification and evaluation of the Project.



Graph ES.1 Categorisation of Issues Raised in Objecting Submissions

The most frequently raised themes in objecting submissions related to environmental, social and economic issues were potential biodiversity impacts, traffic and transport impacts and noise. Submissions from community members located within 5 km of the Project primarily related to amenity issues and concerns about traffic impacts associated with additional trucks on Italia Road but also raised issues related to potential impacts on biodiversity and potential land use conflict. Submissions from persons and community groups located further afield were primarily related to biodiversity issues, particularly the loss of fauna habitat and potential impacts on biodiversity connectivity.

Key themes associated with the supporting submissions from the community generally related to the justification of the Project in terms of resource provision and social and economic benefits particularly in relation to employment and economic benefits to local and regional communities.

Actions Taken Since Exhibition

Since the exhibition of the EIS, a number of actions have been taken during and following the exhibition period. These include:

- stakeholder engagement with Government agencies, Port Stephens Council and the community through the Community Consultative Committee (CCC)
- Project changes to further reduce the project's potential biodiversity and amenity impacts (including a further reduction of impacts raised in community submissions during the exhibition of the EIS)
- further assessment of the refined conceptual quarry layout and specific issues raised in submissions.

Amended Project

The conceptual quarry layout has been revised to remove the previously proposed North Pit, associated sediment basin 2 and North Pit access road. The staging and extraction area of the Main Pit has also been revised to enable the relocation of processing and loading facilities into the pit in the later stages of the Project which will further reduce potential impacts. The revisions to the conceptual quarry layout would result in a reduction in the overall Project disturbance footprint from 79.02 ha to 68.09 ha, a reduction of 10.93 ha (14 %) and increase the setback of the extraction area from Italia Road. The amended layout also increases the separation distance between the Project and residents.

On 24 January 2024, Boral Resources (NSW) Pty Ltd submitted a development application (DA 16- 2023 – 477-1) to Port Stephens Council for the upgrades to the Italia Road and Pacific Highway Intersection (Intersection DA) described in the EIS. The Intersection DA and supporting assessment documentation was placed on public exhibition during February 2024 and is currently being assessed by PSC.

Updated assessment of issues

In response to issues raised in submissions and to support the proposed amendment to the conceptual quarry layout, the following assessments have been clarified, updated and/or supplemented:

- Biodiversity Development Assessment Report (Appendix I of the Amendment Report)
- Revised Traffic Impact Assessment Report (**Appendix 3**)
- Traffic Impact Assessment Addendum (**Appendix 4**)

- Revised Aboriginal Cultural Heritage Assessment Report (**Appendix 5**)
- Surface Water Impact Assessment Report (Appendix G of the Amendment Report)
- Groundwater Impact Assessment Report (Appendix H of the Amendment Report)
- Noise Impact Assessment Addendum Report (Appendix D of the Amendment Report)
- Air Quality Impact Assessment Addendum Report (Appendix F of the Amendment Report)
- Blasting Impact Assessment Addendum Report (Appendix E of the Amendment Report).

The Statement of Environmental Effects lodged with the Intersection DA includes updated assessments of traffic flow through the Italia Road/Pacific Highway intersection which includes consideration of cumulative impacts associated with the currently approved Boral Seaham Quarry and truck movements associated with the Brandy Hill Quarry as well as increased heavy vehicle traffic associated with the Project, proposed Eagleton Quarry and proposed Boral Seaham Quarry expansion.

The reduced disturbance areas avoids direct impacts to one threatened species and an endangered ecological community previously impacted by the original Project design and increases habitat movement corridors. The reduced disturbance area reduces the scale of habitat loss for other fauna species. As detailed in the EIS, a range of additional management measures will be implemented to mitigate potential impacts on fauna such as tree felling procedures and speed limits on vehicle movements. Further assessment of the Project's potential impacts to bats present within Balickera Tunnel indicate that vibration from blasting and other Project impacts are unlikely to have a significant impact on species present within the Tunnel. All residual biodiversity offsets will be fully offset in accordance with NSW *Biodiversity Conservation Act 2016* requirements which are based on a no-net-loss principal.

The increased separation distance between the Project and residents further reduces the Project's potential noise, dust and blast related impacts at the nearest residents. The Assessment of the Amended Project demonstrates that potential amenity and public safety impacts can all be effectively managed to ensure that relevant assessment criteria can be met. These studies all include consideration of cumulative impacts.

The Project is not predicted to have a significant impact on traffic flow with the intersection for the Project access road onto Italia Road being designed to minimise or avoid traffic flow impacts along Italia Road. The proposed upgrade of the Italia Road/Pacific Highway intersection will also improve performance of this intersection (even allowing for the increased heavy vehicle movements) and improve intersection safety.

ARDG remains committed to the implementation of impact mitigation and management measures via the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) and will continue to engage with the local community and Port Stephens Council through the construction period and operational life of the Project regarding impact mitigation and management.

Conclusion

The proposed Project Area represents a rare opportunity within the LHCC region to develop a large tonnage, quarry operation on geology that has been demonstrated to be ideally suited to the production of the full range of high-quality quarry products (including concrete, asphalt and sealing aggregates, gabion and crushed rock and armourstone). The proximity of the Project Area to key markets and existing State Road infrastructure (i.e., the Pacific Highway) would enable the Project to significantly ameliorate the existing and forecast medium to long term supply-side pressures of quarry materials for the LHCC region, as well as provide direct access to the Sydney market if required.

With the possible exception of potential impacts on biodiversity values, the Project will have relatively minor environmental and social impacts. While the Project will necessitate the removal of vegetation and habitat for threatened species, the disturbance area has been further reduced through the Amended Project design refinements which reduce the area of vegetation disturbance from approximately 79 hectares to approximately 68 hectares and avoid impacts to one threatened plant species and one threatened ecological community and reduce habitat loss for a wide range of species. The increased setback from the Balickera Tunnel and Nine Mile Creek also mitigate potential impacts to bats present in the tunnel through both reduced vibration impacts and reduced habitat loss.

Biodiversity impacts will be fully offset in accordance with the NSW biodiversity offsetting requirements which are based on a no-net-loss principle and impacts on koala habitat will be subject to a like-for-like offsetting requirements. Accordingly, the localised impacts on vegetation and fauna should be fully mitigated through offsetting requirements. It is noted that there are few opportunities for obtaining the quarry material necessary to meet the demand for quarry products which would not also require disturbance of similar or even larger areas of vegetation and potential threatened species habitat. Accordingly, the Project's impacts on biodiversity are largely unavoidable regardless of where the source of material is obtained.

In economic terms, the Project is predicted to have net benefits to the State of NSW of approximately \$290 million in NPV terms at a 7% discount rate. The Project is predicted to have significant economic benefits to NSW under different discount rates tested and sensitivities to different price and costs assumptions. The Project is estimated to provide the following annual direct and indirect annual effects to the local economy:

- \$102 M in output
- \$58 M in value-added
- \$14 M in gross wages
- 176 jobs.

The Project therefore provides a large, economically viable hard rock resource to meet existing and projected demand for quarry products with limited or fully mitigated environmental impacts. Having regard to the costs associated with impact mitigation and potential externalities, the Project is predicted to have significant social and economic benefits to the State of NSW and local region.

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Appendix 3	Revised Traffic Impact Assessment
Appendix 4	Traffic Impact Assessment Addendum
Appendix 5	Revised Aboriginal Cultural Heritage Assessment Report

1.0 Introduction

Australian Resource Development Group Pty Limited (ARDG) is seeking to develop a new hard rock quarry, known as Stone Ridge Quarry (the Project), located within Wallaroo State Forest at Balickera NSW, approximately 30 km north of Newcastle (refer to **Figure 1.1**). The Project is located within the Port Stephens Council Local Government Area.

The Project is seeking to access a high quality, hard rock resource suitable for producing a wide range of quarry products for the Lower Hunter, Central Coast and northern Sydney construction materials markets. The Project would produce up to 1.5 million tonnes per annum (Mtpa) of saleable quarry product with approval sought for an initial 30-year quarrying period.

The Project has been designed through a comprehensive process that incorporates community and stakeholder feedback, and the findings of environmental and social studies to maximise positive social, economic and environmental outcomes while avoiding and/or minimising adverse impacts to sensitive environmental features and neighbouring landholders.

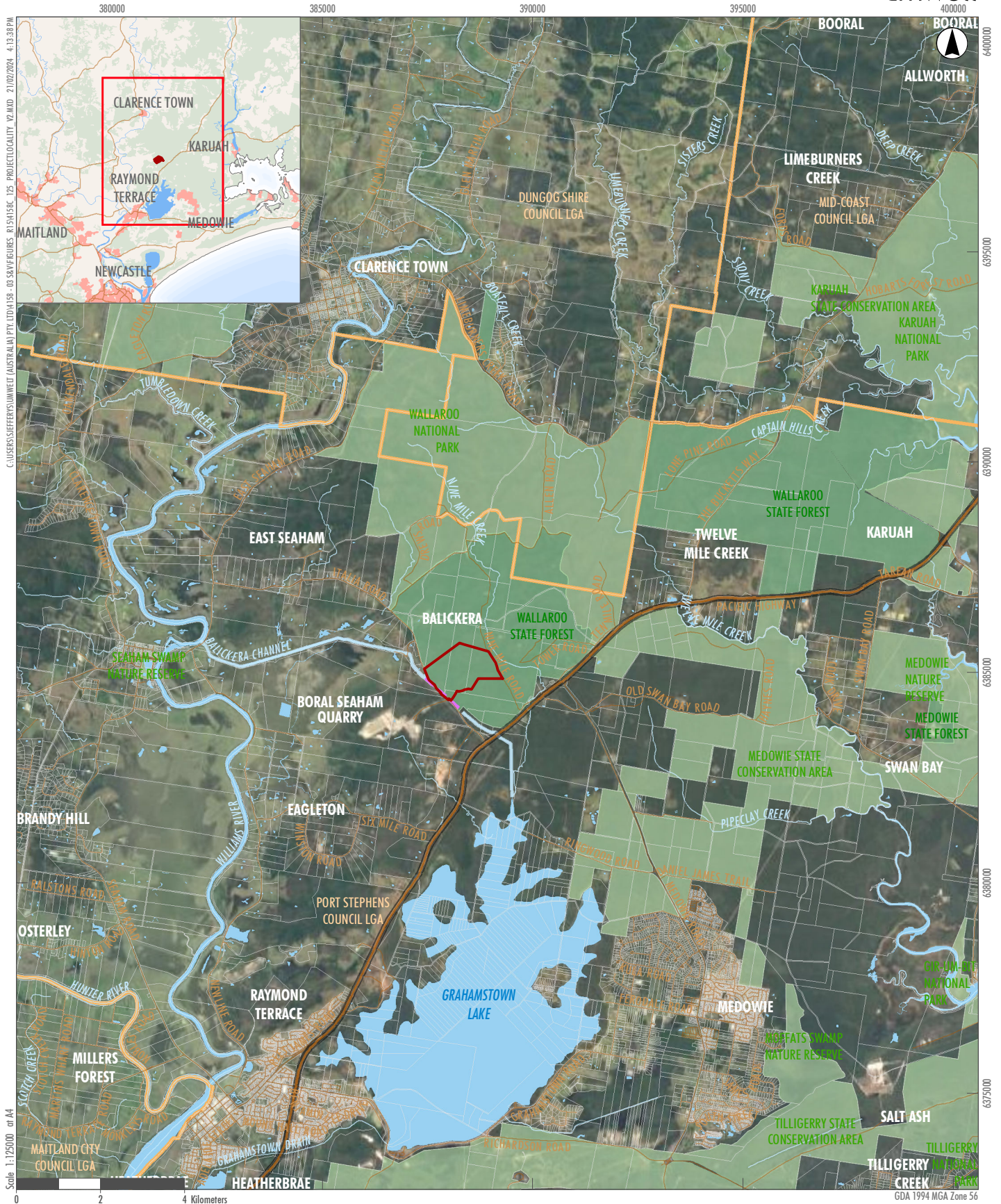
Figure 1.2 provides a conceptual layout of the Project as described in the EIS and in relation to which the submissions discussed in the report relate. The Project (as described in the EIS), includes the following key components:

- two extraction areas (main pit and north pit)
- processing and stockpiling area
- storage area for overburden/plant and equipment
- product loading area
- surface water management infrastructure
- weighbridge and administration area (offices, parking, amenities)
- site access and internal roadways
- buffer areas.

The Environmental Impact Statement (EIS) for the Project was placed on public exhibition by the Planning Secretary (NSW Department of Planning, Housing and Infrastructure DPHI) formerly known as the Department of Planning and Environment (DPE)) from 22 June 2023 to 1 August 2023. During the public exhibition period, 170 submissions were made on the Project. This included 10 government submissions, 1 from Port Stephens Council (PSC) and 159 community submissions. There were 6 duplicate submissions and 1 submission which had no content; therefore these 7 submissions have been removed from the total submission numbers bringing the community submissions to 152 and total submissions (including agencies and PSC) to 163. The 152 submissions received from the community included 130 submissions objecting to the Project, 17 submissions in support of the Project and 5 submissions providing comment only. A full analysis of the submissions is provided in **Section 2.0**.

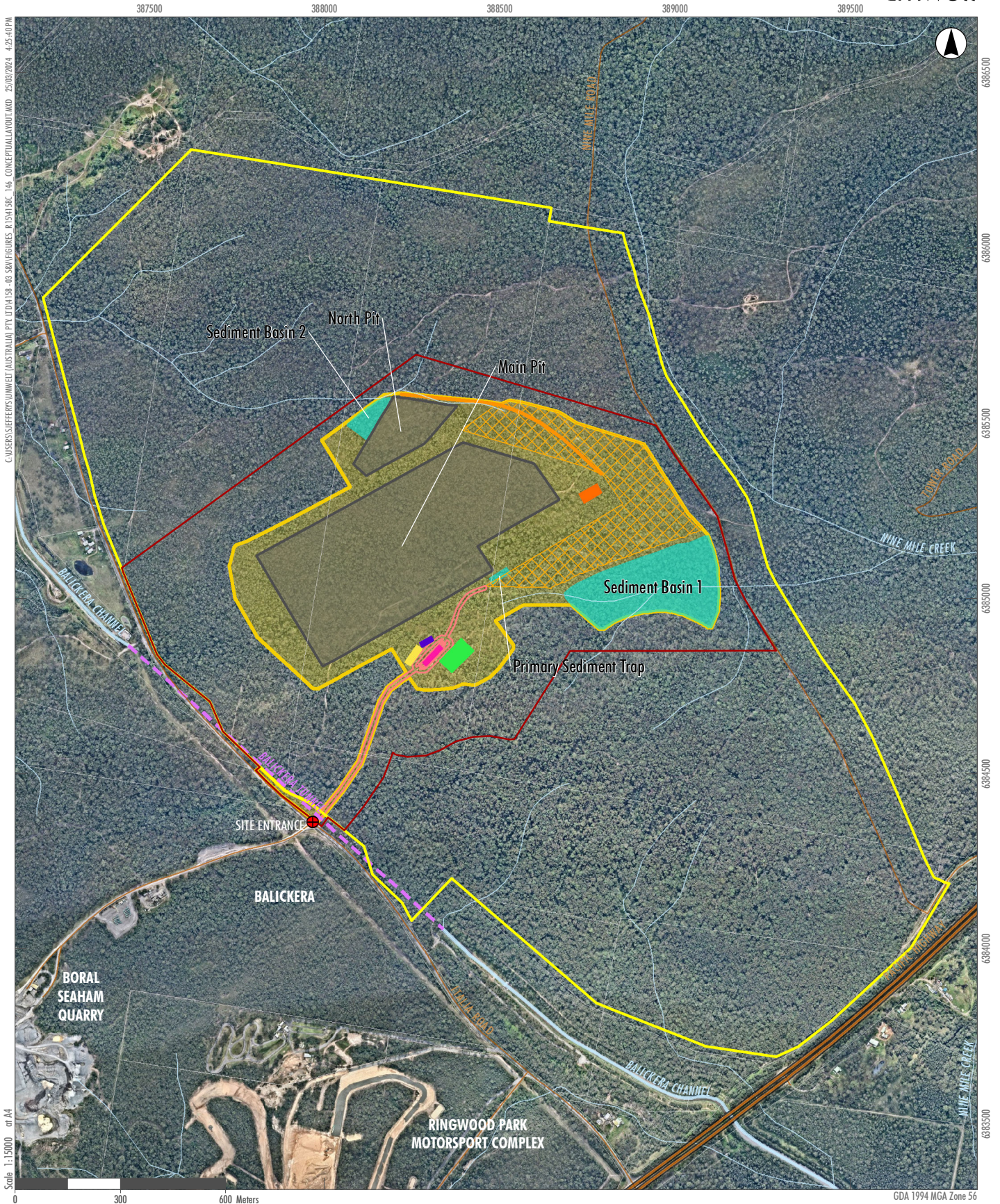
In correspondence dated 3 August 2023, DPE requested ARDG formally respond to issues raised in the submissions, as required under clause 82 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation). This Submissions Report has been prepared by Umwelt on behalf of ARDG in accordance with the *State significant development guidelines – preparing a submissions report* (the Guidelines) (DPE, 2022a) to address the key issues raised in the submissions. **Section 4.0** and **Section 5.0** of this Submissions Report contain a summary of the issues raised in submissions and a detailed response to issues raised in submissions. **Appendix 1** of the this Submissions Report contains a list of the submissions made and where the issues raised in each submission have been addressed in **Section 4.0** and **Section 5.0**.

In order to further minimise impacts of the Project, ARDG has reviewed and refined the conceptual quarry layout, removing the North Pit and lowering the floor of the processing and stockpile area attached to Main Pit. Overall production rates and tonnages will be maintained. The revised layout reduces the overall disturbance area and the lowering of the floor of the processing and stockpile area (effectively located within the pit in later stages of the Project) reduces the Project's potential social and environmental impacts relative to that detailed in the EIS. The changes to the conceptual quarry layout are outlined in **Section 3.2** and the Amendment Report (Umwelt 2024). The Amendment Report includes an updated assessment of environmental impacts associated with the amended Project design. Where specific Project design changes respond to issues raised in submissions, these are described in **Section 4.0** and **Section 5.0**.



- Legend**
- Project Area
 - LGA Boundary
 - National Park / SCA / Nature Reserve
 - State Forest
 - Pacific Highway
 - Road
 - Balickera Tunnel
 - Drainage Line
 - Waterbody
 - Lot Boundaries

FIGURE 1.1
Project Locality



Legend

- | | |
|------------------------|--------------------------|
| Project Area | Office |
| Disturbance Area | Weighbridge |
| Licence Area | Access Road |
| Pacific Highway | Northern Haul Road |
| Road | Workshop |
| Balickera Tunnel | Truck Parking |
| Drainage Line | Light Vehicle Parking |
| Lot Boundaries | Stockpile and Plant Area |
| Pit Outlines (Stage 9) | Dams |

Image Source: Nearmap (2022) Data source: NSW FSDf (2022)

FIGURE 1.2

Original Conceptual Project Layout

2.0 Analysis of Submissions

2.1 Breakdown of Submissions

The EIS for the Project was placed on exhibition from 22 June 2023 to 1 August 2023. During the public exhibition period 170 submissions were received by DPE. This included 10 government agency submissions, one submission from Port Stephens Council (PSC) and 159 community and organisation/interest group submissions. In accordance with the Guideline (DPE, 2022a) multiple submissions from the same person or group should only be counted as one submission. Therefore, 6 duplicate submissions and one blank submission were excluded from the submissions count, resulting in a total of 152 community and organisation/interest group submissions.

Table 2.1 provides a breakdown of the submissions received and a Submissions Register is included at **Appendix 1**.

Table 2.1 Submissions Breakdown

Category		No. Submissions
Government	State/Commonwealth agencies or public authorities	10
	Local Councils (PSC)	1
Community	Individuals	136
	Stakeholder groups	16
Total		163

It is common for Projects of this nature to receive a large number of submissions. The nearby Eagleton Quarry Project received 50 submissions (most of which were local objections) and the Brandy Hill Quarry Project received 170 submissions (of which 159 were objections from local residents and 6 objections from further afield).

2.1.1 Government Submissions

As outlined in **Table 2.1**, 10 submissions were received from ten Government agencies or public authorities and one local Council:

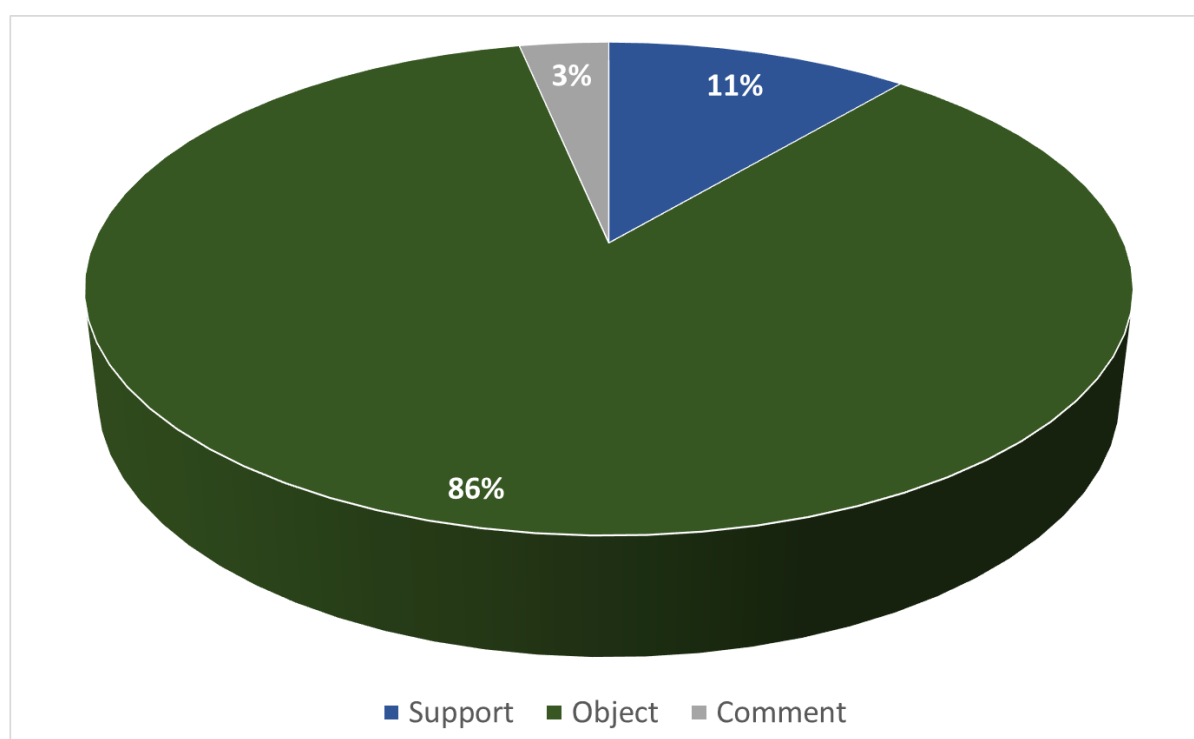
- DPE Biodiversity and Conservation Division (BCD) (now Biodiversity, Conservation and Science (BCS) in the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW NSW)
- DPE Crown Lands (now DPHI Crown Lands)
- DPIE Water (now DCCEEW Water)
- Department of Primary Industries (DPI) Fisheries
- NSW Environment Protection Authority (EPA) (now in DCCEEW NSW)
- Heritage NSW
- Department of Regional NSW Mining, Exploration and Geoscience – Geological Survey of NSW (MEG-GSNSW)

- NSW Rural Fire Service (RFS)
- Transport for NSW (TfNSW)
- Hunter Water Corporation
- Port Stephens Council (PSC).

The content of these government submissions is further detailed and addressed in **Section 4.0**.

2.1.2 Community and Organisation Submissions

Of the 152 community submissions received during the exhibition period, 16 were submitted by stakeholder groups and 136 were from individuals. Of these community submissions, 86% were objections, 3% provided comment and 11% were in support of the Project (refer to **Graph 2.1**).



Graph 2.1 Community Submissions Classification

The breakdown of the 152 individual submissions received from community and organisations/interest groups is provided in **Table 2.2**.

Table 2.2 Breakdown of Community and Organisation/Interest Group Submissions

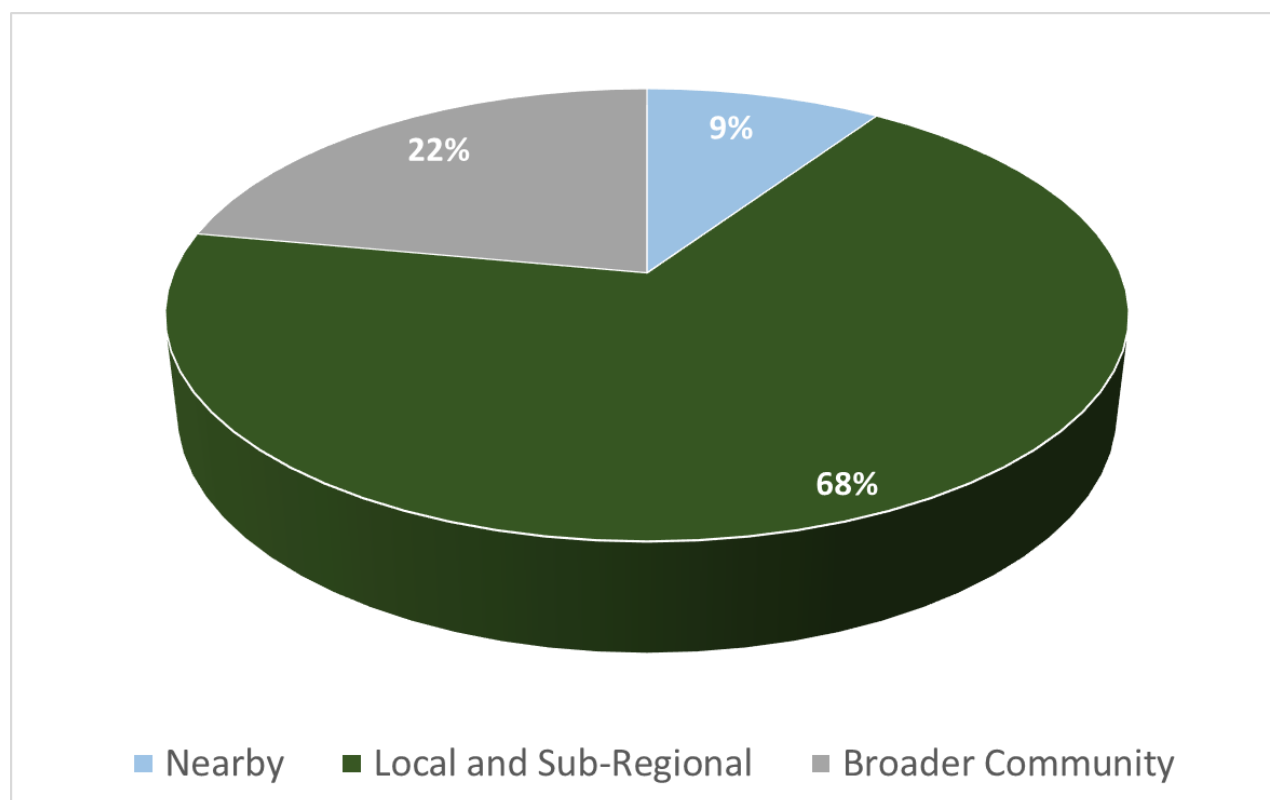
Group	Objection	Support	Comments
Community	118 (72.8%)	14 (8.6%)	4 (2.5%)
Organisations/Interest Group	12 (7.4%)	3 (1.8%)	1 (0.6%)
Total	130	17	5

Community submissions were analysed based on proximity to the Project Area to assess the level of interest across the following four categories, in accordance with the Guideline (DPE, 2022a):

- local (within approximately 5 km of the Project Area including the localities of Balickera and Eagleton)
- regional (between 5 and 100 km from the Project Area)
- broader community (more than 100 km from the Project Area)
- address withheld.

It is noted that some residences in the suburbs listed as local may be greater than 5 km from the Project Area. The analysis by suburb is therefore conservative in its approach as further interrogation is not possible with the available data.

Of the 152 community submissions received (including objections, supporting and comments), 14 (9%) were from the local area, 104 (68%) were from the regional area and 34 (22%) from the broader community (refer to **Graph 2.2**).

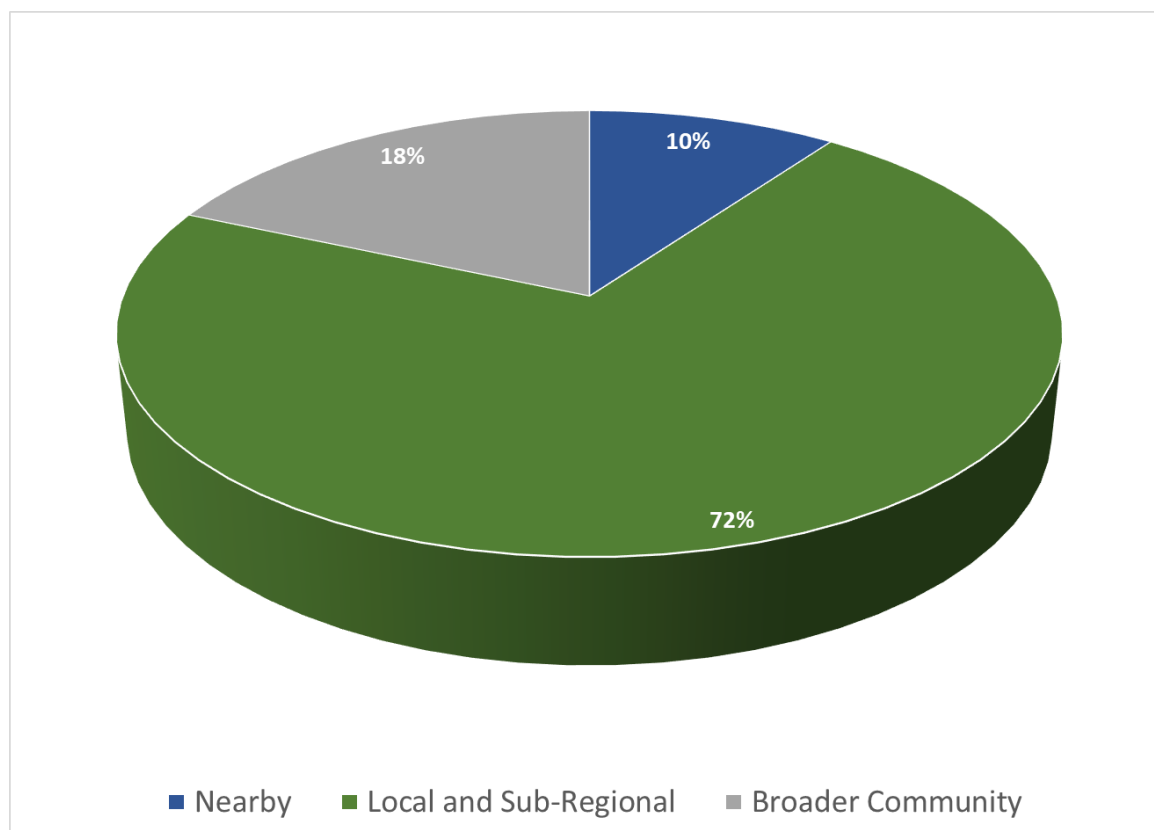


Graph 2.2 Community Submissions Breakdown by Proximity

While there were significant similarities in a number of submissions, with some content using the same or similar wording at times, no submissions were considered to be form letters due to minor differences.

2.1.2.1 Objecting Submissions

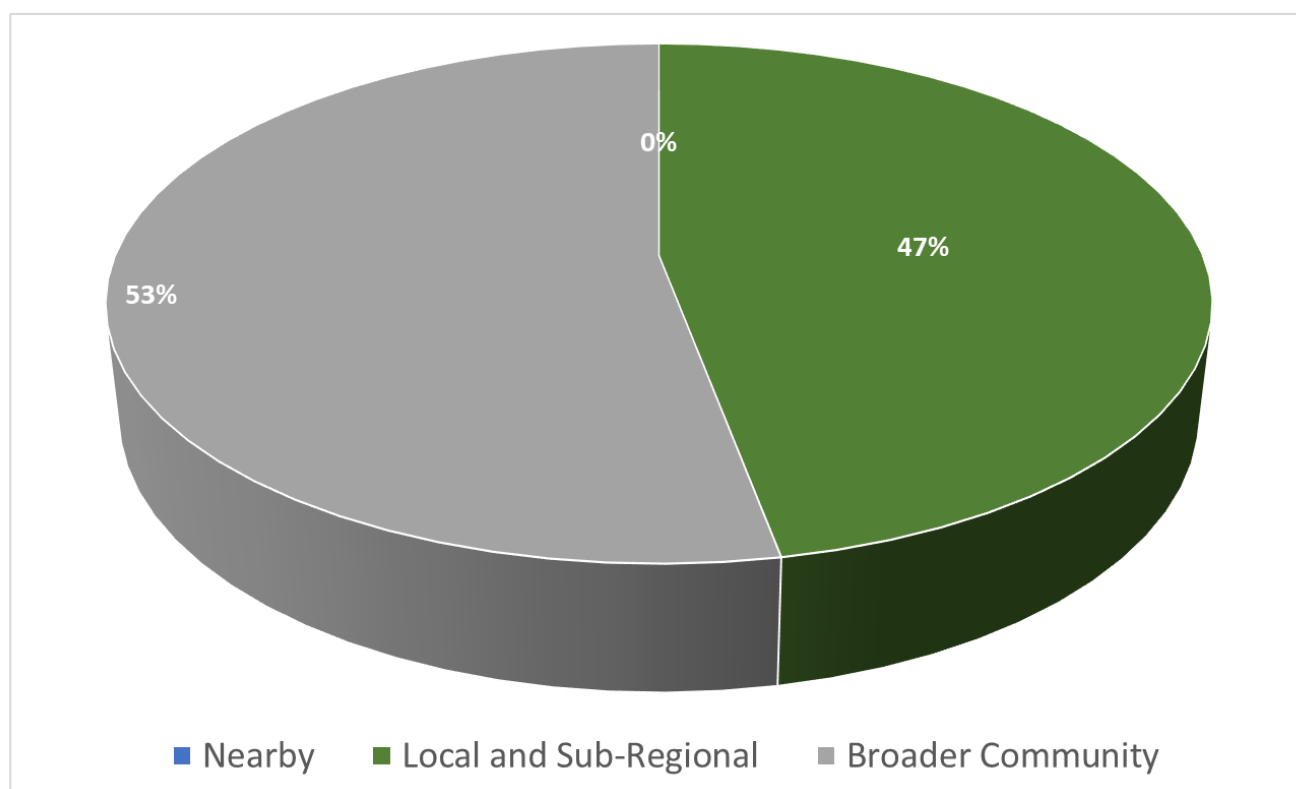
As outlined above, a total of 130 public submissions objected to the Project, including 118 (72.8%) community members and 12 (7.4%) organisations/interest groups. Based on the analysis, 13 (10%) objections were received from the nearby area (within approximately 5 km), 93 (72%) from the local and sub-regional area (between approximately 5 km and 100 km) and 24 (18%) from the broader community (approximately 100 km or greater) (refer to **Graph 2.3**).



Graph 2.3 Percentage of Objecting Community and Interest Group Submissions by Area

2.1.2.2 Supporting Submissions

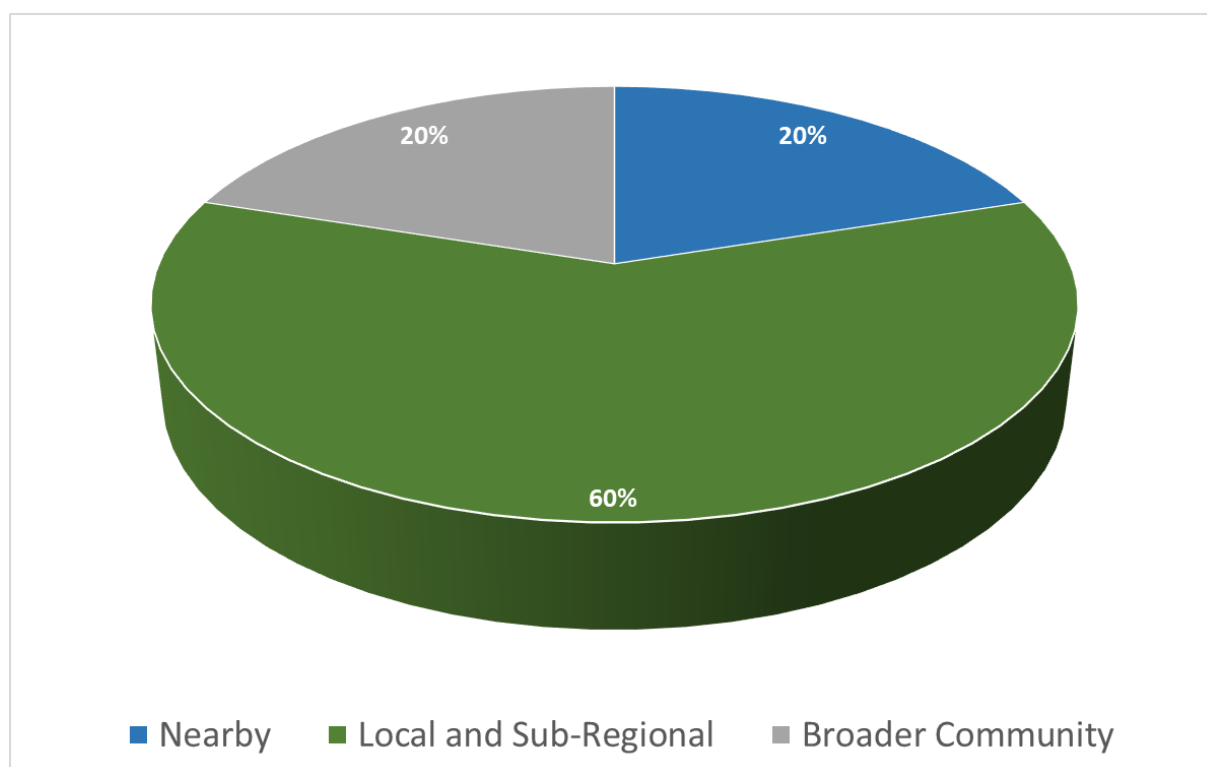
A total of 17 public submissions were received that support the Project. Based on the analysis, no supporting submissions were received from the nearby area (within approximately 5 km); eight (47% of supporting submissions)) were from the local and sub-regional area (between approximately 5 km and 100 km) and nine (53%) were from the broader community (approximately 100 km or greater) (refer to **Graph 2.4**).



Graph 2.4 Percentage of Supporting Community and Interest Group Submissions by Area

2.1.2.3 Commenting Submissions

Five public submissions were received that were characterised by DPHI as providing a comment on the Project (neither supporting nor objecting). Four 'comment' submissions were from members of the public and one comment submissions was received by a community or interest group. Based on the analysis, one (20%) commenting submission was received from the nearby area (within approximately 5 km), three (60%) from the local and sub-regional area (between approximately 5 km and 100 km) and one (20%) from the broader community (approximately 100 km or greater) (refer to **Graph 2.5**).



Graph 2.5 Percentage of Commenting Community and Interest Group Submissions by Area

2.2 Categorising Issues

A content analysis was undertaken on all community submissions to understand the key issues raised by the community in relation to the Project. Objections, supporting submissions or comments on the Project were analysed separately, as the themes within the submissions were distinct.

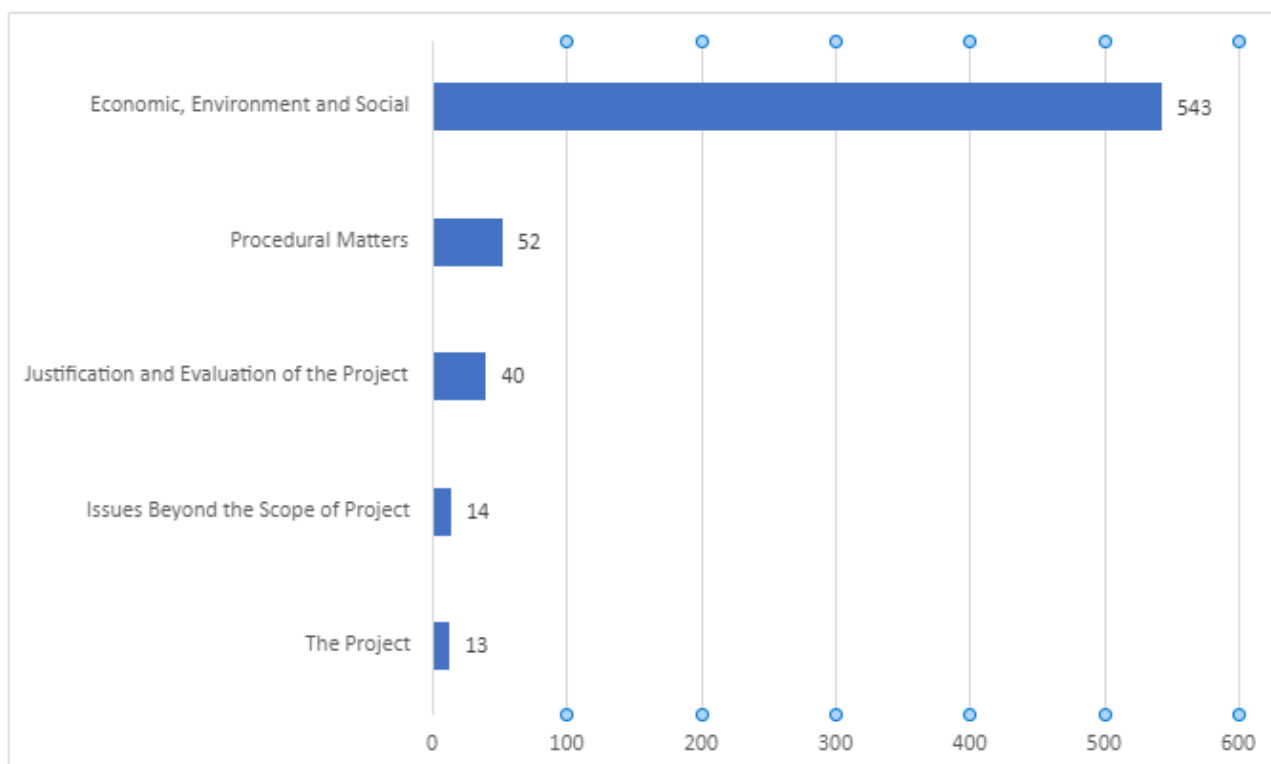
In accordance with the Guideline (DPE, 2022a), issues have been categorised into the following broad groups:

- economic, environmental and social impacts of the Project (e.g. amenity, air, biodiversity, heritage)
- procedural matters (e.g. level or quality of engagement, compliance with the SEARs, identification of relevant statutory requirements)
- the justification and evaluation of the Project as a whole (e.g. consistency of project with Government plans, policies or guidelines)
- issues beyond the scope of the Project or not relevant to the Project (e.g. broader policy issues).
- the Project (e.g., the site, the Project Area, the physical layout and design, key uses and activities, timing).

These broad issue categories were then divided into themes and sub-themes where relevant to provide greater definition of the issues raised. Further details of the categorisation of issues are provided in the following sections.

2.2.1 Objecting Submissions

Economic, environmental, and social impacts of the Project were the most frequently raised category of issues in the 130 objecting submissions received (refer to **Graph 2.6**). Issues related to procedural matters were the second most frequently raised category of issues, followed by issues related to the justification and evaluation of the Project. It should be noted that many submissions raised multiple categories, and multiple themes and sub-themes within each category. A breakdown of the themes within the objecting submissions is provided in **Graph 2.6**.



Graph 2.6 Categorisation of Issues raised in Objecting Submissions

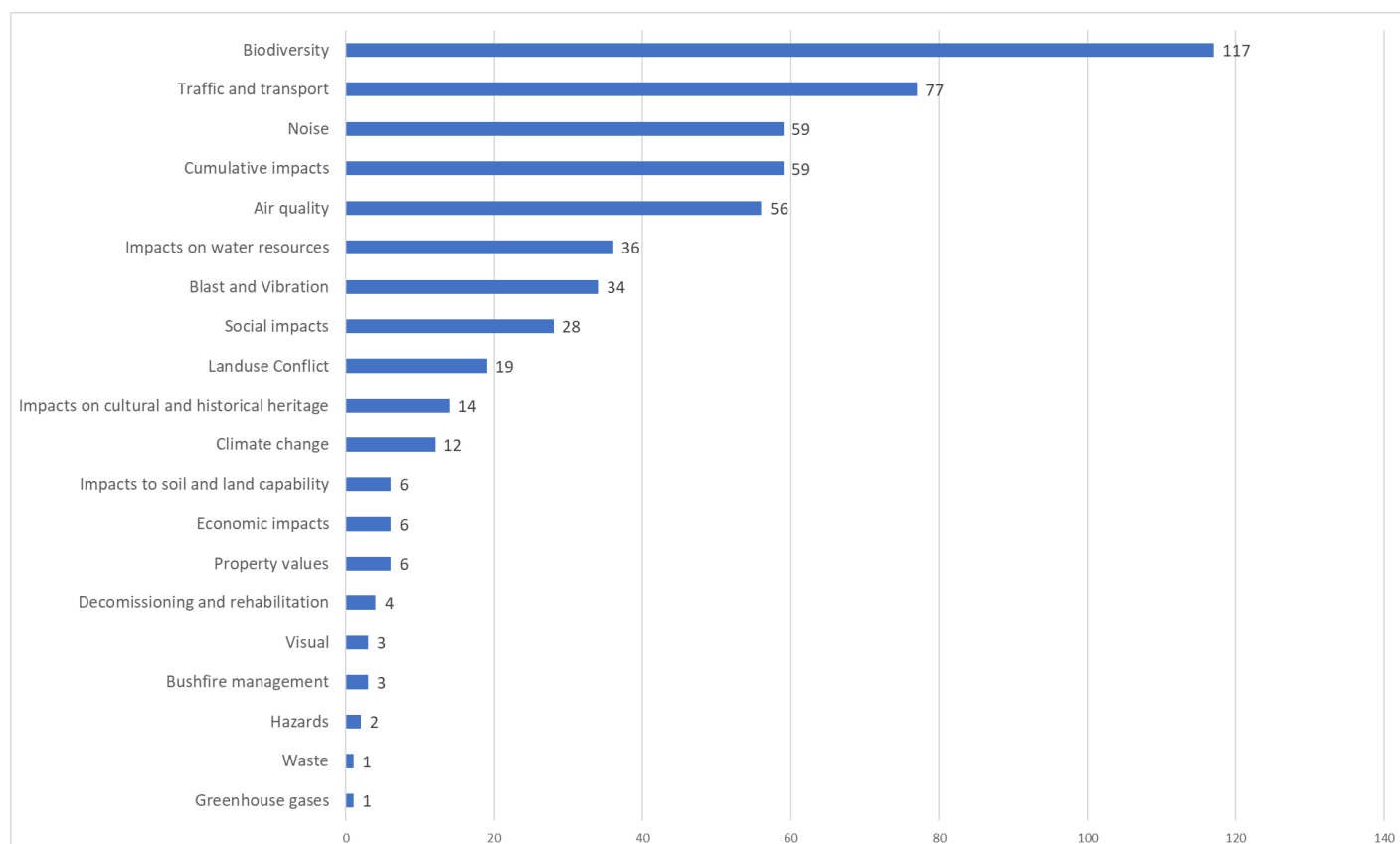
2.2.1.1 Environmental, Social and Economic Issues

There were 18 key themes to the environmental, social and economic issues raised in the objecting submissions, which are listed below in order of frequency of occurrence in submissions:

- biodiversity
- traffic and transport
- noise
- cumulative impacts
- air quality
- impacts on water resources
- blast and Vibration
- social impacts

- landuse Conflict
- impacts on cultural and historical heritage
- climate change
- impacts to soil and land capability
- economic impacts
- property values
- decommissioning and rehabilitation
- visual
- bushfire management
- hazards
- waste
- greenhouse gases.

The most frequently raised themes in objecting submissions related to environmental, social and economic issues were potential biodiversity impacts, traffic and transport impacts and noise (refer to **Graph 2.7**). Responses to issues raised by community members in relation to environmental, social and economic impacts are provided in **Section 5.1**.



Graph 2.7 Breakdown of Environmental, Social and Economic Issues by Theme

2.2.1.2 Procedural Matters

The procedural matters raised in the objecting submissions mainly related to the adequacy of community consultation and engagement, the perceived lack of cumulative impact assessment and the adequacy of impact assessments or validity of data used.

Responses to issues raised by community members in relation to procedural matters are addressed in **Section 5.3**.

2.2.1.3 Project Justification and Evaluation

Issues raised in relation to the justification and evaluation of the Project were mostly concerned with the justification of the use of publicly owned Forestry Corporation land for the proposed quarrying activity and justification for the demand for the hard rock resource.

Responses to objections raised in relation to the justification and evaluation of the Project are addressed in **Section 5.2**.

2.2.1.4 Issues Beyond the Scope of the Project

Issues raised that were beyond the scope of the Project were mainly in relation to other developments in the locality (particularly the Boral Seaham Quarry and the proposed Eagleton Quarry), and government policies and processes (in particular the exhibition/submissions process).

Responses to issues raised by community members in relation to 'issues beyond the scope of the Project' are addressed in **Section 5.5**.

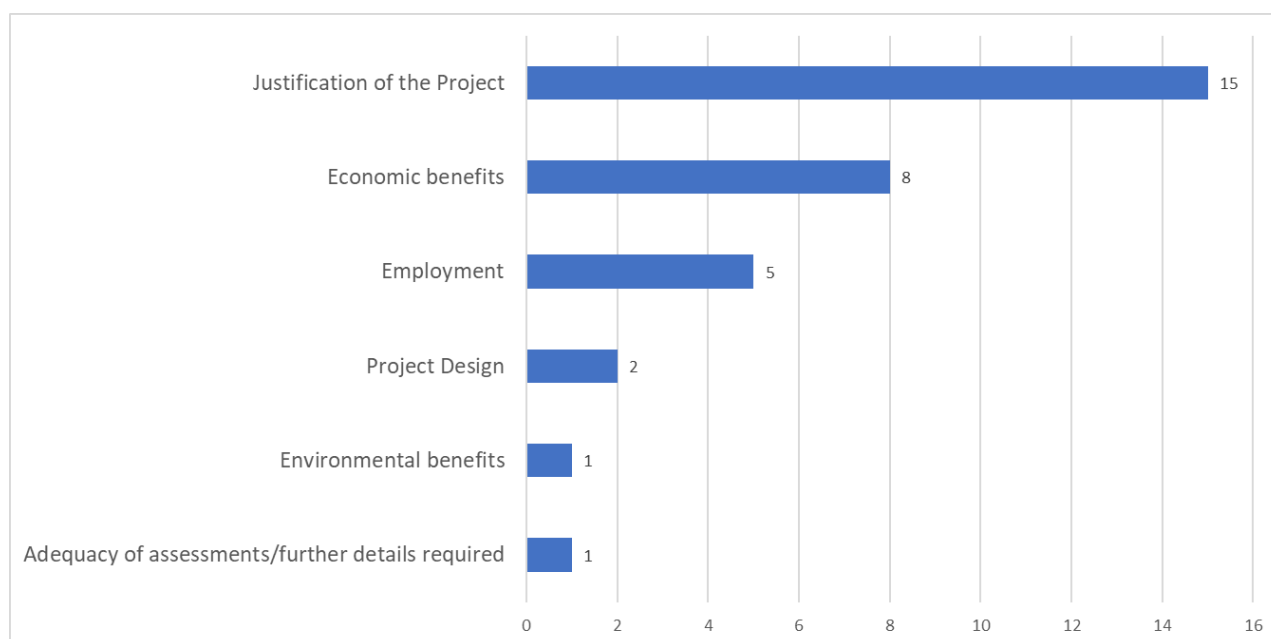
2.2.1.5 The Project

Issues raised in objecting submissions in relation to the Project in general were mostly concerned with the suitability of the site (within a State Forest), and the quarry design including the location of the access road and the proposed staged clearing.

Responses to issues raised by community members in relation to the Project are addressed in **Section 5.5**.

2.2.2 Supporting Submissions

Key themes associated with the supporting submissions from the community generally related to the justification of the Project in terms of resource provision and social and economic benefits particularly in relation to employment and economic benefits to local and regional communities (refer to **Graph 2.8**).



Graph 2.8 **Categorisation of Supporting Submissions**

Examples of the supporting submissions include:

I consider this a vital project for the Lower Hunter. The area is expanding greatly and a reliable supply of quarry projects into the future is badly needed. It would be a win for the state in providing much needed income from royalties, a win for the general population in the supply of much needed aggregates and a win for the economy with more jobs for local people. I believe it is in a remote location well off the Pacific Highway so any environmental impact would be minimal.

Both the Hunter and Sydney regions are experiencing significant expansion in terms of infrastructure and housing. This rapid growth necessitates a steady supply of building materials sourced from various resources. The Stone Ridge Quarry presents a unique opportunity as a new supplier conveniently situated near the high-growth areas. Its proximity will significantly reduce the need for long-haul transportation on the road network, unlike many larger quarries located at greater distances. These distant quarries often suffer from limited availability and higher purchasing costs, thereby increasing overall expenses.

The establishment of the Stone Ridge Quarry promises direct and indirect benefits in terms of revenue, business opportunities, and employment for the local area. This development plays a crucial role in ensuring the sustainability of the Hunter Region in the near future and for many years to come."

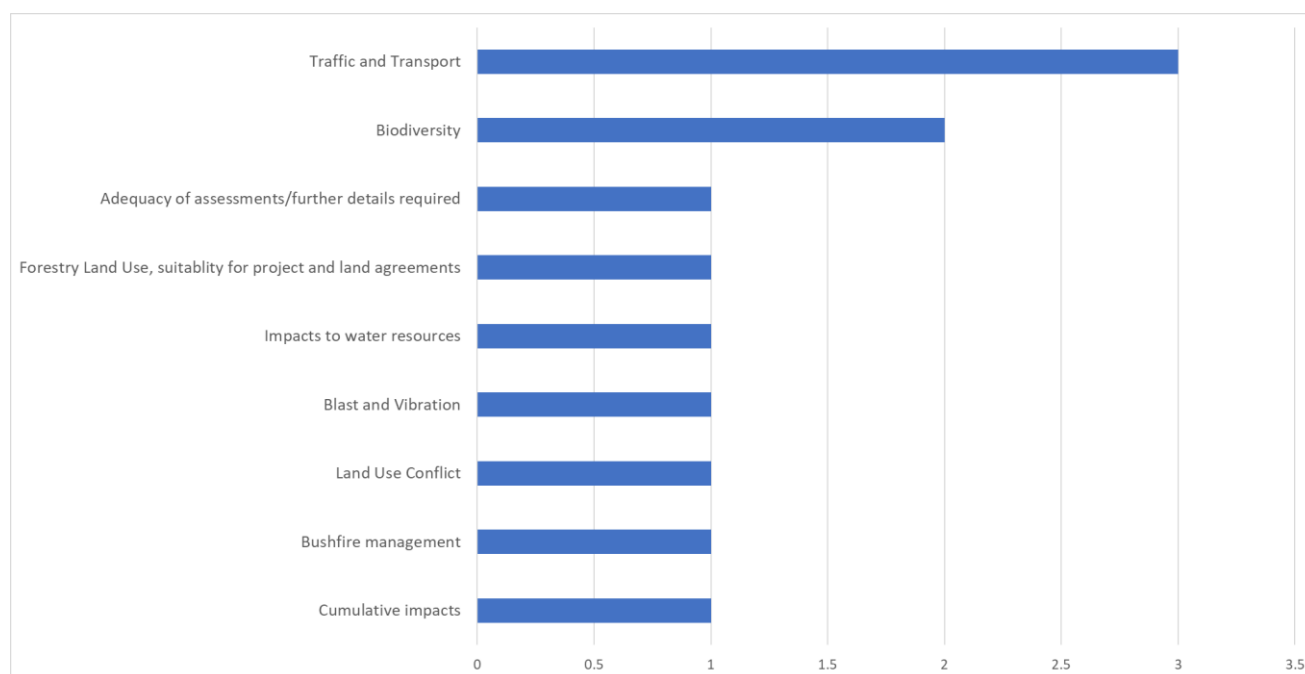
It is really important for society, the local community and industry, and NSW that there are abundant and diversified supplies of construction materials available for personal, business and government building and landscaping projects. This Stone Ridge Quarry Project meets those objectives without an undue impost on the local community. I support that this project is approved and goes ahead.

I support the Stone Ridge Quarry Project because:

1. *It will provide a long-term source of much needed aggregate and hard rock quarry products to road building, property and construction projects in the Hunter and Central Coast regions.*
2. *The supply of this material will help stabilise construction costs and reduce project time frames.*
3. *It will provide jobs to the region.*
4. *It is close to major road transport routes (eg. Pacific Hwy).*
5. *It will help generate revenue for the NSW Government via royalties paid to the Forestry Commission.*
6. *It will have minimal environmental impact.*
7. *The region is fast growing and needs a reliable source of aggregates.*
8. *The quarry is in a good location to supply aggregates to projects in the region.*

2.2.3 Commenting Submissions

The key themes in commenting submissions were traffic/transport and biodiversity (refer to **Graph 2.9**). Some commenting submissions provided additional information relevant to the Project while others requested additional clarification of issues, these are also addressed in **Section 5.0**.



Graph 2.9 **Categorisation of Commenting Submissions**

3.0 Actions Taken Since Exhibition

Since the exhibition of the EIS, a number of actions have been taken in response to submissions received during the exhibition period and ongoing consultation with landholders and stakeholders more broadly. These include:

- stakeholder engagement with both Government agencies and the community
- Project changes to address issues raised during the exhibition of the EIS
- further assessment of the refined conceptual quarry layout and specific issues raised in submissions.

3.1 Ongoing Stakeholder Engagement

3.1.1 Agency Consultation

3.1.1.1 Transport for NSW

ARDG, Umwelt and GHD met with Transport for NSW (TfNSW) on 4 September 2023 to discuss the TfNSW submission. The issues raised in the submission were discussed in detail and an intended approach to the response to the submission confirmed with the TfNSW team. A detailed response to comments from TfNSW at the meeting and in correspondence following the meeting is outlined in **Section 4.9**. A copy of correspondence with TfNSW in the post-exhibition phase is enclosed in **Appendix 2**.

3.1.1.2 Biodiversity Conservation and Science

A meeting request was sent to Biodiversity Conservation and Science (BCS) division on 24 August 2023 to discuss the BCS submission and clarify the requests for additional information/survey in order to inform the preparation of this Submissions Report and any required updates to the Biodiversity Development Assessment Report required for the revised Project. BCS responded on 30 October 2023 and declined to meet and requested any questions to be provided in writing for a written response. A written request was provided to BCS on 19 September 2023 with BCS providing a response on 8 November 2023. The additional comments received from BCS in relation to the submission are discussed further with Umwelt's response in **Section 4.1**. A copy of correspondence with BCS in the post-exhibition phase is enclosed in **Appendix 2**.

3.1.1.3 Hunter Water Corporation

ARDG and Umwelt met with Hunter Water on 19 September 2023 to discuss the surface water related aspects of the Hunter Water Submission. ARDG also provided an update on the preparation of this Submissions Report and an overview of the proposed changes to the conceptual quarry layout. Further consultation was also undertaken with John Simpson from Hunter Water via the Community Consultative Committee meeting. Further discussion was undertaken relating to additional blasting assessment undertaken and proposed measures to protect Hunter Water infrastructure and the bat colonies. A detailed response to the Hunter Water submission is provided in **Section 4.10**.

3.1.1.4 Environment Protection Authority

A meeting was requested with the EPA however the EPA advised that due to internal reorganisation of teams the relevant contact and team that prepared the submission no longer related to the region of the Project. Umwelt requested the contact details of the relevant team and a meeting to discuss the submission however a response was not received. A response to the EPA submission is outlined in **Section 4.5**.

3.1.1.5 Port Stephens Council

Consultation was undertaken with Council's Traffic Engineering Team and Environment team separately.

To address the comments included in Council's submission relating to traffic, written consultation was provided to Council's Traffic Engineering team on 2 November 2023. A response was received on 16 November 2023 acknowledging the approach to addressing the traffic related comments in Council's submission and suggested conditions of consent to be applied to the development consent should the Project be approved, refer to **Section 4.11.2** for further detail. A copy of correspondence with council in traffic related issues is contained in **Appendix 2**.

A meeting was held on 23 November 2023 with ARDG, Umwelt and Council's Environment Team. A written response to Council's comments included in the submission was provided prior to the meeting outlining the intended approach to responding to the comments. During the meeting the comments and approach to response was discussed. Council advised that the main concern relates to cumulative biodiversity impact, impact to habitat corridors and potential impact on bats inhabiting the Balickera Tunnel. Council resolved to provide minutes of the meeting and updated comments following their detailed review of ARDG's written response (as outlined in **Section 4.11**) to the Council submission. A copy of the correspondence with Council and Meeting minutes received from Council on 30 January 2024 are contained in **Appendix 2**.

3.1.2 Community Consultation

A Community Consultative Committee (CCC) Meeting was undertaken on 28 October 2023. The Committee was provided with an overview of the analysis of the submissions, a project update including description of the proposed changes to the layout and additional assessment undertaken and the opportunity to ask questions. Key aspects discussed and concerns raised relating to traffic safety, blasting and cumulative impact.

3.2 Project Changes

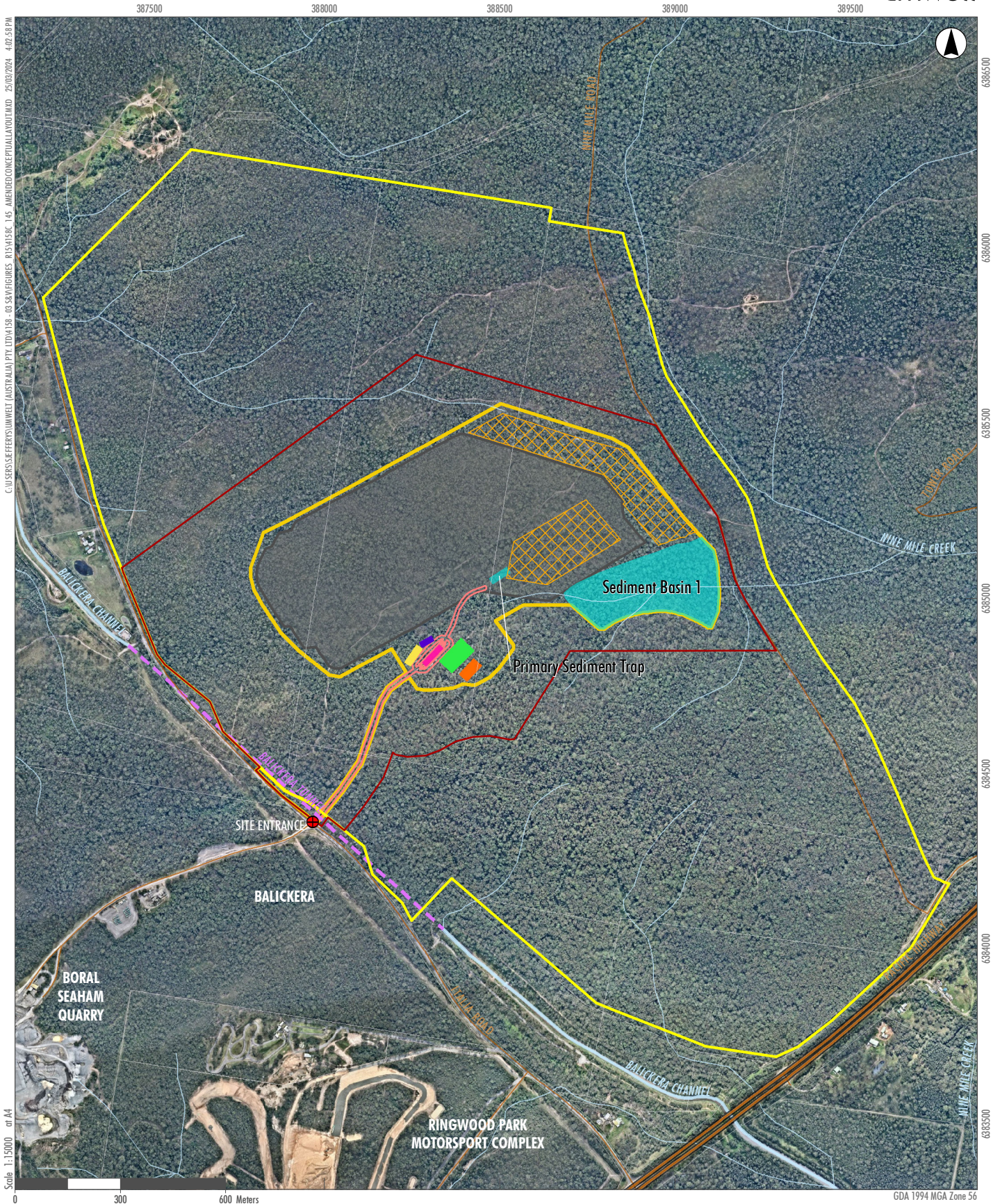
The Project has been amended such that issues raised in submissions from Biodiversity Conservation and Science, Port Stephens Council and the community regarding the size of the quarry and associated disturbance of vegetation are addressed. These Project changes also have a number of benefits in terms of noise, air quality and blasting by increasing separation distance between the operations and residences in Balickera.

The conceptual quarry layout has been revised to remove the previously proposed North Pit, associated sediment basin 2 and North Pit access road. The staging and extraction area of the Main Pit has also been revised to enable the relocation of processing and loading facilities into the pit in the later stages of the Project which will further reduce potential impacts. The revisions to the conceptual quarry layout would result in a reduction in the overall Project disturbance footprint from 79.02 ha to 68.09 ha, a reduction of 10.93 ha (14 %) and increase the setback of the extraction area from Italia Road. The revised Conceptual Quarry Layout is shown on **Figure 3.1**.

Despite the reduced footprint, the revised layout and extraction plan does not reduce total resource extraction or extraction rate or any other material aspects of the Project.

A formal request to amend the Project was lodged with DPE on 3 November 2023. The proposed amendment to the Project is outlined in detail in the Amendment Report, submitted concurrently with this Submissions Report. The Amendment Report includes an updated assessment of impacts associated with the revised Project. In addition to the reduction in biodiversity impacts, air quality, noise, traffic and blasting impacts will remain consistent (and in some instances reduced) from that presented in the EIS. A minor increase in modelled vibration levels is predicted at some residences to the northeast however predicted vibration levels at these locations remain well within relevant impact assessment criteria.

The proposed amendment does not influence the strategic or statutory context relevant to the Project and the overall project justification which remains consistent with that outlined in the EIS.



- Legend**
- | | |
|---------------------------|--------------------------|
| Project Area | Office |
| Proposed Disturbance Area | Weighbridge |
| Licence Area | Access Road |
| Pacific Highway | Workshop |
| Road | Truck Parking |
| Balickera Tunnel | Light Vehicle Parking |
| Drainage Line | Stockpile and Plant Area |
| Lot Boundaries | Dams |
| Pit Outlines (Stage 9) | |

Image Source: Nearmap (2022) Data source: NSW FSDf (2022)

FIGURE 3.1

Amended Conceptual Quarry Layout

3.3 Further Assessment

In response to issues raised in submissions and to support the proposed amendment to the conceptual quarry layout, the following assessments have been clarified, updated and/or supplemented:

- Biodiversity Development Assessment Report (Appendix I of the Amendment Report)
- Revised Traffic Impact Assessment Report (**Appendix 3**)
- Traffic Impact Assessment Addendum (**Appendix 4**)
- Revised Aboriginal Cultural Heritage Assessment Report (**Appendix 5**)
- Surface Water Impact Assessment Report (Appendix G of the Amendment Report)
- Groundwater Impact Assessment Report (Appendix H of the Amendment Report)
- Noise Impact Assessment Addendum Report (Appendix D of the Amendment Report)
- Air Quality Impact Assessment Addendum Report (Appendix F of the Amendment Report)
- Blasting Impact Assessment Addendum Report (Appendix E of the Amendment Report)

Where relevant, details of the updated assessments are referenced in responses to Agency and Community Submissions in **Section 4.0** and **Section 5.0**.

3.4 Italia Road – Pacific Highway Intersection Upgrade DA

On 24 January 2024, Boral Resources (NSW) Pty Ltd (on behalf of Eagleton Rock Syndicate [Eagleton Quarry SSD-7332] and ARDG submitted a development application (DA 16- 2023 – 477-1) to Port Stephens Council (Council), pursuant to Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), for proposed upgrades to the Italia Road and Pacific Highway intersection (Intersection DA) described in the EIS. The Intersection DA and supporting assessment documentation was placed on public exhibition during February 2024 and is currently being assessed by PSC.

4.0 Response to Government Submissions

Government agencies make submissions relating to their areas of responsibility and these typically relate to technical matters as well as matters that require consideration by the consent authority or should be addressed by conditions imposed on development consents.

The following section responds to the specific matters raised by each agency submission in relation to the Project. For ease of reference, the issues raised in agency submissions are identified in the following sections in text boxes, with a response provided following each text box.

4.1 Biodiversity, Conservation and Science (BCS)

4.1.1 Biodiversity

1. Potential impacts to roosting microbats have not been adequately assessed

Eco Logical Australia (2021) has identified that the Balickera Tunnel provides important habitat for threatened microbat species. Table 6.1 of the BDAR notes there is a potential that vibration from blasting and heavy vehicle traffic may disrupt microbat roosting behaviour. The Blasting Impact Assessment in Appendix 6 of the EIS identifies likelihood of falling of accumulated dust and potential for displacement of small loose pieces of rock. Table 8.3 of the BDAR concludes a low likelihood of the Project depleting the quality of roosting within Balickera Tunnel with minimal justification (i.e: no damage to the tunnel structure). Targeted breeding surveys should be undertaken as outlined for 'Species credit' threatened bats and their habitats in the NSW survey guide for the Biodiversity Assessment Method Consideration should also be given to potential serious and irreversible impacts (SAIL). Previous surveys conducted for works on the Balickera Tunnel itself are not considered applicable for this project as those impacts have already occurred and the dynamics of how microbats use the area will have changed. Impacts to roosting microbats within Balickera Tunnel should be assessed in accordance with section 8.3.2 of the BAM. Measures to mitigate and manage impacts should be provided per section 8.4 of the BAM. If impacts cannot be adequately measured, BCD recommends an adaptive management plan is provided.

Recommendation 1

Targeted microbat breeding surveys within Balickera Tunnel should be undertaken. Impacts to roosting microbats within Balickera Tunnel should be assessed in accordance with section 8.3.2 and section 9.1 of the Biodiversity Assessment Method 2020 (BAM). Measures to mitigate and manage impacts should be provided per section 8.4 of the BAM. If impacts cannot be adequately measured, BCD recommends an adaptive management plan is provided.

Section 2.4.4.5 of the BDAR (refer to Appendix I of the Amendment Report) has been updated to include the results from microbat monitoring survey undertaken by WSP (2023) (engaged by Hunter Water).

Balickera Tunnel post construction microbat monitoring surveys included four seasonal surveys in July 2022, October 2022, February 2023 and May 2023 which each consisted of:

- 2 nights of thermal recording at the upstream portal
- 4 nights ultrasonic detection at each tunnel portal
- 3 harp traps x 1 night near upstream portal
- Internal tunnel autonomous surface vessel inspection
- bat box and bridge inspections.

The results of these surveys are generally consistent with the conclusions on microbat occupation made in the ELA SIS referenced in the submitted BDAR, that the tunnel is not a maternity roost for bent-winged bats, however, may provide breeding habitat for the southern myotis. Survey results have identified that this species has been recorded breeding within the tunnel between late October and February and is present throughout all seasons where it roosts in holes within concrete lined sections of the tunnel, particularly the upstream half of the tunnel.

Due to the relatively recent and comprehensive nature of these surveys, no additional survey has been undertaken, nor is considered warranted to enable an assessment of the Project's potential impacts on bat species known, or likely, to use the Tunnel.

An addendum to the Blast Impact Assessment (refer to Appendix E of the Amendment Report) has been prepared which includes further assessment of potential impacts from blasting on bats resident within Balickera Tunnel. The Addendum notes that Balickera Tunnel (a man-made structure used for conveying large volumes of water), unlike natural caves that are dry and quiet most of the time, has constant sound exposure. Fauna that live in the tunnel are likely to have adapted to this sound environment and adjusted their sensory thresholds accordingly. The water flow in Balickera Tunnel creates noisy and dynamic conditions, as the water hits the tunnel walls and causes noise and vibration. It is expected that the microbats that live in the tunnel are probably desensitised to these sound and vibration levels.

While blasting does have potential to dislodge dust and small rocks from the roof of the cave, the Balickera Tunnel Remediation Works have reduced the risk of this occurring and the likelihood of blast vibrations causing such falls is not considered to be any higher than the likelihood of bat activity itself causing similar effects.

The Blast Impact Assessment indicates vibration levels will not exceed 10 mm/s inside Balickera Tunnel by controlling the MIC (maximum instantaneous charge) used for blasting. A review of a Western Australian study indicates that vibration impacts from blasting of this magnitude are unlikely to significantly disturb bats present within caves. Overpressure impacts from blasting, rather than the vibration effects, are linked to the 'startling' effect on people and fauna from blasts due to the sudden change in air pressure. Due to the orientation of the tunnel, overpressure impacts associated with blasting will not penetrate the tunnel and will therefore not have a disturbance impact on bats within the Tunnel.

Table 8.6 in the BDAR (refer to Appendix I of the Amendment Report), has been updated to reflect the results of the Blast Impact Assessment.

2. Threatened Ecological Community Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Queensland bioregions EEC

Table C2.3 in Appendix C of the BDAR states plant community types (PCTs) 762, 1618 and 1716 all correspond to the Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions EEC listed under the EPBC Act. However, this is not recorded within the Biodiversity Assessment Method (BAM) Calculator (BAM-C).

Recommendation 2

Amend the BAM Calculator (BAM-C) to include PCTs 762, 1618 and 1716 as commensurate with EPBC Act listed Threatened Ecological Community (TEC) Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregion.

The BAM-C currently has no functionality to allow assessors to re-assign or select TECs other than those already associated in the Vegetation Information System. There is also no functionality which allows separate selections for BC and EPBC Act entities.

3. Species polygon and offset required for species detected on site

In accordance with section 4.4.1 of the BAM Ops Manual – Stage 1, if any past surveys of the subject land have recorded the presence of a threatened species or it has been incidentally observed on site, the species must be assessed in accordance with Steps 2–6 in BAM Subsections 5.2.2 to 5.2.6, irrespective of the criteria in Table 11. Eastern cave bat and southern myotis were recorded during past surveys, as such, a species polygon should be prepared for these species. The BAM-C should be amended accordingly.

Recommendation 3

*The BDAR should be consistent with the requirements of the BAM. Species polygons should be prepared for eastern cave bat (*Vespadelus troughtoni*) and southern myotis (*Myotis macropus*). BAM-C should be amended accordingly.*

Potential calls of the Southern Myotis (*Myotis macropus*) were recorded during surveys and as previously discussed the species is known to roost and breed in the Balickera Tunnel. The details for this species are summarised in Table 5.9 of the BDAR and areas of suitable habitat are mapped in Figure 5.2 of the BDAR. DPIE guideline Species Credits - threatened bats and their habitats (V2), (DPIE, 2021) identify that Assessors need to use aerial imagery, or ground data to locate and map the high bank (or high tide mark for tidal waters) of any medium to large permanent creeks, rivers or other waterbodies (≥ 3 m wide) within 200 metres of the subject land. Species polygon boundaries should align with all Plant Community Types (PCT) on the subject land with which the species is associated that occur within 200 metres of the high bank, or high tide mark of creeks, rivers or other waterbodies mapped. If the species was recorded in any additional PCTs on the subject land these PCTs should also be included in the species polygon where they occur within 200 m of suitable watercourses.

The locations of all permanent ≥ 3 m wide watercourses surrounding the disturbance area are mapped in Figure 5.2 in the BDAR. Figure 5.2 demonstrates that the Project will not directly impact any permanent or semi-permanent watercourses ≥ 3 m wide within 200 m of the disturbance area, and therefore species credits are not required for this species.

Bat surveys undertaken on behalf of Hunter Water have not identified the presence of roost or breeding Eastern Cave Bat within Balickera Tunnel nor has it been recorded in surveys undertaken for the Project. Further, the tunnel has not been reported as providing roosting or breeding habitat for these species and the presence of this bat is not predicted by PCT associations. Therefore, no credits are required to be generated for this species.

4. Further justification for PCT 762 selection required

Section 4.2 of the BAM outlines that the assessor must identify and map the distribution of PCTs, or the most likely PCTs, and all threatened ecological communities (TECs) on the subject land. The identification must be in accordance with the NSW PCT classification as described in the BioNet Vegetation Classification. The vegetated area identified as PCT 762 in the BDAR does not include any cabbage gum (*Eucalyptus amplifolia*) recorded on site. The vegetated area does include a high prevalence of forest red gum (*Eucalyptus tereticornis*). Section 4.2 should be amended to include justification to exclude PCT 1594 or PCT 1749 selection for this vegetation.

Recommendation 4

The BDAR should include further justification for the selection of PCT 762 in accordance with the NSW Plant Community Type (PCT) classification as described in the BioNet Vegetation Classification.

While the name of PCT 762 suggests it includes or is dominated by Cabbage Gum, the vegetation integrity score (VIS) only lists *Eucalyptus moluccana*, *Eucalyptus tereticornis* and *Angophora floribunda* as upper stratum species and Umwelt maintain that the presence of this PCT is justified.

PCT 1594 is described in the VIS as being dominated by Cabbage Gum which is not present in the areas mapped as being PCT 762.

PCT 1749 is a poor fit as it is part of the Hunter Lowland Redgum Forest TEC which is not present and is characterised by a canopy of *Eucalyptus punctata* in association with *Eucalyptus tereticornis* which is restricted to riparian zones in the Rothbury and Stanford Merthyr areas.

Additional justification for the selection of PCT 762 has been added to Section 4.2.2 of the BDAR (refer to Appendix I of the Amendment Report).

5. Additional information is required to demonstrate compliance with threatened species target survey requirements

Threatened species surveys must be conducted as per section 5.3 of the BAM, which requires surveys to comply with the Department's threatened species survey guides and the Threatened Biodiversity Data Collection (TBDC). Sufficient evidence should be provided within the BDAR to demonstrate compliance with the relevant guideline and the TBDC, including geospatial coordinates and tracks, dates, timing, person hours, weather conditions and photographs. It is recommended additional information is provided or additional surveys are conducted for the following groups:

- microbats
- raptors
- forest owls
- glossy black-cockatoo (*Calyptorhynchus lathami*)
- amphibians
- red helmet orchid (*Corybas dowlingii*)

Recommendation 5

Additional information should be provided to confirm threatened species surveys were conducted in accordance with relevant guidelines and Threatened Biodiversity Database Collection (TBDC). If additional information cannot be provided, additional surveys should be undertaken.

Survey was undertaken in accordance with the relevant guidelines for the species listed. Additional information outlining the survey effort has been added to Section 2 of the BDAR (refer to Appendix I of the Amendment Report).

6. Further measures should be included to mitigate prescribed impacts

The Project is located within a regional fauna corridor identified in Fauna Corridors for North East NSW dataset (DPE 2010). The Project will contribute to cumulative impact on habitat patch size and crossing width within Italia Road and the Boral Seaham Quarry. The Project will also increase risk of vehicle strike along Pacific Highway and Italia Road. Loss, modification and fragmentation of habitat, and vehicle strike are identified as a key threatening process for the koala.

Recommendation 6

The BDAR should include adequate measures to mitigate loss of habitat connectivity and increased vehicle strike for threatened species on site (i.e: koala). Mitigation measures may include, but are not limited to, installing artificial connectivity measures to establish connections between habitat and favoured movement corridors.

The Project will maintain connectivity along the eastern and western Project Area boundary and the amended pit design will increase the width of the western corridor and area between the Main Pit and Italia Road. Fencing will be limited to the quarry pit and processing area only; the haul road will not be fenced, allowing movement in an east-west direction south of the quarry and north of Italia Road. The Quarry will not operate at night-time with extraction and processing activities restricted to day time hours only meaning noise and traffic impacts associated with operation of the quarry will have reduced impacts on nocturnal fauna movement around the project area.

At a local scale, the existing land bridge pinch point associated with the Balickera Canal is approximately 1,200 m wide (distance between the two portals). It is recognised that the proposed development footprint would result in the creation of two new terrestrial pinch points (approximately 410 m and 675 m wide) between the disturbance area and the northern and southern portals of the Balickera tunnel and associated land bridge (noting that the Balickera Canal does not present a barrier to avifauna in a north-south direction). Both proposed new pinch points are limited in longitudinal extent. The retention of a wildlife corridor along Italia Road has been a key design consideration for the Project and the width of this corridor has been increased as a result of the amended project design.

There are two existing pinch points to the north-south habitat corridor located to the west of Italia Road, around the northern and southern sides of the proposed and existing disturbance footprint of the Seaham Quarry. These existing pinch points have widths of approximately 170 m on the northern side and 210 m on the southern side of the Seaham Quarry footprint. These existing pinch points are narrower than the new pinch points that would be created by the Project. The Project would not isolate any areas of habitat and would not create any pinch points that are narrower than the existing pinch points that already exist in a local connectivity context.

In addition to a reduced speed limit along the proposed quarry access road (15m wide), the Project would implement driver education program and a reduced speed limit for Project Related heavy vehicles travelling into or leaving the quarry on Italia Road as part of the Driver's Code of Conduct to reduce the potential for road related fauna impacts. ARDG have also suggested that Council investigate reducing the legal speed limit (which is currently 90 km/hr) for all motorists along this section of Italia Road, ARDG are happy to assist Council with the relevant request to TfNSW require to facilitate this speed limit reduction.

Section 3.2.3 of the BDAR contains further information regarding the projects potential impacts on fauna movement.

7. Further consideration should be given to drawdown impacts on Groundwater Dependent Ecosystems and species

Figure 4.4 of the BDAR identifies the modelled extent of groundwater drawdown in Stage 7 and 8 occurring outside of the Project Area, with drawdown predicted in an area predicted as having a high probability of groundwater dependent ecosystem (GDE) occurrence. Section 8.3.7 of the BDAR states potential impacts to GDEs include alterations in species composition and richness to both increased depth and reduced quality of available groundwater.

Given the above, it is likely that biodiversity impacts associated with groundwater drawdown extend beyond the "Disturbance Area" identified within the BDAR. Furthermore, groundwater obligate threatened species and communities are recorded or assumed likely to occur within the modelled stage 7 and 8 drawdown areas. As such, additional survey and assessment should be undertaken over land within the modelled extent of drawdown in Stage 7 and 8 in accordance with the BAM. The BDAR should include comment on the impact of drawdown and discharge of water for areas identified as high probability GDEs.

Recommendation 7

Additional survey and assessment should be undertaken in accordance with the BAM for land identified within groundwater drawdown zones. The assessment should include comment on the impact of drawdown and increased water flow from sediment basins for areas identified as high probability Ground Dependent Ecosystems (GDEs).

The Groundwater Impact Assessment (GIA) (GHD, 2023a) has been revised to reflect the changes to the conceptual layout of the Project and includes an updated assessment of likely impacts on shallow aquifer systems linked to creeks and potentially accessible by terrestrial vegetation.

The nearest high priority GDEs listed in water sharing plans are located near the Williams River to the north and east of Seaham, approximately eight and five kilometres from the Project Area respectively. These high priority GDEs are well outside the predicted radius of drawdown associated with the Project and will not be impacted by the Project.

The revised GIA (GHD, 2024) also includes a review of the Probable Vegetation Groundwater Dependent Ecosystems – Hunter/Central Rivers dataset (NSW Government Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2021) to identify vegetation types that have a probability of being groundwater dependent ecosystems. The dataset indicates that there are areas of high, medium and low probability GDEs in the Project Area with, high probability terrestrial type GDEs being associated with Nine Mile Creek to the north and north-east, and Caswell's Creek and Williams Creek to the west of the Project Area.

Within the Project Area it is considered that PCT 1719 Prickly-leaved Paperbark Forest on the Coastal Lowlands of the Central Coast and North Coast, corresponds to the areas mapped as high probability GDEs, and this PCT has now been excluded from the revised disturbance area and will not be directly impacted.

The GIA indicates that based on the standing water levels measured in groundwater monitoring bores, the average depth to the water table in the fractured rock aquifer at the Project Area is between 7.31 and 23.3 m below ground level. Average standing water levels measured in groundwater bores in the northern part of the Project Area where the high probability GDEs are present, are between approximately 7 and 13 metres below ground level however these depths represent the piezometric groundwater levels. In contrast, actual groundwater in these areas where the higher probability GDEs are mapped is actually significantly deeper (i.e., 20 m below the surface) due to the presence of an extensive zone of low permeability dacite which acts as an aquitard, confining groundwater to deeper, more permeable units at a depth (see Figure 3.5 in the GIA, Appendix H of the Amendment Report).

The GIA indicates that drawdown in the fractured rock aquifer (assuming the most conservative drawdown prediction) in the northern part of the Project Area containing the high probability GDEs would be in the order of 0 to 5 m. Given the depth to groundwater in this area (i.e., 20 m below surface), it is evident that the presence of high probability GDEs is due to shallow groundwater in the overlying alluvial/colluvial material (recharged from creeks and rainfall), rather than the deeper, fractured rock aquifer, from which it is disconnected in this area. Therefore, the modelled drawdown of groundwater in the deeper, fractured rock system is not predicted to adversely impact these high probability GDEs.

The BDAR has been updated to reflect the results of the revised GIA (refer to Section 4.6 of the BDAR).

8. Amend the assessment for hollow-dependent threatened fauna to include all PCTs with large hollows

The BDAR states that 130.75 hours were dedicated to diurnal threatened fauna surveys, including stick nest and breeding hollow search. From this effort, the BDAR identifies six (6) large hollow hollow-bearing trees within the Project Area. Table 5.3 of the BDAR outlines that PCT 1590 and PCT1619 were excluded for assessment for hollow-dependent threatened fauna due to no suitable hollow-bearing trees present. However, during a site inspection, BCD identified multiple large hollow hollow-bearing trees not included within the BDAR.

The BDAR should therefore be amended to include the following:

- *a figure displaying all hollow-bearing trees*
- *hollow-bearing tree data (size of hollow, number of hollows, species of tree)*
- *an assessment for hollow-dependent threatened fauna in all PCTs with large hollow hollow-bearing trees, including targeted surveys for hollow-dependent threatened fauna.*

Recommendation 8

The BDAR should be amended to include survey and assessment for hollow-dependent threatened fauna in all PCTs with large hollow hollow-bearing trees.

Section 2.2, Section 2.4, Section 4.0 and Section 5.0 of the BDAR have been updated to include further detail relating to hollow bearing tree survey results and assessment of hollow dependent threatened fauna. Details of the hollow bearing tree observed by BCS in their site visit indicate that this particular tree was identified and considered in surveys consistent with BAM requirements.

9. Additional fauna management measures should be considered for the vegetation clearing protocols

Section 8.4.3 of the BDAR provides information on the management measures to be implemented to minimise the impacts of the vegetation clearing on fauna.

BCD considers that a number of additional measures should be included to minimise risk of impacts to threatened fauna. These protocols are described below.

Recommendation 9

The following actions should be added to the clearing protocols outlined in section 8.4.3 of the BDAR:

- scheduling the clearing works for a time of year to avoid the breeding seasons of identified potential threatened species and other fauna that may breed on site
- comparative habitat assessments should be conducted on clearing sites and proposed release sites to ensure that habitat features are available in the released sites
- release sites should be identified and mapped prior to clearing and all appropriate approvals granted by the landholders
- tree clearing should not be conducted above 35°C in the interests of animal welfare
- communication should occur with rescue agencies and local veterinarians prior to the commencement of clearing to confirm the availability of resources for any captured/injured fauna that is unable to be released
- clearing should be conducted sequentially and directionally towards areas of refuge to prevent the creation of vegetation islands
- felled trees should be positioned so that hollows are facing upwards and out to allow fauna to escape overnight.

Section 8.4.3 of the BDAR has been updated to reflect the requested clearing protocols listed.

10. How will captured fauna be relocated?

The BDAR does not address the displacement of wildlife that will occur during the tree-felling process. As such BCD considers that further details are required regarding the handling of fauna caught during this process. The BDAR should consider what happens to (i) uninjured animals on the day of capture (e.g. uninjured animals should be released on the day of capture into nearby suitable secure habitat and should not be held for extended periods of time), and (ii) injured animals, (e.g. they will be taken to the nearest veterinary clinic for assessment and treatment).

BCD notes that relocation / translocation of captured threatened and non-threatened fauna may have impacts on feed resources, potential disease implications, and social disruption of other animals already using release areas, however, this approach is typically supported. The proponent should specify in detail what will happen to displaced threatened fauna, and if it proposes relocation / translocation, then the BDAR should provide an appraisal of what the potential impacts of such relocations / translocations may be and what measures (e.g. monitoring) will be employed to minimise any detrimental effects on existing faunal populations and adjacent habitat. Any relocation / translocation of wildlife should be done in accordance with Translocation operational policy (DPIE 2019), and translocation of threatened species will likely require a licence under section 132 of the National Parks and Wildlife Act 1974 or a threatened species licence, under Part 2 of the BC Act if species are being relocated to areas outside the approved development consent area. The BDAR needs to include these details.

Recommendation 10

The BDAR should provide a detailed appraisal of how injured and uninjured animals will be treated, particularly with respect to relocation to nearby habitat. The BDAR should discuss what the potential impacts of any relocations / translocations of displaced fauna (particularly threatened species) may be on adjoining habitat and what measures (e.g. monitoring) will be employed to minimise any detrimental effects on existing faunal populations that utilise such areas.

As outlined in the BDAR, ecologist pre-clearance surveys and supervision of works are proposed to mitigate and manage potential impact to fauna. Consistent with standard practice, fauna would be moved on from the disturbance area to a safe distance within the surrounding state forest, this movement, within the existing forest is not expected to have any impact on populations or access to food. If required, communication will occur with wildlife care agencies and local veterinarians prior to the commencement of clearing to confirm the availability of resources for any captured/injured fauna that is unable to be released. Action would be undertaken in accordance with their advice.

Pre-clearance surveys and tree felling supervision will be undertaken by an appropriately qualified and experienced ecologist to minimise potential impacts to fauna species, particularly hollow-dependent fauna. A detailed tree-felling supervision protocol is to be developed and documented as part of the Construction Environmental Management Plan

4.1.2 Pollutions and Flooding Risk

11. The proposed sedimentation basins appear to be located within a waterway

The proposed plans suggest that sedimentation basin SW1 is to be constructed in a 2nd order stream. This is not in line with best practice, which is to locate pollution controls offline, away from waterways. This is to prevent pollutants from being remobilized by high flows and to protect property, people, and the environment in the event of a failure.

Recommendation 11

The sediment basin SW1 should not be located within a waterway.

It is acknowledged that the location of SB1 is located on a second order stream. However, it is considered that the location of SB1 on the ephemeral second order stream is justified for the following reasons:

- the basin is located at the top of the catchment and runoff from disturbed areas will in general, naturally drain to this location as the quarry footprint expands with minimal undisturbed catchment upslope of the basin
- the natural landform provides for the construction of a large capacity dam with limited excavation and the total disturbance footprint associated with SB1 would likely be greater at a location with less favourable topography
- the basin capacity is large due to containment requirements (0.2% AEP as specified by Hunter Water) limiting potential locations within the proposed disturbance boundary
- given the large capacity of SB1, the likelihood of uncontrolled releases to the downstream watercourse are considered very low (refer to Section 4.4.4.2 of the Surface Water Impact Assessment (SWIA), Appendix G of the Amendment Report (the primary reason for the preference to avoid the use of higher order streams for sediment basins).

4.2 DPHI Crown Lands (DPE Crown Lands)

The Department of Planning and Environment – Crown Lands have reviewed the proposal.

As no Crown land, roads or waterways are in the vicinity of the proposal/are affected by the proposal, Crown Lands has no comments at this time.

The response from DPE Crown Lands is noted.

4.3 DCCEE Water (DPE Water)

4.3.1 Water Licensing and Take

DPE Water has reviewed the Environmental Impact Statement (EIS) and has recommendations regarding water supply security, impact assessment of groundwater extraction/interception and water licensing.

1.0 Water licensing and take

1.1 Recommendation – Prior to approval

That the proponent clarifies the volume to be obtained for a water access licence noting this must cover the maximum potential water take, and demonstrate the ability to obtain entitlement in accordance with the requirements of the NSW Aquifer Interference Policy.

Explanation

Based on the EIS predictions, groundwater take is between 26.7 ML/year and 183.9 ML/year for the Main Pit and between 6.1 ML/year and 42.4 ML/year for the Northern Pit during stage 8 (section 6.5.2.3 of the EIS). This would result in a maximum of 226.1 ML/year. An additional maximum potential take of 134 ML/year from a proposed bore is also noted. However, the proponent notes the proposal to obtain a water licence for between 33 ML/year and 57 ML/year (Section 6.5.2.3 of the EIS and noting this conflicts with 27-47 ML/year stated in Appendix 10) which would be insufficient to account for the maximum predicted water take as required by the NSW Aquifer Interference Policy. The relevant water source to obtain entitlement is the New England Fold Belt Coast Groundwater Source.

As previously discussed, the GIA (refer to Appendix H of the Amendment Report) and the SWIA (refer to Appendix G of the Amendment Report) have been updated to reflect the amended Project which no longer includes the previously proposed Northern Pit.

The project will require licensing for groundwater sourced from a bore used to meet water usage demand as well as passive groundwater inflow. The project area is located within the New England Fold Belt Coast Groundwater Source which is managed by the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources. Any take of groundwater associated with the Project (through passive inflow or direct take through extraction for operational purposes) will require a Water Access Licence (WAL) under the Water Management Act.

As detailed in the SWIA, potential demand for groundwater to meet operational needs is highest during Stage 1 of the Project when the water management system and available stored water is at its smallest whereas passive take will not occur until the pit floor of the quarry progresses below the pre-quarry groundwater level (Stage 5) with peak passive inflow predicted when the pit is at its lowest in Stage 8.

The water balance modelling results from the revised SWIA, indicates the Project requires 39 ML/year in the early stages of the Project to cover a 90th percentile predicted demand requirements. If sourced via a bore, a WAL will be required for this direct take prior to the commencement of the Project to cover potential shortfalls in supply during the early stages of the Project. Predicted demand for water decreases through the life of the project as water captured in the WMS can be used to meet demand requirements. By Stage 8, predicted demand shortfall is expected to be less than 5ML/year under a 90th percentile scenario.

Updated annual passive groundwater inflow predictions for the Main Pit range from approximately 1.5ML to 8.3 ML in Stage 5 up to between 9 ML to approximately 50 ML in Stage 8.

As detailed in Section 7 of the SWIA (refer to Appendix G of the Amendment Report), based on recent (2021/2022) trades within the New England Fold Belt Coast Groundwater Source there is sufficient market depth for ARDG to obtain a licence for up to 39 ML/year prior to commencement of any bore extractions required to meet Project needs.

Based on the more likely inflow predictions for Stage 8 (the final and deepest stage of quarry operations), a WAL for approximately 9–15 ML/year would be required. As the 39 ML/year take is only required to meet operational demands in the early stages of the project, a WAL covering this direct take is also likely to be sufficient to cover both passive and direct take in the latter stages. Therefore, assuming passive inflow rates are consistent with the likely inflow predictions in the GWIA, no additional licencing would be required for the pit inflows. Updated predictions will be obtained based on groundwater monitoring and observed inflows into the pit as the pit progresses to confirm and WAL holdings are sufficient to meet licencing requirements.

1.2 Recommendation – Prior to approval

That the proponent provides an assessment of the ability to obtain the proposed water supply volume from a bore to meet the water supply requirements of the project.

Explanation

No assessment has been provided to confirm the availability of the 134ML/year water demands from a bore proposed for the project. The information in the Groundwater Impact Assessment (Appendix 10) indicates indicative bore yields of less than 1 L/s and has not clearly demonstrated the security of water supply. This represents a significant risk for the project.

Based on the results of a pumping test conducted at existing bore (ARDG-P06) and forward analyses outlined in the GIA, continuous pumping at 1.25 L/s or discontinuous pumping at 2.5 L/s (assuming complete recovery following each 12-hour pumping period), is likely to be sustainable for at least a year in the fractured rock aquifer. Therefore, it is possible that the 90th percentile bore import volume could be obtained from a production bore targeting the fractured rock aquifer in the ARDG-P06 area. Refer to Section 6 of the GIA (Appendix H of the Amendment Report) for further information.

1.3 Recommendation – Prior to approval

That the proponent provides an impact assessment of the installation and operation of the proposed bore on the aquifer, water users and dependent ecosystems. This needs to include the location of the bore and to determine if the impacts overlap with groundwater impacts from the quarry excavation. Where impacts from the bore overlap with the quarry excavation impacts, the assessment needs to address the minimal impact considerations of the NSW Aquifer Interference Policy.

Explanation

No impact assessment has been provided of the proposed bore installation and operation. It is recommended this be completed to ensure an understanding of impacts as part of the project assessment and to enable the bore to be excluded from relevant approval requirements under the Water Management Act 2000. It is recommended the location of the bore meets the rules of the relevant Water Sharing Plan for water supply works.

The GIA has been revised to include an assessment of the potential impact and operation of the proposed bore (refer to Section 6 of the GIA (Appendix H of the Amendment Report)).

As discussed above in relation to ‘Recommendation 1.1’ the periods when operational demands may require supplementing are more likely to arise in the early stages of the project, before the Project has sufficient capacity to store water captured from surface runoff. While there may still be a need to supplement supplies in later years of the Project, the volumes required are anticipated to be low and cumulative drawdown impacts would be of very short duration if they occurred at all. Further, as detailed in the GIA the most conservative predicted radius of drawdown for Stage 8 was used to assess the impact of the Project on existing groundwater users. All landholder bores are well outside the Project’s radius of drawdown using these conservative assumptions. Based on the most conservative predicted radius of influence for the potential production bore, drawdowns exceeding one metre are not expected to occur at distances beyond 600 m. Given that the nearest water supply bores are located more than one kilometre to the north-west of existing bore ARDG-P06, it is extremely unlikely that a production bore located near ARDG-P06 would cause more than a 2 m water table decline cumulatively at any water supply work and as such, the Project’s potential cumulative impacts of bore operation and peak Project drawdown meet the NSW Aquifer Interference Policy (AIP) Level 1 Minimal Impact Considerations for landholder bores.

1.4 Recommendation – Prior to approval

That the proponent confirms the design of the sediment dams meets the criteria to be exempt from a water access licence.

Explanation

Sediment dams must be solely for this purpose to meet the exemption listed in Schedule 1 Clause 3 of the Water Management (General) Regulation 2018. According to Table 3.1 of the Surface Water Assessment these will be a higher capacity than is required by the Managing Urban Stormwater guide so confirmation that they meet this exemption is requested.

Noted. The assessment of the Project has assumed that all sediment dams will be designed to be no larger than necessary to meet EPA and Hunter Water water quality requirements.

Given the Project is located in the Grahamstown Dam drinking water catchment, pollution prevention standards beyond those recommended in relation to sediment basins in Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2e: Mines and quarries (NSW Government Department of Environment and Climate Change (DECC), 2008) are required. Specifically, Hunter Water has specified that the Project WMS should be designed to contain a 0.2% AEP storm event (refer to Section 3 of the SWIA, Appendix G of the Amendment Report) and to ensure that discharges meet specific goals regarding nutrient loads. SB1 is the primary storage collecting runoff from the Project Area and detaining water for treatment prior to discharge. The dam has been designed to be no larger than is necessary to meet the standards prescribed by Hunter Water and, as far as practicable, undisturbed catchments upslope of SB1 will be diverted around SB1 and it is noted that only minimal areas of undisturbed catchment will drain to SB1.

SB1 is located on a second order stream and meets the definition of a minor stream for the purposes of the *Water Management (General) Regulation 2018* (WM Regulation). All Project water storages are considered as Excluded Works under Schedule 1 of the WM Regulations and therefore exempt from requiring a Water Access Licence under Schedule 4 Clause 12 of the WM Regulations.

All sediment dams will be decommissioned following closure of the Project unless required by State Forests for other lawful uses post closure – and such licensing requirements for sediment dams post closure will be the responsibility of State Forests.

1.5 Recommendation – Prior to approval

That works within waterfront land are designed and constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land (DPE 2022).

Explanation

The proposed development includes works on waterfront land (including the quarry, outlets and roads) which will need to be designed and constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land found at <https://water.dpie.nsw.gov.au/licensing-and-trade/controlled-activity-approvals/guidelines>

The Project will include a number of works that are located on waterfront land (i.e. works within 40 m of the top of bank of a defined watercourse). To minimise the risk of impacts on watercourses and the associated riparian corridor, all works on waterfront will be designed and constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land.

1.6 Recommendation – Prior to approval

That the proponent revises the groundwater inflow predictions and Water Access Licence (WAL) requirements at Stage 5 of the project when additional groundwater monitoring data is gathered.

Explanation

Due to the significant range and resultant uncertainty in the modelling predictions associated with groundwater inflows to the pit, a more accurate inflow estimate is required as the project proceeds from Stages 6 to 9.

1.7 Recommendation – Prior to approval

The proponent must ensure sufficient water entitlement is held in a water access licence/s to account for the maximum predicted take for each water source prior to take occurring.

Noted. As previously discussed, based on recent (2021/2022) trades within the New England Fold Belt Coast Groundwater Source there is sufficient market depth for ARDG to obtain the required licencing for the Project.

ARDG commits to revising groundwater inflow estimates prior to extraction below 26m AHD which is the estimated current water table in the area of the Pit based on bore data. This approximates to the conceptual quarry plan Stage 5. Any additional take identified as a result of these updated inflow assessment will be covered through the acquisition of additional entitlements and/or management of operations to reduce bore extractions to ensure net groundwater take associated with the Project does not exceed the volume authorised by WALs held by ARDG.

1.8 Recommendation – Prior to approval

The proponent should be aware of the rules of the relevant Water Sharing Plans and how they may impact the project and ability to trade or take water.

ARDG is aware of the rules of the Water Sharing Plans and the ability to trade or take water. As outlined in the GIA and SWIA, ARDG has committed to purchasing and holding sufficient entitlement to comply with relevant water licensing legislation.

4.3.2 Groundwater

2.0 Groundwater

2.1 Recommendation – Prior to approval

That the proponent investigates and includes the water supply bore under approval 20WA214724 (with a linked WAL), which is located 1.5 km southwest of the project, in the groundwater impact assessment.

Explanation

The EIS has not included water supply work approval 20WA214724 which has a linked WAL and is located 1.5 km southeast of the project. DPE Water has noted this work approval is current and therefore potential impacts and necessary mitigation requirements for this bore must be considered.

As requested, the amended GIA includes an assessment of impact to works approval bore 20WA214724. Predicted drawdown associated with the operation of this bore are detailed in the GIA (Appendix H of the Amendment Report, see in particular Section 6.2 and Section 6.4)

2.2 Recommendation – Prior to approval

That the proponent provides information on root zone depths for vegetation types in and around the assessment area mapped as high probability Groundwater Dependent Ecosystems (GDEs).

Explanation

The EIS states that groundwater levels are below the root zone therefore terrestrial vegetation depends only on direct rainfall recharge. However, no information is provided on likely root zone depths for vegetation types to support this statement.

The GIA indicates that based on the standing water levels measured in groundwater monitoring bores (n= 10), the average depth to groundwater in the fractured rock aquifer at the Project Area is between 7.31 and 23.3 m below ground level. Average standing water levels levels observed in monitoring bores in the northern part of the Project Area where the high probability GDEs are mapped as being present (within the maximum extent of predicted drawdown), are between approximately 7 and 13 metres below ground level. However, the groundwater levels observed in these bores reflects the potentiometric groundwater level and the aquifer in this area is actually significantly deeper (i.e., 20 m below the surface) due to the presence of an extensive zone of low permeability dacite which acts as an aquitard, confining groundwater to deeper, more permeable units at a depth (see Figure 3.5 in the GIA, Appendix H of the Amendment Report). These deeper aquifers are extremely unlikely to be accessed by terrestrial vegetation in the areas where high groundwater dependence is predicted due to their depth (>20 m bgl) and the nature of the confining rock system.

Potential impacts on GDEs are discussed in more detail in the GIA (refer to Section 6.4.3 of the GIA (Appendix H of the Amendment Report)).

2.3 Recommendation – Prior to approval

That the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) includes a monitoring program for groundwater developed in consultation with DPE Water prior to the commencement of the quarrying operations. It should include:

- a. Monitoring of pit inflows including a pit water balance.*
- b. Monitoring of groundwater levels and quality during and post project closure.*
- c. A list of water quality parameters to be monitored.*
- d. A Trigger Action Response Plan (TARP) for groundwater levels and quality.*
- e. Make good provisions*

Explanation

Monitoring and management of impacts is required to verify impact predictions and to manage impacts within approved limits. The CEMP and OEMP are relevant plans to include a monitoring program and appropriate measures to address reviews of groundwater inflows and impacts and to inform impact mitigation as appropriate.

As outlined in Section 7.1 of the GIA, the CEMP will include a groundwater monitoring program which will be developed in consultation with DPE Water.

2.4 Recommendation – Prior to approval

That the proponent undertakes additional survey and investigation to find the nature and extent of groundwater dependency of vegetation including the development of a GDE monitoring and management plan. The development of this plan should be undertaken in consultation with DPE Water and prior to quarry activities progressing below the water table (i.e. Stage 5).

Explanation

Section 8.3.7.3 of the Biodiversity Development Assessment Report (Appendix 11) recommends additional survey and investigation work to be undertaken to determine the nature and extent of groundwater dependency of vegetation within the zone of predicted drawdown and updated predictions of groundwater drawdown are developed prior to quarry activities progressing below the water table (i.e. Stage 5). It also recommends the development of a GDE monitoring and management plan based on the updated information.

As discussed above, the Project's groundwater impacts are not predicted to have any impact on GDEs. Notwithstanding, ARDG have no objection to the implementation of the recommendations described in Section 8.3.7.3 of the BDAR (Appendix I of the Amendment Report) which are consistent with those in the DCCEE Water recommendation.

4.4 Department of Primary Industries (DPI) Fisheries

DPI Fisheries have reviewed the EIS and notes no key fish habitat is proposed to be affected. As such, DPI Fisheries have no advice to provide.

The response from DPI Fisheries is noted.

4.5 NSW Environment Protection Authority (EPA)

1. Matters to be addressed with conditions

a. Water Quality

The EIS has identified that the project has the potential for the following impacts on surface water resources:

- *A reduction in Grahamstown Dam catchment yield due to the capture of surface runoff.*
- *Degradation of downstream water quality as result of ground disturbing activities leading to erosion and transport of sediment and nutrients to watercourses*
- *Changes in catchment hydrology resulting in changes to receiving watercourse flow regimes*
- *Impacts on stream stability associated with quarry discharges.*

Sediment basins are proposed, sized to minimise the risk of uncontrolled discharges in storm events not exceeding the 24-hour duration, 0.2% AEP storm event in conjunction with water treatment plants for the removal of solids and nutrients prior to discharge.

Proposed conditions are included at Attachment A.

ARDG has reviewed and accepts the proposed water quality consent conditions.

b. Noise Impacts

The EIS states that the site is located within a rural environment with typically low background noise levels. Existing noise sources include local road traffic, traffic from the Pacific Highway, agricultural activities and expected industrial contributions from Boral Seaham Quarry and Ringwood Park Motor Complex.

Proposed conditions are included at Attachment A.

The EPA submission proposes the following noise limit conditions outlined in **Table 4.1**. However, these suggested noise limits differ from the proposed noise criteria established by the Noise Impact Assessment, as outlined in **Table 4.2** and do not reflect Project Noise Trigger Levels (PNTLs) established for the different areas in accordance with the NPfl. It is requested that the noise limit conditions reflect PNTLs and are applied consistently with the noise criteria proposed in the Noise Impact Assessment.

Table 4.1 EPA Suggested Noise Limit Conditions

Location	Noise Limits in dB(A)		
	Morning Shoulder	Day	Evening
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)
241 Italia Road, Balickera (Lot 223, DP 605928)	35	40	35
16 Italia Road, Balickera (Lot 32, DP 787250)	35	40	35
17 Nine Mile Creek Road, Ferodale (Lot 302, DP 632130)	35	45	35

Table 4.2 Proposed Noise Criteria for Project based on PNTLs

Location	Period Criteria (dB LA15Min)		
	Morning Shoulder	Day	Evening
241 Italia Road, Balickera (Lot 223, DP 605928)	40	40	36
16 Italia Road, Balickera (Lot 32, DP 787250)	47	53	46
17 Nine Mile Creek Road, Ferodale (Lot 302, DP 632130)	47	53	44

The remainder of the suggested noise related consent conditions have been reviewed and accepted.

c. Air Impacts

Air dispersion modelling was completed with the air dispersion model CALPUFF and meteorological data for 2021 from Williamstown Airport and Beresfield. The pollutants assessed in the AQIA, include total suspended particles (TSP), PM₁₀, PM_{2.5}, deposited dust and crystalline silica. Background air quality data has been referenced from the monitoring station in Beresfield, located approximately 15 km to the southwest of the project area.

The results of the modelling show that there are no predicted exceedances of the EPA's impact assessment criteria for 24-hour average and annual average, TSP, PM₁₀, PM_{2.5} and dust deposition due to the Project alone or cumulatively accounting for background. Annual average respirable crystalline silica was predicted to comply with the EPA Victoria's criterion of 3 ug/m³ at the identified sensitive receptors.

Further assessment has been conducted considering cumulative impacts as result of the Project, and other quarries in the area. The Eagleton, Brandy Hill and Seaham quarries have been considered, with reference to impact assessments that have been previously prepared for these projects. Exceedances of the EPA's impact assessment criteria are not predicted when the predictions from the various quarries are combined. The Air Quality Impact Assessment is considered adequate to enable recommended conditions of approval.

Proposed conditions are included at Attachment A.

ARDG has reviewed and accepts the proposed air quality consent conditions.

2. Other matters

a. Traffic Noise

While noise from vehicle movements on public roads is not licensed by the EPA, we provide the following comment on the relevant section of the NIA (Section 6) for The Department's consideration. The EPA recommends that "The Department should consider how low traffic flows were addressed in the road traffic noise modelling prior to accepting the conclusion that traffic noise impacts will comply with the Road Noise Policy (DECCW, 2009)."

Road traffic noise calculations were performed with CadnaA, using the Calculation of Road Traffic Noise (CoRTN) algorithms. The Project is considered to have low traffic flows, particularly during the night-time, when movements are averaged over the 9-hour assessment period. Whilst, CoRTN was designed for fast free-flowing traffic, for this Project it is still considered the most appropriate algorithm to model the traffic noise impacts on public roads. The CoRTN algorithm is a standard algorithm commonly adopted by Australian acoustic consultants.

With reference to the TfNSW Road Noise Model Validation Guideline (2022), L_{A10} low volume corrections were accounted for, by multiplying Project traffic volumes by 100 and then applying a minus 20 dB correction to the predicted noise levels. Project traffic noise levels were predicted to be at least 8 dB below the criteria. In accordance with the RNP the Project traffic noise is predicted to be acceptable and have minor impact.

4.6 Heritage NSW

Based on the Aboriginal Cultural Heritage Assessment Report (ACHAR), supplied in support of the Environmental Impact Statement (EIS), there is insufficient information provided for Heritage NSW to advise the Department on whether the management recommendations are adequate and if the ACHAR substantially complies with the SEARs. While the ACHAR states that there are no proposed impacts to Aboriginal cultural heritage, additional information is required to ensure it complies with the SEARs, including:

- *Heritage NSW notes that the Aboriginal Heritage Information Management System (AHIMS) search is greater than 12 months old at the time of submission. Heritage NSW generally requires, as per Requirement 1b of the Code of Practice, that AHIMS searches are less than 12 months old. Please provide an updated AHIMS search.*
- *We recommend that additional documentation of the consultation process is requested. The applicant needs to provide evidence that consultation was kept continuous as the last consultation recorded in the ACHAR is dated September 2022. Heritage NSW requires that consultation with Registered Aboriginal Parties (RAPs) is continuous. Under our guidelines, breaks in consultation of over six months may not constitute continuous consultation. Heritage NSW notes that the project had a gap of two years in consultation, which Heritage NSW permitted. However, no additional consultation has been provided.*

The search of the AHIMS database conducted on 16 March 2020 of the Project Area and buffer of 1 km yielded the result of 2 sites identified within the broader AHIMS search. Both sites are registered as 'Valid' and comprise isolated artefact sites associated with the Boral Seaham Quarry, on the southern side of Italia Road, with the closest site, AHIMS site 38-4-0534, located outside the Project Area approximately 220 m to the south-west. In response to Heritage NSW comments in relation to the age of the search, an updated search of the AHIMS database was conducted on 28 August 2023 which identified no new sites. The ACHAR has been updated to include reference to this updated Search, refer to **Appendix 5**, Section 5.2.1.

There was a delay to the submission of the EIS unrelated to the ACHAR, hence the time gap between the review of the draft ACHAR and exhibition. There were no changes to Project design during this period and therefore no changes to the ACHAR between exhibition and finalisation. Accordingly, no updates needed to be communicated. Since exhibition further consultation has been undertaken with the RAPs including distribution of the exhibited version of the ACHAR and a letter to advise the RAPs of the changes to the conceptual quarry layout and resulting reduction in disturbance area, refer to **Appendix 5**. The updated ACHAR for the Project (which covers a reduced disturbance footprint wholly within the previously assessed footprint) forms Attachment ## to the Amendment Report.

4.7 Department of Regional NSW Mining, Exploration and Geoscience – Geological Survey of NSW (MEG-GSNSW)

MEG-GSNSW has reviewed the Environmental Impact Statement (EIS) and acknowledges the geological and resource summary provided in the main EIS document and the detailed quarry resource assessment report provided in Appendix 4.

MEG-GSNSW has no issues or concerns to raise and supports the resource development and the provision of high-quality construction materials to the Lower Hunter and Central Coast region.

MEG collects data on the quantity of construction materials produced annually throughout the state. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data collected is of great value to Government and industry in planning and resource management, particularly as a basis for analysing trends in production and for estimating future demand for individual commodities or regions. Production data may be published in aggregated form, however production data for individual operations is kept strictly confidential.

To assist in the collection of construction material production data, the proponent should be required to provide annual production data for the subject site to MEG as a condition of any new or amended development consent.

The requirement for the provision of annual production data to MEG is noted.

4.8 NSW Rural Fire Service (RFS)

A Fire Management Plan (FMP) should be prepared and include internal access, water supplies, location and type of hazardous materials. Ultimately, the primary role of the FMP is to ensure the safety of staff and attending fire fighters to the site.

The NSW RFS recommends the following conditions be included in any consent granted:

1. A Fire Management Plan (FMP) shall be prepared for the quarry development, The FMP shall be prepared in consultation with NSW RFS Hunter Fire Control Centre. The FMP shall include:

- 24 hour emergency contact details including alternative telephone contact;*
- Site infrastructure plan - buildings, hazards (chemical, environmental, physical, etc) APZ, Access, Water;*
- Fire fighting operations plan including Action sheet that incorporates*
 - in case of fire call 000*
 - the site environment;*
 - roles and responsibilities for staff when supporting fire agencies with fire suppression roles.*
 - map of access, water, hazards;*
 - communication strategies across the site.*

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.

2. The development footprint is to be managed as an Asset Protection Zone in accordance with Appendix 4 of 'Planning for Bush Fire Protection 2019'.

3. To allow for emergency service personnel to undertake property protection activities, a 10 metre defendable space (APZ) that permits unobstructed vehicle access is to be provided around the perimeter of the development including associated infrastructure.

Water and Utility Services

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.

4. A minimum 20,000 litre water supply (if tank, fitted with a 65mm storz fitting) shall be located adjoining the internal property access road within the required APZ.

The requested conditions of consent from the RFS have been reviewed and accepted.

The Fire Management Plan components of the EMP will be prepared in consultation with NSW RFS Hunter Fire Control Centre.

4.9 Transport for NSW

TfNSW has reviewed the referred information and requires modification to the Traffic Impact Assessment (TIA) and associated SIDRA modelling.

- The intersection of Pacific Highway/Italia Road has been modelled as a CHR/AUL arrangement, however, should be modelled as a Staged Crossing Type C. Reference is to be made to the Sidra Intersection 9.0 User Guide, Section 9.4.5.*

The Traffic Impact Assessment (TIA), submitted with the EIS (as Appendix 13), modelled the existing southbound scenario which includes a long (approximately 1 km) acceleration and merge lane. Given ARDG is not proposing to generate right turn heavy vehicle movements at the intersection and that the length of the existing merge lane is significant, traffic movements associated with the Project are unlikely to impact the performance of the intersection. It was communicated to TfNSW that this request would not make any appreciable change to the modelling outcome and the model more accurately represents the functionality of the existing southbound merge. Through consultation, TfNSW confirmed no change to the modelling in relation to the intersection was required.

As identified in **Section 3.4** Boral has now lodged a development application for the Pacific Highway/Italia Road intersection upgrades with details regarding the design of this intersection included in that application. A copy of this application has been referred to TfNSW by PSC for comment.

- *Modelling of proposed conditions includes heavy vehicles turning right out of Italia Road on to Pacific Highway. As the proposal identifies that all heavy vehicles will be turning left only out of Italia Road, it is recommended that this volume be removed.*

The modelling includes all project related traffic and have committed to the managing the movement of all quarry trucks to left turn out of Italia Road only. It is not the intent of the intersection upgrade to exclude any other heavy vehicles from turning right out of Italia Road. Any change to the intersection to restrict all heavy vehicles from turning right is beyond the scope of the Project and would be a matter for TfNSW strategic planning. Through consultation, TfNSW confirmed no change to the modelling is required.

- *The TIA cumulative traffic impact identifies traffic generation from the proposed Eagleton Quarry. This traffic generation is to be included in the SIDRA modelling.*

The TIA submitted with the EIS did not include an allowance for the Eagleton Quarry traffic other than background growth.

As indicated in **Section 3.4** Boral has now lodged a development application for the Pacific Highway/Italia Road intersection upgrades with details regarding the design of this intersection included in that application. The Transport Impact Assessment submitted with the intersection DA (GHD 2024) (Intersection TIA) includes a SIDRA analysis which provides projected traffic volumes from the Project, Boral Seam Quarry (including the proposed expansion), the proposed Eagleton Quarry, Brandy Hill Quarry and projected traffic growth.

The revised SIDRA modelling results were provided to TfNSW during the preparation of this Submissions Report, no further comments were received. A copy of the Intersection DA (including the Intersection TIA) has been referred to TfNSW by PSC for comment.

4.10 Hunter Water Corporation

4.10.1 Water Management

Hunter Water's Operating Licence requires compliance with the Framework for Management of Drinking Water Quality that is part of the Australian Drinking Water Guidelines (ADWG). The Framework requires the adoption of a multiple-barrier approach to water quality, and states that "the most effective barrier is protection of source water to the maximum degree practical". Protection of land within the Special Area is key to ensuring that this barrier is effective. In accordance with the Hunter Water Regulation 2015, prevention of pollution or contamination of water in the Special Area is of paramount importance to Hunter Water in order to safeguard the water quality in Grahamstown Dam and the regional drinking water supply system.

Hunter Water expects that all development in drinking water catchments will demonstrate a Neutral or Beneficial Effect (NorBE) on water quality. A development is considered to demonstrate NorBE if the development:

- (a) has no identifiable potential impact on water quality, or*
- (b) will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or*
- (c) will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority.*

Further details are provided in Hunter Water's "Protecting our Drinking Water Catchments: Guidelines for developments in the drinking water catchments", a copy of which is available on Hunter Water's web site at <https://www.hunterwater.com.au/building-and-developing/developers-anddesigners/subdividing-and-developing>. The guidelines were prepared in consultation with the Department of Planning and Environment, local councils and NSW Health.

The proponent consulted Hunter Water on this subject early in the planning assessment as it was identified as a key issue for the project and for Hunter Water as a major stakeholder. Hunter Water acknowledges that the NorBE principle and a 1:500 Annual Recurrence Interval for rainfall events have been applied as the relevant criteria in the assessment of the quarry project and the development of the proposed water management system, as requested by Hunter Water.

The EIS indicates that the project would have minimal impact on catchment yield for Grahamstown Dam, which is acknowledged. The conceptual operational Water Management System outlined in the EIS is considered suitable for the proposed quarry operation and is acceptable to Hunter Water provided the NorBE criteria can be achieved.

The EIS also states that the assessment determined that the project can satisfy NorBE requirements with the implementation of the proposed management measures, which is acknowledged. Should the quarry be approved, it will be important for this to be satisfactorily demonstrated during the life of the quarry operation in water monitoring results and routine reporting. Hunter Water recommends that a detailed water monitoring program be implemented during the operational life of the quarry, with results to be made available to interested parties for transparency. Hunter Water anticipates that this would be included as a condition of approval and/or a requirement of an Environment Protection Licence for the quarry operation.

An operational management plan should, subject to regulatory approval, be implemented to ensure that fuels and chemicals used on the site are managed in way that does not cause runoff or pollution in catchment areas. This includes spill containment and emergency management.

The requested water management and monitoring requirements outlined in the Hunter Water Submission are noted and are consistent with the proposed management and mitigation commitments outlined in the SWIA (refer to Appendix G of the Amendment Report).

4.10.2 Geotechnical/Hunter Water Infrastructure

Hunter Water owns and operates assets for the conveyance of raw water harvested under licence from the Williams River to Grahamstown Dam, including the Balickera canal, pumping station, tunnel and related assets. The Balickera tunnel is the closest Hunter Water asset to the project area. Part of the tunnel is located within or immediately adjacent to the project area and the proposed access road to the quarry traverses over the tunnel, which the EIS states would see an estimated 167 heavy vehicle haulage movements each way each day (based on the transportation of materials using truck and dog combinations with a typical capacity of around 30 tonnes).

Hunter Water has recently undertaken major geotechnical stabilisation work in the Balickera tunnel and the continued stability of the tunnel must be assured. The blast assessment report and specific assessment of Hunter Water infrastructure provided in the EIS (Appendices 6 and 7, respectively) indicate that vibration impacts on the Balickera tunnel, in particular, and other Hunter Water infrastructure should not be significant.

Based on Hunter Water's existing knowledge of this issue, Hunter Water recommends adopting a safe limit for vibration at the tunnel that is significantly lower than the 200mm/s stated in the EIS. In Hunter Water's experience an allowable vibration limit in the order of 25mm/s is considered more appropriate and, in any case, the adopted limit should be conservatively low to safely manage risks to critical infrastructure such as Balickera tunnel.

Also note comments below regarding potential impacts on microbats in the tunnel.

Generally, the EIS refers to a ground vibration predictive model originally developed in 2020, which relied on controlled explosion of variable charge masses using explosives in pre-drilled holes. The method mimics (simulates) the future blasting practice in the area, although larger charge masses will be used, and ...a model from a small coal mine using blasting parameters comparable to those proposed by the Project (i.e., charge masses in the order of 42 to 225 kg and monitoring stations positioned within 70 to 1,100 m from the blasting area) has been utilised.

To further clarify the issues raised above Hunter Water requests that additional information is provided on the proposed charge masses to be used at the quarry and the anticipated blasting frequency and additional details around the selection of appropriate vibration limits to be applied at critical infrastructure including the tunnel.

It is noted that vibration impacts determined for heavy haulage movements to and from the quarry are substantially less than blast impacts (0.1 – 2.5mm/s). Hunter Water also owns and operates an electricity transmission line to the near south of the project area. The blast assessment report provided in the EIS indicates that potential impacts on the transmission line would be low (less than 5mm/s).

Hunter Water recommends that routine blast monitoring incorporates consideration of ground vibration near Balickera tunnel for the life of the proposed quarry operation and provides the monitoring results to Hunter Water for information and transparency.

Blast modelling for the amended Project indicates that Predicted vibration and overpressure levels can comply with adopted criteria for infrastructure under all assessed blast charge sizes. This includes Hunter Water's Infrastructure and Balickera Tunnel, where blast modelling estimated maximum vibration at the tunnel of 10.8 mm/s, which is well below the damage criteria for underground rock strata and concrete material, being in the order of a few hundred mm/s (>200 mm/s). Notwithstanding, a nominal criteria limit of 100 mm/s has been adopted for Balickera Tunnel, with a safety factor being > 10.

Blasting associated with the Project closest to the tunnel area will occur in the final years of quarry life (Stages 8 and 9). Therefore, the vibration levels in the tunnel will be negligible in the initial stages of extraction and then gradually increase with time. The Australian Standard AS2187.2-2006 and ANZECC Guidelines (1990) criterion of 10 mm/s was adopted as a threshold below which impacts on bats are not expected (based on blasting studies reported in Martin (2015)). The assessment indicates that the 10 mm/s criterion can be readily achieved through a reduction in MIC levels (i.e., by using MIC to 98 kg or lower) for blasts located in the western extent of the Amended Quarry Design. As outlined in the Blast Impact Assessment (Appendix E of the Amendment Report), a vibration monitoring program will be implemented near the tunnel entry during Stages 8 and 9, when blasting will be undertaken closest to the Tunnel.

4.10.3 Heritage

Hunter Water notes that the Balickera canal and tunnel are described as having local heritage value on Hunter Water's section 170 heritage register, information for which is not readily available and has not been included or assessed in the EIS.

Hunter Water recommends that additional commentary is provided on potential impacts on these heritage values from the proposed quarry project and any required mitigation measures.

Information on the assessed heritage values of the Balickera canal and tunnel, to assist the recommended assessment, can be accessed on Hunter Water's website at -

<https://www.hunterwater.com.au/documents/assets/src/uploads/documents/HeritageAssets/water/Balickera-Canal-and-Tunnel-s170-Form-2023-Final.pdf>.

The Section 170 Register listing has been reviewed to inform a review of the significance of the listing and any potential impact resulting from the Project.

The statement of significance notes The Balickera Canal is a contributory element of the overall Grahamstown Scheme, providing water from the Williams River to Balickera Pumping Station for gravitation to Grahamstown Dam. Its significance is primarily derived from its association with and contribution to the significance of the Grahamstown Scheme and Dam. It is an integral, functional piece of infrastructure that is representative of the scale of construction and overall design intent and engineering of the Scheme/Dam. It represents technical achievement and contributes to an understanding of the historical development of water infrastructure within the region.

The statement indicates the NSW SHR criteria applicable to the structures are historical, aesthetic/technical and representative. Significant elements include the alignment and scale of the Canal and the Tunnel entrances with inscriptions.

Given the Project is located outside the curtilage of the Canal and Tunnel site, the Project will not result in any direct impact to the structures and there will be no direct impact to the associated historical or aesthetic/technical values. As outlined in Section 6.13 of the EIS, due to both topographic shielding and intervening vegetation the quarry extraction areas will not be visible from any public or private viewing locations, minimising the potential impact to the aesthetic value of the Canal and Tunnel. Appropriate management and mitigation measures are proposed to protect the structures from indirect impact associated with potential blasting impacts (as outlined above and in the Blast Impact Assessment, Appendix E of the Amendment Report). No further management and mitigation is proposed.

4.10.4 Biodiversity

Balickera tunnel provides artificial habitat for a recognised significant population of microbats, some species of which are listed as threatened and which Hunter Water has an obligation to manage. As mentioned above, Hunter Water completed geotechnical stabilisation works in the tunnel in mid-2022, which is also described in the EIS. A Species Impact Statement was prepared during the environmental assessment phase of the project and an approved bat management plan was implemented during the tunnel stabilisation work, which resulted in bats being restricted from the tunnel during the construction works and their return is subject to a monitoring program until June 2024. The results of monitoring to June 2023 indicate that the bat population has re-established in the tunnel.

Information presented in section 6.6.5 of the EIS regarding impacts on fauna states that impacts on bats in Balickera tunnel have been assessed as low, based on information provided in the blast assessment (section 6.3.2). Further to comments above on the blast assessment, it is recommended that additional information be provided to quantify potential acoustic impacts on bats in the tunnel for clarity on this issue.

*Hunter Water notes that, in relation to the species identified in section 6.6.5 of the EIS as being present in the tunnel, a population of the Southern Myotis (*Myotis macropus*) is known to utilise the tunnel for both roosting and breeding purposes. The Southern Myotis, along with the Little Bent-winged Bat and Eastern Bent-winged Bat, comprise the main species recorded in the tunnel by Hunter Water. The Southern Myotis has been the subject of specific attention for management by Hunter Water and is therefore a more relevant microbat species than the Eastern Cave Bat for inclusion in the assessment.*

The recommended incorporation of Balickera tunnel in routine blast monitoring (ground vibration) as part of the quarry operations, as mentioned above, and noise monitoring would also be useful to monitor potential impacts on the bat population in the tunnel.

The comments from Hunter Water are noted. As discussed in **Section 4.1**, the Blast Impact Assessment (refer to Appendix E of the Amendment Report) includes an updated assessment of potential blast impacts on bats present within Balickera Tunnel. The updated assessment has identified that vibration and overpressure from blasting associated with the quarry is unlikely to have a significant impact of bats present within the tunnel.

Noise monitoring for the Project is proposed in the form of compliance monitoring at nearest receivers (or representative locations) and validation monitoring. Due to the orientation of Balickera Tunnel entrances relative to the Project and intervening topographic screening, there is unlikely to be any noticeable operational noise penetration of tunnel. Additionally, the dynamic water movement conditions within the tunnel are likely to generate significant background noise within the tunnel itself and mining operations are likely to be inaudible against this background noise. Noise monitoring specifically for potential impacts to bats within the tunnel is therefore not considered to be warranted.

4.10.5 Site Rehabilitation and Closure Management

Notwithstanding potential future additional resource extraction from the site, Hunter Water emphasises the need for attention to quarry closure in the long-term and recommends that every effort be made toward progressive site stabilisation and rehabilitation to ensure impacts associated with water draining from the site (both quantity and quality), and other environmental attributes, are minimised as far as practicable both during the operating life of the quarry and after it has closed.

In this regard, ideally a site rehabilitation and closure management plan should be developed and, subject to approval, implemented during the life of the quarry to minimise impacts on the drinking water catchment and other environmental aspects.

As outlined in Section 6.16 of the EIS, a conceptual final landform and life of operations rehabilitation management strategy relevant to achieving the proposed final landform will be outlined within the Operation Environmental Management Plan (OEMP). A Detailed Quarry Closure Plan will be developed 3 years prior to planned cessation of quarrying activities. Both the conceptual closure plan in the OEMP and the Detailed Quarry Closure Plan will consider appropriate water management and monitoring requirements.

4.10.6 Hunter Water Services

We note that Hunter Water's reticulated water and sewer services are not available for connection in the project area and are not required for the proposed quarry operation. We understand these services would be sourced through external contractors.

The risk of sewage spills and runoff should be included in operational management plans together with associated controls.

This comment is noted and will be addressed in the OEMP.

4.11 Port Stephens Council (PSC)

4.11.1 Biodiversity

Whilst the project justification for supply of high demand rock quarry products is acknowledged, the current project footprint has not demonstrated adequate avoidance of impacts in accordance with the requirements of the NSW Biodiversity Conservation Act 2016 (BC Act). There are several impacts (direct and indirect) associated with the project that are likely result in long-term irreversible effects on a number of threatened species and ecological communities. Of particular concern are the potential long-term impacts on:

- *Roosting microbats in the Balickera Tunnel – removal of foraging habitat, and vibration impacts to breeding/roosting habitats*
- *The local Kings Hill Koala Hub population – habitat connectivity loss and cumulative removal of foraging habitat*
- *Habitat connectivity – particularly cumulative impacts*
- *Groundwater drawdown – indirect impacts to Endangered Ecological Communities (EECs) and threatened species.*

A reduced development footprint is recommended to address the above concerns as discussed in further detail below.

Avoid and minimise

In accordance with the Biodiversity Conservation Act 2016, the Biodiversity Conservation Regulation 2017 and the Biodiversity Offset Scheme (BOS), proponents must demonstrate that the hierarchy of avoid, minimise and then offset has been applied. The current project design currently does not demonstrate adequate application of the BC Act avoidance hierarchy. It is recommended that the project footprint be reduced in the northern pit area, Stages 6 – 9 and access road relocated, to avoid and minimise impacts on a number of high biodiversity values including:

- *Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion Endangered Ecological Community & River flat eucalypt forest Endangered Ecological Community*
- *Rusty Greenhood Orchid (*Pterostylis chaetophora*)*
- *Squirrel Glider (*Petaurus norfolcensis*), Brush-tailed Phascogale (*Phascogale tapoatafa*) and Koala (*Phascolarctos cinereus*)*
- *Vibratory impacts on Balickera Tunnel threatened microbat roosting/breeding habitats and direct impacts to foraging habitats.*
- *Extensive groundwater drawdown impacts on Groundwater Dependant Ecosystems and threatened species habitat.*
- *It is noted that surveys are currently being undertaken for *Corybas dowlingii* and Powerful Owl. If these species are recorded on site, impacts should be avoided and minimised accordingly.*

Impacts associated with proposed stages 6 – 9 of the project are highly unpredictable with regards to vibration impacts to roosting microbats within the Balickera Tunnel, and wider groundwater drawdown impacts. As there is a lack of scientific certainty for these potential impacts, the precautionary principle must be applied and impacts considered to the fullest extent. The below figure [refer to PSC submission] shows an indicative reduced footprint based on Council's interpretation of how the BC Act avoidance hierarchy should be applied.

As outlined in **Section 3.2**, the revised Project layout reduces the overall Project disturbance footprint, which is consistent with comments from PSC, BCS and the community regarding the area of vegetation disturbance and removal of habitat. The BDAR has been updated accordingly to revise the assessment based on the reduced disturbance area and revised conceptual layout.

Further survey was undertaken following exhibition of the EIS specifically targeting the Powerful Owl and *Corybas dowlingii* with neither species being recorded. This additional survey effort and results are outlined in the revised BDAR (refer to Appendix I of the Amendment Report). The BDAR has also been updated to reflect the results of bat monitoring surveys undertaken by WSP (engaged by Hunter Water).

The Blast Impact Assessment indicates vibration levels will not exceed 10 mm/s inside Balickera Tunnel by controlling the MIC (maximum instantaneous charge) used for blasting. This level of potential impact has been identified as being unlikely to have a material impact on bats using Balickera Tunnel (refer to Appendix H of the Amendment Report). No other blasting-related control measures are identified as being required to manage potential impacts to Balickera Tunnel or bats resident within the tunnel.

As outlined in **Section 4.1**, high priority GDEs are well outside the predicted radius of drawdown associated with the Project and will not be impacted by the Project. Additionally, vegetation types that have a high probability of being groundwater dependent ecosystems will not be directly impacted and drawdown impacts associated with quarry extraction are not predicted to impact any terrestrial vegetation. (refer to **Section 4.1** and Appendix H and Appendix I of the Amendment Report).

Balickera Tunnel

Surveys undertaken for the Biodiversity Development Assessment Report (BDAR) are currently insufficient to determine breeding habitat for the following species credit species of microbat:

- *Little Bent-winged Bat (Miniopterus australis)*
- *Large Bent-winged Bat (Miniopterus orianae oceanensis)*
- *Eastern Cave Bat (Vespudelus troughtoni)*

The BDAR relies upon the findings of the Hunter Water Species Impact Statement (SIS) (EcoLogical Australia 2021) to support claims that the Balickera Tunnel does not provide breeding habitat for the microbat species listed above. However, the SIS, undertook surveys in accordance with the DECCW 2008 survey guidelines, which have now been replaced by the 'species credit threatened bats and their habitat survey guidelines' (OEH 2018). Consequently, both the survey effort undertaken in the BDAR, and the SIS is insufficient to meet BAM requirements for exclusion of the above listed species credit species of microbat.

If this roost is lost or significantly altered by the project, the impact to this shelter resource that facilitates the breeding cycle of these sensitive species should be considered serious and irreversible. The potential vibratory impacts associated with proposed stages 6 – 9 of the project are highly unpredictable and lack scientific certainty. Consequently, the precautionary principle must be applied and potential impacts assessed in detail, or the project footprint reduced to avoid impacts (remove stages 6 – 9).

As discussed in **Section 4.1**, Section 2.4.4.5 of the BDAR (refer to Appendix I of the Amendment Report) has been updated to include the results from microbat monitoring survey undertaken by WSP (2023) (engaged by Hunter Water). The results of these surveys are generally consistent with the conclusions on microbat occupation made in the ELA SIS referenced in the submitted BDAR, that the tunnel is not a maternity roost for bent-winged bats, however may provide breeding habitat for the Southern Myotis. Survey results have identified that this species has been recorded breeding within the tunnel between late October and February and is present throughout all seasons where it roosts in holes within concrete lined sections of the tunnel, particularly the upstream half of the tunnel.

As noted above, the Blast Impact Assessment (refer to Appendix E of the Amendment Report) indicates vibration levels will not exceed 10 mm/s inside Balickera Tunnel by controlling the MIC (maximum instantaneous charge) used for blasting. This level of potential impact has been identified as being unlikely to have a material impact on bats using Balickera Tunnel (refer to Appendix H of the Amendment Report). No other blasting-related control measures are identified as being required to manage potential impacts to Balickera Tunnel or bats resident within the tunnel. A vibration monitoring program will be implemented near the tunnel entry during Stages 8 and 9, when blasting will be undertaken closest to the Balickera Tunnel and the use of smaller MIC charges has been identified as being required to meet the 10 mm/s vibration criteria at the tunnel.

Groundwater drawdown

Removing stages 6 – 9 from the project is recommended to ensure that impacts associated with groundwater drawdown and groundwater dependent ecosystems is avoided. The area of likely groundwater drawdown is extensive, as shown on Figure 4.4 of the BDAR, and will impact vegetation, habitat quality and the species that rely on these habitats. The BDAR states that there is an additional 82.88 ha of vegetation that forms potential Groundwater Dependent Ecosystems within the modelled groundwater drawdown impact area. It is predicted that groundwater drawdown will modify vegetation types towards more dry adapted species as stated in the EIS:

“Any impacts on vegetation associated with groundwater drawdown would be a reduction in species abundance of species with higher groundwater dependence and a succession towards drier vegetation communities such as those present in the higher elevation areas away from the shallow slope areas”.

Groundwater drawdown is also likely to impact several threatened species:

Koalas obtain the vast majority of their water from the leaves of the eucalypts that they feed on. Groundwater drawdown will directly impact leaf water content, leaf production and the nutrition value of foliage.

Nectar production is also likely to be impacted, which has the potential to impact a wide range of nectar dependent threatened species including the Grey-headed Flying-fox and Squirrel Glider.

Rusty Greenhood Orchid (Pterostylis chaetophora) requires seasonally moist conditions, which are likely to be impacted by groundwater availability and depth.

The EIS concludes that groundwater impacts are not expected to have any impacts on potential GDEs. This contradiction outlines the uncertainty of the predicted impacts. The extent of and severity of indirect impacts associated with groundwater drawdown has not been adequately addressed or calculated.

As previously discussed, high priority GDEs are well outside the predicted radius of drawdown associated with the Project and will not be impacted by the Project. Additionally, vegetation types that have a probability of being groundwater dependent ecosystems will not be directly impacted.

The GIA (refer to Appendix H of the Amendment Report) includes an updated assessment of potential drawdown impacts and associated with the Project and concludes that drawdown impacts are unlikely to impact GDEs (primarily due to the current depth of impacted aquifers at the extent of predicted drawdown impacts is well below the likely rooting depths of terrestrial vegetation).

Cumulative and prescribed impacts

The land bridge over the Balickera Tunnel is the main north-south connectivity point for terrestrial fauna west of the Pacific Highway, due to the barrier to movement posed by the Balickera Canal. This location is considered a 'pinch-point' and is of very high importance in maintaining genetic linkages for local populations of threatened species, particularly the Kings Hill Koala Hub local population. The proposed quarry is located directly adjacent to this 'pinch-point' and centrally located within the main north-south corridor. The north-south corridor is cumulatively impacted by developments (including other quarries) south of Italia Road. The further reduction of this corridor should be considered highly significant, providing further justification for a reduced project footprint. As detailed in Section 2.3 of the Biodiversity Assessment Method 2020 (BAM), prescribed impacts are often difficult to quantify or offset, as they often affect biodiversity values that are irreplaceable; consequently, avoiding or minimising such impacts is critical. Prescribed impacts of the project include:

- *Human-made structures (Balickera Tunnel)*
- *Habitat connectivity, particularly impacts on the Kings Hill Koala Hub population*
- *Water bodies, water quality and hydrological processes*
- *Vehicle strikes (proposal will result in a 40% increase in heavy vehicle movements).*

These prescribed impacts have not been adequately addressed and require detailed consideration, quantification and assessment in accordance with the BAM. Additionally, any uncertain impacts require the preparation of an adaptive management plan in accordance with Section 8.5 of the BAM.

A cumulative impact assessment is required to address all known projects that have the potential to impact on the local population of koalas. This includes, but is not limited to, the following projects:

- *Seaham Quarry expansion SSD*
- *Eagleton Quarry SSD*
- *Deep Creek Quarry SSD*
- *Kings Hill Development and associated infrastructure*
- *Balickera Canal and Pacific Highway.*

Council, is concerned that cumulatively these impacts to habitat connectivity for terrestrial fauna species could

As discussed in **Section 4.1**, at a local scale, the existing land bridge pinch point (affecting terrestrial fauna movement) associated with the Balickera Canal is approximately 1,200 m wide (distance between the two portals). The Project will maintain connectivity along the eastern and western Project Area boundary and the amended Project design will increase the width of the western corridor and area between the Main Pit and Italia Road however it is recognised that the proposed development footprint would result in the creation of two new pinch points (approximately 410 m and 675 m wide) between the disturbance area and the northern and southern portals of the Balickera tunnel and associated land bridge. Both proposed new pinch points are limited in longitudinal extent. The retention of a wildlife corridor along Italia Road has been a key design consideration for the Project and the width of this corridor (relative to the project assessed in the EIS) has been increased through the amended project design.

There are two existing pinch points to the north-south habitat corridor located to the west of Italia Road, around the northern and southern sides of the proposed and existing disturbance footprint of the Seaham Quarry. These existing pinch points have widths of approximately 170 m on the northern side and 210 m on the southern side of the Seaham Quarry footprint. These existing pinch points are narrower than the new pinch points that would be created by the Project. The Project would not isolate any areas of habitat and would not create any pinch points that are narrower than the existing pinch points that already exist in a local connectivity context.

The development footprint is located on the western edge of the Wallaroo State Forest and forms a small part of a larger habitat patch. Due to the size of the intact habitat to the north, no significant impact to connectivity is anticipated in an east west direction north of Italia Road. There is potential for habitat connectivity impacts in relation to movement from the south, particularly for the Koala, Brush-tailed Phascogale and Squirrel Glider. There is a suitable connection point across Italia Road to the west of the development footprint noting that this corridor is already partly constrained to the west of Italia Road by the Boral Seaham Quarry. The project will reduce but not totally remove habitat connectivity for flora and fauna species, particularly between the Wallaroo State Forest and areas to the west of Italia Road, noting that any new pinch points created will not be less than 320 m in width and will be substantially wider than the existing pinch points for this east-west corridor surrounding the existing Seaham Quarry.

It is considered that no connectivity or associated genetic impacts to populations of the Koala, Brush-tailed Phascogale or Squirrel Glider are likely to occur as a result of the project.

In relation to cumulative impacts to connectivity, the potential impact areas associated with the Kings Hill Urban Release Area and the M1 Motorway Extension to Raymond Terrace, occur to the south-west of Italia Road. At the time of writing the development application for the Kings Hill Urban Release Area had been refused and the construction works for the Raymond Terrace M1 extension had recently commenced.

It is considered that the proposal would not contribute to an adverse cumulative impact to habitat connectivity across the M1 Motorway. The Project would contribute to the cumulative reduction in habitat patch size and contribute to an additional connectivity pinch-point in the vicinity of Italia Road and the existing Boral Seaham Quarry. However, areas of important habitat connectivity have been maintained. Due to the nature and layout of the site, which is surrounded by undeveloped land, there will be no significant changes to landscape connectivity for wildlife movement.

Security fencing will be limited to around the quarry pit and operational areas, but not include the proposed access road. It is unlikely to impact fauna and a koala exclusion fence would limit access to the quarry pit and prevent koala access to operational areas.

In addition to a reduced speed limit along the proposed quarry access road (15m wide), the Project would implement driver education program and a reduced speed limit for Project Related heavy vehicles travelling into or leaving the quarry on Italia Road as part of the Driver's Code of Conduct to reduce the potential for road related fauna impacts.

ARDG discussed with Council investigating a reducing the speed limit (which is currently 90 km/hr) for all motorists along this section of Italia Road, ARDG are happy to assist Council with the relevant request to TfNSW require to facilitate this speed limit reduction. Refer to Section 3.2.3 of the BDAR for further information.

Offset and mitigation

It should be considered whether it may be appropriate for the establishment of a Biodiversity Stewardship Site on the retained lands and suitable adjacent lands (in consultation with NSW Forestry), to ensure that retained lands and biodiversity corridors will be adequately managed and maintained in perpetuity in this critical 'pinch point'.

To minimise the risk of the project resulting in a serious and irreversible impact, further investigations into feasible options for improving connectivity should be conducted such as constructing land bridges over the Balickera channel on Hunter water lands or land bridges/connectivity devices over the Pacific Highway to reconnect Hunter Water lands/state forestry lands/NPWS lands or similar.

As outlined in the EIS, ARDG has committed to further investigate the retirement of biodiversity credits through the establishment of a Biodiversity Stewardship Site within the Wallaroo State Forest. The Stewardship Site will need to be established in an appropriate location to offset the credit value associated with the Project. The location is subject to further investigation and detailed site survey.

4.11.2 Traffic and Transport

An enforceable undertaking will be required to ensure that all heavy vehicles use the left-in/left-out of Italia Road. The Transport Impact Assessment has not identified how physically this can be achieved.

Appendix C of the Amendment Report (Management and Mitigation Measures) includes the following commitment:

No quarry product will be transported from the site until the Italia Road-Pacific Highway intersection works (the subject of the separate development application process by Boral – refer to **Section 3.4**) are completed to the satisfaction of Port Stephens Council/TfNSW. To prevent conflicts on the road network, heavy vehicles would only be permitted to turn left out of Italia Road onto the Pacific Highway.

ARDG does not oppose conditioning of the development consent to reflect this management measure and it is anticipated that the means of implementing and monitoring compliance with this condition would be reflected in the proposed Traffic Management Plan. Such a condition would be enforceable under the EP&A Act through either civil or criminal enforcement procedures however, it is noted that ARDG cannot make undertakings associated with heavy vehicle movements associated with other quarries or heavy vehicle movements servicing other residences and businesses on Italia Road.

An alternative or additional measure can include a regulatory sign posting regime at and in advance of the proposed intersection upgrade (subject to a separate application) to prohibit quarry trucks turning right from Italia Road onto the highway. The specifics would be subject to detail design and Section 138 approval under the Roads Act. ARDG does not oppose the implementation of such a measure as a result of this Project alone however it is noted that such signage would be consistent with the existing proposed management measure reproduced above.

Consideration should be given to banning all heavy vehicle right turns from Italia Road to the Pacific Highway and not just heavy vehicles from the proposed Stone Ridge Quarry, in the interests of road safety. The Transport Impact Assessment notes that this intersection treatment forms part of a separate assessment and approval process. The design of the upgrades at this intersection should be considered as part of this project under mitigation measures. Approval from TfNSW will be required for any upgrade works on the Pacific Highway. As such, SIDRA models should reflect this banning of all heavy vehicle right turns in and out of Italia Road and redistribution of all the existing, the proposed (Stone Ridge Quarry) and future (Eagleton Quarry) heavy vehicle to left-in-left-out arrangement.

The TIA has not identified any heavy vehicle north/south traffic distribution split on Pacific Highway. It assumed all the heavy vehicles will have origin and destination towards south-west of the site. Some heavy vehicles split need to be considered for north-eastern origin and destinations. As such, the impact of heavy vehicle U-turns at the interchange of the Pacific Highway with Richardson Road should be assessed/modelled.

The intersection configuration is as agreed with TfNSW following extensive development and consultation by multiple parties in relation to quarry traffic from independent and separate operating quarries and proposed quarry sites (including consideration of existing traffic). This intersection is the subject of a separate DA to PSC lodged by Boral (on behalf of both Eagleton and ARDG) (refer to **Section 3.4**, and is currently being assessed by PSC after coming off public exhibition.

With regards to safety, no heavy vehicle movements turning right onto the Pacific Highway are proposed as part of the Project. As demonstrated in the TIA, this intersection does not have a significant crash history, this comment relates to existing traffic generation and traffic movements not impacted by the Project. Further as demonstrated in the TIA, there is also substantial capacity in this intersection.

ARDG have committed to restricting quarry traffic to turn left only as part of a management commitment directly related to the Project (refer to Item 1 above). Banning of all right turns from Italia Road is outside the scope of the assessment of the Project and therefore does not form part of the development proposal and there is no direct nexus to ban all right turn traffic from Italia Road. As such this is a strategic network planning matter not related to the application.

If PSC has concerns with safety aspects of the intersection as it currently operates, then it is expected this is resolved between TfNSW and PSC under their obligations as the Road Authority under the *Roads Act 1993*.

The upgrade of the Italia Road/Pacific Highway intersection is being pursued under a separate approval process and proposed to be operational prior to the quarry exporting material through the intersection and as such is a mitigation measure. Should the Project be approved, the development consent can be conditioned as such that no material can be transported from the site prior to the intersection being constructed.

The operation of the proposed intersection from a traffic impact perspective has been assessed as part of the EIS.

The proponent and other relevant quarry operators have been engaging with TfNSW on a range of treatment measures for the intersection since mid-2019 and the option proposed in a separate assessment process is as agreed in principle with TfNSW.

It is understood that the intersection upgrade design, which is being pursued as part of a separate assessment process, considers the two (2) currently proposed quarries and the existing Boral Seaham quarry. SIDRA modelling undertaken for the EIS has been undertaken based on an assumption that all heavy vehicles associated with the Project exiting Italia Road will turn left.

Restrictions on light vehicle movements does not form part of the proposal and is beyond the scope of the Project, being a strategic network planning matter. Further, ARDG notes that a ban on all right-out turns (including light vehicle movements) may significantly impact property owners and businesses on Italia Road and potential result in unintended impacts such as increased use of backroads, other local roads and/or risky behaviour by motorists in executing U-turn manoeuvres on the Pacific Highway.

It is understood that TfNSW is progressing its strategic planning as part of a "Post Duplication Strategy" for this section of the Pacific Highway and enquiries by PSC should be directed to TfNSW.

As documented in the Intersection TIA (GHD 2024) included as part of the Intersection DA, it is assumed all heavy vehicle traffic (including traffic associated with the proposed Eagleton Quarry) will transport quarry material to the south. Existing measured local and heavy vehicle movements using the right-in turn have been assumed in SIDRA modelling contained in the Intersection DA. This is a conservative assumption as the banning of right-in traffic would result in an overall improvement in traffic performance at the Italia Road/ Pacific Highway intersection.

ARDG notes that a ban on all right-in turns (including light vehicle movements) is not presently proposed and may significantly impact property owners and businesses on Italia Road and potential result in unintended impacts such as increased use of backroads and other local roads. Such impacts should be carefully considered in any discussions regarding strategic network planning involving TfNSW and PSC. Other than noting the potential adverse impacts of such a restriction on local resident, ARDG does not have a strong view on such a ban.

The proposed channelisation treatment at the quarry access road off Italia Road is considered satisfactory and could cater for the right turning traffic for the life of the quarry. However, the existing Basic Left Turn (BAL) treatment for the Boral Quarry Access has been removed from the proposed design and should be included in the design.

The Boral access has not been removed. It is only proposed to configure the intersection on the northern side of Italia Road to suit the proposal, no works are proposed as part of the Project that would impact the Boral access. Potential access issues associated with Boral access are considered in the TIA Addendum, refer to **Appendix 4**.

The TIA or EIS should include a discussion on alternate design options that were previously proposed for the intersection, including the grade separated interchange and the justification for the selected intersection design. The cumulative traffic impacts of the development with consideration to: truck volumes, congestion, noise, road safety and road maintenance from other existing and proposed quarries in the locality requires further assessment. All traffic mitigation measures should be clearly outlined in the Transport Impact Assessment, and nearby residents and community groups should be consulted. A revised TIA addressing the above comments/concerns need to be submitted to further assess this application.

As outlined in the EIS and TIA the proposed intersection works do not form part of the Project and approval is currently being pursued under a separate development application which is currently being assessed by PSC (refer to **Section 3.4**).

As noted above and in the EIS, significant optioneering and engagement was conducted with TfNSW since 2019.

Consultation with Council regarding traffic issues, including the Italia Road / Pacific Highway intersection, has occurred on numerous occasions, including meetings in 2019, 2020 and 2022 (x2 meetings). TfNSW subsequently advised they would undertake strategic network planning for a Pacific Highway corridor extending from Raymond Terrace to north of the Bucketts Way. This broader strategic network planning is beyond the scope of the Project.

A copy of TfNSW's correspondence communication in principle support for the intersection treatment is enclosed as **Appendix 2**) This correspondence has been submitted with the separate development application for the intersection works which is currently under assessment by PSC.

The cumulative traffic impacts of the development with consideration to: truck volumes, congestion, noise, road safety and road maintenance from other existing and proposed quarries in the locality requires further assessment. All traffic mitigation measures should be clearly outlined in the Transport Impact Assessment, and nearby residents and community groups should be consulted.

Cumulative traffic impacts are considered in Section 5.4 of the TIA (**Appendix 3**). The TIA also included a capacity assessment of Tarean Road interchange with Stone Ridge, Eagleton and the existing Seaham Quarry in operation as well as significant, additional heavy vehicle traffic to demonstrate excess capacity.

The TIA Addendum considers updated traffic numbers provided by Boral's future expansion application to demonstrate performance at the site access (Hamburger Trail) and along Italia Road. The level of service (LOS) entering and exiting the development site is LOS A, and along Italia Road towards the Pacific Highway is also LOS A having regard to both current and proposed Boral truck movement as well as those associated with the Project.

The separate development application for the intersection works (currently under assessment by PSC), has been designed in consideration of the two proposed quarries (the Project, and Eagleton Quarry), Brandy Hill Quarry traffic and existing Seaham Quarry and possible future expansion submission for Seaham Quarry. An updated assessment of cumulative traffic impacts on the proposed Italia Road/Pacific Highway intersection is contained in the Intersection TIA (GHD, 2024) submitted with the Intersection DA (refer to **Section 3.4**). The SIDRA assessment of the proposed intersection design demonstrates an improvement in level of service relative to current operating conditions due to the redirection of traffic to the Tarean Road Interchange (GHD, 2024)).

The Noise Impact Assessment has assessed potential traffic noise impacts in accordance with relevant assessment requirements and specifically considers cumulative impacts associated with existing and proposed quarry operations (refer to section 5 and 6 of the noise impact assessment).

As documented in the TIA, and via extensive stakeholder engagement with TfNSW and PSC, it is acknowledged that the proposed Pacific Highway/Italia Road intersection upgrade (Subject to a separate development application) will result in a significant improvement in safety in the locality by directing proposed quarry trucks to the Tarean Road Interchange, removing the right turn conflict across the Pacific Highway from Italia Road. As documents in the response to Item 1 above, ARDG has commitment to there being no outbound product movement from the site until the proposed intersection has been constructed.

Maintenance of Italia Road is PSC's responsibility as the road authority. ARDG have committed to payment of the maintenance levy calculated in accordance with the Port Stevens Council Local Infrastructure Contribution Plan for heavy vehicle usage on Italia Road.

The Pacific Highway is the major transport route in the region and is a gazetted B-Double Route which is in good condition. The maintenance of this highway is the responsibility of TfNSW and is jointly funded by the State and Commonwealth Governments.

As documented in the TIA, the key mitigation measures are:

- Site access intersection utilising a channelised right turn from Italia Road into the Project Area
- Use of the Pacific Highway / Italia Road Intersection upgrade (once constructed) - subject to a separate development application
- Quarry trucks heading south will utilise a left turn out at Italia Road heading north and turn around at the Tarean Road Interchange.

This commitment will improve performance at the intersection and improve safety by eliminating the currently permitted right turn across the highway for quarry trucks.

The Traffic Mitigation Measures are outlined in Section 6.9 and Appendix 3 and Appendix 13 of the EIS. Community consultation has been undertaken (refer to Section 5.0 and Section 6.14 of the EIS) and community members have had an opportunity to formally comment on potential impacts associated with truck movements through the EIS public exhibition processes.

4.11.3 Drainage and Water Quality

Council acknowledges the applicant has provided sufficient detail for DPE and Hunter Water to make an informed assessment on the stormwater and groundwater impacts. Council has no further comments or suggested conditions in this regard.

Comment noted.

4.11.4 Heritage

Council acknowledges the applicant has provided sufficient detail for DPE to make an informed assessment on heritage impacts. Council notes the EIS indicates no Aboriginal objects or areas of archaeological potential were identified during the survey, and the entirety of the Project Area was considered to be of low archaeological potential.

Comment noted.

4.11.5 Noise

Council acknowledges the applicant has provided sufficient detail for DPE to make an informed assessment on noise impacts. Council notes that provided appropriate management, compliance and validation monitoring is adopted as recommended in the Noise Impact Assessment (NIA) and continues through the life of the activity, it is considered any potential noise impacts can be managed appropriately. This is on the assumption that equipment and activities identified for the purpose of the operational noise assessment remains the same, or where applicable quieter equipment can be adopted.

Notwithstanding, the potential impacts from blasting at the site where the blasting may overlap with blasting activity from neighbouring quarry sites is unclear. Noting the proposed development will generate significant noise and vibration from drill and blast extraction, the cumulative impacts from other existing and proposed quarries in the locality should be further assessed. Any mitigation measures should be clearly outlined in the NIA, and nearby residents and community groups should be consulted.

As outlined in the Blast Impact Assessment, Section 6.3.3 and Appendix 3 of the EIS and Appendix C of the Amendment Report (consolidated management and mitigation measures), ARDG have committed to liaising with adjacent quarries to prevent concurrent blasting times to avoid cumulative blast impacts and to minimise impact on the local community.

4.11.6 Air Quality

Council acknowledges the applicant has provided sufficient detail for DPE to make an informed assessment on air quality. The proposed development has the potential to impact local air quality from the drill and blast extraction methods, crushing and screening, earthworks, erosion, stockpiling and transport of materials and combustion of diesel fuel. Air quality with consideration to the cumulative impacts from other existing and proposed quarries in the locality should be further assessed. Any mitigation measures should be clearly outlined in the Air Quality Assessment, and nearby residents and community groups should be consulted.

The Air Quality Assessment includes consideration of the Potential cumulative impacts which were communicated to the community. The proposed mitigation and management measures are clearly outlined in the Air Quality Impact Assessment, Section 6.4.6 and Appendix 3 of the EIS and Appendix C of the Amendment Report (consolidated mitigation and management measures). An updated assessment of the Amended Project, including cumulative impacts is included in the Addendum to the Air Quality Impact Assessment. The cumulative impact assessment includes consideration of more conservative background air quality data from the EPA's Beresfield monitoring station. The assessment concludes that the amended project is unlikely to result in exceedances of criteria for particulate matter and NO_x. The method used for 24-hour PM₁₀ cumulative predictions indicates a potential exceedance of the EPA's 50 µg/m³ criterion at receivers R1, R18 and R20 under worst case conditions where predicted worst case background conditions coincide with modelled worst case modelled impacts at these receivers from the four modelled quarries. Assumed worst case background levels (41 µg/m³) are the primary driver of the exceedances and the Project's predicted contribution to the exceedances are 2.6 µg/m³, 7.9 µg/m³ and 3.4 µg/m³ respectively at the three receivers. In practice, it is unlikely that the peak predicted impacts from all four modelled quarries would coincide with the highest 24 hour background levels. This is particularly the case for the three receivers identified as having potential exceedances of criteria using this method as these receivers are located between Stone Ridge Quarry and the Boral and Eagleton Quarries and prevailing winds driving high levels of PM₁₀ from Stone Ridge would align with lower contributions from other sources.

To minimise the risk further, ARDG propose to use the PM10 levels recorded at the EPA's Beresfield Station (which are reported in real time) as a trigger for additional operational controls and scale back potential dust generating activities and/or implement additional dust suppression measures when 1-hour average background levels exceed $80 \mu\text{g}/\text{m}^3$. 1-hour averaged PM10 concentrations above $80 \mu\text{g}/\text{m}^3$ provides an indication that the 24-hour averaged $50 \mu\text{g}/\text{m}^3$ would be exceeded and are therefore an appropriate trigger for the implementation of additional measures to reduce the Project's contribution to cumulative impacts.

4.11.7 Social Impact

Council acknowledges the applicant has provided sufficient detail for DPE to make an informed assessment on social impact. Social impact with consideration to the cumulative impacts from other existing and proposed quarries in the locality should be further assessed. Any mitigation measures should be clearly outlined in the Social Impact Assessment, and nearby residents and community groups should be consulted.

The SIA considers identified cumulative impact concerns raised by the community and outlines proposed management and mitigation measures that are proposed to mitigate and manage potential impacts associated with the Project. These mitigation and management measures will contribute to reducing the associated cumulative impact.

4.11.8 Community Consultation

It is expected the proposal will attract substantial community interest and likely objection, as evidenced by the community engagement undertaken to date and recent media coverage. Consultation should be undertaken with affected landholders surrounding the development and community groups in accordance with Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2021). The consultation should be comprehensive and any concerns clearly addressed as part of the EIS.

Stakeholder and community engagement has been undertaken in accordance with the requirements of NSW Government guidelines and assessment standards including, but not limited to, the Undertaking Engagement Guidelines for State Significant Projects (DPE, 2022b) (Engagement Guideline), and the Social Impact Assessment Guideline for State Significant Projects (DPE, 2023) (SIA Guideline), while also addressing the requirements of the SEARs.

The engagement of stakeholders and community groups has included a combination of:

- consultation and engagement to facilitate stakeholder involvement in the identification of issues/impacts, areas of interest/concern and strategies to address the issues raised
- information provision to improve knowledge and awareness of ARDG and its activities, the Project, and key issues/impacts as they arise.

Various methods were used to engage with the different stakeholder groups based on the type of information being conveyed, level of feedback required, understanding of the stakeholder needs regarding engagement and identified stakeholder engagement preferences. This included a range of mechanisms and materials such as website content, media releases, project information sheets, community information sessions, personal interviews and meetings and feedback forms.

Engagement to date has been undertaken in two phases, aligned with the key stages of the assessment process, i.e., during the project scoping phase to allow for the identification of key issues related to the Project and potential impacts, and during the environmental assessment phase to inform the technical studies and the formulation of appropriate strategies to seek to further minimise the environment and community impacts. A Stakeholder Engagement Strategy (SES) was prepared in January 2020, prior to the submission of the Scoping Report and the issuing of the SEARs. The SES outlined the objectives, approach, and implementation program for engaging and consulting with the community and stakeholders during the Project's planning and assessment phase.

Consultation with the community has continued through the submissions phase via the CCC.

4.11.9 Development Contributions

Section 7.11 (haulage) contributions apply whereby the Developer is charged a per tonne / kilometre rate. This is because extractive industries generate significant truck movements which impact the road performance and conditions along haulage routes. To offset the impact of haulage associated with mining and the extractive industry, the Port Stephens Local Infrastructure Contribution Plan (LIC) Plan authorises the consent authority to apply a haulage contribution rate where an application is made for such a use.

It should be noted that the haulage rate will apply to the proposed haulage route for the life of the development (subject to CPI amendments).

The haulage route for this quarry is stated as being 1.6km long, however this should be verified.

It is noted that the Developer along with two other quarry operators will upgrade the Italia Road and M1 intersection. This should not be in lieu of contributions.

Council therefore requests any determination include a condition for payment of contributions to Council in accordance with the LIC plan prior to commencement (this would include haulage levies to fund the maintenance of local roads proposed to be included in the haulage route or the capacity for the applicant to submit a variation to this rate where it is justified by a Traffic and Transport Economic Study).

It is requested Council be consulted prior to the imposition (or exclusion of) any contributions conditions that impact local infrastructure. This is because the LIC plan is amended from time to time and an amendment regarding haulage is currently underway. The rate include below may also change in as part of this.

Recommended Condition

For the life of the project, the Proponent must pay Council \$0.086/t/km (increased annually on October 1 each year, in accordance with CPI) of extractive material transported from the site on a quarterly basis, in accordance with the Port Stephens Council Development Contributions Plan for the maintenance of Italia Road. Each payment must be:

- a) Based on weighbridge records of the quantity of extractive material transported from the site quarterly and those records are to be provided to Council within 14 days of the end of the relevant quarter;*
- b) Paid within 21 days of receipt of the invoice received from Council; and*

Note: The amount of contribution payable under this condition has been calculated at the date of consent. In accordance with the provisions of the Contributions Plan, this amount must be indexed at the time of actual payment in accordance with the applicable Index.

The proposed intersection upgrade is subject to a separate approval process and is not proposed to be undertaken in lieu of contributions. As Council advised during the preparation of the EIS the Haulage Levy will apply to the Project which is acknowledged in the EIS. Given the Haulage route will not be used prior to commencement and the haulage levy is for the maintenance of the road there will be no impact prior to commencement. It is requested that any condition of consent reflects this and the levy does not apply prior to commencement.

5.0 Response to Community and Organisation Submissions

As outlined in **Section 2.0**, a total of 136 individual community submissions and 16 submissions from community stakeholder groups were received relating to the Project. A response to the issues raised in the submissions is included in the following sections, grouped by theme as per the categorisation provided in **Section 2.2** using the categories recommended by the Guideline (DPE, 2022a).

Several of the community submissions received were similar or had consistent themes. Where this is the case, to avoid repetition, text boxes provide a range of examples of specific quotes from the submissions in italicised type. A Submissions Register is provided in **Appendix 1** to provide a cross reference to each submission received.

5.1 Economic, Environmental and Social Impacts

5.1.1 Biodiversity

Biodiversity was the most frequently raised theme in objecting community and stakeholder organisation submissions, with a total of 121 submissions raising concerns with impacts on biodiversity. The main themes of concern were related to:

- impacts on native flora and fauna and their habitats
- impacts on koala populations
- habitat and corridor fragmentation
- indirect impacts on fauna e.g., increased stress due to noise, increased risk of vehicle strike
- exacerbation of the effects of climate change on biodiversity
- adequacy of biodiversity offsets
- weed control and biosecurity risks
- cumulative biodiversity impacts.

Each of these themes is discussed separately below, with the exception of cumulative biodiversity impacts which are discussed in **Section 5.1.5.1**.

There were also two commenting submissions which raised biodiversity issues in relation to koala populations, one of which provided details of thermal drone surveys being undertaken in the area which may be able to provide additional data for consideration of species abundance and potential impacts.

5.1.1.1 Impacts on Native Flora and Fauna and Their Habitats

*If approved, the proposed quarry will result in permanent destruction of at least 79 ha of State Forest and disturbance of an additional 139 ha, which is land held in trust for the public. This will mean permanent loss of habitat for many endangered and vulnerable species of flora and fauna. Koalas, squirrel gliders, brush-tailed phascogales as well as threatened species of birds, bats and orchids have all been identified on or near the development site. Two threatened ecological communities (TEC) will be cleared, including one which is listed nationally as endangered. **Save Balickera Inc***

The Project will have significant impact on critically endangered and endangered species that will likely see to the long-term decrease in the size of their populations, no matter the aspirations of their offsetting programs. ...

The Proponent has noted there are very low levels of introduced flora species currently present. This fact significantly adds to the value of the existing habitat both within the development footprint and beyond.

Gloucester Environment Group

*Several threatened species will also be adversely impacted. These include the Squirrel Glider and the Brush-tailed Phascogale, as well as a variety of microbats, rare orchids and two Threatened Ecological Communities. The reason they are threatened is because they face an ongoing loss of habitat across their range. This proposal continues that process. **North Coast Environment Council***

Port Stephens Koala Hospital object in the strongest possible terms to the proposed greenfield 79-hectare Stone Ridge Quarry Project proposed for the Wallaroo State Forest.

*Abutting the Wallaroo National Park, it is difficult to imagine a project more destructive to virgin ecological habitat. It is vital to the survival of endangered and vulnerable wildlife resident in the proposed site. **Port Stephens Koala Hospital***

*There are species of plants that are endemic to this area and have endangered status. The quarry would destroy a significant amount of native vegetation, including trees, shrubs and wetlands. Destruction of these species appears to be of no consequence to the developers, and other similar harmful development rarely include the required oversight, compliance or enforcement controls. **Animal Liberation***

Negative impacts on the environment would include destruction of 79 ha of state forest trust resulting in a permanent loss of habitat and increased threats for local koalas and several other species of threatened wildlife. Degradation of important biological values of the adjacent Wallaroo National Park should also be expected.

Tomaree Ratepayers and Residents Association Inc.

*If approved, the proposed quarry will result in significant negative impacts to the natural environment. These include the permanent destruction of 79 ha of native State Forest held in trust for the public, a permanent loss of habitat and increased threats for local koalas and several other species of threatened wildlife, the significant degradation and narrowing of an existing broader habitat corridor in the region, and an expected degradation of important biological values of the adjacent Wallaroo National Park. **Koala Coalition EcoNetwork Port Stephens Inc.***

*Whilst I understand the need for construction materials I object to it being sourced by the clearing and destruction of vital habitat for the survival of native plants and animals ... **S-60612457***

*The loss of that massive amount of wildlife habitat would kill off all the wildlife living in that area and also prevent koala populations from returning to the area after the bushfires. **S-60196503***

*The proposal requires clearing of approximately 80 ha native vegetation. This vegetation is the known habitat of threatened entities listed under the NSW Biodiversity Conservation Act 2016 and /or the Commonwealth Environment Protection Biodiversity Conservation Act 1999 ... **S-60339465***

*The proposed entrance to Stone Ridge Quarry will cut through important endangered pristine forest which is precious habitat. **S-60751459***

Threatened flora and fauna will be directly impacted, including forest types. The squirrel glider, brush tail phascogale and koalas as well as threatened species of birds, bats and orchids have all been sighted in the area set

As stated in **Section 5.1.1**, a Biodiversity Development Assessment Report (BDAR) was prepared for the Project by Umwelt (2023). The BDAR provides an assessment of the biodiversity values of the Project Area, documents the application of the avoid, minimise, and offset framework and assesses the likely biodiversity impacts of the Project. The BDAR also includes a specific assessment of predicted impacts on EPBC Act listed threatened species and communities having regard to relevant Commonwealth assessment requirements.

As outlined in **Section 3.2**, the Project has been amended to address comments from Port Stephens Council, Biodiversity Conservation and Science and the community regarding the size of the quarry and associated disturbance of vegetation and removal of habitat for present species.

While the Project will result in a reduction in habitat, the Project Area forms part of a larger habitat associated with the surrounding Wallaroo State Forest. The Project will not prevent the movement of fauna through the Forest.

The conceptual quarry layout has been revised to remove the previously proposed North Pit, associated sediment basin 2 and North Pit access road. The staging and extraction area of the Main Pit has also been revised to enable the relocation of processing and loading facilities into the pit in the later stages of the Project which will further reduce potential impacts. The revisions to the conceptual quarry layout will result in a reduction in the overall Project disturbance footprint from 79.02 ha to 68.09 ha, a reduction of 10.93 ha (14 %) and increase the setback of the extraction area from Italia Road. The BDAR has been revised to assess the predicted impacts of the Amended Project design on biodiversity values and is included in Appendix I of the Amendment Report with a summary of key outcomes provided in Section 6.7 of the Amendment Report and the report is provided in full as Appendix 11 of the EIS.

As outlined in the EIS, the CEMP and OEMP will include the following management measures to mitigate the residual impacts (direct, indirect and prescribed) associated with the Project, including:

- Workforce Education and Training – to create awareness of the key ecological issues, understand policies being implemented to protect biodiversity and responsibilities relating to weed management.
- Vegetation Protection Zones for retained vegetation – appropriate fencing and clear and visible signage.
- Ecologist pre-clearance survey and supervision of work – pre-clearing relocation survey for fauna, staged clearing work, management of koalas during clearing, ecologist supervision of all hollow tree felling and nest box installation.
- Erosion and Sediment Control – minimising disturbance, erosion and sediment control structures, surface water management structures and stabilisation of disturbed areas.
- Weed Management – survey and treatment of invasive weeds, ongoing inspections and treatment, cleaning of machinery prior to entering the site.
- Fencing, access control and fauna exclusion – security fencing will assist with limiting fauna access to operational areas.

The biodiversity offset strategy for the project is being developed in consultation with the NSW DPPI, the BCD and DCCEE and will be based on the offset options available under the BC Act, including:

- Land based offsets (potentially within the Wallaroo State Forest)
- Purchasing of credits from the market, and/or
- Payment into the Biodiversity Conservation Fund.

The underlying principle behind the BC Act offset policy is that the credit retirement processes is aimed at achieving no net loss of biodiversity values.

5.1.1.2 Impacts on Koala Populations

*That a proposal to clear fell such a huge tract of state forest occupied by koalas is even being considered rings alarm bells for their recovery across the state. After reviewing the Biodiversity Development Assessment Report (BDAR) for this proposal we are at a loss to why the proponent is suggesting this proposal at all, given the ecological importance of this area as part of the recognised North-East fauna corridor, with evidence of endangered species thriving on the site documented within the proponents own surveys. **Sydney Basin Koala Network***

*A study found that koalas from the Port Stephens Peninsula are less genetically diverse than Koalas from Balickera [(10) 2021 p 24]. It was concluded that the movement of koalas on the peninsula is restricted to the east side of Port Stephens because of fragmentation of their corridors while Balickera koalas have a wider range of corridors. "Any loss of connectivity in a habitat impedes the movement of koalas creating isolated populations, which leads to a decrease in genetic diversity. This can lead to inbreeding and genetic drift, which are detrimental to the survival of a population" (9). **Boomerang Park Preservation Group Inc.***

*A study of the impact of noise on koalas found that this species, "responds more severely to disturbances in a disturbed area" (6. p 26). Therefore, Koalas at Balickera exposed to disturbances from the quarry operations will be more disturbed by the weekly explosions than koalas that are not from a disturbed area. Flint and Melzer 2013 found koalas in less disturbed areas have lower stress levels. Therefore, increased disturbance means koalas are stressed and will have suppressed immunity to Chlamydia, one of the main causes of mortality in koala disease (5). **Boomerang Park Preservation Group Inc.***

*Koalas in New South Wales face a range of threats, including habitat loss, fragmentation and degradation, climate change, disease, declining genetic diversity, vehicle strike, bushfire, and dog attack. These mounting pressures, exacerbated by the impacts of the Black Summer bushfires, and combined with historic declines, mean that without intervention, koalas could be extinct in New South Wales by 2050. Taking urgent action, the NSW Government has set an ambitious goal to double koala numbers in New South Wales by 2050. The Project will produce all of the above threats to local koalas and other wildlife. This creates an unfair burden and financial cost to not only on the regional community, but the State. **Gloucester Environment Group***

*The project is likely to have an impact on a number of Matters of National Environmental Significance, as listed under the EPBC Act. This includes clearing of habitat suitable for the Koala, and animal facing extinction in the wild by 2050, as hectare after hectare of its habitat is cleared. **North Coast Environment Council***

*This inappropriate quarry development encroaches into areas of habitat supporting threatened and endangered species such as the Koala. **Animal Liberation***

*Clearing of 80 ha of known habitat of iconic nationally significant species Koala is likely to lead to a Serious and Irreversible Impact, and place this species at risk of extinction. **S-60339465***

*The Stone Ridge Quarry proposes a further unacceptable loss and degradation of core koala habitat. These are koala populations that have already suffered the devastating effects of drought, bushfires and land clearing. Enough is enough. **S-60107013***

*Clearing 139 Hectares of State Forest is identified to cause significant impact to listed threatened species and ecological communities, including koala. This is clearly such an outrageous proposition that it is hard to find the words to respond. Koala and the other listed species are on the brink and need every chance to not be wiped out from one of the remaining areas where they are managing to thrive. Since the Brandy Hill Quarry expansion the koala hospital has noticed an increase in admissions from that area and this quarry would have the same result of killing and displacing koala and other threatened species. It is clear than there is no justification for pursuing this proposal. **S-60630239***

*The loss of habitat impacts greatly on koalas which need a vast number of trees from which to feed; koalas are forced to come down from the safety of the trees to find other food sources and are then at high risk of being hit by cars, or attacked by dogs. **S-60322212***

The disturbance area is situated within the Central NSW Coast Koala Management Bioregion (Youngentob et. al., 2021) and contains several tree species identified as locally important to the koala. All PCTs within the disturbance area are considered to provide suitable habitat for the koala. However, as discussed in the EIS, the site is mapped as Marginal Habitat on the Koala Habitat Planning Map prepared by Port Stephens Council (PSC, 2001) and ARDG's selection of the Stone Ridge Site was, in part, based on this mapping.

Under the BAM suitable Koala habitat is defined as habitat the species is expected to occur in or periodically use and is defined as the presence of a koala use tree species in any vegetation zone of a PCT associated with koala. Species polygons under the BAM are required to include the vegetation zone in which the species was detected and all continuous suitable habitat with the vegetation zone, which, in this instance, includes the entire area of the disturbance area (DPIE, 2020).

The Project will lead to a reduction of approximately 68.02 ha (reduced from 79.02 ha due to the Project amendment) of suitable koala habitat from the local area. The Project is not likely to result in an impact which will directly reduce the size of a population of the koala, however a population decrease may occur indirectly in association with the clearing of occupied koala habitat.

There are larger areas of suitable Koala habitat in the locality, including within the Wallaroo National Park (2,780 ha), the Karuah National Park (3,534 ha), the Medowie State Conservation Area (2,851 ha), the Karuah State Conservation Area (74 ha), the Medowie Nature Reserve (238 ha) and the Karuah Nature Reserve (824 ha). Considering the extent of the forested area in the surrounds, the removal of vegetation is not likely to fragment the existing koala population into two or more populations. Additionally, no koala breeding activity has been observed within the disturbance area and it is therefore considered that the Project is not likely to disrupt the breeding cycle of the population.

The koala is known to be susceptible to pathogens and parasites which have resulted in population declines, such as Chlamydia and the koala retrovirus. However, the Project is not a type of proposal which will introduce disease that may cause this species to decline.

Due to the removal of Koala habitat, the assessment indicates the Project is likely to have a significant impact on the koala in accordance with the criteria provided in the EPBC Act Significant Impact Guidelines. ARDG will be required to retire biodiversity offset credits associated with the removal of habitat suitable for the Koala. ARDG is investigating opportunities to create a Biodiversity Stewardship site within Wallaroo State Forest which would improve habitat values within the Stewardship Site Area including koala habitat.

As previously discussed, the CEMP and OEMP will include extensive biodiversity management measures to mitigate the impacts associated with the Project including specific management measures relating to the Koala.

5.1.1.3 Habitat and Corridor Fragmentation

Wallaroo State Forest and its adjacent areas are within the Area of Regional Koala Significance.

Furthermore, the subject land is on an intact Regional Fauna Corridor and a local habitat linkage area (Attachment 2 (3) Figure 3.2). This proposal is inconsistent with the environmental values and status afforded to this area. The quarry will destroy an elevated landscape and put threatened fauna and flora at further risk of extinction. ...

*This project is also on a portion of the regional fauna corridor. This project will excavate a hole in the fauna corridor that will fill with water at the end the project's life [Attachment 2 in (3)]. Hence, this portion of the corridor will become dysfunctional. Losing trees inside the quarry will also cause 'edge' effects on the remaining Forest. For example, wind and sun will cause the Forest to become drier and opportunistic plants such as weeds will invade the area. These changes will degrade the remaining habitat for wildlife. **Boomerang Park Preservation Group Inc.***

The quarry site is proposed for a section of Wallaroo State Forest which adjoins Wallaroo National Park and forms part of a fauna corridor and constitutes significant remnant habitat. According to the National Parks and Wildlife Service (NPWS) Plan of Management for the Karuah, Medowie and Wallaroo Group of national parks and conservation reserves (KMWG):

*The area surrounding the parks has been extensively cleared, which has resulted in a high loss of biodiversity and fragmentation of habitat in the region. Long-term conservation of biodiversity depends upon the protection, enhancement and connection of remaining habitat across the landscape, incorporating vegetation remnants on both public and private lands. **Save Balickera Inc.***

*It is GEG's conclusion that Wallaroo State Forest should never have been made available for a quarry development as it is within a number of designated wildlife corridors. **Gloucester Environment Group***

*The Project, if approved in any form, poses an equally grave threat to critical connectivity between the Wallaroo State Forest and the Wallaroo National Park for wildlife. **Port Stephens Koala Hospital***

If approved the quarry would destroy native vegetation in an area which supports both an intact regional biodiversity corridor, as well as three overlapping climate corridors what government commissioned research has highlighted are essential to the survival of threatened species population fleeing the effects of climate change.

Animal Liberation

*The proponent argues that removing 79 ha of Wallaroo State Forest for a quarry still leaves room for wildlife to pass further southwest. This is not apparent from Figure 3.2 which shows the corridor narrowing to a pinch point between the quarry site and the Pacific Highway. This pinch point is made even more problematic by the presence of the Balickera Canal and the intense heavy truck traffic projected for Italia Road, which both act as additional barriers. KKEPS is concerned that no mitigation actions have been proposed to enable safe passage of koalas across Italia Road, or any other terrestrial wildlife species. **Koala Koalition EcoNetwork Port Stephens Inc.***

*What allowance has been made for wildlife corridors? **S-60315706***

*Removing connectivity in a vital area, that has been developing for decades after logging would be unwise, offsets will take decades to form shape that is similar and does not account for the old remnant trees that exist and the hollows of dead trees. **S-60692734***

*The quarry section of Wallaroo State Forest directly connects with Wallaroo National Park and is part of a regional fauna corridor with broader connection to the Karuah National Park, Medowie State Conservation Area, and Medowie Nature Reserve. **S-60156216***

*The establishment of the quarry would disrupt connectivity and corridors for wildlife. Many existing quarries are located near the only corridor across Italia Road, which serves as a crucial pathway for the movement of wildlife. Disrupting this connectivity would impede the natural migration and dispersal of species, potentially isolating populations. **S-60223708***

*I consider that the project should not proceed as the Environmental and Biodiversity adverse impacts cannot be mitigated due to it being located in three crucial biodiversity corridors essential to allow for migration of endangered species due to climate change. **S-60564235***

As previously discussed, the development footprint is located on the western edge of the Wallaroo State Forest and forms a small part of a larger habitat patch. Due to the size of the intact habitat to the north, no significant impact to connectivity is anticipated in an east west direction north of Italia Road. There is potential for habitat connectivity impacts in relation to movement from the south, particularly for the Koala, Brush-tailed Phascogale and Squirrel Glider.

There is a suitable connection point across Italia Road to the west of the development footprint noting that this corridor is already partly constrained to the west of Italia Road by the Boral Seaham Quarry.

The project will reduce the width of this corridor, particularly between the Wallaroo State Forest and areas to the west of Italia Road, however the new pinch points created will not be less than 320 m in width and will be substantially wider than the existing pinch points for this north-south corridor further to the south created by the existing Seaham Quarry and proposed Eagleton Quarries.

As outlined in the EIS, the CEMP and OEMP will include extensive biodiversity management measures to mitigate the residual impacts (direct, indirect and prescribed) to biodiversity associated with the Project.

5.1.1.4 Exacerbation of the Effects of Climate Change on Biodiversity

*The increasing temperature and declining rainfall caused by climate change will cause fauna habitats in the western regions to shrink, resulting in threatened fauna migrating to cooler and wetter environments, in higher altitudes towards the East Coast. Wallaroo State Forest provides a dry climate corridor that can support threatened species such as the Swift Parrot, Woodland birds, the Koala, the Grey-headed flying fox, the Brush Tailed Phascogale, the Giant Burrowing Frog, and the Squirrel Glider. These species' survival of climate change depends on climate refugia corridors such as Wallaroo State Forest. The quarry will fragment this corridor when fauna is desperate to find suitable habitat for survival (2). **Boomerang Park Preservation Group Inc.***

There needs to be recognition that the impacts of climate change are on ongoing and that threatened species and ecological communities will require pre-emptive and flexible management frameworks to allow for appropriate action to mitigate the impacts of climate change.

*It means that existing, functioning natural environments should be protected for the environmental services they provide as those environments are better able to withstand the impacts of climate change than regenerating sites. ... As well as destroying and altering intact areas of high conservation, the project will remove provision for climate change refugia for wildlife now and in the future. **Gloucester Environment Group***

*Due to the presence of an intact Regional Biodiversity Corridor Corridors mapped under the NSW Climate Change Adaptation Strategy, the 139ha greenfield site ARDG has selected to clear presently and is predicted to provide refuge and safe-passage to a number of threatened species facing range contractions and displacement due to accelerating climate change impacts. **Hunter Environment Lobby Inc.***

*The area of Wallaroo State Forest proposed to be clear-felled to accommodate ARDG's Stone Ridge Quarry operation supports all three of Climate Corridors (map below) and abuts an area of key climate refugia, rendering it of incredibly high-value to those species most at risk of extinction from climate change, without any further habitat loss. Successive NSW Government data has highlighted this area as crucial to the persistence of species fleeing the effects of modelled climatic changes. **Hunter Community Environment Centre***

*Whilst I understand the need for construction materials I object to it being sourced by the clearing and destruction of vital habitat for the survival of native plants and animals, particularly in light of the growing effects of climate change. **S-60612457***

The negative impacts of the proposal extend beyond the quarry footprint:

*1. Loss of functioning carbon sequestration services to ameliorate climate change impacts ... **S-60197736***

*Through this climate crisis, its important we value our biodiversity. **S-60226716***

*I have major concerns that this location has three types of climate corridors moist, dry and coastal essential for the migration of threatened species in respond to impending climate change. **S-60818456***

*These vegetation corridors provide refuge and safe passage for our native fauna and flora and are increasingly important as climate change accelerates. **S-60834723***

*In order to survive as the climate warms, threatened species are likely to travel through or take up residence in this area in search of a new suitable habitat. **S-60342957***

*The deforestation caused by the proposed quarry will further impact on climate change. **S-60694467***

Historically, the Wallaroo State Forest has been subject to extensive vegetation disturbance associated with commercial logging practices since the 1920s, however, no timber harvesting has occurred since 1986. Despite this, the area is still identified as a forestry resource for timber harvesting and also rock, stone, clay, shell, earth, sand, gravel or any like material. The majority of vegetation can be broadly described as 'forestry regrowth' that has occurred following historical logging operations.

As discussed in the preceding sections, the Project will reduce but not totally remove habitat connectivity for flora and fauna species, particularly between the Wallaroo State Forest and surrounding vegetated areas. The new pinch points to north south fauna movement created will not be less than 320 m in width and will be substantially wider than the existing pinch points for this north-south corridor further to the south created by the existing Seaham Quarry and proposed Eagleton Quarries. Additionally, there are larger areas of habitat in the locality, including within the Wallaroo National Park (2,780 ha), the Karuah National Park (3,534 ha), the Medowie State Conservation Area (2,851 ha), the Karuah State Conservation Area (74 ha), the Medowie Nature Reserve (238 ha) and the Karuah Nature Reserve (824 ha). Considering the extent of the forested area in the surrounds, the removal of the vegetation associated with the Project (approximately 68.02 ha) is unlikely to significantly reduce the areas of available fauna habitat within the locality and the impacts to fauna movement are unlikely to be significant given existing constraints in the immediate vicinity to the south.

5.1.1.5 Indirect Impacts to Fauna

*The operational noise will scare fauna away from the corridors described above. Frightened and confused fauna may go onto the road and be at risk of a vehicle strike. A study of the impact of noise on koalas found that this species, "responds more severely to disturbances in a disturbed area" (6. p 26). Therefore, Koalas at Balickera exposed to disturbances from the quarry operations will be more disturbed by the weekly explosions than koalas that are not from a disturbed area. **Boomerang Park Preservation Group Inc.***

*The indirect impacts of this proposal are also unacceptable, especially to a koala population already vulnerable to disease. The ear splitting noise, choking dust, and explosive vibrations are almost certain to create an unhealthy amount of stress in already displaced koalas. Researchers have found a direct link between anthropogenic stress and disease in koalas (Narayan, 2019), and we would expect this to result in a further decline of the remaining colony in the Wallaroo State Forest. The increased risk of car strikes within such an ecologically sensitive area is also an obvious impact which has not been adequately addressed. **Sydney Basin Koala Network***

*Hunter Water have only just reopened Balickera tunnel to a community of threatened microbat species who were excluded during the recent rehabilitation works. The increased noise and vibration from quarrying at Stone Ridge may well sabotage Hunter Water's efforts to resettle this fragile community back into the tunnel. **Save Balickera Inc.***

*Impacts to Wallaroo's State Forest biodiversity outside of the development footprint include impacts from fugitive light emissions on adjacent habitat, noise impacts of adjacent habitats, dust impacts on adjacent habitats and weed and feral animal encroachment. **Gloucester Environment Group***

*This proposal, if approved in any form, will cause injury and death to displaced resident wildlife as a result of vehicle strike on Italia Rd Balickera, and the adjacent section of the Pacific Highway. **Port Stephens Koala Hospital***

*We wish to raise the impact to the Micro-bat population of Balickera Tunnel, which feeds into the Grahamstown Dam drinking water catchment and abuts the Projects proposed entrance. **Hunter Community Environment Centre***

*Many wild animals such as deer and wallabies are already being struck by vehicles and suffering slow painful deaths on the road side. This will increase if their natural habitat is allowed to shrink. **S-59496223***

*Blasting activities can lead to the destruction or alteration of natural habitats for animals, displacing wildlife and disrupting their normal behavioral patterns. Many species may be forced to leave the area, affecting their population dynamics and potentially leading to local extinctions. **S-60803716***

*There are major flying fox colonies at Clarence town and Raymond Terrace. At certain times of the year these fly over our area. The noise will affect their ability to adequately navigate the region. This will disrupt their access to food, but can also cause them to get stressed and use domestic pet facilities to seek water and protection. It is in situations like this that the risk of zoonosis occurs. The noise will also disrupt migratory birds, and frighten wildlife. **S-60193466***

The BDAR specifically includes consideration of indirect impacts including those referred to in submissions (refer to Section 8.2 and Section 8.3 in Appendix I of the Amendment Report). The assessment of the Project indicates indirect impacts can be appropriately managed.

As previously discussed, the proposed CEMP and OEMP will include extensive biodiversity management measures to mitigate the indirect impacts associated with the Project. This includes specific management and mitigation to manage biodiversity including potential vehicle strike, blasting related impacts and water resources.

5.1.1.6 Adequacy of Biodiversity Offsets

*Ultimately whatever schemes the Proponent takes part in, if approved, an area that threatened species reside in or frequent will be lost. In exchange for the permanent destruction of existing forest habitat, the proponent proposes to pay for biodiversity offset credits and potentially apply them to another section of the Wallaroo State Forest. If there are sections of the Wallaroo State Forest in poorer condition than the proposed location of the quarry, the better course of action would be to apply biodiversity offset credits from other DAs in the region towards a conservation agreement in the Wallaroo State Forest (assuming the exchange meets the principle of 'no net loss'). This would also not conform to Minister Plibersek's policy of Nature Positive Plans. KKEPS submits that it is not an acceptable proposal to permanently destroy one section of the Wallaroo State Forest to conserve and protect another. It would be contrary to the goal of the NSW Koala Strategy 2021-2026 for public funds to be invested to create koala habitat on the one hand, and for existing koala habitat to be removed from a state forest on the other. **Koala Coalition EcoNetwork Port Stephens Inc.***

*The Proponent's conclude that their Scope 1 green house gas emission estimates "overstate actual net emissions as they do not take into account carbon sequestration associated with biodiversity gains in offset areas". However, this statement fails to disclose the fact that in the real world, such offsetting has not offset biodiversity losses from the impacts of development. **Gloucester Environment Group***

*Further, the notion that establishment of biodiversity offset areas within Wallaroo State Forest to compensate for biodiversity impacts of the Project needs explanation and justification. **Gloucester Environment Group***

*ARDG propose to offset areas located in the surrounding lands of Wallaroo State Forests. My understanding is that one of the benefits of offsetting for environmental loss is that new land will be reserved in perpetuity for the environmental benefits lost as a result of new development. However, developers need to purchase or already own that new land and commit to looking after it forever. ARDG obviously dont own the Wallaroo State Forest, so how can they propose to offset within it? Surely that land will already be managed by Forestry Corp. What comparable lands can be purchased outside the Forest estate and where will they be? **S-60197736***

The processes of determining offset liabilities are prescribed by the Biodiversity Assessment Methodology (BAM) under the BC Act. The offset requirements are identified by a credit liability system calculated through biodiversity value attributes connected in accordance with BAM requirements. The biodiversity values collected through surveys are comprehensive and cover a wide range of ecosystem functioning and habitat values. The results of these surveys and assessment of less tangible impacts is documented in the BDAR, which must be prepared by a BAM accredited assessor.

ARDG are proposing to offset the biodiversity credits associated with the Project based on the offset options available under the BC Act. The biodiversity offset strategy for the Project is being developed in consultation with DPHI, BCD and DCCEEW and will be based on one or a combination of the following available offset options:

- Creating credits through biodiversity improvement activities in land based offsets (potentially within the Wallaroo State Forest)
- Purchasing of credits from the market, and/or
- Payment into the Biodiversity Conservation Fund based on credit liabilities.

ARDG is required to operate within the NSW Government mandated offset system. While there are a range of different credit retirement options, ARDG remain committed to prioritising options for local land-based offsets to minimise the impact of the project on biodiversity values in the local area.

5.1.1.7 Biosecurity Risks

Weed control – introduction of weeds through vehicle movements is a major biosecurity concern. As this is a major domestic water catchment area, weed control is a very large problem, as the weeds can spread rapidly via wind, water and feral animals, and indiscriminate or uncontrolled spraying within a catchment area is not acceptable. ...

Feral animals – failure to control and/or eradicate feral animals would mean these would push them onto private lands, again, creating both a biosecurity issue and/or putting domestic animals and landholders at risk of injury or death. Control is absolutely paramount, and again, this is a major water catchment area. S-60266214

As previously discussed, and detailed in the EIS, the proposed CEMP and OEMP will include extensive biodiversity management measures to mitigate the indirect impacts associated with the Project. This includes specific management and mitigation to manage biosecurity risks including weeds.

5.1.2 Traffic and Transport

Traffic and transport concerns were raised in 81 objecting community and stakeholder organisation submissions, making it the second highest rated issue. The most frequently raised themes in relation to traffic and transport were:

- upgrades to the Italia Road - Pacific Highway intersection
- the condition of Italia Road and its suitability as a heavy vehicle route
- the proposed use of the Tarean Road interchange for southbound traffic
- impacts on the wider road network
- road safety, particularly for school buses travelling on Italia Road
- alternative transport solutions e.g., rail
- cumulative traffic impacts.

Each of these issues is discussed separately below, with the exception of cumulative noise impacts which are discussed in **Section 5.1.5.2**.

Three commenting submissions also discussed traffic and transport in relation to heavy vehicle volumes, the location of the Project access driveway, and local road diversions required during times of flooding and their potential impact on traffic volumes on Italia Road.

5.1.2.1 Italia Road – Pacific Highway Intersection

*We understand that the Stone Ridge Quarry's viability is contingent on the outcome of a separate development application being lodged by Boral to upgrade the existing Italia Road-Pacific Highway Intersection. This suggests the Stone Ridge Quarry will not on its own support the expense of the necessary infrastructure. The anticipated volume of truck traffic created by the various quarries really demands an overpass, but the construction of one would have its own further devastating impact on the environment. The economic benefits of the Stone Ridge Quarry project can only be assessed when the true cost of infrastructure upgrades is considered. The plan to shift the burden of upgrading the roads to other businesses, or for that matter to the taxpayer, suggests that the Stone Ridge Quarry will not provide a net economic benefit to the community. Instead, it will likely be a drain on community resources. Quarries create a circular problem – that is, they require more trucks to transport rocks to build and repair roads, which are needed because of the increasing trucks. **Save Balickera Inc.***

*It is not feasible to monitor to ensure compliance with trucks turning only left onto the Pacific Highway. Currently quarry trucks are already seen to travel in both directions on Italia Road, despite assurances that traffic issues will be confined to the Pacific Highway end. It is unrealistic to expect members of the community to effectively police compliance with conditions of this type. **Save Balickera Inc.***

*The channelised right turn onto Italia Road from the Pacific Highway is also manifestly inadequate and unsafe in view of the anticipated volume of traffic travelling at speeds between 100 and 110km per hour. It is very difficult to cross two lanes of highway with oncoming traffic travelling at these speeds in a car, let alone in a semi-trailer truck. **Save Balickera Inc.***

*They note that proposed upgrades to the Italia Road-Pacific Highway intersection will improve its safety and reduce delays to the Proponent – but what about the rest of the community? **Gloucester Environment Group***

TfNSW has accepted in-principle a proposal by the three parties to improve road safety at the existing Italia Road and Pacific Highway intersection via construction of a dedicated leftturn northbound acceleration lane onto the Pacific Highway, which will remove the current left-turn merge movement with a safer downstream merge movement. (1.2 related development – introduction p.1)

*This 'in-principal' acceptance is issued for the physical intersection of the Pacific Highway and Italia Road only with no mention of the consequences of the dangers of extra truck traffic on the other road users who will pass that location. **Voice of Wallalong and Woodville***

*Trucks, B-double or truck and dog configuration are intimidating to some motorists, especially in such large volumes. Merging trucks at 1/minute (from one quarry only with cumulative impact not yet addressed), can be dangerous with lane changes needing to be made. **Voice of Wallalong and Woodville***

*Members of our organisation who regularly use Italia Road for access to the Pacific Highway are appalled at the suggestion that these numbers of trucks would be of low impact. We would be caught up in this melee of trucks accessing Italia Road from both sides and then stuck between them at the intersection. **Voice of Wallalong and Woodville***

*While the proponent willnot dispatch trucks to market until a suitable and safe access arrangement is in place... EcoNetwork PS suggests that a left turning merging lane out of Italia Road is not sufficient to allow for possibly 30 trucks per hour turning onto the Pacific Highway from at least 3 quarries in the area. **EcoNetwork Port***

The Project Area is accessed directly from Italia Road, which joins the Pacific Highway approximately 1.4 km from the site entrance. This section of Italia Road is an approved B-Double route. The Pacific Highway provides the major transport route for the Project and no quarry-associated heavy vehicles will be permitted to travel west on Italia Road past the quarry access point toward Seaham, either to or from the quarry. At the Italia Road-Pacific Highway intersection, all heavy vehicles associated with the quarry will turn left onto the Pacific Highway, utilising the existing Tarean Road interchange (approximately 11 km to the north) should a southbound journey be required.

The upgrade of the Italia Road/Pacific Highway intersection is being pursued under a separate approval process (refer to **Section 3.4**) to allow for the proposed upgrades to be operational prior to the quarry exporting material through the intersection and as such is a mitigation measure. This approach is being taken as it relates to other separate approval processes relating to different projects and provides for the intersection works to commence concurrently with the SSD approval process for the Project. Should the Project be approved prior to completion of the intersection upgrade works, the development consent can be conditioned as such that no material can be transported from the site prior to the intersection being constructed.

ARDG and other relevant quarry operators have been engaging with TfNSW on a range of treatment measures for the Italia Road/ Pacific Highway intersection since mid-2019 and the option proposed in a separate assessment process is as agreed in principle with TfNSW. The works will be funded by ARDG and the other contributing quarry operators. The proposed intersection configuration is as agreed with TfNSW following extensive development and consultation by multiple parties in relation to quarry traffic from independent and separate operating quarries and proposed quarry sites (including consideration of existing traffic).

The proposed intersection works have been designed in consideration of the two proposed quarries, existing Seaham Quarry and possible future expansion of Seaham Quarry. The SIDRA assessment of the proposed intersection design contained in the Intersection TIA (GHD 2023b) demonstrates an improvement in level of service relative to current operating conditions due to the redirection of traffic to the Tarean Road Interchange even with the additional traffic proposed as a result of the Project, Eagleton Quarry and the proposed expansion of Seaham Quarry.

Cumulative traffic assessments also concluded that the road network can comfortably accommodate the level of additional traffic from both the proposed Eagleton Quarry and the Project, together with the existing traffic from the Boral Seaham Quarry.

5.1.2.2 Capacity and Condition of Italia Road

*Italia Road itself is also entirely inadequate as a haulage route and upgrades to increase its suitability and safety for that purpose will necessarily involve extensive removal of trees and habitat. Some of this work is presently taking place, in flagrant disregard for the concerns expressed by community members and environmental groups. ... The preferred solution to these safety concerns is to lower the speed limit and reduce the truck traffic rather than cut down more trees. **Save Balickera Inc.***

*Aside from the noise and vibration from construction and blasting, residents have had enough of the thunderous and dangerous truck traffic on Italia Road, which prompted them to establish the Italia Road Action Taskforce (IRATE) in August 2022. Residents, lured to the area by the peaceful natural environment, are horrified that Italia Road is increasingly being treated as a haulage route for heavy industry. **Save Balickera Inc.***

*Had residents been able to contribute, Umwelt may have become aware that Italia Road, at times of flooding, is the only way to reach the Pacific highway for many residents of surrounding localities. For example, in 1990 all roads out of the Brandy Hill/Seaham area and beyond were blocked by flood water and every resident needed to use Italia Road and the highway to be able to get to Maitland, Newcastle and beyond. There were other floods when this road was the only way in and out of the area and thus the dangers of the mix of trucks of this magnitude, and cumulative, with already anxious drivers makes for a very unsafe environment. **Voice of Wallalong and Woodville***

*The roads in the vicinity of the proposed quarry were designed to service a local rural community and are not of a standard to cope with the heavy loads and increased frequency of movements. **Tomaree Ratepayers and Residents Association Inc.***

*The roads in our area, specifically Italia Road, are already substandard and require potholes to be frequently repaired. **S-60796484***

*I seriously doubt Italia road could take the proposed amount of traffic in the condition it is in at the moment. It is not even safe for normal domestic traffic in that Road having to share it with the amount of gravel trucks from the Hanson Quarry at Brandy Hill. **S-60080976***

Italia Road is a local, fully sealed road providing one traffic lane in each direction and direct access to the Pacific Highway (forms part of the M1 Pacific Motorway and approved for use by heavy vehicles including 25/26 m B-doubles without specific permit conditions). The length of Italia Road between the Pacific Highway and the Project Access Point (opposite the existing Boral Seaham Quarry access road) is an approved B-double route. As outlined in the EIS, ARDG have committed to traffic management measures which will restrict all associated heavy vehicles from travelling west on Italia Road past the quarry access point toward Seaham. All outbound heavy vehicles will exit the Project Area via a left turn only and will turn left onto the Pacific Highway at the Italia Road-Pacific Highway intersection, travelling to the Tarean Road interchange approximately 11 km to the north to undertake a U-turn movement (if travelling south) before resuming a southbound journey.

As outlined in the EIS, traffic modelling indicates the external road network can comfortably accommodate this level of additional traffic. Additional modelling undertaken at the request of TfNSW, in relation to the inclusion of traffic associated with Eagleton Quarry has been undertaken as part of the Intersection DA (refer to **Section 3.4** and **Section 4.9**) which reinforces the predictions reported in the TIA and EIS.

Port Stephens Council is currently undertaking repair works on Italia Road (from the western side of Caswells Creek for approximately 530 m westward) to address safety hazards through:

- pavement rehabilitation
- widening of shoulders to 1 m where possible (which involves the removal of roadside trees where necessary)
- widening of travel lanes to 3.2 m (currently 3 m)
- installation/extension of safety barriers such as guardrail or wire rope (where possible).

These works are funded wholly from PSC's Infrastructure Contributions Haulage Fund. Council receives monetary contributions from generators of significant haul truck movements which go towards upgrades and repairs of haulage roads. These contribution rates are determined by Council and are prescribed by the adopted Local Infrastructure Contributions Plan. Any concerns with the repair works should be directed to Port Stephens Council.

Should the Project be approved, ARDG will also be required to make contributions to the Infrastructure Contributions Haulage Fund to compensate PSC for the additional maintenance requirements for this section of Italia Road between the Project Area access point and the Pacific Highway. ARDG will have ongoing engagement with PSC throughout the life of the Project and will alert PSC to any material maintenance works required to Italia Road that it becomes aware of.

5.1.2.3 Use of Tarean Road Interchange

*The proposed Tarean Road Interchange constitutes an inadequate solution to the safety concerns. Most trips by trucks will be southbound and drivers will lose time and money as they will be forced to turn left onto the Pacific Highway from Italia Road. It is not feasible to monitor to ensure compliance with trucks turning only left onto the Pacific Highway. **Save Balickera Inc.***

*All quarry traffic is doubling its footprint with left turn north out of Italia Rd and then southbound turnaround. This equates to double the air pollution and noise in the environment and the physical presence of trucks in both directions. **Voice of Wallalong and Woodville***

*Can this interchange still be considered safe and able to handle the extra truck numbers stated above? **Voice of Wallalong and Woodville***

*The proposal to left turn only from Italia Road to Pacific Hwy involves a 22km detour via Tarean Road interchange for every truck leaving the site, which seems highly inefficient. ... It is not clear whether the impact on Karuah residents using Tarean Road of the generated traffic has been considered properly. **S-60630239***

*Quarry trucks leaving the site will therefore be required to divert 11 kilometres north and then 11 kilometres south. If this arrangement is viable, the applicant and TFNSW should be required to demonstrate how it will be enforced, noting that an existing quarry development in Italia Road is not subject to this requirement. **S-60072706***

The use of the Tarean Road interchange for southbound quarry traffic to undertake a U-turn movement was proposed as an alternative to the need for heavy vehicles to undertake right-hand turn movements out of Italia Road onto the Pacific Highway. While it is acknowledged that this detour presents inefficiencies in terms of time and fuel usage, which in turn will result in some additional air and noise emissions, road safety concerns related to traffic turning across the Pacific Highway were the prime justification for the use of this transport route.

It is anticipated that the requirement for all heavy vehicles associated with the Project to undertake left turn movements only onto the Pacific Highway at the Italia Road intersection will be enforced as a condition of development consent. Consent authorities have broad powers under the *Environmental Planning and Assessment Act 1979* (EP&A Act) to investigate whether development is being carried out in accordance with the conditions of a development consent. Where a breach is identified, consent authorities may issue an order requiring the breach to be rectified (known as a development control order) or can commence prosecution proceedings against the person responsible. In recent years, the DPE has significantly intensified its compliance effort in relation to State Significant Development. The outcomes of its regular compliance audits are published on its website.

Modelling was undertaken to assess the Tarean Road interchange under three scenarios, including the existing surveyed conditions (based on 2022 traffic volume surveys undertaken at the interchange ramps), a scenario where an additional 50 articulated trucks undertook a U-turn movement (such as that proposed for vehicles exiting the quarry) and under a third scenario where 20% growth was applied to the existing volumes and an additional 100 articulated trucks undertook a U-turn movement. The modelling suggested that under all three scenarios the interchange would operate at a satisfactory level. Noting the Project is expected to generate a total of 30 outbound heavy vehicle movements per hour during peak periods, even under the conservative assumption that 100% of heavy vehicles will require the use of the Tarean Road interchange for southbound trips, the actual future conditions are expected to perform better than the modelled future scenarios. The report summarising the traffic modelling undertaken at the Tarean Road interchange was provided in Appendix B to the Traffic Impact Assessment (refer to **Appendix 3**).

5.1.2.4 Impacts on the Wider Road Network

*Nowhere in the EIS is the effect of truck numbers on the wider network addressed. ... Modelling for each of these pinch points on the highway should be done to see if the extra truck traffic from the quarry, indeed the cumulative truck numbers, to which this quarry will contribute, is as insignificant as the proponent suggests. The traffic report needs to acknowledge that the Italia Road intersection is part of the wider road network that will be impacted. Far reaching effects cannot be ignored. **Voice of Wallalong and Woodville***

*Additionally, the construction of some type of interchange at Italia Road to allow quarry trucks to enter the Highway more safely, does nothing to alleviate the congestion that is already a problem at the Heatherbrae Roundabout and Hexham Bridge intersections. **EcoNetwork Port Stephens***

While the EIS contains an assessment of the impact on the Italia Road intersection, it does not take into account the impact of the significant increase in heavy vehicles on the intersection of the Bucketts Way and the Pacific Hwy.

S-59719006

The Project Area is accessed directly from Italia Road, which joins the Pacific Highway approximately 1.4 km from the site entrance. The Pacific Highway provides the major transport route for the Project. Consistent with standard assessment process the Traffic Impact Assessment assesses the key roads in the public road network to be used by Project traffic including Italia Road, the Pacific Highway and Tarean Road.

The Pacific Highway forms part of the M1 Pacific Motorway arterial road providing an important freight corridor along the east coast of NSW, approved for use by heavy vehicles including 25/26 m B-doubles without specific permit conditions. The modelling indicates that the Italia Road/Pacific Highway intersection and the Tarean Road interchange will operate with a good level of service. The Pacific Highway also has sufficient capacity to accommodate the Project related traffic as well as the traffic from adjoining existing and proposed quarry operations. The proposed upgrades (subject to separate approval) to the Italia Road-Pacific Highway intersection will also be designed to accommodate cumulative traffic from all three quarries.

5.1.2.5 Road Safety

*Road safety is a major concern for the residents of Italia Road and has been strengthened following the recent tragic fatality on Italia Road at Balickera, close to the proposed project site. We note this incident is not mentioned in the EIS. **Save Balickera Inc.***

*Italia Road is also a school bus route, and this volume of trucks will have a very big impact on the safety of school buses travelling this road. I have major concerns that there is the possibility of accidents, not just on Italia Road, but also entering to/from the Pacific Highway. **S-60266214***

Trucks travelling at high speeds when passing our driveway approaching the intersection, making the entrance to our home unsafe.

*Access to our driveway – with the current level of traffic, at times we are unable to access our driveway and have had a few near misses of being hit from behind whilst trying to turn into our driveway when entering Italia Rd from the Pacific Hwy. This issue will only be increased and create a significantly higher danger for all family members and visitors. We have one learner driver in the house currently and will soon have another and as such are deeply concerned for the safety of our inexperienced drivers. **S-60360720***

*Our grandchildren's safety outweighs these quarries in our area. **S-60630239***

*Living on Italia Road has become less safe and less desirable. The quarry trucks start about 4.30am every morning most of the homes are close to road and not build with noise reduction. During my time on the road myself my family and neighbours have all had incidents of being run off the road by trucks heading to the quarry. Italia Road is a narrow not well maintained road that is not suitable for the large amount of increased trucks that this quarry will bring. I can not even allow my 10 year old to cross the road from his bus stop due to the amount and the speed at which traffic including trucks speed along this road. **S-60196503***

*The volume of trucks and traffic on an already very dangerous road would not be in the best interests of the local community. **S-59816718***

*I would also like to point out our road is not safe enough as it for school kids to get on buses or resident road users as it is. I know this, I experienced my brother in law killed on our road two years ago. **S-60205219***

*School buses use these local roads and are unable to safely pull over for school children to get on and off. Italia Road has many 'black' spots and with a speed limit of 90km/h this doesn't allow a fully laden truck to safely pull up in the case of a school bus partially blocking the road. **S-60796484***

*The Stone Ridge Project is proposed to be located on one of the most dangerous roads in Port Stephens and using a dangerous entry onto the Pacific Highway regardless on the merge entry that is proposed. **S-60205458***

Road safety data is published on the Transport for NSW website

(<https://www.transport.nsw.gov.au/roadsafety/>). Finalised data for Italia Road and the Pacific Highway in the vicinity of the Project site is currently available for the 5-year period from 2017 to 2021, however at the time of writing the Traffic Impact Assessment for the EIS, data was only available for the period 2016 to 2020, hence the recent fatality on Italia Road was not captured in that report.

As previously discussed in **Section 5.1.2.3**, the right-turn movement out of Italia Road onto the Pacific Highway has been deemed a safety risk, particularly for long and heavy vehicles which require large gaps in the downstream traffic to cross and turn. As such ARDG has committed to all heavy vehicles turning left only from Italia Road onto the Pacific Highway to avoid crossing northbound traffic.

Similarly, in recognition of safety concerns along Italia Road in addition to amenity concerns for residents on Italia Road to the north and west of the Project, ARDG has also committed that no heavy vehicles associated with the Project would turn right out of the site, limiting the heavy vehicle movements to approximately 1.4 km of Italia Road between the site and the Pacific Highway.

The Traffic Impact Assessment identified bus services for four schools (Irrawang Public School, Irrawang High School, Hunter River High School and Raymond Terrace Public School) with routes along Italia Road. The assessment identified that there would be no impact to school bus services other than minor incidental delays due to truck movements required to slow down for the right turn into the site. A Channelised Right Turn (CHR) treatment is to be provided on Italia Road at the site access to accommodate this movement safely and minimise traffic delays associated with right turning traffic.

5.1.2.6 Alternative Transport Options

*To get the trucks of 4 quarries (Borals East Seaham, ARDGs Stone Ridge, Hansons Brandy Hill and the proposed Eagleton Quarry) off Italia Road and the Pacific Highway there should be a freight only rail spur line installed between Hexham and East Seaham. If the rail siding was south of Italia Road then ARDG could build a flyover over Italia Road for access. The Government owns land from Hexham to East Seaham adjacent to the Pacific Highway which could be used for this purpose. The spur line could operate similar to the rail freight lines to and from the coal mines in the Hunter. There is spare rail freight capacity into Sydney even more so when the Brisbane to Melbourne inland rail project is finished. Transport of quarry products in and around Newcastle and surrounding areas could be from Hexham which is designated an industry hub. With the 4 quarries having a life of 30 or more years and making billions of dollars the cost of a spur line is affordable (especially as the land should not have to be purchased). **S-59965975***

*There is a further benefit from rail use – that is the potential for electrification of the entire transport system from mine face to the processing plant by way of ROM sizing at or near the mine face, and conveyor to the secondary and tertiary processing plants, and product stockpiling. Then with product dispatch onto rail to centralised distribution sites, road congestion is decrease. And not only will there be a significant decrease in diesel emissions, polluting residential areas, there will be an improvement in air quality to the community, and a reduction in climate pollution and heating. **S-60460206***

*As the quarry is looking at a significant time scale of operation there should have been more than a cursory consideration to the possibility of rail links, perhaps even along the existing highway easement. With all the tunnel boring equipment around the country perhaps even a tunnelled conveyor system to the nearest rail link could have been consider. **S-60725958***

*If this area is destined to become a quarrying mega centre, then it is unacceptable for all output to be transported by road, with much of it being hauled long distances to Sydney. Just as the Hunter Valley coal industry had to change from road to rail haulage for safety and economy, the quarry industry must also use rail for long distance haulage, in the interest of intergenerational equity. **S-60496962***

*All of the material quarried is to be transported by road - there appears to have been no consideration of alternative transport of material other than by road. As the quarry is looking at a significant time scale of operation there should have been more than a cursory consideration to the possibility of rail links, perhaps even along the existing highway easement. With all the tunnel boring equipment around the country perhaps even a tunnelled conveyor system to the nearest rail link could have been consider. **S-60725958***

The rail transport option was not considered to be a viable alternative to road transport as it would require the construction of over 20 km of additional track to join to existing rail networks. This would result in far greater economic, environmental and social impacts than the Project.

5.1.3 Noise

Noise concerns were raised by 61 objecting community and stakeholder organisation submissions. The main themes of concern in relation to noise were:

- road traffic noise
- operational noise
- adequacy of mitigation measures
- cumulative noise.

Each of these issues is discussed separately below, with the exception of cumulative noise impacts which are discussed in **Section 5.1.4**.

5.1.3.1 Road Traffic Noise

*The noise monitoring results contained at Table 2.4 in the Noise Impact Assessment ('NIA') at Annexure 5 indicate road traffic at 60 dB(A), which is as noisy as a noisy lawn mower at 10m distance. There does not appear to be any significant noise abatement at night. The figures provided for the noise levels during the operation of the quarry simply do not accord with first-hand accounts provided by residents and bring in to question the methodology applied. The claims contained in the EIS that 'there will be no exceedances of the cumulative noise criteria' and that noise impact '(m)eets relevant criteria – no residual material impact' are simply not credible and indicate a cynical approach to the exercise of weighing the cost to the community. **Save Balickera Inc.***

*Trucks are noisy but heavily laden trucks can be doubly so with engine braking a major problem for any residence within the highway precinct. This kind of noise carries for kilometres and is a regular experience for the residents of Brandy Hill and Nelsons Plains who experience the Hanson quarry subcontractors or customer's poorly maintained vehicles on their roads. This lived experience should not be ignored. Thus, the other residents who live along the highway, even though not in view from the highway, would also feel the impact of the extra truck noise. **Voice of Wallalong and Woodville***

*The use of subcontractors whose trucks might not necessarily meet the standards the local community might expect, often have squealing brakes and loud engine noise. The modifications that some truck owners make will have an impact on the day-to-day activities of residents. **Voice of Wallalong and Woodville***

*The fully laden trucks turning left will have heightened engine noise as they accelerate and merge. Those empty trucks turning left into Italia Road from the south will have brake noise – either squealing or engine braking – depending on the contractor and standard of truck maintenance. (Again, lived experience from residents along Brandy Hill Drive and Seaham Road). **Voice of Wallalong and Woodville***

Other noise issues include

*o Excessive use of air brakes when approaching the Italia Rd / Pacific Hwy intersection. **S-60360720***

The existing road traffic noise levels used in the road traffic noise assessment were based on noise monitoring results rather than modelled predictions.

Noise loggers were placed at three locations surrounding the Project from 14 to 24 June 2022 at monitoring locations selected to be representative of the potentially affected residential noise receivers. Note, access was sought but could not be acquired at 16 Italia Road, Balickera (the nearest receiver located along Italia Road). Accordingly, a representative location for this residence was chosen (Location L2), which had a similar separation distance from Italia Road and the Pacific Highway. Noise levels were measured in general accordance with AS1055:2018 and the requirements of the NPfI. The noise monitoring was conducted with Type 1, Svantek 977 Noise and Vibration Analysers. Field calibration checks were undertaken for the instruments pre and post logging and were found to be within 1 dB of the reference signal.

In accordance with the NSW Road Noise Policy (DECCW, 2011) a 2.5 dB façade correction was added to the measured free-field levels to represent an equivalent road traffic noise level at a 1 m from the building facade. Operator attended measurements undertaken at L2 determined that traffic on the Pacific Highway, rather than Italia Road, was controlling traffic noise at this location. The difference between day and night time measured noise levels at L2 was 2 dB. This is consistent with measured noise levels at L3, where a 3 dB difference was measured. The higher than 'expected' noise levels at night may be attributed to a higher percentage of truck movements which would offset any larger gaps in traffic. Nevertheless, the assessment found that Project-related traffic noise was predicted to be well under both the existing traffic noise levels and the established criteria.

5.1.3.2 Operational Noise

*The dust and noise from blasting, then drilling, crushing, stockpiling and loading of trucks will travel over the local area making life miserable for local residents. **EcoNetwork Port Stephens***

*While ARDG may not be intending to work the quarry past 6pm the trucks will still be loaded until 10pm. Loading of trucks is by no means quiet and in a still night environment in a rural locality this noise will travel. **Voice of Wallalong and Woodville***

*From the report it is our understanding that the quarry will rely on 2 on-site diesel generators until 2025. Has the noise generated by these generators been considered especially on still evenings? There is the potential for there to be a continuous hum which might become quite irritating. **Voice of Wallalong and Woodville***

*The dust and noise from drilling and blasting, crushing, stockpiling and the loading of trucks will travel over the local area making life miserable for local residents. **Tomaree Ratepayers and Residents Association Inc.***

*The quarry would operate 24 hours a day, 7 days a week, and it could generate noise pollution that would disturb residents and visitors. **S-60244207***

*Noise is also a concern, The noise from their crushers, trucks reversing beepers, other plant equipment beepers etc will come from the proposed quarry and being in such close proximity to our house I'm very worried the noise will impact our peaceful semi rural lifestyle that we have loved so much for the past 27 years. **S-60076239***

The noise impacts associated with the Project were assessed by comparing predicted noise levels from the Project operations against the noise assessment levels established in accordance with the applicable legislation, guidelines and policies.

The assessment was undertaken by modelling a scenario representative of reasonable worst-case noise emissions from quarry operations during four stages: Stages 0, 1, 5 and 9. Noise predictions were undertaken for the day, morning shoulder and evening periods. It is noted that diesel generators were included as part of the modelled plant/equipment during Stages 1, 5 and 9 of the quarry operations, even though the transition to mains power is scheduled to occur in Year 3. This accounts for a worst-case scenario should delays occur in the connection of the site to mains power.

The quarry will **not** operate 24 hours a day, 7 days a week. Proposed operating hours are as provided in **Table 5.1**.

Table 5.1 Operating Hours

Stage	Hours
Construction	
All construction activities	7.00 am to 6.00 pm Monday to Friday
	8.00 am to 1.00 pm Saturday
	No work on Sunday or public holidays
Operations	
Quarrying and processing	7.00 am to 6.00 pm Monday to Friday
	7.00 am to 3.00 pm Saturday
Truck loading, product transport and maintenance	6.00 am to 10.00 pm Monday to Friday
	7.00 am to 3.00 pm Saturday
	No operation on Sundays or Public Holidays apart from maintenance activities as required

During the morning shoulder period (6 am to 7 am) and the evening period (6 pm to 10 pm), the only operations that will occur at the quarry will be those associated with the loading and transport of road registered trucks and maintenance operations, i.e., there are no extraction, processing or stockpile management activities undertaken.

Additional modelling was undertaken to assess maximum noise events associated with sleep disturbance during the morning shoulder period (refer to Section 4.4.3 of the NIA in Appendix 5 of the EIS). The model was used to determine noise levels from sleep disturbance events at the nearest sensitive residential receiver locations under both standard and noise-enhancing meteorological conditions. The proposed quarry activities with potential for sleep disturbance are the loading of product trucks using a front-end loader and product truck air brake release and acceleration. The assessment determined that the maximum noise level at all receivers was significantly less than the sleep disturbance screening criteria.

The assessment concluded that the Project will comply with noise criteria/management levels for all construction and operational scenarios at all nearby sensitive receivers during all applicable time periods.

5.1.3.3 Mitigation Measures

The proponent of the quarry has proposed a number of mitigation measures to reduce the noise and vibration impacts, but it is important to note that these mitigation measures are generally not effective, and there is still a risk that the quarry could have a significant noise and vibration impact on the area. The noise and vibration impacts from the quarry are a significant concern for many residents and businesses in the area. S-60244207

ARDG has committed to a comprehensive suite of noise control measures to minimise noise emissions. The noise control measures were incorporated into the modelling process.

Throughout the development of the conceptual quarry plan, consultation with the design team was undertaken to identify, design and optimise the operational and engineered noise controls that can be implemented. This process was undertaken to inform the operational constraints to the Project that may be required to meet noise criteria. This process resulted in the following design outcomes:

- the Processing Area (RL 43) cutting into the existing surface, to increase acoustic shielding to the nearest sensitive receivers
- the initial relative height of the Northern Extraction Pit (RL 28) cutting into the existing surface, to increase acoustic shielding to the nearest sensitive receivers
- locating the site entrance as far as practicable from the nearest sensitive receivers
- the sequence of extraction in 15 m bench heights, to always maintain a face between the nearest sensitive receivers and extraction area.

The Amended Project design removes the Northern Pit and increases separation distance between the quarry and residences in Balickera. While the processing activities in the north of the Project Area will be located slightly closer to the residences at Nine Mile Creek, these residences are located significantly further away from the operations than the Balickera properties and the marginal reduction in separation distance is unlikely to have a material impact on noise impacts at these residences. The Amended Project will also result in the processing area being located within the Main Pit itself in the latter stages of the Project due to the Pit design now accessing the resources in this area (in lieu of extraction from the Northern Pit). All of these changes are predicted to result in benefits to the closest residence in terms of reduced noise impacts (refer to Appendix D in the Amendment Report).

Additionally, reasonable and feasible noise attenuation measures consistent with current best practice have been incorporated into the day-to-day operation of the Project. This includes environmental inductions for all employees and contractors, equipment operating procedures and maintenance and internal road maintenance. In addition, the strategic placement of stockpiles up to 8 m high along the southern side of the processing area is proposed although for a conservative assessment, the stockpiles (and associated noise attenuation they may provide) were not included in the modelling process.

In addition to the Project layout features which assist in noise management and mitigation, a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) will be developed and implemented which will include the following monitoring and management controls to manage potential noise impacts associated with construction activities and site operations:

- noise objectives and targets consistent with the Development Consent
- noise management measures in place during day-to-day operations at the site (as detailed above)
- provision of general noise awareness training for key operational staff
- noise monitoring processes implemented at the site to provide for ongoing noise management, including monitoring and determination of compliance with relevant noise criteria provided in the Development Consent and validation modelling to confirm noise model predictions and validate its accuracy

- change management processes for managing significant changes to plant/equipment to ensure noise exceedances are avoided
- stakeholder consultation
- complaint/enquiry handling process including maintenance of a 24-hour community contact line
- a roles and responsibilities matrix, with responsibilities being clearly defined through all levels within the operation.

5.1.4 Air Quality and Greenhouse Gas Emissions

There were 59 objecting community and stakeholder organisation submissions that raised air quality and greenhouse gas issues associated with the Project. These were generally related to the following key themes:

- increased dust emissions
- air emissions from diesel engines
- health impacts related to air emissions, including concerns about silica
- cumulative air quality impacts.

Each of these issues is discussed separately below, with the exception of cumulative noise impacts which are discussed in **Section 5.1.5.4**.

5.1.4.1 Dust

*The quarry will further increase dust contamination of people's homes which will result in the need for more cleaning of houses, both internally and externally. Dust settles on windows, rooftops, and can reduce the efficiency of solar panels. Aside from increasing the cost and time engaged in cleaning by residents, it is likely to have health impacts, and not only for asthma sufferers. **Save Balickera Inc.***

*The amenity of the local human community will be adversely affected by the dust generated ... **North Coast Environment Council***

We urge you to listen carefully to the concerns the residents have. The problems encountered from other quarries in the area include, but not limited to:

- *Regular complaints regarding dust settling on roofs with run-off into rainwater tanks used for household consumption.*
- *Dust induced illness such as nose bleeds, asthma and dust hanging in the air above the tree line of the surrounding area on calm days.*
- *Diesel particulates settling on furniture in houses (when windows left open for ventilation) along haulage routes.*

Residents in the Italia Road area have reported issues with animals experiencing dust induced health issues. While dust monitors are set to record particulates according to the minimum standards that are set by State Government agencies, residents close to the Brandy Hill quarry still dispute their accuracy and whether minimum standards are enough. On particularly windy days the dust issues are much further spread with accumulations never considered.

Voice of Wallalong and Woodville

*"Consideration of meteorological conditions in planning the loading and unloading of overburden and product materials, and that water carts will be deployed within the quarry site." Does the answer above, regarding meteorological conditions mean that the quarry will cease operations during times of high wind? **Voice of Wallalong and Woodville***

*The dust and noise from drilling and blasting, crushing, stockpiling and the loading of trucks will travel over the local area making life miserable for local residents. **Tomaree Ratepayers and Residents Association Inc.***

*Hunter Water Catchment setting up Solar farm, concerns that dust will impact their solar production and secondly that the water supply will be compromised by dust. **S-60227456***

*Not just from the quarry itself, but the trucks travelling past our residence as they create noise and release dust into the air. ... The amount of dust that settles on our roofs and in our house will only be increased, which in turn will mean we will need to clean more frequently than we already do. **S-60360720***

Air quality is typically quantified by the concentrations of substances in the ambient air. Air pollution occurs when the concentration (or some other measure of intensity) of one or more substances known to cause health, nuisance and/or environmental effects, exceeds a certain level.

The EPA has developed criteria for a range of air quality indicators that are used for the assessment of specific projects which have been drawn from national standards for air quality set by the National Environment Protection Council of Australia (NEPC) as part of the National Environment Protection Measures (NEPMs). The Project has been assessed in terms of its ability to comply with these air quality criteria.

The EPA air quality assessment criteria relate to the total concentration of pollutants in the air (that is, cumulative) and not just the contribution from Project-specific sources. Therefore, consideration of existing background levels of pollutants was also included in the assessment of potential impacts. In situations where background levels are elevated the proponent must *“demonstrate that no additional exceedances of the impact assessment criteria will occur as a result of the proposed activity and that best management practices will be implemented to minimise emissions of air pollutants as far as is practical”* (EPA, 2022).

In December 2015 the Australian Government announced a National Clean Air Agreement (Agreement) which aimed to reduce air pollution and improve air quality via a range of actions, including the strengthening of ambient air quality reporting standards for particle pollution. The Project was assessed against these strengthened criteria.

The results of the air dispersion modelling undertaken by Jacobs as part of the Air Quality and Greenhouse Gas Assessment (AQGGA) (refer to Appendix 8 of the EIS) showed that there are no predicted exceedances of the EPA’s impact assessment criteria for either 24-hour average or annual average and 24-hour Total Suspended Particulates (TSP), PM10, PM2.5 and dust deposition due to the Project alone. An updated assessment of the amended Project’s air quality impacts are contained in the Addendum to the AQGGA (refer to Appendix F of the Amendment Report). As the Project will move slightly further away from the closest residences at Balickera, the assessment of the Amended Project predicts that air quality impacts will be lower than those assessed in the EIS and will continue to be well within relevant assessment criteria for Project only emissions. Cumulative air quality impacts are discussed in **Section 5.1.5.4**.

It should also be noted that the EPA, in its submission on the Project, has stated that the Air Quality and Greenhouse Gas Assessment is considered adequate to enable recommended conditions of approval and the assessment of the Amended Project has adopted the same assessment approach as the original assessment reviewed by the EPA.

5.1.4.2 Other Air Emissions

*From the report it is our understanding that the quarry will rely on 2 on-site diesel generators until 2025. Has the diesel particulates from these generators been factored into the pollution from the site? **Voice of Wallalong and Woodville***

*Has anyone looked at the diesel emissions of this number of trucks to the environment around the Tarean Road interchange? The cumulative effect of this issue has not been addressed and is of huge importance to the health of all residents in that area, indeed to the road users along the highway. **Voice of Wallalong and Woodville***

*Various pollutants would be emitted into the air including dust, nitrogen oxides and sulphur dioxide. **S-60829748***

The Air Quality and Greenhouse Gas Assessment (AQGGA) undertaken by Jacobs (refer to Appendix 8 of the EIS) provides estimates of emissions from diesel plant and equipment exhausts, which included the two on-site diesel generators to be used in Stage 1 of the Project. By year 3 it is planned that the energy needs at the site would be provided by an electricity grid connection rather than the two on-site diesel generators and this change was reflected in the quantities of on-site fuel usage and emissions used in modelling. For reference, the estimated PM10 and PM2.5 emissions of all proposed diesel plant and equipment assessed in the original project design are provided in Table 5.2 of the AQGGA while NOx emissions are provided in Table 5.3 of the assessment (refer to Appendix 8 of the EIS). Updated assessments for the Revised Project are contained in Table 5.2–Table 5.5 (PM10 and PM2.5) and Table 5.7 (NOx) of Appendix F to the Amendment Report.

As documented in Section 5.5 and Section 6.5 of the AQGGA, diesel emissions from transport of quarry product on public roads was assessed using the Roads and Maritime Services air quality screening tool known as TRAQ (“Tool for Roadside Air Quality”). As there are no changes to proposed product haulage, this assessment remains applicable to the Amended Project. TRAQ adopts emission factors from the EPA’s Motor Vehicle Emissions Inventory to predict the maximum near roadside air pollutant concentrations based on traffic volume, traffic mix, traffic speed, road type, road grade and other factors. The modelling of road transport emissions also considers conservative, worst-case conditions including worst-case wind angles, stable atmospheric conditions, and low winds that allow for high air pollutant concentrations to occur.

The AQGGA predicted maximum concentrations of key air quality indicators along Italia Road and the Pacific Highway for operational stages 1, 5 and 9, and determined that there would be no exceedances of the EPA impact assessment criteria. As the additional emissions due to the Project would be lower at the Tarean Road interchange than on Italia Road (due to the fact that not all heavy vehicles from the Project would use this route) then it follows that there would similarly be no exceedances of EPA impact assessment criteria at this location.

5.1.4.3 Health Impacts

Unconvincing claims are also made in the EIS relation to the absence of any adverse impacts on air quality. However, we have received many anecdotal accounts of respiratory symptoms and bleeding noses from those residing in the locality, which would seem to merit some serious study by health authorities into the impact of the existing quarries on health before further quarries are approved.

Australia is currently experiencing an epidemic of silicosis claims which is being called the 'asbestosis of the 2020s'. Silicosis payouts in Australia currently range from \$500,000 to as much as \$2,000,000. There is growing awareness that silicosis does not only affect tradesman working in related industries. Recent media reports have highlighted how those living and working in proximity to quarries may also be affected. The estimated \$290 million benefit to NSW projected in the EIS could be much depleted by an avalanche of personal injury claims. Health professionals in the Hunter Region have begun blowing the whistle and all levels of government now have a duty of care to fully investigate the potential health risks before approving further quarry developments proximate to residential areas
Save Balickera Inc.

We would refer you to the health and wellbeing concerns that were recorded for the Brandy Hill Quarry as they are not perceived but actual. Rainwater tanks do contain dust as the rain flushes the dust from the roof into the tanks. The dust is dispersed and affects people, in particular children and those who experience asthma and other respiratory illnesses. This includes one family with 3 children who have only been diagnosed with respiratory problems since moving to the area within 2 kilometres from the quarry. **Voice of Wallalong and Woodville**

The quarry would emit pollutants into the air, including dust, noise, and pollutants such as nitrogen oxides and sulphur dioxide. These pollutants can contribute to air pollution, which can have a range of health impacts, including respiratory problems, heart disease, and cancer. **S-60244207**

There is no evidence to support a safe level of silica dust exposure. Can i see a class action litigation on the horizon?
S-60205228

We have health concerns associated with the excessive dust including the effects on asthma sufferers, which we have in our household **S-60360720**

The dust from the quarry could be transported by wind and could settle on nearby properties, potentially causing respiratory problems for residents. **S-60244207**

Blasting releases fine particles and dust into the air, which can be harmful when inhaled by both animals and humans. Inhaling particulate matter can cause respiratory problems and other health issues, especially for individuals with pre-existing respiratory conditions. **S-60803716**

I am concerned for the health and safety of residents on Italia Road from the atmospheric pollution due to dust from the mining, water pollution and the number of trucks passing along this narrow road. **S-60665489**

We have grave concerns for the loss of air quality and our ongoing health. There have been many recent reports and studies about the dangers of silicosis from the air quality in and around mines and quarries. How can you even consider increasing our risks with more mining in our area? Our homes were here first. How can this be fair?
S-60100499

As discussed in **Section 5.1.4.1** above, the EPA air quality assessment criteria are based on the national standards set by the National Environment Protection Council of Australia (NEPC) as part of the National Environment Protection Measures (NEPMs). The Ambient Air Quality NEPM has been developed with the desired outcome of allowing for the adequate protection of human health and well-being.

The results of the air dispersion modelling undertaken by Jacobs as part of the AQGGA (refer to Appendix 8 of the EIS) and Addendum to the AQGGA (refer to Appendix F of the Amendment Report) showed that there are no predicted exceedances of the EPA's impact assessment criteria for either 24-hour average or annual average Total Suspended Particulates (TSP), PM10, PM2.5 and dust deposition due to the Project alone. The assessment of cumulative impacts found no predicted exceedances of 24-hour average or annual average Total Suspended Particulates (TSP), PM2.5 and dust deposition and annual average PM10. Potential exceedances of cumulative PM10 24-hour average criteria were identified with background concentrations driving the potential exceedances at 3 residences. The modelling of cumulative impacts and proposed management measures to mitigate the risks of exceeding 24-hour criteria are discussed in detail in **Section 5.1.5.4** and Appendix F to the Amendment Report.

The NSW EPA has not published an impact assessment criterion for airborne crystalline silica. However, suitable guidance is contained in *Guideline for Assessing and Minimising Air Pollution in Victoria (for air pollution managers and specialists) Publication 1961* (EPA Victoria, 2022). The NSW EPA adopts impact assessment criteria for several other pollutants from EPA Victoria, and it is considered that the guidance contained for airborne crystalline silica is also suitable. The criterion for crystalline silica is based on the protection of human health.

Annual average respirable crystalline silica was predicted to comply with the EPA Victoria criterion of 3 ug/m³ at the identified sensitive receptors. In fact, concentrations were predicted to be around 30 times lower than that assessment criterion at the most-affected sensitive receptor. As such, the AQGGA concluded that the Project is unlikely to cause adverse off-site air quality impacts with respect to crystalline silica.

5.1.5 Cumulative Impacts

Cumulative impacts were a common concern in community and stakeholder group submissions, being raised in 61 objecting submissions and one commenting submission. Most submissions raised the potential for cumulative impacts from the operation of the nearby Boral Seaham Quarry and the proposed Eagleton Quarry in combination with the Project, however some also considered similar operations further afield at Brandy Hill, Martins Creek, Karuah, Limeburners Creek and Booral.

Cumulative impacts are discussed below in relation to the key themes of:

- biodiversity
- traffic
- noise and vibration
- air quality
- social impacts.

5.1.5.1 Cumulative Biodiversity Impacts

As you can see, HEL regards biodiversity as the most critical component of a healthy natural system and we are anxious about the impacts here locally on our bushlands with its flora and fauna values and point to the fact that this quarry is but one such proposed development in the Hunter.

*We also have seven other such proposed developments within our region, six of which are Greenfield developments, and one Brownfield. **Hunter Environment Lobby Inc***

*KKEPS is of the opinion that habitat connectivity has not been addressed in a way that considers Kings Hill and also the scoping report for the extended Seaham Quarry. The Proponent already recognises that the corridor is “partly constrained to the west of Italia Road by the Boral Seaham Quarry”. **Koala Coalition EcoNetwork Port Stephens Inc.***

*The pressure on remaining natural forests and wildlife habitat is increasing with housing estates, industrial areas and quarries destroying habitat with no end in sight. This is a cumulative problem that DPIE needs to factor into its final decision. **Voice of Wallalong and Woodville***

*I regard biodiversity as the most critical component of a healthy natural system and we are anxious about the impacts here locally on our bushlands with its flora and fauna values and point to the fact that this quarry is but one such proposed development in the Hunter. **S-60744706***

*Further cumulative impacts to connectivity of wildlife habitat and increases in residential traffic, is the potential impact areas associated with the Kings Hill Urban Release Area (not yet approved) and the M1 Motorway Extension to Raymond Terrace, to the south-west of Italia Road. These were briefly mentioned but not examined in detail as Port Stephens Council requested in 2020. **S-60193481***

*This region is currently subject to numerous development activities. It is therefore of paramount importance that all available forests and bushland must be saved, to balance the areas already resumed for housing and associated projects. **S-60066460***

As stated in **Section 5.1.1**, a Biodiversity Development Assessment Report (BDAR) was prepared for the Project by Umwelt (2023). The BDAR provides an assessment of the biodiversity values of the Project Area, documents the application of the avoid, minimise, and offset framework and assesses the likely biodiversity impacts of the Project. The BDAR also includes a specific assessment of predicted impacts on EPBC Act listed threatened species and communities having regard to relevant Commonwealth assessment requirements. The BDAR has been revised to assess the predicted impacts of the Amended Project design on biodiversity values and is included in Appendix I of the Amendment Report with a summary of key outcomes provided in Section 6.7 of the Amendment Report.

The biodiversity assessment commenced during the early Project design stage, allowing the Disturbance Area to be refined and minimised to reduce/avoid biodiversity impacts particularly in areas with higher ecological value. Cumulative biodiversity impacts have been further reduced through the Amended Project design which reduces the Projects impacts on habitat movement and achieves a further reduction in habitat removal of more than 10 hectares.

The BDAR assessed that the Project has potential to reduce but not totally remove habitat connectivity for flora and fauna species, particularly between the Wallaroo State Forest and areas to the west of Italia Road. The assessment of potential impacts on connectivity has regard to cumulative impacts and is discussed in more detail in **Section 5.1.1.3**. Due to the nature and layout of the site, which is surrounded by undeveloped land, there will be no significant changes to landscape connectivity for wildlife movement.

The assessment indicates the Project will lead to a long-term decrease of suitable koala habitat in the local area. The Project is not likely to result in an impact which will directly reduce the size of a population of the koala, but the assessment acknowledges the removal of suitable habitat will likely have a significant impact on the koala (*Phascolarctos cinereus*) at a local and State scale but not a National scale. However, there are larger areas of suitable habitat available for this species in the locality, including within the Wallaroo National Park (2,780 ha), the Karuah National Park (3,534 ha), the Medowie State Conservation Area (2,851 ha), the Karuah State Conservation Area (74 ha), the Medowie Nature Reserve (238 ha) and the Karuah Nature Reserve (824 ha), all of which have long term conservation status which protect them from future development.

DCCEEW also identified that the Project will have a significant impact on the Grey-headed flying-fox. Although the Project Area provides foraging habitat for this species it is unlikely to contain significant breeding and roosting habitat and is unlikely to contain an important population.

Overall, habitat connectivity will be reduced, but still maintained for the Koala, Squirrel Glider, Grey-headed flying fox and Brush-tailed Phascogale. It is considered that the proposal would not contribute to an adverse cumulative impact to habitat connectivity across the M1 Motorway and the broader region, however would contribute to the cumulative reduction in habitat patch size and crossing width within the local vicinity of Italia Road and the existing Boral Seaham Quarry.

Other species which may have used the Project Area as a corridor for movement including the spotted-tailed quoll (*Dasyurus maculatus maculatus*) (SE mainland population), swift parrot (*Lathamus discolor*), white-throated needletail (*Hirundapus caudacutus*) and the large-eared pied bat (*Chalinolobus dwyeri*) will not be significantly impacted by the Project as there are larger areas of suitable habitat available for these species in the locality as described above.

Additionally, a range of mitigation measures are proposed to reduce any potential impacts to the koala, as outlined in **Section 5.1.1**. Additionally direct offsets following the like-for-like credit rules and no-net-loss principle will also be provided.

5.1.5.2 Cumulative Traffic Impacts

The general public will have to contend with another 300 heavy vehicle trucks at already potentially dangerous intersections travelling at 100 kph at all hours of the day except Saturday evenings, Sundays and public holidays.

Vehicles (including hundreds of quarry trucks if recent development applications are approved along Bucketts Way) entering and leaving the Highway at Bucketts Way, Twelve Mile Creek and Medowie Road, Ferodale will have difficulty heading north or south on the Highway.

Both intersections currently allow traffic to enter the highway where vehicles are travelling at the designated speed of 100 kph. The potential of over at least 1,300 truck movements (cumulative accounting for recent quarry applications noted in introduction) in the next few years, without adequate infrastructure in place, is potentially disastrous for the general public.

Many tourists visit our regions – bottlenecks during holiday periods already occur at Hexham Bridge, Pacific Highway Koorangang, the roundabout at Heatherbrae, and at the intersections of Bucketts Way and Medowie Road onto the Pacific Highway. It is irresponsible for decision makers to consider quarry developments in isolation of the cumulative impacts of other approved or soon to be approved quarry developments.

The Traffic Impact assessment does not reflect the reality of the project contributing to potentially dangerous traffic conditions for other users of the Pacific Highway due to high number of Quarry developments occurring in the region. Gloucester Environment Group

The cumulative volume of heavy truck traffic is also of major concern to the residents of the Tomaree Peninsula community who must share the regional road network with these vehicles. Truck movements to be generated from the Stone Ridge Quarry will add to the impact of 2 other quarries in the area which have trucks using Italia Road as an exit point onto the M1 Freeway.

The Seaham Boral Quarry and Brandy Hill Quarry are already in operation and trucks from these quarries turn left out of Italia Rd, drive down to the Karuah interchange where they are joined by trucks from Karuah East Quarry and several other quarries operating in the area all driving south to Hexham and eventually the Central Coast or Sydney. Between Heatherbrae and Hexham, they are joined by sand trucks exiting Tomago Road and Old Punt Road from the 8 sand quarries along the coast, closer to Stockton and Williamtown. Tomaree Ratepayers and Residents Association Inc.

The approval of this quarry would enable a cluster of 5 other quarries currently in various stages of planning to progress, resulting in cumulative traffic, dust, noise and habitat loss impacts. Cumulative daily heavy truck haulage has been estimated to grow to well over 2000 per day should this approval be granted. Local residents have estimated that this will mean 30 heavy truck movements out of Italia Road and onto the highway every hour.

EcoNetwork Port Stephens

The cumulative effects of the existing and anticipated quarries must be quantified and included. ...

We have found no modelling to substantiate this. No extra truck numbers have been mentioned or the impact on other road users other than to make a sweeping statement that the road network will be able to cope with the extra traffic generated by Stone Ridge. Voice of Wallalong and Woodville

The cumulative impacts of trucks from three quarries with entry to quarries directly opposite each other has not been taken into consideration. Residents have voiced their concern, but the answer given is quite inadequate from a realistic point of view as the public that use this road will be caught up with trucks from 3 quarries, cumulative. In fact, the proponent has only mentioned the upgrade to the highway intersection. ... This issue needs to be addressed. Full and empty trucks will be accessing Italia Road from both directions. Even with a dedicated turning lane for empty trucks accessing the Stone Ridge quarry there will be delays as fully laden trucks will be exiting the entrance opposite at several trucks/minute. Voice of Wallalong and Woodville

The prospect of the potential cumulative increase in truck movements if this proposal is approved together with the planned expansion of the Seaham Boral quarry opposite which is also proposed to increase to 1.5mtpa and the adjoining Eagleton quarry adding an additional 0.6mtpa will have a significant impact on the road system.

S-60361969

The Traffic Impact Assessment (TIA) prepared for the EIS included existing background traffic (which includes the currently operating Boral Seaham Quarry) and allowances for future traffic growth however it did not specifically include the proposed Eagleton Quarry, proposed expansion of the Boral Seaham Quarry or Brandy Hill Quarry trucks using Italia Road. In response to submissions made by Boral and Transport for NSW, additional modelling of the Project/ Boral Seaham Quarry intersections and Italia Road and the Italia Road/Pacific Highway Intersection have been undertaken and included in the Intersection TIA supporting the Intersection DA (refer to **Section 3.4** and **Section 4.9**) which include allowances for the estimated traffic generation from Eagleton Quarry (Pacific Highway Intersection only) and increased traffic associated with the proposed Boral Expansion and also Brandy Hill quarry trucks using Italia Road. An updated assessment of the site access road and Boral Access road intersections with Italia Road has been undertaken which includes consideration of the proposed increase in Boral Quarry traffic and also traffic associated with the Brandy Hill Quarry (refer to **Appendix 3**). Consistent with the original modelling results presented in the TIA submitted with the EIS, the external road network can comfortably accommodate this level of additional traffic.

5.1.5.3 Cumulative Noise/Vibration Impacts

*The site of the proposed Stone Ridge Quarry is across the road from the existing Boral Seaham Quarry. It will inevitably contribute to the already unacceptable noise and vibration from current traffic and blasting. Boral has also recently written to residents notifying them of its own plans to massively expand its operations. The cumulative impact will be devastating to residents who have been anticipating the long-awaited closure of Boral's Seaham Quarry, rather than the expansion of quarrying activity on both sides of Italia Road. **Save Balickera Inc.***

*We are very concerned about the cumulative long-term impact of the blasting on our convict built house, which is of significant heritage value (see more on this below). Vibration is one of the main factors causing fatigue in heritage structures and prolonged exposure can result in cracks that may ultimately lead to collapse. **Save Balickera Inc.***

*It is treated as if it is an abstract concept, but people's realities are concrete for example the 92-year-old resident living on Italia Rd reports her house shakes every time a blast is set off at Boral Quarry. This would be compounded by the blasts from ARDG no matter how deep the pit is because vibrations have no boundaries. **Voice of Wallalong and Woodville***

*We already experience high noise levels, some of which include trucks entering Italia Rd from the Pacific Hwy and passing our home from as early as 4am, waking our entire household just to arrive at the current quarry which is closed at this time. With the current level of heavy vehicles travelling past our residence, the addition of the new quarry's estimated truck movements (although somewhat unclear) will only exacerbate these issues. **S-60360720***

The Noise Policy for Industry (NPfI) (EPA, 2017) uses amenity noise levels to limit continuing increases in noise levels by considering the contributions from all industrial noise sources within an area. According to the NPfI the recommended amenity noise levels will protect against noise impacts such as speech interference, community annoyance and some sleep disturbance.

The NPfI recommended amenity noise levels have been selected on the basis of studies that relate industrial noise to annoyance in communities (Miedema HME and Vos H, 2004). They have been subjectively scaled to reflect the perceived differential expectations and ambient noise environments of rural, suburban and urban communities for residential receivers. They are based on protecting the majority of the community (90%) from being highly annoyed by industrial noise (EPA, 2017).

As such, the recommended amenity noise levels represent the objective for **total** industrial noise at a receiver location, whereas the project amenity noise level represents the objective for noise from a single industrial development at a receiver location.

To ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies to each new source of industrial noise as follows:

Project amenity noise level = recommended amenity noise level minus 5 dB(A).

In areas of high traffic noise levels (as is the case at Noise Assessment Group (NAG) 2 and NAG3 receivers surrounding the Project) an adjustment of 15 dB lower than the road traffic LAeq is applied to assessment periods that meet the traffic noise provision criteria, in line with Section 2.4.1 of the NPfI.

The cumulative noise limits calculated in accordance with the above were provided in Table 3.7 of the Noise Impact Assessment (NIA) prepared for the EIS (refer to Appendix 5 of the EIS). The NIA reported that there were no predicted exceedances of the cumulative noise criteria at any receiver.

It should be noted that the EPA's assessment of the EIS did not raise any cumulative noise issues.

Cumulative assessment of blasting impacts was not required as a commitment has been made by the Proponent to manage the timing of blasting to avoid simultaneous blast events with neighbouring quarries. The Project is able to comply with all vibration and airblast criteria.

5.1.5.4 Cumulative Air Quality Impacts

*The cumulative impact on the air quality of the increasing numbers of quarries, both existing and proposed, poses a foreseeable risk to the health of residents and the potential liability for compensation claims will outweigh the economic advantages of any such development. **Save Balickera Inc.***

An updated assessment of cumulative impacts is included in the Addendum to the AQGGIA. As with the original assessment, the assessment of cumulative impacts has conservatively added the highest daily and annual rates of emissions recorded at the EPA's Beresfield monitoring station to the highest predicted impacts at all receivers from Eagleton Quarry, Boral's Seaham Quarry, Brandy Hill and the Project. The Addendum to the AQGGA includes consideration of the 2023 monitoring data from the EPA's Beresfield station which has a higher PM10 annual average and 24-hour average concentrations and higher annual average PM2.5 concentrations than those adopted for the original AQGGA which used data from 2021. The higher of the two data sets for each particular emission assessed was carried through to the cumulative assessment for the Amended Project and this has resulted in higher predicted cumulative impacts for PM10 and annual average PM2.5. The updated assessment concludes that the amended project is unlikely to result in exceedances of cumulative criteria for particulate matter and NOx with the potential exception of 24-hour PM10. The method used for 24-hour PM10 cumulative predictions indicates a potential exceedance of the EPA's 50 µg/m³ criterion at receivers R1, R18 and R20 under worst case conditions where predicted worst case background conditions coincide with modelled worst case modelled impacts at these receivers from the four modelled quarries. Assumed worst case background levels (41 µg/m³) are the primary driver of the exceedances and the Project's predicted contribution to the exceedances are 2.6 µg/m³, 7.9 µg/m³ and 3.4 µg/m³ respectively at the three receivers. In practice, it is unlikely that the peak predicted impacts from all four modelled quarries would coincide with the highest 24-hour background levels. This is particularly the case for the three receivers identified as having potential exceedances of criteria using this method as these receivers are located between Stone Ridge Quarry and the Boral and Eagleton Quarries and prevailing winds driving high levels of PM10 from Stone Ridge would align with lower contributions from these other sources.

To minimise the risk further, ARDG propose to use the PM10 levels recorded at the EPA's Beresfield Station (which are reported in real time) as a trigger for additional operational controls and scale back potential dust generating activities and/or implement additional dust suppression measures when 1-hour average background levels exceed 80 µg/m³. 1-hour averaged PM10 concentrations above 80 µg/m³ provides an indication that the 24-hour averaged 50 µg/m³ would be exceeded and are therefore an appropriate trigger for the implementation of additional measures to reduce the Project's contribution to cumulative impacts.

5.1.5.5 Cumulative Social Impacts

*Though limited, the SIA does document the opposition within the community, including to the various other quarry developments that have been proposed at Seaham, Eagleton, Brandy Hill and Martins Creek (pages 24-26), for the many reasons touched upon in this objection. All but the last of these has apparently secured approval to date. The cumulative harm of so many damaging developments in the area is more than the community can be expected to bear, particularly when many were told, when buying property, that the existing Boral quarry was due to wind up operations in a few years. **Save Balickera Inc.***

*This area of Port Stephens will be left with one void at Brandy Hill and three at Balickera. Cumulatively should be included the final voids at each of the Karuah, Deep Creek and Booral (should they be approved) sites. How can this be in the public interest now and into the future? **Voice of Wallalong and Woodville***

The Social Impact Assessment (Umwelt, 2023) assessed that key concerns relating to Traffic Safety (including cumulative traffic impacts) were rated as medium after applying management and mitigation measures. Other cumulative impacts which were considered to have potential impact on the local community included cumulative dust and cumulative noise.

The intersection between Italia Road and the Pacific Highway was particularly reported as a high concern for near neighbours with cumulative traffic impacts of residential and business traffic applying additional pressure to the road and intersection (Umwelt, 2023). The evaluation undertaken within the EIS, indicated there is still potential for medium impact in relation to perceived cumulative traffic impacts however through the application of the relevant management and mitigation the significance of the impact is reasonably mitigated, and impacts will largely be limited to the eastern end of Italia Road.

The cumulative impacts of heavy vehicle movements generated by the Project, the Boral Seaham Quarry and the proposed Eagleton Quarry have been assessed and results indicate that the external road network can comfortably accommodate the level of traffic associated with all three operations (GHD, 2023b).

In regard to cumulative noise and dust impacts, ARDG is committed to adopting feasible and reasonable noise and dust mitigation and management strategies to minimise noise as much as possible in accordance with best practice. The proposed mitigation and management strategies for noise and dust are provided in Appendix 3 of the EIS and Appendix C of the Amendment Report and no exceedances of noise criteria or adverse air quality impacts at the nearby residential or industrial/recreational receivers are predicted are expected once these measures are implemented (see Section 7.1 of the EIS).

5.1.6 Water Resources

There were 37 objecting community and stakeholder organisation submissions that raised concerns with impacts to water resources.

Key themes explored in these submissions were related to:

- water quality, particularly in relation to drinking water for local properties reliant on rainwater tanks for domestic water supply
- changes to catchment areas and runoff
- impacts to groundwater.

Responses to the issues raised for each of these themes are provided in the sections below.

There was one supporting submission that raised the protection of water security as a positive impact of the Project however details were not provided. One commenting submission also discussed flooding and the potential impacts to traffic volumes on Italia Road as a result of road closures.

5.1.6.1 Water Quality

Balickera residents are reliant on tank water and are understandably concerned about the impact of dust on their drinking water. Furthermore, the proximity of the proposed quarry to the open Balickera Canal, within the catchment for drinking water for the Grahamstown Dam and the Hunter Region, is yet another cause for serious alarm.

*Umwelt's assertion in Appendix 9 that the proposed development will have a neutral or beneficial impact on water quality stretches credulity to the limit, particularly in view of the concession that there will be a reduction in catchment and the inevitability that some sediment from the quarry will end up in the canal (Annexure 9, page 6). The risk of contamination of Grahamstown Dam with toxic quarry run off would be very high during super storm events such as that experienced in 2015 and 2016. In view of these risks, sections 7.8 and 7.10 of the Port Stephens Local Environmental Plan 2013 mandate that development consent must not be granted. **Save Balickera Inc.***

Water quality is a major concern, as this proposed project is adjacent to the Balickera Channel – a major water supply to Newcastle and beyond. Caswell 's Creek also falls in this area – this creek runs into the Balickera Channel and then across my farm. Dust pollution not only affects water quality in the Balickera Channel, but also on my farm, as well as domestic water supplies from water tanks. ... the risk of spills should also be accounted for, as this could be detrimental to water quality, particularly if not contained and dealt with in a timely and proper manner.

S-60266214

*Blasting may affect the groundwater and surface water quality in the area. Dust and debris can contaminate nearby water sources, leading to potential harm to aquatic life and affecting the quality of drinking water for nearby communities. **S-60803716***

*Nearby Balickera residents are reliant on tank water. The proximity of the proposed quarry to the Balickera canal, within the catchment for drinking water for the Grahamstown dam and the hunter region raises serious health concerns. The potential cost to the community and wildlife vastly outweighs possible economic benefits. This will adversely affect humans and native animals. **S-60829748***

*Groundwater, water drainage and runoff of sediments into the creeks that flow into the dam is causing immense worry and anxiety, health issues will no doubt come from any contaminants in the water. **S-60210009***

*Most properties on Italia Road use rainwater tanks any significant increase in airborne dust would therefore pollute the drinking water of most residents. **S-59997958***

*The proposed quarry is located within the Hunter Water Catchment which feeds into Grahamstown Dam. This increases the risk of contamination to water supply, which is concerning for the local health district and population health. **S-60808212***

*Our house has only tank water as town water is not available in our area. Dust from the quarry will settle on the roof of our house which is our catchment for our drinking water. This dust will mix with our drinking water and directly affect my family and friends health. **S-60076239***

All modelled scenarios included in the Air Quality and Greenhouse Gas Assessment (AQGGA) indicate that the Project will not result in any exceedance of relevant dust criteria (including depositional dust) at neighbouring sensitive receivers even under a worse-case scenario.

Nonetheless, measures to minimise and effectively control emissions during construction and operation will be implemented which will also minimise the risk of contamination of private water tanks. Such measures include:

- Adopting controls for haul road dust emissions.
- Consideration of meteorological conditions in planning the loading and unloading of overburden and product materials.

- Applying water and using dust curtains when drilling overburden.
- Utilising water sprays and water carts as needed on exposed areas and stockpiled materials.

As outlined in Section 6.5 of the EIS, a conceptual operational Water Management System (WMS) has been developed for the Project and uses a series of clean water drains, sediment basins and standard erosion and sediment controls to:

- direct undisturbed catchment runoff around disturbed operational areas, where practicable
- contain and reuse as much 'dirty' water runoff from disturbed operational areas as possible to minimise water import demands
- minimise the volume and frequency of controlled discharges from the WMS to the receiving environment
- minimise the risk of uncontrolled discharges from the WMS in high rainfall events
- treat water prior to controlled discharge to maintain water quality.

Surface water quality monitoring and modelling have informed the surface water impact assessment for the Project. Key findings in relation to water quantity and water quality are:

- The Project will have an adequate and reliable water source (i.e., captured rainfall runoff and groundwater bore) for all stages of the Project.
- The Project will have no impact on local or broader catchment flood regimes.
- Potential stream stability issues associated with discharges are expected to be manageable and any required mitigation measures (e.g., scour protection, discharge flow rate limits) will be informed by the hydrologic and hydraulic assessment undertaken prior to construction.
- As the Project is located within the HWC drinking water catchment (i.e., Grahamstown Dam and the Williams River) a Neutral or Beneficial Effects (NorBE) assessment was undertaken. The assessment determined that the Project can satisfy NorBE requirements with the implementation of the proposed management measures.

5.1.6.2 Changes to Catchment Areas/Runoff

*Any development that threatens to drain much needed surface water from the community's drinking supply must clearly be refused. **Save Balickera Inc.***

*Run off of water from proposed quarry. Having a creek running through our property we are concerned as extra water could potentially cause issues in periods of heavy downpours which we experienced in 2015. **S-60360720***

*No consideration has been given to the drainage/surface water run off that will flow through private rural property on its way to the final water course. This will have impact on run off water that is captured in dams for riparian use and can affect water quality for livestock. **S-60796484***

Run-off from areas disturbed by quarry activities is captured in on-site detention ponds to manage offsite water quality issued (predominately sediment). As a result, the project will generally reduce flows down slope of the Project disturbance areas relative to current conditions during rainfall events.

The updated water balance modelling prepared for the Amended Project (Refer to Appendix G of the Amendment Report) predicts that for the Stage 1 scenario there will be a reduction in catchment yield during all years (an average reduction of approximately 23.5 ML/year). Reductions in catchment yield are predicted for Stage 9 for all but the wettest years (an average reduction of 17.0 ML/year for Stage 9). There is no reduction in catchment yield for the wettest years in Stage 9 as the higher runoff rates associated with disturbed and hardstand surfaces within the quarry WMS result in the requirement to discharge volumes of water that exceed natural catchment runoff for an area equivalent to that of the WMS. Water captured within detention basis is used for on-site dust suppression and other operational purposes however water in excess of requirements will be treated and discharged. Discharges will be discharged into the creek downstream of detention basin SB1 which is located on a tributary to Nine Mile Creek and will be timed to avoid high flow events. No discharges to Caswell Creek will occur.

It is considered that the loss in catchment yield for Grahamstown Dam and the Williams River during dry years will be negligible. The percentage reduction in Nine Mile Creek and Caswells Creek catchments is higher, however, still minor and less than the reductions associated with the original quarry layout.

Assessment results indicate that the Project can on average achieve a Neutral or Beneficial Effect (NorBE) on water quality (as required for developments within the Grahamstown Dam catchment) provided adequate site storage capacity is available for all stages of the quarry operation, an appropriate water treatment system is installed and maintained to ensure controlled discharge water quality targets are achieved and appropriate water inventory management is implemented to minimise the volume and frequency uncontrolled discharges.

5.1.6.3 Groundwater

The mine is planned to drill deeper than the water table, which will affect ground water right before an El Nino event. S-60033221

The quarry would use groundwater for its operations, and it could also pollute groundwater with sediment, chemicals, and other contaminants. This could contaminate drinking water supplies and damage aquatic ecosystems. S-60244207

The quarry would be located near a major aquifer, which could be contaminated by the quarry's operations. S-60244207

An updated assessment of potential groundwater impacts associated with the Project has been prepared for the Amended Project (refer to Appendix H to the Amendment Report). This updated assessment included revised predictions of groundwater drawdown associated with the revised pit design and a proposed water extraction bore which may be used to supply water to the project to meet shortfalls in operational water requirements. Although excavation works in the later stages of the Project (Stage 5 onwards) will interact with the water table, the associated area of drawdown is not predicted to impact on other groundwater users. Any take of groundwater associated with the project (through passive inflow or direct take through extraction for operational purposes) will require ARDG to obtain a Water Access Licence (WAL) under the Water Management (WM) Act to account for the water take associated with the Project.

The Project is not expected to cause any significant change in groundwater quality or in the beneficial use of the groundwater. Quarrying activities may increase groundwater recharge in the post closure phase which may result in a localised improvement in groundwater quality. Due to the relatively small, predicted radius of drawdown, it is not expected that the project will result in the interaction between fresh and saline groundwater sources.

ARDG will implement a groundwater monitoring program which will include regular monitoring of water levels and water quality.

5.1.7 Blasting and Vibration

Blasting and vibration concerns were raised in 36 objecting community and stakeholder organisation submissions. The most frequently raised themes in relation to blasting and vibration were:

- impacts on domestic and farm animals
- impacts on neighbours (both to property and injury) and on forest users
- impacts on Hunter Water infrastructure.

One commenting submission also raised the issue of blasting vibration in relation to impacts on farm animals particularly during breeding periods.

Blasting impacts on native biodiversity are discussed in **Section 5.1.1.5** above while blasting impacts on historic heritage are addressed in **Section 5.1.10.1**. Cumulative impacts in relation to vibration caused by blasting are discussed in **Section 5.1.5.3**.

5.1.7.1 Impacts on Domestic and Farm Animals

*My brother, Jim Kerr who is a vet and currently operates the family farm, is also concerned about the stressful impact on our cows ... In addition to the cattle grazing at Balickera, most residents have other domestic animals including many horse stables along Italia Road, which will be adversely impacted. **Save Balickera Inc.***

*Blasting generates loud and sudden noises that can be distressing and disruptive to both animals and humans. Animals that are particularly sensitive to sound may experience stress, changes in behavior, and reduced reproductive success. **S-60803716***

My partner and I operate a dairy goat dairy and also have breeding cattle and horses on our property. This has not been identified in the blast impact assessment.

*We have invested a considerable amount of time and money over the past 10 years focusing on importing top goat genetics out of the United States and as a result have a long list of clients eager to purchase yearly prodigy, our main concerns with the development is the impact it will have on our animals, I understand testing and calculations have been completed and ground vibrations, noise and dust will all be within Australian standards however it is still of major concern, especially during kidding and calving season when the animals are heavily pregnant. **S-60327956***

*The Kerr family have run cattle on this property (Balickera) for many years, if this proposal goes ahead and the ridge is removed, I believe it will create a lot of unnecessary stress and possible respiratory issues for the cattle and that in turn will prevent income being generated to keep the farm producing due to excess dust, noise, vibration and any other environment impacts caused from the proposed and extended quarries. **S-60506467***

The potential impacts to grazing animals was specifically considered in the Blast Impact Assessment prepared for the Project due to a recognition that animal grazing and breeding activities are located within the area surrounding the Project Area. There are a number of private rural residences in the area, the presence of pet animals on the premises may be expected.

ANZECC guideline limits (ANZECC, 1990) which apply to private residences are designed to protect human comfort and, as such, it can be inferred that blasting impacts can be fully managed in relation to livestock and pets/animals within these properties. The updated estimates of ground vibration and airblast overpressure impacts for the Amended Project (refer to Appendix E in the Amendment Report) predict that impacts can be effectively managed to be below 5mm/s and 106 dBL respectively, (i.e., below the ANZECC guideline limits for human residences); the predicted vibration levels and overpressure levels at most residences are predicted to be well below these criteria.

While the concerns of farmers regarding potential livestock disturbance by blasts are understandable, studies undertaken to assess potential impacts from blasting on feedlots have identified that blasting impacts have little to no impact on domestic stock (Nelson, 2011). Additionally, here are no known recent complaints received by mining operations regarding blast related disturbances of livestock. Similar effects would be expected for native fauna and, anecdotally, it is noted that many fauna species have been recorded adjacent to active mining operations where larger and more frequent blasts than those proposed for the Project are undertaken. Due to the periodic (weekly or fortnightly) and very short duration (1–2 s) nature of blasting proposed, blasting associated with the Project is not anticipated to have any significant impacts on livestock, domestic or native fauna.

Planned blast time will be communicated to the public well in advance of the planned blasts. ARDG will liaise with near residences regarding the most appropriate means for communicating planned blast times. ARDG welcomes any feedback from residents if blasts are observed to be having an impact on domestic or native animals.

5.1.7.2 Impacts on Neighbours and Forest Users

I have concerns about ground vibration and overpressure as a result of blasting, as, if the blasts are not properly designed and controlled, then neighbouring properties have the potential of significant damage – this is irreversible. I am requesting access to the blast impact assessment. S-60266214

Blasting operations carry inherent safety risks for quarry workers and nearby residents. Accidents, such as flyrock incidents or misfires, can occur, leading to injuries or property damage. S-60803716

The blast impact assessment also states the evacuation of near by residents but fails to discuss how it will manage the risk of fly rock during blasts to forest users who may be in close proximity during blast periods. S-60327956

Blasting constantly undermining house foundations and giving rising costs and complex maintenance issues. S-60205228

The revised BIA indicates blasting practices can achieve relevant criteria at all residential receivers. The assessment indicates that only limited blast management measures (in the northwestern corner of the pit) will be required to satisfy the applicable ground vibration and airblast overpressure criteria with the predictions indicating that a higher MIC of up to 75 kg can now be used without exceeding vibration and overpressure criteria at the closest residence (R18).

The recommended blast emission control measures for the Project to minimise blasting impacts (including ground vibration, airblast overpressure and flyrock impacts) on the surrounding environment are as follows:

- Use of ground vibration and airblast predictive models to estimate potential impacts for critical receptors.
- Use of appropriate charge mass design and avoidance of overcharging holes.
- Use of an appropriate initiation sequence to minimise the possibility of hole interactions, ideally aiming for single hole initiation.
- Application of appropriate quality stemming material and stemming height to facilitate explosives confinement and therefore minimise airblast overpressure emissions, stemming ejection and/or flyrock incidents.
- Maintain appropriate burden specification for the front row holes to avoid face bursts and related flyrock incidents.

Other management measures to be implemented will include the following:

- Blast Monitoring System – consisting of three monitoring stations to capture ground vibration and airblast overpressure impacts from blasting at the Project site. The BIA recommends that the stations are located to the north-west (representative of private residences in the Balickera area, HWC infrastructure and Balickera House), south-east (representative of private residences in the Ferodale area) and south of the Project (in the vicinity of R1).
- Pre-Blast Assessment Protocol – to manage blasting and to minimise the impacts on the surrounding area. The protocol would be reviewed on a regular basis to address the physical changes in the quarry.
- Road Closure Management Plan – to be developed in consultation with the relevant road authorities and PSC to manage blasting impacts on public roads which, depending on the operational stage of the quarry, will be located within 0.5 km of the extraction area.
- Residence Notification System – to provide information on the dates and times of proposed blasting to the private residences in close proximity.
- Liaison with adjacent quarries – to prevent concurrent blasting times to avoid cumulative blast impacts and to minimise impact on the local community.
- Flyrock impact on adjacent residences is considered to be fully managed, and potential risks mitigated, through the application of appropriate exclusion zones. The closest private receptors in the later stages of the Project are located over 400 m from the proposed extraction area (R17, R18 and R21). It is noted that flyrock management for these residences will coincide with flyrock impact management on Italia Road (public road) under the umbrella of the Road Closure Management Plan. Therefore, it is concluded that the flyrock risks for residential receptors will be managed adequately through the controls also necessary under the road closure management plan processes.

5.1.7.3 Impacts on Hunter Water Infrastructure

*In Appendix 7 Umwelt assesses that there is a low risk of blast vibration impacts on the Balickera channel and the tunnel that runs underground near the project site. Even suspending disbelief and accepting that the risk is low, any risk is unacceptable in view of the essential nature of the infrastructure in question. Hunter Water carried out remediation works on the tunnel in 2021-2022, but some sections have already been identified as still requiring further remediation and can therefore be expected to be vulnerable. Furthermore, Table 5 on p19 in Appendix 7 indicates that should the vibration be moderate or high, the risk rises accordingly. **Save Balickera Inc.***

*I would also have concerns about the Balickera Tunnel that runs below the proposed entry to the quarry – with the amount of traffic anticipated, I cannot see how they can guarantee the integrity of this channel. **S-60266214***

Blast and vibration modelling of blasts required for the Amended Project indicates that adopted criteria vibration and overpressure can be achieved under all assessed blast charge sizes for all infrastructure and heritage items. Importantly, this includes Hunter Water's Balickera Tunnel, where blast modelling estimated maximum vibration at the tunnel of 10.8 mm/s, which is well below the damage criteria for underground rock strata and concrete material, being in the order of a few hundred mm/s (>200 mm/s). In practice, blasts will be managed to result in vibrations levels at Balickera tunnel of no greater than 10 mm/s to avoid potential impacts on bats resident within the quarry. Accordingly, no impacts to Hunter Water infrastructure or heritage items is expected with the controls proposed.

5.1.8 Social

The perceived negative social impacts of the Project were raised in 29 objecting community and stakeholder submissions, while there was one submission that raised positive social impacts for future generations in support of the Project.

The key themes related to social impacts were:

- general impacts on quality of life and wellbeing for local residents
- suggestions for community enhancement opportunities.

Each of these themes is discussed separately below.

5.1.8.1 General Impacts on Quality of Life

Here are some issues that arose in the SIA for the expansion of the Brandy Hill Quarry that may shed some light into the way the residents closest to the proposed Stone Ridge quarry site may feel or be affected. Reports showed the community had varying levels of:

- *Anxiety and depression.*
- *Sleep deprivation*
- *Anger at the loss of control over their own health and wellbeing.*
- *Fear for the health of children who already suffer from asthma – extra dust exacerbates this condition to the point of being chronic with days absent from school.*
- *Fear of tank water contamination – often collected from the roofs of buildings coated in quarry dust.*
- *One mental health breakdown due to the effect of blasting on her house and her health.*
- *Anger at noise of crushers and loading trucks well into the night.*
- *Anger at the frequency and the noise of trucks on substandard roads.*
- *Anger at the broken windscreens from loose gravel deposited on the road.*

*If you take these examples into consideration the outcome could be that the rural community at Balickera can no longer be considered a healthy, cohesive community. Lives will be shattered, and relationships become fraught. How do you mitigate this? And the cumulative effect of the other quarries has not yet been addressed. These are serious social impacts that are not being addressed at all. **Voice of Wallalong and Woodville (S-60226457)***

*The negative social impacts associated with Stone Ridge Quarry if approved will add to existing heavy haulage traffic, noise, vibration, light and dust pollution already experienced by community members in the vicinity, from the operation of Boral's Seaham Quarry, located within 2 kilometers and presently preparing an EIS in support of a requested life extension and production increase. The EIS states that the "...closest residential receivers are located on Italia Road at Balickera, approximately 400–1,100 m from the Disturbance Area." We contend this is very close, and that with the cumulative impacts associated with neighboring quarries and two motor race tracks, the Stone Ridge quarry project proposals have left community members feeling as if they're being taken for a ride. **Hunter Community Environment Centre***

*In addition to the environmental concerns, the construction of the Stone Ridge Quarry may significantly impact the quality of life and well-being of nearby residents. **S-60803716***

*Socially the community will be affected, their way of life, accessibility, culture and health. **S-60210009***

*It doesn't matter which way we look at this, our lifestyle will be negatively impacted. Working from home on a fulltime basis means the ability to have meetings without noise interruption will be a constant concern. This could potentially affect our ability to earn an income. ... We cannot see how we will be able to live with the huge impacts this will bring. We are not prepared to just to accept this as our future for the remainder of our lives. The stress and anxiety this proposal has already caused is immeasurable. To hear our teenage children express concerns in relation to this proposal and not be able to give them a definitive answer, as their parents that they look to for guidance and support is heartbreaking. Children of their age should not be concerned that their home will no longer be a safe and enjoyable place to be. **S-60360720***

*Impact on the amenity, ambiance, and character of the rural area for those who reside or visit the area, erode the lifestyle qualities to which we are entitled too. **S-60771964***

*We are extremely worried about the effects of this quarry will have on our standard of living and health. **S-60108776***

A Social Impact Assessment (SIA) was prepared in accordance with the NSW Government's Social Impact Assessment Guideline (DPE, 2023) and summarised in Section 6.14 of the EIS. It is the role of the SIA to determine how negative impacts may be mitigated to reduce the degree of disruption to those affected.

The SIA assessed the technical and perceived social impacts (positive and negative consequences) that may be experienced by stakeholders due to anticipated impacts/changes associated with the Project. Project aspects which were determined to have a medium residual impact included:

- cumulative traffic movements and road safety
- impacts to biodiversity (specifically loss of habitat)
- potential decline in property values.

Management and mitigation strategies are proposed in the EIS to mitigate impacts that may be experienced by the local community and surrounding area such as air quality, noise, and impacts to water resources. Section 6.14.4 of the EIS, the SIA presents strategies to enhance positive social impacts in relation to the Project and address any impacts that are of 'medium' concern to potentially affected people and groups, but which are not considered significant from a technical perspective, including:

- development of a Community Engagement Strategy
- development of a Employment, Training and Procurement Strategy

As noted in **Section 5.1.2** and **Section 5.1.5.2**, the Project will have a negligible cumulative effect on traffic and transport impacts. Cumulative traffic assessments concluded that the road network can comfortably accommodate the level of additional traffic from both the proposed Eagleton Quarry and the Project, together with the existing traffic from the Boral Seaham Quarry (and its proposed expansion) and trucks from Brandy Hill Quarry using Italia Road. The proposed upgrades to the Italia Road-Pacific Highway intersection will also be designed to accommodate cumulative traffic from all local quarries and modelling indicates this intersection upgrade and requirement for quarry trucks to turn right from Italia Road onto the Pacific Highway will improve intersection performance relative to current conditions.

Additionally, ARDG has sought to avoid and minimise biodiversity impacts in the first instance as part of the Project design and has preferentially sited the Disturbance Area away from known records of threatened species and areas of higher ecological value.

Also, the Project is estimated to have net social benefits to NSW and the local and regional economy, and hence is desirable and justified from an economic efficiency perspective.

5.1.8.2 Community Enhancement Opportunities

Was the community made aware of the structure of a V.P.A. and the kinds of things that a company may provide as a service?

What was the feedback to the community members who may have suggested “lollipop people” for example to show that these were not strategies that will be able to be adopted on a major road such as Italia Rd. By suggesting to people that the quarry may act as a cash cow and that their suggestions may be acted upon is disingenuous and misleading. This process has belittled the major effects that need to be addressed.

*Through the example of other VPAs such as Brandy Hill quarry where residents have been able to negotiate a realistic issue; a path along Brandy Hill Drive to address safety issues for residents with 300 – 600 trucks a day on the road, residents of Italia Rd would have had a better understanding of what was expected of them when confronted with this question. The most realistic suggestion for a VPA. was the erection of bus stops with shelters at school pick up points. **Voice of Wallalong and Woodville***

*As a loss of trails and forest to users I feel the development and state forest should put something back into the forest community, weather it be funding for a car park to be created big enough for cars with horse floats and trailers adjacent to Nine mile creek road, funding to clean up and possibly create eco toilets at the area known as the Common and funding and providing materials to repair the fire trail network throughout the state forest, as if a bushfire was to start, I feel in the trails current state, access by fire brigades would be near impossible. **S-60327956***

No Voluntary Planning Agreements (VPA) or private-landowner agreements have been entered into by the proponent at this stage other than the Deed with FCNSW. ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the *Forestry Act 2012*. The FML area within which quarry operations are proposed is located wholly within the boundary of the Licence Area under the Deed. Under the terms of the FML, ARDG will pay FCNSW a royalty for each tonne of quarry product sold from the Project.

ARDG has consulted with Port Stephens Council regarding contributions for heavy vehicle road haulage for loaded truck movements on Italia Road, as required under the Port Stephens Local Infrastructure Contributions Plan. All intersection upgrades will be fully funded by the quarries. Other than the Road maintenance covered by the Local Infrastructure Contributions Plan, The Project is not expected to increase demand for any other services or infrastructure provided or funded by Council.

An Economic Impact Assessment (EIA) was prepared by Gillespie Economics (2023) and found that even without a VPA, the Project will make a significant contribution to the local community through the direct and flow on effects of workforce and operational expenditure and through development contributions to be paid to PSC for the transportation of quarry product on Council roads.

The EIA found that even without a current VPA, the Project is estimated to provide the following annual direct and indirect annual effects to the local economy:

- \$102 M in output (direct and indirect to regional economy)
- \$58 M in value-added to regional economy
- \$14 M in gross wages
- 176 jobs (47 direct and 129 indirect).

ARDG proposes to work in partnership with Port Stephens Council and the local community to help maximise the projected economic regional benefits while minimising any potential impacts. Proposed economic management measures as presented in the EIS include:

- Employment of regional residents preferentially where they have the required skills and experience and can demonstrate a cultural fit with the organisation.
- Participating, as appropriate, in business group meetings, events or programs in the regional community.
- Locally sourcing non-labour inputs to production where local producers can be cost and quality competitive.
- Provision of community grants through various initiatives and programs within the local community, including the education, arts, sporting and culture sectors.

5.1.9 Land Use Conflict

Land use conflict was raised in 21 objecting community and stakeholder group submissions and in one commenting submission. The submissions discussed potential conflict between the Project and recreational users of the Wallaroo State Forest and the agriculture and tourism industries of the local area.

I understand there is the need to source natural resources, but consideration must also be given to those other resources that help to feed the country! In many cases, these farms have been successfully operating for many years, and sustainable agriculture is one of our primary means of existence. S-60266214

The quarry would also have a negative impact on the tourism industry in the area. S-60244207

Dog trainers will likely lose their tracking area. Dog trainers use the part of the proposed area for tracking. This area is likely to become an exclusion zone, particularly if explosives are used. Therefore, dog trainers will need to find another tracking area, which is extremely difficult. S-60829748

Community members and action groups have been vocal in their objection to the application, predicting that the development will decrease local amenity, property values and business activity for tourism, hospitality and events industries, as well as increased noise, dust and toxic air pollutants. Our livelihood and the reasons why we choose to live where we live and raise our families here, are threatened by this proposal. S-60107013

I object to the Stone Ridge Quarry Project because it will have major effects on the environment and impact on my Grandmother's farm at Balickera where I like to spend time every school holiday. I am worried how it will effect the cows that live on the farm and all the wildlife living in the forestry. S-60205228

The EIS does not take into account the cyclists, bushwalkers and motorcyclists who use the trails within Wallaroo State Forest and travel along Italia Road from the Pacific Highway. S-59965975

The project would also greatly affect the adjoining Wallaroo National Park and its important biological values. S-60692471

The proposed quarry will take up 139 ha. This is a huge footprint and dramatically reduces access to Wallaroo State Forest for my family, the local community and wider Hunter community. S-60834725

The area is rural in nature and this project along with others being considered will negatively impact the rural feel ... S-60316707

I also object for the loss of use for recreational and sporting reasons eg 4WD, dog tracking, motorbike riding, orientation, bush walking, and bird watching. S-60134706

Wallaroo State Forest comprises three separate areas of land that have a combined area in excess of 3,600 ha. The Project Area (139 ha) is located within a Licence Area (391 ha) inside the boundaries of the western part of Wallaroo State Forest. The Disturbance Area of the Project (i.e., those areas where physical disturbance of soils and vegetation may occur) occupies approximately 68 ha of the Project Area, with the remainder of the Project Area to remain as vegetated buffer areas. Quarry activities are specifically contemplated uses of State Forests under the *Forestry Act 1912*.

For safety and security reasons, public access will be excluded from the 139 ha Project Area for the duration of quarry operations. This represents less than 4% of the total area of the Wallaroo State Forest, the remainder of which will continue to be accessible for public recreation.

The environmental assessments undertaken as part of the EIS have confirmed that impacts to amenity (including air, noise, vibration, traffic and visual) will comply with all relevant legislation and guidelines and will not significantly impact adjoining forest or National Park areas or their users or local agricultural enterprises.

5.1.10 Heritage

Potential heritage impacts were raised in 14 objecting community and stakeholder organisation submissions. These are addressed below in relation to either historic heritage or Aboriginal cultural heritage. One submission was concerned with palaeontology which is also discussed separately below.

5.1.10.1 Historic Heritage

Balickera House has a local heritage listing. ... The property has remained in our family since that time and as direct descendants of Fred Reid we are profoundly attached to the house and property, as are other members of the Australian community who have connections to colonial figures who lived or worked historically at Balickera.

*The EIS describes how 'Balickera' House (a nineteenth century convict-built homestead) is located over 1,100 m to the west, but still claims the quarry proposal will have 'no impact' on historic heritage, despite being only just over one (1) kilometre away. They have not conducted any monitoring or investigations into the impact of the existing Boral Seaham Quarry on Balickera House. **Save Balickera Inc.***

*The development of this project will cause a magnitude of onflow effects for the surrounding properties, including the Kerr property, Balickera. A sandstone homestead dating back to the 1820's is situated on the property, it is a family home having had generations live and visit throughout the years. Due to the age of this property, it will likely have significant damage occur from the blasts and drilling that will be intended for the retrieval of the hard rock products that are planned to be mined if the application is successful. **S-60753956***

*Consideration must be taken for historic sites within Wallaroo National Park, including cattle yards on Ripleys and Callaghans trails, the old sawmill site, a post-and-rail fence near Ten Mile Road, two bridges on Drews Road and a bridge on Ten Mile Road. **S-60821982***

*Trucks travelling on the smaller local roads, rather than the Pacific Highway are likely to have to cross heritage listed local bridges, i.e. Brig O'Johnson Bridge, Clarence Town (Opened 1880) Dunmore Bridge, Woodville (Opened 1899) Hinton Bridge (Opened 1901) Morpeth Bridge (opened 1898) These bridges were not constructed to withhold fully laden quarry trucks. **S-60796484***

Blasting impacts on the heritage structure of Balickera House were assessed in the Blasting Impact Assessment (Enviro Strata Consulting, 2023) (refer to Appendix 6 of the EIS) and the Stone Ridge Quarry (Amended Quarry Plans) – Addendum to Blasting Impact Assessment (refer to Appendix E of the Amendment Report). The Balickera House (item ID I3, Port Stephens LEP 2013) is the only listed heritage item in the locality of the Project and is approximately 1.1 km north west of the Project Area.

The assessment found that blasting impacts on public infrastructure (including the nearby heritage listed Balickera House) are within criteria for ground vibration, airblast overpressure and flyrock, with no additional blast control measures required. All heritage items within Wallaroo National Park are all located significantly further from proposed blasting than Balickera House and would similarly not be expected to be impacted by blasting impacts.

The BIA also concluded that the vibration impact from traffic passing over Balickera Tunnel, associated with quarry activities will cause no damage or deterioration of Balickera Tunnel or other adjacent infrastructure.

Despite the minimal impacts the Project is predicted to have on local heritage items such as the Balickera House, ARDG have committed to several management and mitigation measures to minimise ground vibration, airblast overpressure and flyrock impacts (refer to Section 6.3 of the EIS).

ARDG have also committed to implementing three (3) monitoring stations to capture ground vibration and airblast overpressure impacts from blasting at the Project site. One of the stations is to be located to the west of the operation near residence R18. This will be representative for private residences located in the Balickera area near Italia Road. This station will also provide coverage for Hunter Water infrastructure in this area, and further located heritage site of Balickera House.

The Project will not have any direct or indirect impact on the historic items within Wallaroo National Park.

5.1.10.2 Aboriginal Heritage

*The EIS draws the sweeping conclusion that: the Project Area is deemed to have low archaeological potential across its entirety. However, aside from inadequate attention to the threatened European heritage at Balickera, we believe there has also been inadequate investigation into the Aboriginal heritage of the area. Only four (4) members of the indigenous community are listed as having been invited to attend the site survey, out of seven who completed expressions of interest. This was a commercial engagement and apparently negotiations also took place in relation to access to firewood once the site has been cleared. On page numbers 15-16 of the Aboriginal Cultural Heritage Assessment at Appendix 12, it is apparent that 'late' registrations by members of the Aboriginal community also appear to have been refused, although received less than a month after the notification letter was sent. The selection criteria for the participants are not disclosed. **Save Balickera Inc.***

*We would suggest that consideration of Aboriginal heritage has been perfunctory at best and does not evince a genuine desire to uncover information about the site. An Aboriginal elder connected to the area, who is also a member of the local historical society, mentioned to me that she believes there was a historical massacre at Balickera. Unfortunately, time limitations have precluded us from further consultation with members of the Karuah and Worrimi Land Councils or academics engaged in mapping colonial massacre sites. **Save Balickera Inc.***

*Shamefully, the Proponents fail to acknowledge the Project will change the landscape forever. The importance and intrinsic values of Cultural Landscapes that Country is the foundation and the core of all Indigenous cultures, and is integral to all aspects of the lives of Indigenous people, is not considered. ... The proponent's assessment of Aboriginal Heritage values is clearly biased in favour of the Project. **Gloucester Environment Group***

*The quarry would have a negative impact on the cultural heritage of the area, as it would destroy archaeological sites and sacred sites. **S-60244207***

*Significant Native trees and indigenous sites are at danger. **S-60227456***

*It is important to acknowledge that Indigenous and Aboriginal communities have a strong association and connection with the land. Aboriginal heritage and connection to nature are inseparable and this must be taken into consideration in the quarry project. **S-60821982***

*There is no doubt that areas of cultural importance to the Worimi people will be destroyed. **S-60550984***

*I ask that we have a community meeting with the local Worimi Elders with an open heart and mind to learn and understand their traditional cultural position on this proposal and their foresight of the fate for this part of Balickera Forest and how that relates to traditional Aboriginal Culture. **S-60225458***

An Aboriginal Cultural Heritage Assessment (ACHA) was prepared by Umwelt (2023) in collaboration with Registered Aboriginal Parties (RAPs). A summary of the key findings of the ACHA is presented in Section 6.7 of the EIS with the full report provided in Appendix 12 of the EIS.

The ACHA was prepared in accordance with the requirements of the National Parks and Wildlife Regulation 2019 (NPW Regulation), the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011), with all consultation undertaken in accordance with Clause 60 of NPW Regulation and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (the ACHCRs) (DECCW, 2010). The ACHA incorporates required archaeological technical information in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code of Practice) (DECCW, 2010).

Consultation with the RAPs was undertaken in four main stages:

- **Stage 1 – Notification and Registration of Interest:** Individual targeted letters were sent to people or groups who had previously registered for other projects in the area and government agencies and public advertisement of the Project was undertaken to identify, notify and register Aboriginal people who hold cultural knowledge relevant to the Project Area. Aboriginal people or groups who registered through these processes are referred to as the Registered Aboriginal Parties (RAPs) for the Project. 13 Aboriginal parties registered an interest in ongoing consultation regarding the project.
- **Stage 2 – Presentation of Information:** Consultation was continued by Umwelt during Stage 2 to provide information about the Project and the proposed assessment methodology to all RAPs who registered an interest in Stage 1. Responses were received from seven (7) of the 13 RAPs who originally expressed an interest. None of the responses received were in objection to the proposed methodology, which detailed the proposed on-site survey assessment, however responses to the methodology included queries in regards to the availability of firewood from the vegetation that will be cleared and recommendations for the Project.
- **Stage 3 – Gathering Information about Cultural Significance:** Information about Aboriginal cultural values was gathered through RAP consultation and field work. Invitations to submit an Expression of Interest for commercial engagement to undertake a survey of the assessment areas to assist in identifying any areas of cultural value were provided to all registered Aboriginal parties with the draft methodology. Expressions of interest were received from seven Aboriginal parties, of which five were invited to be commercially engaged to attend the archaeological and cultural heritage survey. Of these five RAPs, a representative of the Worimi Traditional Owners Indigenous Corporation (WTOIC) was unavailable on the day of the survey.
- **Stage 4 – Review of the Draft ACHA:** A copy of the draft ACHA was provided to all RAPs with an invitation to review and comment on all aspects of the document, noting that information on cultural significance and any recommendations provided from an Aboriginal cultural perspective would be documented in the final ACHA. No objections to the content of the proposed ACHA were received.

The environmental context of the Project Area indicates that the area would have supported a range of flora and fauna resources. However, the availability of freshwater within the Project Area is relatively limited, contrasting to more reliable water sources such as the Williams River approximately 7 km to the west, which would have presented a more attractive location for Aboriginal people to occupy for extended periods of time due to having permanent water sources.

Given that the landscape of the Project Area is dominated by slopes and a pronounced ridgeline, the proximity of the Williams River would have likely drawn people closer to the flat plains surrounding its watercourse, it is likely that the Project Area was used intermittently for transient activities such as hunting, or other activities where the availability of water was not as critical.

A search of the AHIMS database was conducted on 16 March 2020 based on provided Lot and DP details (Lot 540, DP1207159) which overlays the northeast portion of the Project Area. This search had an applied buffer of 1 km to ensure an adequate search area was captured. A secondary basic search of Lot 65, DP 753200, which intersects the central portion of the Project Area, was also conducted, with a buffer of 1 km. An updated search of the AHIMS database was conducted on 28 August 2023 and identified no new sites and only two previously recorded sites within 1 km of the Project area located on land associated with the Boral Seaham Quarry.

A survey of the Project Area was conducted by Umwelt archaeologists and four representatives of the RAPs. The survey assessment of the Project Area was conducted over a single day on 19 June 2020 by Nicola Roche (Manager Cultural Heritage, Umwelt) and Jessica Blackman (Senior Archaeologist, Umwelt), with the Aboriginal parties.

No new Aboriginal archaeological sites or objects were identified during the visual inspection of the Project Area, nor were any areas of archaeological potential identified. The absence of identified Aboriginal archaeological sites or areas of Aboriginal archaeological potential within the Project Area reflects that the Project area was likely less desirable for long-term occupation in comparison to nearby permanent waterways and therefore, based on the criteria for the assessment of archaeological potential the Project Area is deemed to have low archaeological potential across its entirety.

Aboriginal party representatives who participated in the survey were invited to provide information on any Aboriginal cultural values that they identified within the Project Area. No specific areas or items of historical value with a direct association with Aboriginal people were identified. Additionally, none of the Aboriginal representatives present during the survey provided any additional information regarding the historical values of the Project Area.

5.1.10.3 Palaeontology

Finally, we found no mention at all in the EIS of palaeontological considerations, and no reference to the report by Professor Geoffrey Playford in 2019 which states: This renewed palynological study of the Mount Johnstone Formation, at Balickera in the Hunter Valley region of New South Wales (eastern Australia), discloses a considerably more diverse palynoflora – termed the Grandispora maculosa Assemblage – than was reported in 1968. Save Balickera Inc.

The Mount Johnstone Formation is located to the east of the target Eagleton Volcanics Formation. The Quarry will not extract material from the Mount Johnstone Formation and no impacts on the paleontological values present within this formation will occur.

Due to the depositional nature of the Eagleton Volcanics, no paleontological values are likely to be present within this resource.

5.1.11 Economics

Economic impacts were raised in 12 objecting community and stakeholder organisation submissions. The key themes in these submissions related to:

- valuation of the environmental costs associated with the Project
- the use of public land for private economic gain
- the unaccounted values of Wallaroo State Forest
- justification of economic benefits of the Project
- impacts on property values for surrounding landowners.

Each of these themes is discussed separately below.

5.1.11.1 Environmental Costs

*As discussed above, the EIS has not adequately or honestly costed the harms to the environment and community in calculating the economic benefit of this project. It is stated in the EIS that under the terms of the Forest Materials License (FML), ARDG will pay the Forestry Corporation of NSW (FCNSW) a royalty for each tonne of quarry product sold from the project. The details of this arrangement have not been made public, but this clearly places the Minister in a conflict of interest situation when weighing the costs to the community of the project, and ultimately determining whether it should be approved. However, the potential liability accruing to the State if this project proceeds will dwarf the estimated economic benefits to the community and should be enough grounds to negate any further approval. **Save Balickera Inc.***

*Both climate change and biodiversity loss represent a financial risk to the Hunter region and beyond. **Gloucester Environment Group***

It is fair to assume that if the Project is approved the capital and ongoing costs associated with the provision of environmental offsets and environmental management will need to be recovered by setting product costs to recover environmental costs. This should be anticipated and accounted for in the EIS as the end product may be very expensive and customers may well choose a cheaper provider.

*There are two real risks associated with Project approval – one that the community will pay a premium price for the end product and then, be left with the legacy of a destroyed and degraded forest area depleted of today's biodiversity values. **Gloucester Environment Group***

As outlined in Section 6.15 of the EIS, the Cost Benefit Analysis (CBA) and consideration of benefits to NSW considers the incremental costs and benefits of a project relative to the base case of the project not proceeding. In the case of the Project, the incremental case comprises the extraction and sale of extractive materials from the Project but also includes the costs and benefits associated with the delivery of saleable products to customers, as the assessment of road transport impacts and the demand on local infrastructure (including roads). The costs considered in this assessment include the potential environmental social and cultural impacts associated with the Project, including biodiversity.

The Project is located on land managed by FCNSW ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act. Under the terms of the proposed Forest Material Licence (FML) with FCNSW, ARDG is required to undertake rehabilitation works at its own cost as directed by FCNSW.

The EIS includes extensive discussion relating to the current demand for construction materials and significant supply issues. Demand for quarry products is driven by a combination of public infrastructure development (government spending on roads, rail, ports, schools, housing and hospitals), and private investment (commercial and industrial development and residential construction). Supply of a wide range of 'in demand' quarry products will reduce supply constraints and help mitigate construction timeframes and/or costs.

The project is predicted to deliver significant economic benefits to the State irrespective of royalties paid to FCNSW.

5.1.11.2 Use of Public Land for Private Economic Gain

As opposed to the other quarry developments listed above, the Project intends to take over management of public land. The Proponents have inadequately assessed and carelessly ignored the economic potential and environmental value of Wallaroo State Forest if left unquarried. Gloucester Environment Group

The land is State owned land for the purposes of protection of forest resources, including the native ecosystems occurring on the land, which contribute to a wider State and Regional interest for the proper management of those resources. If the manager of the forest resources, Forestry Corporation of NSW are acting in the State's interest then it is unlikely that the quarry proposal represents the optimum, long-term interests of the State. Forestry Corporation, before engaging in a quarry joint venture should be required to conduct a Net Benefit Analysis involving public scrutiny and Ministerial oversight. That includes analysis, using a long term timeframe of the comparable net benefit of retaining the forest for long term forest harvesting or for the conservation of the biodiversity on the land. S-60072706

Wallaroo forest is public land. The assets of the community should not be allowed to be exploited in this way for private profit. The Forestry Corporation has shown itself to be a poor manager of public land. It manages the rest of the native forest estate as a loss because the royalties of the wood are so low. If the true cost of the destruction to our catchments was factored in, this loss would be much much greater. So why would they manage this 'deal' any better, when it coming to the return to the public? S-60345218

The land is State owned land for the purposes of protection of forest resources, including the native ecosystems occurring on the land, which contribute to a wider State and Regional interest for the proper management of those resources. If the manager of the forest resources, Forestry Corporation of NSW are acting in the State's interest then it is unlikely that the quarry proposal represents the optimum, long-term interests of the State. S-60078001

The Project is proposed in accordance with relevant legislation and land use requirements. The Project Area is located on land managed by Forestry Corporation of New South Wales (FCNSW) (a State Government Agency) and ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act 2012 (Forestry Act).

As outlined in Section 1.7 of the EIS, FCNSW is responsible for “carrying out or authorising the carrying out of forestry operations on Crown-timber land or land owned by the Corporation”. An additional function of FCNSW under section 11 of the Forestry Act is to “take or authorise the taking of forest materials” from this land. Forest materials are defined in the Forestry Act as “rock, stone, clay, shell, earth, sand, gravel or any like material”. At present there are over 20 licensed quarry operations on FCNSW land in NSW, all of which pay FCNSW a royalty for materials taken from the relevant land.

ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act. The Project Area where quarry operations are proposed is approximately 139 ha and is located wholly within the boundary of the Licence Area under the Deed. Should development consent for the Project be granted, FCNSW will issue a FML to ARDG that will enable the company to develop and operate the Project. Under the terms of the FML, ARDG will pay FCNSW a royalty for each tonne of quarry product sold from the Project. Accordingly, while the Quarry will be located on land owned by a NSW Government Agency, the use of the land for quarry extraction is specifically contemplated and the NSW Government (through FCNSW) will receive revenue for this use of land and extraction of material should the Project be approved. This revenue would then be available for FCNSW and the NSW Government generally to provide services to the broader public.

5.1.11.3 Unaccounted Values of Wallaroo State Forest

The Project area missed the catastrophic 2019/2020 climate fuelled fires. Forestry Corporation has reported that around 830,000 hectares of native State Forests and 62,000 hectares of State forest timber plantations across NSW were impacted by fire in some way – which is about half the State Forest estate.¹⁹ Over 2.7 million hectares of national parks (38% of the NSW national park system) burned.

It is noted that the agreement between the proponent and FCNSW as “willing” partners was signed off in 2018, at a time when the general community was not prepared for the impacts of the impending climate fuelled fires.

It is significant that the Wallaroo State Forest has remained unlogged for 40 years as forest values increase with age. These values represent environmental and financial benefit and opportunity to the citizens of NSW – the main stakeholders of both Forestry Corporation New South Wales (FCNSW) and the proponent’s proposal.

A 2021 study looking at alternative uses of native State Forests, albeit in Southern NSW, concludes that higher value environmental and recreational benefits from the forest under a “no logging scenario” include carbon sequestration services (earning carbon credits) and tourism and recreation services.

Native State Forests are one of our State Government's cheapest options for carbon abatement. Forest values for carbon abatement increase with age and should be left to regenerate.

It should be expected that either FCNSW, as the current land managers, or the proponents as future land managers, provide a cost benefit analysis showing the resultant loss of the carbon abatement service Wallaroo State Forest currently serves, as opposed to establishing and operating a quarry that returns royalty payments.

Gloucester Environment Group

The proponents have noted that the Wallaroo State Forest is used informally used for recreational activities, such as 4WD and dirt biking. They fail to recognise it is also used for bushwalking and trekking, birdwatching, horse riding and mountain bike riding. All these activities if responsibly managed can create an alternative revenue stream to the State and employ a considerable number of people. **Gloucester Environment Group**

The Wallaroo State Forest provides a substantial buffer zone to those noisy developments and can be used and managed to maintain environmental service provision to both the local community and displaced wildlife from the existing Boral quarry, proposed Eagleton quarry and motor cross operations.

There are a number of economic studies that highlight opportunities available to decision makers to capitalise on our natural environment at the same time as preserving the environmental services those areas presently serve.

Gloucester Environment Group

The proponents fail to recognise that public land reserved for nature is an economic and environmental asset which fundamentally underpins the essence of our region and guides the way our local economies plan for development.

Gloucester Environment Group

... a balanced cost benefit analysis needs to be provided that reflects the true value of the Wallaroo State Forest to the State. **S-60197736**

The Wallaroo State Forest is public land that should not be quarried, but managed as a State Forest for everyone's benefit, moreover the economic and environmental values of the Wallaroo State Forest to the region have been ignored in the report. **S-60550984**

I believe that this proposed quarry jeopardised fragile ecosystems for short sighted commercial gain and fails to recognise the value these places have to the community and the economy. **S-60194493**

While the ‘do nothing’ alternative is a common business case term for ‘business as usual’ and implies lack of action, it’s a strange concept to apply to a living forest. Forests have intrinsic value and, especially our publicly held forests, do not need to be repeatedly justified to secure their conservation. However, if we need to put it in economic terms, forests are part of our natural infrastructure. They provide watershed protection and improve soil nutrient and water retention capabilities. They play an important role in “regulating the earth’s climate through the carbon cycle, storing carbon above and below ground and removing it from the atmosphere as they grow ... Forests sequester and store more carbon per hectare than other types of land cover.” Forests also contain the majority of terrestrial biodiversity. **S-60433456**

The Wallaroo State Forest is a commercial NSW forest managed by FCNSW. While the areas are used for recreational activities and the vegetation provides suitable habitat for a number of fauna species this is not its primary function.

Under the Forestry Act FCNSW can take or authorise the taking of forest materials from forestry land including rock, stone, clay, shell, earth, sand, gravel or any like material. FCNSW seeks to balance environmental conservation and community recreation with the removal of forest resources. As discussed within this submissions report the Project will not preclude the remainder of the State Forest being used for recreational purposes and the State Forest will continue to provide both timber resources and habitat for present fauna species.

The Projects impacts on these other values present within the broader areas, including Wallaroo State Forest are considered in various specialist studies including the BDAR (refer to Appendix I of the Amendment Report) and the Revised Surface Water Assessment (refer to Appendix G of the Amendment Report).

5.1.11.4 Justification of Economic Benefits

The highlighted benefits in the above statement [the costs of water access licences, biodiversity offsets, road intersection upgrades, road pavement maintenance costs and costs of mitigation, monitoring and management of other potential impacts] all relate to the ability of ARDG to be able to establish the quarry from which they will make a huge profit over the life of the quarry. Should the State Government really be earning an income from the establishment of a private quarry with a future huge profit at the expense of the local residents who are taxpayers?? And at the expense of the local environment that it (the Government) is trying to protect with all the legislation it can muster?

*People in localities that live near quarries are constantly reminded by statements such as this they must sacrifice their health and well-being, character of their area, the environment has to suffer all for the "common good". Why would residents not be upset that profitability of a company comes before their needs, their lifestyle, their health? There is a feeling of helplessness when gravel for a road or concrete for a house slab is more important than people and the environment they live in. **Voice of Wallalong and Woodville***

*While I do understand there are some economic benefits, there is also the consideration if these benefits will be advantageous to the wider local community, or will the issues that have been raised outweigh these benefits? I believe all the issues raised are far greater than the economic benefits, as the local communities will not directly benefit in the long term, particularly as the proposed project area will destroy part of a State Forest, and the residual effect of this project will create long term negative effects, not only the environment, but also on the community as a whole. **S-60266214***

*The quarry would provide some short-term jobs during construction, but it would not create any long-term jobs. The quarry would also generate tax revenue for the government, but this would be offset by the costs of environmental cleanup and the loss of tourism revenue. **S-60244207***

*On balance there is no benefit to the local community that would warrant the negative effects and destruction of habitat within the State forest. Only 10 full-time jobs are proposed to result from the quarry. The major benefits will accrue to the company operating the quarry in the form of profit. **S-60630239***

*Stone Ridge Quarry is not a sustainable development considering it will only create 10-15 jobs which will not outweigh the cost to the local communities of Balickera, Nine Mile Creek and surroundings. **S-60324957***

*The project also states its benefits to be \$270 million to the state government, yet how much of this will need to be spent on building and maintaining the infrastructure needed for all the quarry trucks, considering that a fully loaded quarry truck does an incredible amount of damage to a road. **S-60747209***

The location of potential quarry projects is dictated by the location, scale and quality of rock material. The Stone Ridge resource is a large and high-quality hard rock resource suited to a wide range of quarry products which are in high demand. The Project is located close to areas with high demand for quarry product and its close proximity to the Pacific Highway means it is able to readily transport product to customers with minimal impacts on the local road network.

The Project is located in close proximity to other existing and proposed quarry projects and these operations will jointly share the costs of upgrades to the Pacific Highway which will reduce transport related impacts associated with the Project and these other operations and improve the Italia Road intersection for all road users.

The social and environmental impacts associated with the Project have been reduced through Project Design which has had specific regard to potential impacts on the local community. The Project impacts are considered to meet accepted impact criteria and can be effectively managed through well accepted management practices. The site is therefore considered to be ideally suited to the Project.

ARDG are proposing the implementation of a CEMP and OEMP to appropriately manage and mitigate potential impacts to the local community.

The Project will deliver significant benefits to the Hunter Region and the State of NSW and many of these economic benefits will flow through to the local community. ARDG has also committed to a range of additional activities which can provide local economic benefits including:

- Employment of regional residents preferentially where they have the required skills and experience and can demonstrate a cultural fit with the organisation.
- Participating, as appropriate, in business group meetings, events or programs in the regional community.
- Locally sourcing non-labour inputs to production where local producers can be cost and quality competitive.
- Provision of community grants through various initiatives and programs within the local community, including the education, arts, sporting and culture sectors

The increased supply of construction materials from the quarry will also reduce inflationary pressures on the cost of these products associated with the current high demand which is outstripping supply.

5.1.11.5 Impacts on Property Values

Aside from reducing the amenity of the area for these leisure activities, residents are concerned about the knock-on effect on their land values, making it more difficult for them to leave the area. There is no suggestion that ARDG will offer to buy out residents who wish to escape the impact of yet another quarry. Instead, it dismisses these concerns with a statement that can only lead us to question the good faith of those authoring the report:

*Market data and discussions with local real estate agents indicates that the market for rural lifestyle properties in the Hunter is liquid, with no known evidence of unsaleable properties as a result of the presence of mining (or similar) operations (page 54). **Save Balickera Inc.***

*This project will also have a significant impact on property rights and property values. **S-60266214***

*We are extremely concerned that this will negatively impact the value of our property and cannot foresee a future where we can continue to live our current lifestyle in our home should this quarry be approved. **S-60360720***

*With this in mind and another hard rock quarry in our local area we are likely to see property values plummet with no compensation to land holders. **S-60796484***

*As a shift worker, we purchased our property for the space from neighbouring residents and the serenity and ambience of the area. Increased development in the area has destroyed the lifestyle we purchased for and devalued our property and now you want to do more development. Port Stephens Council has increased our rates but continue to devalue our properties. **S-60100499***

As outlined in the Social Impact Assessment (Appendix 15 of the EIS) it is difficult to specifically ascertain the risks of any Project on property values, however recent assessments of property value (TEW Property Consultants, 2018) in other Project assessment processes in a mining context e.g., Mangoola Continued Operations Project (MCOP), report that:

Market data and discussions with local real estate agents indicates that the market for rural lifestyle properties in the Hunter is liquid, with no known evidence of unsaleable properties as a result of the presence of mining (or similar scale) operations.

There is evidence to suggest that detrimental impacts on property prices occur as a result of mining operations; however, this impact appears to be limited to the areas where factors such as noise and air quality exceed environmental standards and criteria. This is not the case in relation to this Project. The relevant assessments indicate the Project can comply with all relevant assessment criteria. Additionally, ARDG will implement a CEMP and OEMP to appropriately manage and mitigate potential impacts to the local community.

5.1.12 Soil and Land Resources

Perceived impacts to soils and land resources were raised in six objecting community and stakeholder organisation submissions. These were generally in relation to soil erosion and the properties of local soils as discussed below.

*Furthermore, the proposed quarry's activities may result in ... soil erosion, ... **S-60803716***

*Page number 38 – 6.3.5 [Scoping Report] states that the proposed project area contains highly dispersive soils, yet it is also stated that further detailed soil surveys are not considered necessary to inform topsoil management practices – I find this statement to be contradictory, and showing disregard for environmental impacts. **S-60266214***

The risks associated with soil erosion in mining and quarry industries is well understood and the NSW Government have developed specific guidelines for quarry projects around the management of these risks: *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) and *Volume 2E: Mines and quarries* (DECC, 2008) ('the Blue Book'). These guidelines require specific consideration of site slope and rainfall erosivity factors (including soil type) to determine the design specifications for erosion and sediment control measures.

Section 3.2 of the Surface Water Impact Assessment undertaken for the Project (refer to Appendix 9 of the EIS) specifically addresses erosion and sediment risks and includes an erosion hazard assessment undertaken in accordance with Blue Book. The results demonstrated that the site has a high erosion hazard and hence enhanced erosion control measures will be applied during construction.

An assessment of soil loss class was also undertaken which also indicated a high erosion hazard, although the potential for high rates of erosion is limited to short periods during initial stripping of soils with high erodibility during high rainfall events. Following stripping, these soils will be stockpiled and stabilised in general accordance with 'the Blue Book' and the exposed surfaces will consist of heavily trafficked and compacted surfaces and/or exposed rock with a much lower erodibility.

The collection of additional soil survey data was not considered necessary for an understanding of erosion hazards on the site and would not have provided any additional data which would result in any different or more stringent erosion and sediment controls than those already proposed. Soil sampling was also not required as part of the SEARs.

All drainage controls will be designed in accordance with Blue Book requirements with sediment controls designed to a higher standard to minimise the risk of uncontrolled discharges from the WMS in storm events not exceeding the 24-hour duration, 0.2% Annual Exceedance Probability (AEP) storm event (i.e. the 24 hour duration, 500 year Average Recurrence Interval storm event) required by Hunter Water. Should the Project be approved and constructed, a detailed Soil and Water Management Plan (SWMP) will be prepared by a suitably qualified person to facilitate implementation of best practice erosion and sediment controls during all phases of the Project. The SWMP will form part of the Project CEMP and OEMP.

5.1.13 Bushfire

Bushfire management was raised in three objecting community and stakeholder organisation submissions and one commenting submission. Some submissions also raised the fact that the Wallaroo State Forest was not burnt in the 2019/2020 bushfires and this was highlighted as a perceived value for biodiversity. This issue is discussed in **Section 5.1.1** and **Section 5.1.11**.

Other submissions were concerned with increased bushfire risk as a result of the Project, and this theme is discussed below.

There are concerns expressed from residents about land management, or lack thereof, and also the very possible risks of fire. If there were to be a fire that started as a result of work in this project, then this would have a major impact on not only residents, but also surrounding areas, as well as the water quality in both the Balickera Channel and Grahamstown Dam from ash fallout. S-60266214

... if a bushfire was to start, I feel in the trails current state, access by fire brigades would be near impossible. S-60327956

The Project Area is identified as bushfire prone land by the Port Stephens Council bushfire prone land mapping and accordingly, Section 6.12.1 of the EIS provided a bushfire risk assessment in accordance with the NSW Rural Fire Service (RFS) *Planning for Bushfire Protection 2019* (PBP 2019) (RFS, 2019) and the SEARs, including an assessment of potential bushfire hazard applicable to the Project Area and the proposed bushfire management for the Project to protect public safety.

The bushfire risk assessment determined that the Project will not increase the potential for, or the severity of bushfires within the locality. The risk of onsite activities igniting fire is only slightly elevated through, for example, vehicle exhausts, but can be effectively avoided through the implementation of appropriate bushfire protection measures. The clearing associated with the Project has included allowance for an Asset Protection Zone where required and will also act as a barrier to the spread of bushfire across the Project Area.

A Fire Management Plan will be prepared and included in the CEMP and OEMP. The Fire Management Plan will be prepared in consultation with NSW RFS Hunter Fire Control Centre and local RFS Branch.

As identified in **Section 4.8**, the Rural Fire Service has reviewed the EIS and recommended consent conditions generally in line with the mitigation measures documented in the EIS.

5.1.14 Decommissioning and Rehabilitation

Three objecting community and stakeholder organisation submissions raised concerns in relation to decommissioning and rehabilitation of the Project at the end of its operational life.

*There is no basis on which the community could feel reassured that any such rehabilitation efforts will take place within any sensible time frame, when ARDG is already proposing a 30-year time frame in clear breach of legislative restrictions on quarrying in State Forest. Indeed, the scale of the proposed project suggests that rehabilitation is unlikely within our lifetimes. I note that the small, decommissioned quarry on Italia Road left a visible scar on the landscape and has continued to attract illegal dumping. It is hard for the community not to be cynical about such undertakings made so many years in advance. It is also likely that the quarry may well change hands before the operation reaches the end of its lifetime and the eventual owners may have even less regard for the local community than the current applicants. **Save Balickera Inc.***

*Leaving aside the imagined 30-year approval issue addressed earlier, the proposed intensive quarrying of public land such as is here sought, demands immediate, progressive rehabilitation in the public interest. And not left where appropriate until the whole resource is exhausted and “everyone has gone home.” What guarantee(s) have been offered that rehabilitation will occur? What is the likelihood that the applicant or its successor or assigns will be in a position to rehabilitate at the end of the quarry’s life? **Voice of Wallalong and Woodville***

Quarries typically represent lower environmental and safety risks than other types of extractive industries with risks largely limited to ongoing erosion and safety risks associated with high walls and water within voids. Other than potential sediment risks, the Project is not expected to present any long-term pollution risks. Additionally, only mobile/modular plant will be utilised for the Project and buildings will be easily relocatable which facilitates the cost effective decommissioning of infrastructure at the cessation of quarry activities. The risks associated with the closure of the quarry are well understood and can be effectively managed at relatively low cost.

ARDG is committed to the effective rehabilitation and closure of the Project at the cessation of operations. The overarching principle to be applied is the development of a safe, stable and non-polluting landform.

Rehabilitation at the quarry will address the long-term stabilisation of both quarried and disturbed areas, including rehabilitation of the upper quarry benches and available areas within and surrounding the quarry pit, with a single final void to remain after closure as a water storage. It is anticipated that all other water storages (SB1, SB2 and any other sediment traps/basins) will be decommissioned (unless otherwise required by FCNSW) and all infrastructure removed, and the landform outside of the Main Pit will be free draining. This proposed rehabilitation and end landform has been developed in consultation with FCNSW.

There are a range of mechanisms which are utilised to provide financial security to ensure that rehabilitation is undertaken at the quarry. Under the terms of the proposed Forest Material Licence (FML) with FCNSW, ARDG is required to undertake rehabilitation works at its own cost, as directed by FCNSW. As such, it is appropriate that any long-term rehabilitation costs risks (including any requirement for financial security) to the State be managed through the contractual arrangements between FCNSW and ARDG.

5.1.15 Visual Amenity

Three community and stakeholder organisation submissions raised issues in relation to visual amenity.

The proposed Stone Ridge Quarry will greatly exacerbate those adverse effects, particularly if coupled with an extension to the Boral Quarry which will remove the ridgeline which presently stands between that quarry and our home. That ridgeline acts as a visual and partial sound and dust buffer between the existing Boral quarry and the proposed Stone Ridge Quarry and our property. Its removal would render Balickera homestead unliveable and the property unsaleable. ...

Instead of the outlook over bush-covered hills which is presently enjoyed by those who live and drive along Italia Road, an enormous open-cut scar would dominate the vista. In addition to the visual catastrophe created by creation of the Stone Ridge Quarry, there would be nothing to buffer the noise and dust from the quarry workings for all those living between the Williams River and Italia Road. S-60234464

This beautiful landscape is the reason why many people moved to the area, this appeal will be lost if this project moves forward. S-60209989

The quarry would be a significant eyesore, and it could have a negative impact on the visual amenity of the area. S-60244207

While the proposed quarrying activities will remove the ridge of 'Stone Ridge' and replace it with a quarry void, substantial areas of existing regrowth and remnant vegetation will be retained around the proposed Disturbance Area which will shield views of operations from surrounding public and private property viewing locations. Vegetation along Italia Road will shield views of all aspects of the Project other than the access road. In addition, the Project has been designed such that there will be topographic shielding of quarry operations from the west and north-west.

The visual assessment included in Section 6.13 of the EIS used radial topographic analysis and included visual transects based on the Stage 9 conceptual extraction plan to provide a conservative, worst-case assessment. While this assessment was undertaken for the original Project Design, the Amended Project Layout will further reduce the scale of disturbance and the assessment conclusions remains applicable to the Amended Project. The transects (refer to Figure 6.19 of the EIS) indicated that due to both topographic shielding and intervening forest vegetation, the quarry extraction and infrastructure areas will not be visible from public or private viewing locations, including Italia Road, Nine Mile Road, the Pacific Highway or private residences.

The Project has been designed to minimise the potential visual impacts on surrounding viewing locations, however the following mitigation and management measures will further reduce impacts:

- To the greatest extent practicable, the Project Area will be quarried in a manner that enables mobile equipment to remain shielded behind the active face as the ridge is removed.
- Vegetated buffers will be retained around the Disturbance Area and along road frontages.
- Lighting will be directed downwards and away from residential areas and public roads in accordance with relevant Australian Standards (*AS 4282 – Control of the Obtrusive Effects of Outdoor Lighting*).
- The Project Area will be maintained in a clean and tidy condition at all times.

5.1.16 Hazards and Waste

Two community and stakeholder organisation submissions raised issues in relation to hazards and/or waste.

*Scant detail is included under these headings in the EIS. **Save Balickera Inc.***

The quarry would be located in a seismically active area, which increases the risk of landslides and other accidents.
S-60244207

In accordance with the SEARs, the EIS included an assessment of the quantity and nature of waste streams for the Project and the measures that would be implemented to minimise, manage or dispose of them. The EIS also included a bushfire risk assessment (refer to **Section 5.1.13** above for further details) and a preliminary risk screening for the storage of hazardous materials, which determined that the Project is not 'potentially hazardous' and therefore further assessment (in the form of a Preliminary Hazard Analysis) was not required.

The geotechnical stability performance of the Project was assessed through the development of a geotechnical domain model as discussed in Section 6.10.2 of the EIS. This includes specific consideration of seismic events. Under a 1:500-year seismic loading event, the stability performance of the proposed quarry was calculated and was found to satisfy the design performance objectives of the NSW Resource Regulator's *Guide – Health and Safety at Quarries* (2018) in line with accepted industry practice.

5.2 Project Justification and Evaluation

There were 56 community and stakeholder organisation submissions that discussed the justification of the Project, of which 41 were objections and 15 were in support of the Project.

The supporting submissions generally discussed local and regional growth and the need for a long-term source of raw materials to support infrastructure and construction projects, to stabilise construction costs and to reduce project time frames.

Objecting submissions questioned the validity of the resource demand predicted in the EIS and many proposed alternative solutions to the extraction of raw materials through the use of recycled waste products. Many submissions also raised issues with the justification of the development based on the principles of ecologically sustainable development. These themes are discussed in the sections below.

5.2.1 Justification of Resource Demand

The original ARDG proposal puts forward the argument that NSW is in dire need of the rock products to be produced at the Stone Ridge Quarry. ... There are alternative materials to meet the strategic justification for the quarry which are treated equally under the Hunter Regional Plan. Firstly, it has been estimated that the Hunter region alone has approximately 160-200 million tonnes of coal-ash waste at its disposal, presently contributing to ecosystem contamination, which could be reclaimed to manufacture sustainable, high-performing aggregates underpinning far greater potential regional employment benefits than the less than 50 direct jobs associated with the proposed Stone Ridge quarry proposal. Secondly, the extensive amount of waste generated by various industries and human activities has made the disposal of solid waste a major problem around the world (Rahman et al., 2014a). In Australia, approximately 8.7 Mt of demolition concrete, 1.3 Mt of demolition brick, 3.3 Mt of waste excavation rock, 1.0 Mt of waste glass and 1.2 Mt of reclaimed asphalt pavements are stockpiled annually, and these stockpiles are growing (Clay et al., 2007, Sustainability Victoria, 2010). ...

*Not only State Governments but researchers also recognise that roads and other constructions can be made from recycled materials. **EcoNetwork Port Stephens***

*It is very difficult for the public to ascertain the veracity of not only ARDG's (the Proponent) assertions but other new quarry developers in our region, that unless their project goes ahead there will be "significant supply-side pressure for high quality quarry products" in the market. ... Without showing evidence of their assertions that the Project is needed, including the disclosure of royalty payments to FCNSW over the anticipated lifetime of their project, the project is questionable and cannot be justified. **Gloucester Environment Group***

*There is no proof of the proponent's claim that the quarry is needed. **North Coast Environment Council***

*We maintain that destroying the environment for road base and construction material is no longer sustainable when we have building waste material going to landfill that can do the same job. **Tomaree Ratepayers and Residents Association Inc.***

*Whilst the EIS lists a series of road, public infrastructure and housing projects in the region which will call for aggregates, and states that the estimated resource from an expanded Seaham and operational Eagleton Quarry, will not be able to meet this demand, ARDG has not provided a sufficiently detailed or fulsome assessment containing substantiated figures to illustrate the argument of "supply-side pressures", used to justify the project. **Hunter Community Environment Centre***

*While I acknowledge the need for construction materials, I believe there are alternative solutions that should be considered before proceeding with this project. In this day and age we don't need to be extracting more natural resources for economic and development means. Instead, we should be looking to innovative and climate-positive solutions for construction materials. Coal-ash waste can be used for manufacturing concrete and road base. ... This is a valuable opportunity to reduce pollution and environmental impact while simultaneously meeting our construction material requirements. **S-60236228***

*Continuing to destroy state forests and other natural sites to quarry for rock, sand or other natural resources is not sustainable. There are new or alternative technologies available to build roads and other infrastructure using materials such as Recycled Asphalt Pavement which can be easily and cheaply added to road mixes, reducing emissions and material use. Recycled plastic waste, used printer cartridges and many options already exist that do not damage the earth and its inhabitants. **S-60325706***

*ARDG have not shown that their quarry is needed above the existing supply and future supply from existing and establishing regional quarries. There needs to be evidence provided to the public that the States construction industry relies specifically on their project ... **S-60197736***

It has been estimated that the Hunter region alone has approximately 160-200 million tonnes of coal-ash waste at its disposal, presently contributing to ecosystem contamination, which could be reclaimed to manufacture sustainable, high-performing aggregates underpinning far greater potential regional employment benefits than the less than 50 direct jobs associated with the proposed Stone Ridge quarry proposal. S-60727229

I question the need for this quarry as I would rather see emphasis on reuse, recycling, reduction and innovation instead of trying to meet the ever increasing development needs using old resource intensive ways at the expense of flora fauna and community wellbeing. S-60402956

The Proponent points to objective 9 of the Hunter Regional Plan to support the strategic justification for taking gravel, crushed rock and aggregates from a state forest to use in construction. However, the Hunter Regional Plan does not specifically promote quarry products as the only source of reliable construction materials - "recycled materials and secondary aggregates created from construction, demolition and excavation" are given equal weight in the wording of the objective.

Proponent may have rejected alternative quarry sites for their own reasons, but this does not mean the NSW government has no alternatives for sourcing construction materials, including recycled materials which are already being used for road infrastructure. While Proponent contends that there are significant supply-side issues affecting construction projects in the region, we could see no evidence in the EIS about an expected supply shortfall in the region that would justify the environmental harm from a large-scale quarry operating in the Wallaroo State Forest. A cursory look at the Environmental Impact Statements for two major road infrastructure projects mentioned by Proponent in the vicinity of the proposed quarry indicated that construction materials were not likely to become in short supply from the projects and, where feasible, materials would be reused and recycled. S-60433456

The environmental and economic benefits associated with recycling of construction materials is acknowledged, however, its application is limited as not all recycled materials are suitable for all applications and recycled materials cannot meet the demands of the construction industry alone. For example, recycled concrete can be used as an aggregate but cannot be used to make new concrete. The strength achieved from recycled concrete cannot achieve the properties required to meet Australian Standards for many uses. Additionally, there are limitations to the reuse of construction waste (particularly from a contamination perspective) and supply would be unreliable and difficult to quantify. The demand for high-strength construction materials reported in the EIS cannot be met through recycled materials. In addition, there are significant supply issues related to quarry materials in the region, as detailed in the Infrastructure Market Capacity 2023 Report (Infrastructure Australia, 2023), specifically 'Recommendation 3'. These supply issues in turn affect concrete production (Infrastructure Australia, 2023).

5.2.2 Justification of Ecologically Sustainable Development

The EP&A regulation defines the principal [intergenerational equity] as: ...that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.' Intergenerational equity refers to equality between generations. It requires that the needs and requirements of today's generations do not compromise the needs and requirements of future generations in terms of health, biodiversity and productivity.

ARDG believes that: The Project has relatively few environmental and social impacts to the present generation due to the proposed mitigation, offset and compensation provided.

Considering that the residents consider the environmental concerns high on their priorities with little faith in the offset system it will be hard to convince them that this is in the best interests to the futures of their children or grandchildren.

The benefits provided by the Project relate to both the use of the products from the quarry (many of which will be used for the construction of infrastructure or other developments that will service both the current and future generations) In particular, the Project will: • Provide construction material that will support the construction and maintenance of roads and commercial development that will provide benefits to many future generations.

*These arguments have been used time and time again in justification for quarrying to enhance the lifestyles for future generations. Researchers need to look more closely at the worldwide demands made by the younger generation. They care for the environment much more than past generations, understand the implications of climate change more acutely than the present generation and are demanding changes be made in the use of renewables to enhance our lives. Already there are global companies who are listening with changes to the way roads are constructed and the materials they use. **Voice of Wallalong and Woodville***

*A quarry to be approved within State Forest is not ecologically sustainable. **S-60193481***

*The proposal that the Wallaroo state forests become a large-scale quarry instead of sustainable managed forests is out of balance with the Ecologically Sustainable Forest Management (ESFM) principles that underpin the NSW Forest Management Framework, including the objective to maintain or increase the full suite of forest values for present and future generations across the NSW native forest estate. **S-60550984***

*Why is a quarry sustainable in a state forest? Clearly State Forests are "guiding the lilly" on their submission. **S-60354211***

*The Stone ridge quarry is contrary to the principles of the Forestry Corporation objectives sustainability objective. Hard rock extraction is not a sustainable activity. The NSW Government recognises that "up to 40 per cent of the waste generated by Australians is building waste ..." iii and goes to landfill. Destroying the environment for roadbase and construction material is no longer sustainable when we have alternate building waste material that can do the same job. **S-60806806***

*It appears to be inconsistent with NSW Forestry's stated aim of environmental sustainability and would set a concerning precedent, should they all be opened up for quarrying clear-felling, noise, vibration, dust (including silica) and truck movements in our ever diminishing remnant forests/habitat. **S-60402956***

As outlined in Section 7 of the EIS, the Project has been assessed against the principles of ecologically sustainable development as required by the EP&A Act and EP&A Regulation. This assessment has indicated that while the Project, like any large-scale development, would have impacts, these impacts can be effectively managed, mitigated and offset and the development will result in significant economic benefits to both the local and regional area as well as the State of NSW.

The Project is proposed in accordance with relevant legislation and land use requirements. The Project Area is located on land managed by FCNSW (a State Government Agency) and ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act 2012 (Forestry Act).

As outlined in Section 1.7 of the EIS, FCNSW is responsible for “carrying out or authorising the carrying out of forestry operations on Crown-timber land or land owned by the Corporation”. An additional function of FCNSW under section 11 of the Forestry Act is to “take or authorise the taking of forest materials” from this land. Forest materials are defined in the Forestry Act as “rock, stone, clay, shell, earth, sand, gravel or any like material”. At present there are over 20 licensed quarry operations on FCNSW land in NSW. In relation to sustainable development of forestry land, FCNSW seeks to balance environmental conservation and community recreation with the removal of forest resources. The Project will allow for the remainder of the State Forest to be used for recreational purposes and the State Forest will continue to sustainably provide timber resources so that habitat for present fauna species can be retained.

5.3 The Project

The Project design was raised in 12 objecting community and stakeholder organisation submissions and one supporting submission. Objecting submissions mostly related to the operating hours proposed for the Project with one submission related to the staged clearing and pre-clearance surveys.

5.3.1 Hours of Operation

Hours of operation for quarrying & processing being 7am- 6pm Mon – Fri & 7am – 3pm Sat, with truck loading, product transport & maintenance being 6am – 10pm Mon – Fri & 7am – 3pm Sat. Who polices what time trucks can enter Italia Rd in the morning? What time will the last truck exit the quarry? These are questions that we have previously asked at a community meeting held by ARDG only to be told that there is a separate entity that we as residents would need to contact ourselves to have this dealt with, which seems highly unfair to expect that we will have to police the compliance issues ourselves, especially as we will be the sole residence to be affected by this issue. S-60360720

The operating hours appear excessive. With proposed hours of operation having trucks moving from 6am to 10pm 6 days per week (6am to 3pm Saturdays) and quarrying from 6am to 6pm (6am 3pm) Saturdays. S-60630239

This project will cause significant noise pollution with increased operating times to 24 hours a day and blasting increasing from once a month to once a week. S-60821982

For quarries to operate within daylight hours is fair and reasonable. That is 10 hours (Winter) and 12 hours (Summer) for 5 or 6 days per week of daylight hours only. These hours of operation should apply to ALL current and future quarries in the area. S-60448208

if this mine is approved for 24 hours it will have a major effect on our health & quality of life, sleep deprivation etc. S-60487970

The operating hours appear excessive. With proposed hours of operation having trucks moving from 6am to 10pm 6 days per week (6am to 3pm Saturdays) and quarrying from 6am to 6pm (6am 3pm) Saturdays. S-60630239

The proposed construction hours will be in accordance with the Interim Construction Noise Guidelines (DECC, 2009) which identify standard hours for construction activities in NSW:

- Monday to Friday: 7.00 am to 6.00 pm
- Saturday: 8.00 am to 1.00 pm
- Sunday and Public Holidays: no work.

The proposed hours of operation for the key quarry activities are shown in **Table 5.2**.

Table 5.2 Operation Phase Hours of Operation

Activity	Hours of Operation
Blasting	9.00 am to 5.00 pm Monday to Friday Anticipated need for 1 to 2 blasts per fortnight
Quarrying and processing	7.00 am to 6.00 pm Monday to Friday 7.00 am to 3.00 pm Saturday
Truck loading, product transport and maintenance	6.00 am to 10.00 pm Monday to Friday 7.00 am to 3.00 pm Saturdays
No operation on Sundays or Public Holidays apart from maintenance activities as required	

As such, there will be no 24-hour operations and operating activities such as quarrying and processing will only occur within an 11-hour window during 5 days per week only (Monday–Friday).

A Transport Impact Assessment (TIA) has been prepared by GHD in accordance with the SEARs to assess the potential transport impact of the Project in relation to the capacity, condition, safety and efficiency of the public road network. From the TIA (GHD, 2023b), there would be an average of 167 laden truck movements per day generated by the quarry, equivalent to a total of 334 heavy vehicle movements and these heavy vehicle movements would generally be spread across the day. During the peak there may be up to 45 vehicles per hour accessing the site in the morning and 30 in the afternoon.

Noise impacts of operational activities and truck movement was also considered in the EIS (refer to Section 6.2 of the EIS) based on the Noise Impact assessment completed by Umwelt (2023) and it was assessed that road noise impacts from the Project at the nearest receiver (50 m from the carriageway of Italia Road) will be compliant with the Road Noise Policy (RNP). It is also noted that the nearest receiver is 155m from the carriage way of the Pacific Highway and, given the existing traffic volumes on the Pacific Highway, Project-related traffic noise impacts at all other receivers along the Pacific Highway are anticipated to be negligible.

Overall, the noise impacts from the Project are considered to minimal after applying the proposed management and mitigation measures and no exceedances of construction, operational, sleep disturbance, road traffic or cumulative noise criteria are predicted at any nearby residential or industrial/recreational receivers.

As detailed in the sections above, ARDG will develop and implement a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP), including all required sub-plans, protocols, management and mitigation measures proposed in this EIS. These plans will establish roles, responsibilities, authority and accountability of all key personnel involved in the environmental management of the Project including the roles for ensuring that the operating hours are being adhered to by site personnel and external product transport personnel.

5.3.2 Staged Clearing

The Staged clearing with an ecologist onsite for pre clearance surveys, supervision of the clearing and relocation of species is ridiculous. Can an ecologist relocate an endangered plant community type or endangered orchids before being ploughed under by heavy machinery?? S-60205237

As per Section 6.6.7 of the EIS, an ecologist will be present on site to undertake pre-clearing surveys and supervise clearing works.

Surveys were undertaken for the BDAR, included additional surveys following exhibition of the EIS, which specifically target threatened species (refer to Appendix I of the Amendment Report). These surveys are undertaken in accordance with the compressive requirements set out in the NSW Biodiversity Assessment Methodology. No threatened flora species listed under the BC Act or EPBC Act have been observed within the Development Footprint and it was further considered in the BDAR that threatened flora species listed under the EPBC Act have a low likelihood of occurrence within the Development Footprint or in the nearby locality.

However, the Rusty Greenhood (*Pterostylis chaetophora*) (threatened in NSW) was identified to be present within the Project Area. The Amended Project has avoided the areas where this species was observed and this species will no longer be impacted by the Project.

Having an ecologist on-site during staged clearing works will ensure the protection of fauna and flora species as their role will be to follow the detailed tree-felling supervision protocol that is to be developed and documented as part of the Construction Environmental Management Plan for the project and will include the following responsibilities:

- Pre-clearing relocation surveys for fauna.
- Staged clearing works with under-scrubbing prior to tree removal.
- Management of koalas to prevent harm during clearing works.
- Ecologist supervision of all hollow tree felling to manage hollow dependant fauna, including the Brush-tailed Phascogale and Squirrel Glider.
- Nest box installation within the licence area to compensate for hollows removed.

5.4 Procedural Matters

Procedural matters were raised in 51 objecting community and stakeholder organisation submissions. The procedural issues raised within these submissions were generally related to:

- the allowable use of Forestry land for quarrying
- the adequacy of community consultation and engagement
- the adequacy of impact assessments or validity of data used
- the processes for establishment of the Community Consultative Committee
- suggested conditions of approval.

Each of these issues is discussed separately in the sections below.

5.4.1 Adequacy of Consultation

*Had ARDG engaged in genuine community consultation, they would have discovered that one of their most proximate neighbours is a night shift worker who is considerably impacted by the daytime quarry noise. Even on the favourable estimates provided by ARDG, the exposure of his property to vibration, air blast overpressure and fly rock is outside applicable limits (BIA, p24-27). It seems that quality of life for this family is simply regarded as collateral damage. **Save Balickera Inc.***

*... there has been no consultation with us despite our proximity to the quarry site and our family's long history in the area. **Save Balickera Inc.***

*We question ARDG's claim that they engaged in 'comprehensive consultation' with the community. As a result of our own door knocking, phone calling, emailing and surveys, we can report a much higher response rate and levels of engagement over the last few weeks, than recorded in the Social Impact Assessment ('SIA') at Appendix 15 of the EIS, which was prepared over a period exceeding 2 years. The failure to conduct more extensive consultation and surveys during the scoping period was a short-sighted attempt at economy by ARDG. **Save Balickera Inc.***

*The claim that community consultation has been successful or effective cannot be supported, as a number of environmental and community stakeholder groups were not consulted about the proposal prior to the exhibition of the EIS, including GEG. This situation also reflects badly on FCNSW who have undervalued the forest estate which they manage on behalf of the State's constituents. ... As no thoughtful consideration was provided of alternative options to the Stone Ridge Quarry, nor to the impact of the proposal on the value of the region's natural capital, it is considered the consultation process was biased in favour of the quarry development. **Gloucester Environment Group***

*Members from both groups have been involved with several quarry expansion applications including Hanson Brandy Hill and Daracon Martins Creek. It is disappointing and surprising that, even though the DPIE is fully aware of our past involvement, this was not made known to ARDG as no contact has been made with our organisations to obtain comment as required by SEARS. **Voice of Wallalong and Woodville***

*For example, had the proponent/Umwelt contacted VOWW or any members of BHSAG (Brandy Hill /Seaham Action Group) and asked for opinions based on the evidence of their experiences with the Brandy Hill Quarry expansion, they would have had a much better, evidence-based report to deliver. Community quarry issues are issues for any quarry and this case could have been used as a good example of issues that would be experienced by the Italia Rd/Seaham community. **Voice of Wallalong and Woodville***

*It is obvious from these guidelines that the type of consultation that Umwelt used did not include community-based organisations. VOWW was not approached. BHSAG was not approached. EcoNetwork PS was not approached. KKEPS was not approached. These are the major community-based organisations that have wide reaching affiliates with a wealth of information on the environment and quarrying yet no one thought to reach out for consultation or opinions. **Voice of Wallalong and Woodville***

*Several members of VOWW attended the information session at Seaham Hall. They were not able to recall any mention of the surveys that were being conducted. They may have been available on a table somewhere in the hall but not emphasised to the residents present. **Voice of Wallalong and Woodville***

*I believe the entire consultation process was completely flawed, and weighted heavily towards approaching only those who would support this proposed project. There needs to be community meetings that include all those parties who have an interest in the relevance of this proposal and the impact on the wider community. **S-60266214***

*As a resident of East Seaham since 1971 (52 years) I take offence at not being included. I have been involved in the agriculture sector for that entire time, yet have been excluded from this consultation, which I find completely offensive and disrespectful. **S-60266214***

*The uncertainty and the lack of communication has left us feeling as though our lives and everything that we have worked so hard for means absolutely nothing to this development. **S-60360720***

In recognition of the importance of early and open engagement, ARDG has been liaising with stakeholders regarding the Project since 2017. Ongoing consultation has also been undertaken with local, State and Commonwealth government agencies, infrastructure and service providers, local businesses and various community organisations and interest groups, including a comprehensive engagement process undertaken with the Aboriginal community. The stakeholder engagement process has afforded opportunities for ARDG to effectively assess and integrate consultation outcomes within the detailed Project planning, design, and assessment phases.

ARDG is committed to maintaining genuine partnerships with all stakeholders, working with the community to develop a Project that can co-exist with the local community, and communicating openly, honestly and in a transparent manner with all stakeholders. Engagement will continue to include a range of mechanisms designed to provide opportunities for the community to be involved and will be ongoing for the life of the Project.

Stakeholder and community engagement has been undertaken in accordance with the requirements of NSW Government guidelines and assessment standards including, but not limited to, the *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2021a) (Engagement Guideline), and the *Social Impact Assessment Guideline for State Significant Projects* (DPIE, 2023) (SIA Guideline), while also addressing the requirements of the SEARs.

The engagement of stakeholders and community groups has included a combination of:

- consultation and engagement to facilitate stakeholder involvement in the identification of issues/impacts, areas of interest/concern and strategies to address the issues raised
- information provision to improve knowledge and awareness of ARDG and its activities, the Project, and key issues/impacts as they arise.

Various methods were used to engage with the different stakeholder groups based on the type of information being conveyed, level of feedback required, understanding of the stakeholder needs regarding engagement and identified stakeholder engagement preferences. This included a range of mechanisms and materials such as website content, media releases, project information sheets, community information sessions, personal interviews and meetings and feedback forms.

5.4.2 Adequacy of Environmental Assessments

EIS in general

Independent environmental studies should be conducted prior to development consideration and made publicly available. No scientific data has been provided from Forestry Corporation NSW (as the current managers of the public land) to support or validate the proponent's studies. Gloucester Environment Group

The EIS written by Umwelt on behalf of the proponent has not addressed many issues fully and relied on a small cohort of the community to make final judgements on the suitability of this project. Voice of Wallalong and Woodville

Nowhere in the EIS is there mention of the term 'solastalgia'. This is a great contributor to the feeling of distress at having no control of our physical environment, just as is being experienced by the residents most closely affected at Balickera/Italia Road. ... This was discussed at length with Glen Albrecht when the Brandy Hill community was struggling with their feelings with the expansion of the quarry at Brandy Hill. This is an issue that is increasingly being felt by residents around quarry sites and should be included in all EIS reports. Voice of Wallalong and Woodville

A third quarry proposal within less than 10 kms, Eagleton Quarry from Eagleton Rock Syndicate Pty Ltd is presently preparing an Amendment Report after nine public agencies (including the NSW EPA, Heritage, OEH, RFS, Port Stephens Council, DPI and DPI Resources) sought additional information and clarification of the assessment provided by the consultant contained in the EIS ranging from ground and surface water impacts, heritage as well as cumulative social, fire safety and waste management.

We believe comparable issues, including deficits in key information pertaining to impacts and mitigation measures raised in the Eagleton Quarry project assessment will similarly arise in relation to Stone Ridge. Hunter Community Environment Centre

The Scoping Report document is lengthy and very repetitive, which makes it difficult for the lay person to read and understand – is this deliberate? S-60266214

I feel your EIS and NIS reports seem to have been fabricated in a Sydney Office, how otherwise could you come to a conclusion that there are no known cattle and grazing lands in close proximity. S-60349206

I don't believe this project has been considered through an environmental analysis point of view. And if it has, the arguments work against it. S-60226716

The EIS and BDAR reports list many issues, but provides insufficient details about management or mitigation processes. S-60332958

The Stone Ridge Quarry Environmental Impact Statement was prepared by suitably qualified and experienced experts to address the NSW Government SEARs. All specialist studies were undertaken in accordance with the relevant guidelines. Comments specific to individual assessment reports are detailed below.

Biodiversity Development Assessment Report

*Whilst a spokesperson for ARDG confirmed recently in a statement to the Newcastle Herald, that the Koala habitat at risk from the project is mapped as marginal (as is stated in the EIS), we wish to note that Port Stephens Council, in its submission to the Department regarding neighboring Eagleton Quarry proposal notes (section 2.b) that the Koala habitat mapping referred to by consultants for the Eagleton Quarry assessment, mistakenly identifies the area as marginal habit. We wish to seek clarification on this potential error in the classification of Koala habitat, as it pertains to the Stone Ridge Quarry assessment. **Hunter Community Environment Centre***

*Given the preferred koala tree species on site, the CKPoM mapping, the spotlighting and remote camera results (albeit limited), the movement of koalas in the area as indicated by sightings within and around the project area (see above for BioNet sightings), and the proximity to the Port Stephens Immediate Investment Koala Strategy area, we would expect additional surveys to be undertaken before consent is given. These additional surveys should be more extensive and include a range of survey techniques, such as scat detection dogs and drones. Recent surveys using drones and scat sniffer dogs at Kings Hill showed how these different survey techniques have significant merits when trying to locate koala presence over larger areas. **Koala Koalition EcoNetwork Port Stephens Inc.***

*The biodiversity report states that the area is marginal koala habitat based on a 2003 report. It is obviously very out of date and is irrelevant. 20 years later the area is no longer marginal and 2 koalas were spotted during fauna surveys in 2022. **S-60205237***

*There is no discussion in the EIS regarding the foraging needs and range of the GHFF [grey headed flying fox]. The GHFF is a very complex species, with complex foraging needs and habits. Its foraging and roosting behavior will vary over the years depending on the availability and abundance of foraging resources. Much more detailed analysis of the impact of the proposed loss of foraging habitat is required to inform decision makers on the wide range of impacts of the proposal on this important species. The information and more importantly the analysis in the EIS is simplistic in this regard. Roosting and breeding habitat must be supported by accessible foraging habitat, particularly in winter and spring seasons where foraging resources are more limited. Any loss of foraging habitat will contribute to the species decline and its vulnerability to starvation, heat stress and infant mortality. **S-60744206***

*My research team is currently conducting broadscale drone survey operations for koalas and coexisting species to estimate abundance across the Port Stephens Local Government Area. Our research project incorporates Wallaroo State Forest, and we will complete a thermal drone survey that captures the subject site of the proposed development as part of our research permit that covers State Forest Tenure. Data in Wallaroo State Forest will be collected during August, and may allow for an understanding of the potential for impact to the remaining Port Stephens koala populations, in the context of the broader landscape. Once collected our data and expertise may ultimately be relevant to understand the potential for the Stone Ridge Quarry project to impact the Port Stephens Koala Population. **S-60677721***

The BDAR was prepared by an Accredited Biodiversity Assessment Method Assessor.

As stated in the EIS, the Project Area is mapped as Marginal Koala Habitat, in the Port Stephens Council Comprehensive Koala Management Plan (CKMP) this statement relates to the Pit and processing area only. A small section of the Access Road (which is currently a forestry road) is mapped as being Preferred Koala Habitat under the CKMOP. While this mapping is relevant as it informed the site selection, the BDAR has been assessed against current legislation and assessment requirements for impacts to biodiversity. As outlined in the BDAR, extensive seasonal survey has been undertaken across the site between 2018 and 2023 in accordance with relevant survey requirements to inform the BDAR. As koalas were observed in surveys on the site and vegetation communities present on the site contain identified Koala feed species, the distinction between marginal habitat, supplementary habitat and preferred habitat does not affect the assessment under the BDAR.

The BDAR notes that Grey-headed flying-fox was observed foraging within the disturbance area during surveys, however no active roost or breeding habitat is present within the disturbance area therefore the Project will not generate any species credits in relation to this species. Vegetation removal and associated habitat will require offsetting. As previously discussed, ARDG proposes to implement biodiversity management and mitigation measures to mitigate impacts to biodiversity associated with the Project.

Additionally, the Project sits within an area of extensive habitat that will continue to support biodiversity of the Wallaroo State Forest and adjoining National Park. The Project will not remove the existing habitat corridors, fauna will be able to move freely through the forest and the proposed management and mitigation will support the protection of fauna movement.

Traffic Impact Assessment

*While it might be true that there is no traffic data for the area directly at the Italia Road site, we question the use of data from Taree. Closer monitors can be found at Tomago, south of Italia Road. The 2018 data would be well out of date. ... A search of the TfNSW traffic volume viewer has data from these cameras for 2021. It shows 50,133 vehicles going both north and south. To use the increase percentage that GHD applied, the vehicular numbers for 2023 would be approximately 55,000 with 24,690 travelling south. This is a considerable difference to the 10,700 at Twelve Mile Creek (2018) quoted in the GHD report. **Voice of Wallalong and Woodville***

Traffic volumes..... for purposes of a more conservative assessment, the Tuesday volumes will be adopted as the existing conditions. (Italia Rd intersection) (3.4.2 Italia Rd/Pacific highway p.10)

We question the use of conservative numbers. The issue of truck volumes needs to be addressed at peak traffic times as well. Choosing Tuesday, probably the quietest day of the week to use in assessments does not give a true picture. ...

*We would like to see revised, current traffic counts for peak traffic, for example on a Friday as well as during the peak holiday times if the quarry intends to work on those days. We understand that there will be no work during the Christmas and Easter holidays. However, even the lead up days to these holidays will have an impact on traffic numbers. **Voice of Wallalong and Woodville***

*Has any consideration been given to the trucks/quarry traffic (empty) that comes from the north and needs to cross over the oncoming traffic to enter Italia Road? **Voice of Wallalong and Woodville***

Boral requests that Australian Resource Development Group (ARDG) provide an updated Transport Impact Assessment to address the following matters:

- *Sight distance assessment be undertaken to the left and right along Italia Road in accordance with relevant Austroads guidelines.*
- *An assessment of the potential impacts of the Boral / Stone Ridge Quarry intersection on Italia Road based on the vehicle movements proposed under both SSD applications and future growth. **Boral Limited***

*The Umwelt report used road data from Taree many kilometres north on the Pacific Highway and many years old. These numbers were very wrong and very much reduced the numbers of vehicles both heavy and cars that use the section of the Pacific Highway every day. Traffic counters were available for Tomago in 2021 on the Traffic NSW website. **S-60205237***

*The Traffic impact assessment in the EIS only takes a snapshot of the traffic at a single moment in time. It does not take into account the huge increase in traffic on the highway in school holidays particularly on Saturdays, when the quarries will also be operating. **S-59719006***

Social Impact Assessment

*The SIA does not adequately describe the likely social impacts because the target area for the SIA was so small. The authors were disappointed with the number of responses they were given, we believe due to poor engagement and inadequate information sharing but continued with the assessment rather than use new tools to engage with community. In our opinion, a flawed process. People had already become quite disillusioned with the process and become disengaged. The authors believed because there were so few responses to surveys that the community at large is quite happy with the information they were given and the project to proceed. **Voice of Wallalong and Woodville***

*The SIA is flawed because of the small number of people who were included or canvassed. SIA has not thoroughly assessed character and amenity, in fact very little has been written on this issue other than to say that people have some concerns. These concerns have not been alleviated in any way. **Voice of Wallalong and Woodville***

*The concern about problems with dust: Dust produced from the Project resulting in impacts on tank water quality, thereby affecting drinking water quality and resulting in health and wellbeing impacts for proximal landholders (social impact evaluation p.62) Was answered: Provide community with information of the complaint procedure during operations (through OEMP). Please explain how consultation throughout the process by providing information to the community of complaint procedures is effectively answering the high concern that residents have of the quality of their drinking water. There is no point in making a complaint once the dust occurrence has been noted. **Voice of Wallalong and Woodville***

*We believe the S.I.A. was flawed from the beginning and as such the authors should have had another strategy they could have used: "It is important to note that while only four complete responses were received to the community survey provided during the SIA engagement phase, there were twenty attendees at the community information session held." We find it unbelievable that such a small community response did not raise concerns with Umwelt and that the data collected from such a small cohort was still used to provide the SIA. **Voice of Wallalong and Woodville***

Stakeholder and community engagement has been undertaken in accordance with the requirements of NSW Government guidelines and assessment standards including, but not limited to, the Undertaking Engagement Guidelines for State Significant Projects (DPE, 2022b) (Engagement Guideline), and the Social Impact Assessment Guideline for State Significant Projects (DPE, 2023) (SIA Guideline).

The engagement of stakeholders and community groups has included a combination of:

- consultation and engagement to facilitate stakeholder involvement in the identification of issues/impacts, areas of interest/concern and strategies to address the issues raised
- information provision to improve knowledge and awareness of ARDG and its activities, the Project, and key issues/impacts as they arise.

Various methods were used to engage with the different stakeholder groups based on the type of information being conveyed, level of feedback required, understanding of the stakeholder needs regarding engagement and identified stakeholder engagement preferences. This included a range of mechanisms and materials such as website content, media releases, project information sheets, community information sessions, personal interviews and meetings and feedback forms. Although consultation was offered, unfortunately, the willingness to engage from the community was limited; this is beyond ARDG's control.

Noise Impact Assessment

*We question the accuracy of this report [the Noise Impact Assessment]. How many quarry trucks/truck and dog/Bdoubles was this based on. Please refer to peak movements from 3 quarries when you make these predictions and include the fact that the trucks will be travelling along the stretch of highway between Karuah and Italia Road twice. Cumulative noise criteria for the area leading to and around the Heatherbrae round-about has not been modelled or predicted. There are residents near the Richardson Road interchange who will certainly notice the increase in truck traffic noise at the cumulative stage. In addition, you are talking about a rural area around Italia Road with rural noise and not a highly industrialised site with expected background noise. **Voice of Wallalong and Woodville***

The NIA was prepared in accordance with the requirements of the Noise Policy for Industry (Npfi). Traffic related noise associated with the Project relates to the primary haulage road (Italia Road and the Pacific Highway). Traffic volumes along the Pacific Highway are high (in excess of 20,000 vehicles) and fluctuate, therefore project related traffic noise at receivers along the highway are anticipated to be negligible.

The traffic noise assessment considers existing traffic volumes and those associated with the Project. Noting that there is only one receiving potentially impacted by the Project (R16) which is located in close proximity to the Pacific Highway. Project related operational traffic noise levels are predicted to comply with the relevant criteria (which takes into account existing road noise impacts) at this residence.

Surface Water Impact Assessment

The Stone Ridge Quarry Project Surface Water Assessment, factoring in the requirement to meet NorBE criteria states that: Beca Hunter H2O has been engaged to undertake an options assessment of water treatment technologies to reduce pollutant concentrations in controlled discharges to levels where a NorBE on water quality could still be achieved despite the increase in Project site water discharge volumes relative to pre-development runoff volumes.” and has deferred this key element of the project required to satisfy legal criteria until latter phases of the project proposal application.

*It also states that the “WMS will occupy a maximum of approximately 75 ha, approximately 52 ha of which is in the Grahamstown Dam catchment and approximately 23 ha in the Williams River catchment”. It is unclear whether this system will occupy the same or an additional footprint as that described in the Stone Ridge Quarry EIS, to which we pose the question of precisely how many hectares of this high-value State Forest and Endangered species habitat the ARDG would go on to clear or disturb, to service a demand to which alternative supply sources do exist, and are accessible to us here in the Hunter and across NSW. **Hunter Community Environment Centre***

Assessment results indicate that the Project can on average achieve a Neutral or Beneficial Effect (NorBE) on water quality (as required for developments within the Grahamstown Dam catchment) provided adequate site storage capacity is available for all stages of the quarry operation, an appropriate water treatment system is installed and maintained to ensure controlled discharge water quality targets are achieved and appropriate water inventory management is implemented to minimise the volume and frequency uncontrolled discharges. An appropriate WMS is proposed to achieve this.

The disturbance area associated with the Project (68.02 ha) is the total area of disturbance proposed. All works, including water management infrastructure will be contained within the proposed disturbance area.

Economic Impact Assessment

Has Umwelt made any attempt at quantifying:

- *the potential loss of income to any neighbouring farms that may lose income from another quarry nearby.*
- *the cost of repairing a house due to damage from blasting*
- *the need for a resident to install new double glazing to their windows to eliminate some of the noise impact.*
- *the extra visits to the doctors to treat respiratory problems.*

*The term 'local benefits' would indicate to most people 'in their immediate area' and we doubt that is the case here. **Voice of Wallalong and Woodville***

The Project is estimated to provide the following annual direct and indirect annual effects to the local economy:

- *\$102M in output*
- *\$58M in value-added*
- *\$14M in gross wages*
- *176 jobs (47 direct, 129 indirect).*

*How were these figures arrived at? This needs further explanation. **Voice of Wallalong and Woodville***

The assessments indicate that relevant blasting, noise and air quality criteria can be achieved, therefore the listed concerns do not require quantification as part of the assessment. The figures noted in the submission are from the Economic Impact Assessment, which, as there are no guidelines for extractive industries, considers the Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (DPE, 2015) (Economic Assessment Guidelines) and the Technical Notes Supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (DPE, 2018) (Technical Notes). These guidelines provide guidance on the economic assessment techniques that are appropriate for considering the costs and benefits of the Project and the net benefit of the development as a whole to NSW. The values are calculated based on the social, economic and environmental costs and benefits of the Project. Appropriate values are attributed to the costs and benefits in order to determine the overall cost and benefit of a Project, in economic terms.

The relevant calculations and inputs are outlined in the Economic Impact Assessment (as provided with the EIS as Appendix 16).

Blasting Impact Assessment

The Blasting Impact Assessment ('BIA') concludes: Balikera House - vibration exposure is predicted to be no higher than 1.5 mm/s, which is below the applicable criteria of 5 mm/s. However, to our knowledge no testing or monitoring has been conducted on our property in preparation for this EIS ...

*The impact of the proposed fortnightly blasting by Stone Ridge must be considered together with the planned weekly blasting at the Boral Seaham Quarry to assess the cumulative impact. The Blasting Impact Assessment (BIA) at Appendix 6 appears to be based on rather optimistic 'modelling'. **Save Balickera Inc.***

Testing and monitoring at neighbouring properties was not required to inform the Blast Impact Assessment as the testing and monitoring used to develop the site-specific characteristics used in the vibration assessment were obtained from site specific vibration testing undertaken within the Project Area.

As outlined in the EIS, up to two blasts only will occur within a fortnight period. ARDG will liaise with adjacent quarries to prevent concurrent blasting times to avoid cumulative blast impacts and to minimise impact on the local community. ARDG will provide notice of planned blast events to local residences to enable them to plan activities around these events to minimise any inconvenience associated with the blast event just as temporary road closures.

Cumulative Impact Assessment

The cumulative impacts have not been addressed sufficiently in accordance with State CIA requirements or Port Stephens Council's stated requirements. The Stone Ridge Quarry is just one of a number of existing and proposed quarries or extensions in the area and Kings Hill Development as well. S-60402956

The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. In particular, the EIS must include: ...the likely interactions between the development and any existing, approved or proposed development in the vicinity of the site. There has been very little attention placed on this very valid requirement. No mention has been made of the possibility of "Kings Hill" a new development between Raymond Terrace and Italia Road which is currently before the Land and Environment Court and where potential residents may feel the impact of noise and vibration as well as dust. Voice of Wallalong and Woodville

Appropriate cumulative impact assessment has been applied to the assessments which support the EIS. Potential amenity impacts particularly those mentioned relating to noise, vibration and dust associated with the Project are predicted to comply with relevant criteria. Due to the distance between Kings Hill and Project (>4 km), the Project's noise and air quality impacts are unlikely to have any material effect on cumulative impacts at receivers potentially affected by the construction of the Kings Hill development (if approved). The Project's noise, vibrations and air quality impacts are unlikely to be material to impacts observable at future residential developments at Kings Hill (if approved).

5.4.3 Use of Forestry Land

*The fact that the Forestry Corporation is set to profit from this development creates a conflict of interest for government which undermines confidence that the responsible minister can be relied on to objectively determine this application. It is also concerning that ARDG's Deed of Agreement with the Forestry Corporation has apparently already received ministerial approval in advance. It is clear from these considerations and other irregularities within the EIS, that a public hearing is merited, regardless of the number of objections received from our small community. **Save Balickera Inc.***

*Forestry Corporations support for the Quarry Proposal is a direct contradiction of these objectives in its charter. ... A state forest is not a suitable location for a quarry the size and scale of the proposed Stone Ridge Quarry. While the Forestry Act includes provisions for quarries to operate in state forests, the size and scale of the proposed Stone Ridge quarry goes far beyond the size of quarries historically authorised. **EcoNetwork Port Stephens***

*The Stone Ridge Quarry is requesting approval to quarry 1.5 million tonnes per annum, which far exceeds the amount currently being quarried in State Forests, with commensurate higher environmental and community impacts. The 30 years specified in the EIS as the 'Life of Extraction' for the Stone Ridge Quarry Project is also starkly inconsistent with the provisions of the legislation. Any license exceeding five (5) years requires the approval of the Minister. If prior ministerial approval has been granted, as claimed by ARDG, it undermines the integrity of the entire EIS process and in itself merits a public hearing of the application to ensure the process receives appropriate public scrutiny. **Save Balickera Inc.***

*It is not surprising then, that the public is genuinely concerned by the agreement formed between the proponent and FCNSW in 2018 without due community consideration and consultation. Both FCNSW and the proponents have failed to recognise the importance and value of the State Forest estate to the public now and into the future and the far-reaching impact of another major quarry development in the region. **Gloucester Environment Group***

*The Forestry Corporation's role is to manage the forest in a sustainable way. We would argue that is a job they fail to do. Support for this quarry is an example of that. The complete annihilation of a forest, that will then become a hole in the ground, is not part of their remit. **North Coast Environment Council***

*We believe there is a conflict of interest with this project being situated in a State Forest. The government stands to profit through royalties and fees to be paid yet is also the arbiter of the process and decision. The profits to the Government have been mentioned in the EIS as a positive for the project yet no mention of the financial liability to the community or the long term costs of the environmental damage. **Voice of Wallalong and Woodville***

*There are concerns within the community that situating such a large quarry within State Forestry land will set a precedent for other Forestry land. This is public land that has been set aside for recreation and selective logging with replanting. It was never envisaged by the public to also allow digging out rock without the possibility of ever revegetating. **Voice of Wallalong and Woodville***

*It is unacceptable that public land, managed by Forestry Corporation is handed over to a private enterprise who will destroy the value of the forest. State Forests should be managed for the greater good and sustain the current environmental and economic services the forest provides now and into the future. There needs to be full disclosure of the partnership details between ARDG and Forestry Corp, especially since the EIS is deficient in assessing impacts. Forestry Corp needs to explicitly explain how and why the environmental values and social impacts from the project proposal can be equated in terms of undisclosed royalty returns. Forestry Corp should be accountable to its stakeholders the public of NSW and justify their willing deal with ARDG prior to any decision being made by the Department of Planning. **S-60197736***

*What financial benefit will State Forests receive from the Quarry? **S-60354211***

*The Mining Act comes under Federal Jurisdiction. Preliminary approval has been given for the Stone Ridge Quarry through the NSW Forestry Act. One must question whether this back door entry for mining companies to rape our forests should be reviewed. I find it somewhat contradictory that the Port Stephens Council has zoned the properties on Italia Rd as Rural Landscape, yet at our back doors a quarry is permitted. I wonder how much money the Port Stephens Council and NSW Forestry will receive for agreeing to the proposed quarry? I feel it is reasonable to request that this is disclosed. **S-60193466***

As previously discussed, the Project is proposed in accordance with relevant legislation and land use requirements. The Project Area is located on land managed by Forestry Corporation of New South Wales (FCNSW) (a State Government Agency) and ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the *Forestry Act 2012* (Forestry Act).

As outlined in Section 1.7 of the EIS, FCNSW is responsible for “carrying out or authorising the carrying out of forestry operations on Crown-timber land or land owned by the Corporation”. An additional function of FCNSW under section 11 of the Forestry Act is to “take or authorise the taking of forest materials” from this land. Forest materials are defined in the Forestry Act as “rock, stone, clay, shell, earth, sand, gravel or any like material”. At present there are over 20 licensed quarry operations on FCNSW land in NSW, all of which pay FCNSW a royalty for materials taken from the relevant land.

ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act. The Project Area where quarry operations are proposed is approximately 139 ha and is located wholly within the boundary of the Licence Area under the Deed. Should development consent for the Project be granted, FCNSW will issue a FML to ARDG that will enable the company to develop and operate the Project. Under the terms of the FML, ARDG will pay FCNSW a royalty for each tonne of quarry product sold from the Project.

As a permissible activity in the State Forest, the quarry is permissible on the land under the provisions of the Port Stephens Local Environmental Plan. Quarries are also permissible with consent on land where agriculture is permitted (with or without consent) under the provisions of the State Environmental Planning Policy (Resources and Energy) 2021, and, as such, quarrying is also a permissible use (with consent) on much of the surrounding land. The reason for this broad permissibility is related to the location of quarries being linked to the site of suitable rock material and a general intention to locate quarries with other rural or forestry industries rather than in more densely populated areas where the number of people impacted by a quarry project would be larger.

5.4.4 Community Consultative Committee

I also understand that there is a Community Consultative Committee, and that this committee is not accepting any other members, minutes are not available for the community to read, and the meetings are closed meetings. How was this committee established, and who decided who would be members of this committee? How can this be a ‘Community Consultative’ committee? I question the legitimacy of this committee, particularly if decisions are made that affect the wider community, when there is not inclusive community involvement. S-60266214

The Stone Ridge Quarry Community Consultative Committee (CCC) isn’t accepting any new members onto the CCC. Only if the proposal is approved will the proponent of Stone Ridge Quarry be required to place copies of the CCC minutes onto their website for public viewing. I have been advised by the CCC Chair that I will need to contact a CCC member myself to request copies of minutes. The CCC is not inclusive and are making access to minutes and information harder than necessary. S-60796484

In November 2023 Port Stephens Council advertised in both print and electronic media the proposed formation of the Stone Ridge Quarry Community Consultative Committee (CCC). The advertised purpose of the forum is to allow for representatives of the local community to discuss directly with stakeholder groups and Council on issues relating to the Project.

The CCC has an independent chairperson and is operated in accordance with the *Community Consultative Committee Guideline, State Significant Development* (DPE, 2023b). The first meeting of the CCC was held on 23 February 2023 and meetings have been held regularly since.

5.4.5 Suggested Conditions of Approval

If the DPE does decide to recommend approval despite the negative environmental and social impacts, then stringent conditions must be applied to:

- *Restricting the permitted hours of operations, for the protection of residents and fauna from noise and light pollution. Vehicle movements must be avoided in dawn and dusk periods due to wildlife being most active at these times.*
- *Special lighting requirements to minimise upward light pollution given the site is surrounded by state forest habitat.*
- *Require road transport infrastructure upgrades for slip lanes for both left turns into Italia Road and left turns out of Italia Road, to avoid ALL trucks crossing A1 lanes of traffic, before operations are permitted to exceed say 10% of the consented output.*
- *Banning all unavoidable movements along the western end of Italia Road, and trucks crossing traffic lanes as per the prior point.*
- *Best-practice controls must be applied to controlling noise, dust, air and water quality as usual, but in addition, particular controls must be applied to preventing of rogue gravel from being a huge safety risk on the highway, given the proximity.*
- *The NSW government must mandate the provision of rail access and require the use of rail in the interest of public safety and avoiding unnecessary traffic congestion, possibly by applying a levy to help fund that infrastructure. Alternatively, set a condition as per the LEC ruling on Gunlake requiring periodic reviews of transport options, with a limit on tonnes by road to the Sydney basin, after which Rail becomes mandatory.*
- *Any conditions attached to this proposal must be used as a blueprint for any other quarry proposals in Balickera, to give fairness and consistency to residents, road uses and operators. S-60496962*

Should the Project be approved the DPE, in consultation with other government agencies, will prepare Conditions of Approval

5.5 Issues Beyond the Scope of the Project

There were 16 objecting community and stakeholder organisation submissions that raised issues which were beyond the scope of the Project. The issues raised were mainly in relation to other developments in the locality (particularly the Boral Seaham Quarry and the proposed Eagleton Quarry) and government policies and processes (in particular the exhibition/submissions process).

5.5.1 Exhibition and Submissions Process

*The Stone Ridge Quarry Environmental Impact Statement ('EIS') is 222 pages long and, including its numerous appendices, there are over 2,000 pages of technical material to be considered. The 28-day time frame for residents and other concerned community members to object is manifestly inadequate. **Save Balickera Inc.***

*Ours is a small rural community with many residents who prefer nature over technology. Some are not computer literate or lack the confidence, inclination or persistence needed to set up an account with "Major Projects", as required to lodge an objection online. The website also malfunctions on a regular basis and is often not allowing people to submit their objections. No email is provided for alternative lodgement and the formalities that need to be satisfied, even for a paper submission, appear designed to limit the number of "valid" objections counted. We trust all objections will be counted despite minor irregularities. **Save Balickera Inc.***

We would also like to bring to your attention the difficulties residents have had in accessing the DPIE website to lodge submissions. VOWW has received several requests for help with this and even with detailed instructions the problems still exist. We therefore believe that some submissions have not been made due to these difficulties.

Voice of Wallalong and Woodville

*I must preface this objection submit to this proposed quarry in Wallaroo State Forest by stating that I have been unable to access the attachments and resources on the planning portal linked to this submission for the past two days as the pages will not load and, as such have therefore been hindered in my attempts to respond to issues addressed by the developer. **S-60803716***

*I would also like to express my concern about the process of this proposal as I have only just become aware of it 12 months ago and found that I had to wait for the EIS to be published and then had 28 days to object. The EIS, including its appendixes is well over 1000 pages long. A report that has had paid professionals taking at least 2 years to complete. How am I, a busy resident who is not paid to read it, only have 28 days to read it and respond? This applies not just to myself, but everyone else who has recently been made aware of this proposal. I believe this process needs to be rectified by the government in order to make future proposals easier for people who object to reply. **S-60747209***

Community participation is integral to assessing the merits of SSD projects, leading to improved project design, reduced environmental impacts and ecologically sustainable development.

The *State Significant Development Guidelines* (DPE, 2022a) and EP&A Act state that all development applications for State Significant Development are to be exhibited for at least 28 days.

The EIS for the Project was publicly exhibited for an extended period from 22 June 2023 to 1 August 2023 (a period of 41 days) by the DPE. Notwithstanding the exhibition period described above, a number of submissions were received after the end of the exhibition period and the issues raised in those submissions were also considered in this Submissions Report.

5.5.2 Agency Policies and Legislation

The use of offsets to accommodate State Significant developments is obscene and should be discontinued.

*The State, by using offsets is aiding and abetting the destruction of these disappearing habitats that act as refugia for wildlife, carbon capture and sinks, and importantly these areas are vital for water catchments. **S-60550984***

*Quarry development applications are removed from Council via the SSD pathway. Mid Coast Council has been calling on the Department of Planning and Environment to strategically plan for quarry developments in our region in order to ensure the environment is protected now and into the future and social and traffic impacts can be managed for a number of years. **Gloucester Environment Group***

*The truth is there is anger that State Forest is implicated. Anger and disbelief that contrary to State and Federal Government policies on protection of wildlife and habitat, on greenhouse gas emissions and climate change, this proposal has any traction at all. **Voice of Wallalong and Woodville***

*Under NSW planning legislation, our forests are to be sustainably managed. **S-60342957***

*The development as proposed relies on offsite works which have not been assessed or approved. Either those works should be included in the application and their impacts assessed as part of the EIS and in the final determination, or the quarry application should be deferred for determination until after the offsite works are approved. I believe that this is now the accepted practice in assessment of Development Applications in NSW. **S-60072706***

The Project and related assessment have been prepared in accordance with relevant State and Commonwealth legislation and guidelines. The appropriateness of this legislation and guidelines is beyond the control of ARDG who are obliged to work within the current legislative framework.

5.5.3 Other Developments

*To consider further residential development, such as that intended for Kings Hill, in proximity to a multiplicity of proposed quarries is simply irresponsible. **Save Balickera Inc.***

*The community is yet to see any rehabilitation of the existing Boral quarry development, which is seeking instead to massively expand rather than wind up as planned. **Save Balickera Inc.***

*Has any consideration been given to the numbers of heavy vehicles that will be accessing the quarries to deliver the required materials for the concrete batching plants that are proposed? This must be factored into the truck numbers as well. **Voice of Wallalong and Woodville***

*Residents along Brandy hill Drive report infringements to the 'Hanson code of conduct for haulage truck contractors' on a regular basis. Management is well aware of the problems and has made every effort to address the problem over a number of years. There are 6 large signs reminding drivers to abide to the rule and respect the local community however, with different standards of maintenance and the ignorance of some drivers, the problem still exists. **Voice of Wallalong and Woodville***

*The public is notably concerned of the potential of this proposal setting a precedent for other operators to apply for quarry licences adjacent to the Stone Ridge site or for ARDG to request an expansion since they have mapped the appropriate geology leading north to Karuah. **Voice of Wallalong and Woodville***

*At day/night time while crushing is in operation the noise is clearly audible from our house, and that is while the ridge is still in existence at the Boral Quarry. **S-60349206***

*We recently had surveyors entering our property on numerous occasions without permission, driving a star picket and marker post into the ground in our top paddock, which still remain, marking our ground numerous times with paint and even cutting a few trees. We can only assume this would have something to do with the proposed "slip lane", however can't say for certain as no-one has made contact with us. We would have expected that if anyone was requiring access to any part of our property, they would have approached us prior to doing so, introduced themselves advising where they were from, what they required and produced identification, with contact details in the event that we had any questions or issues. No permission has been granted for anyone to enter and exit our property day and night as they please. Whether these surveyors were engaged directly by ARDG or a combination of businesses remains unclear, however we should be kept in loop. Seems we were not considered relevant enough for anyone to make contact, which then poses many other questions in relation to this proposal. **S-60360720***

*I don't want to have Boral in my backyard and have to be subjected to the negative impacts it will have on the community, landscape and the wildlife full stop. **S-60529239***

*While quarry trucks aren't meant to turn left onto Italia Road when existing the existing Boral quarry, this doesn't stop all quarry trucks from doing so. **S-60796484***

*We live our lives around the existing quarry we get woken up at 5:30 when they start with the reversing beeper, gravel going into the bins, front end loader revving up & the scraping of the ground & every gear change of the trucks going up the pit. The same at the end of the day we can't go to bed till after 10pm for all the same reasons. This is only an 8 hour break, shift workers are entitled to a 10 hour break & we don't even get that in our own home. **S-60487970***

Issues raised in relation to the impacts and operations of other Projects in the local area are outside the scope of this report, except for where submissions refer to cumulative impacts from the concurrent operation of both the Project and other external developments. Cumulative issues are discussed in detail in **Section 5.1.4.**

6.0 Updated Project Justification

The proposed Project Area represents a rare opportunity within the LHCC region to develop a large tonnage, quarry operation on geology that has been demonstrated to be ideally suited to the production of the full range of high-quality quarry products (including concrete, asphalt and sealing aggregates, gabion and crushed rock and armourstone). The proximity of the Project Area to key markets and existing State Road infrastructure (i.e., the Pacific Highway) would enable the Project to significantly ameliorate the existing and forecast medium to long term supply-side pressures of quarry materials for the LHCC region, as well as provide direct access to the Sydney market if required. These supply issues were also identified in the Infrastructure Market Capacity 2023 Report (Infrastructure Australia, 2023), specifically 'Recommendation 3'. These quarry materials supply issues in turn affect concrete production (Infrastructure Australia, 2023).

With the possible exception of potential impacts on biodiversity values, the Project will have relatively minor environmental and social impacts. While the Project will necessitate the removal of vegetation and habitat for threatened species, the disturbance area has been further reduced through Project design refinements during the submissions phase. Biodiversity impacts will be fully offset in accordance with the NSW biodiversity offsetting requirements which are based on a no-net-loss principle and impacts on koala habitat will be subject to a like-for-like offsetting requirements. Accordingly, the localised impacts on vegetation and fauna should be fully mitigated through offsetting requirements. It is noted that there are few opportunities for obtaining the quarry material necessary to meet the demand for quarry products which would not also require disturbance of similar or even larger areas of vegetation and potential threatened species habitat. Accordingly, the Project's impacts on biodiversity are largely unavoidable regardless of where the source of material is obtained.

The location of potential quarry projects is dictated by the location, scale and quality of rock material. The Stone Ridge resource is a scarce, large, high-quality hard rock resource suited to a wide range of quarry products which are in high demand. The Project is located close to areas with high demand for quarry product and its close proximity to the Pacific Highway means it is able to readily transport product to customers with minimal impacts on the local road network and surrounding residences and communities.

As outlined in Section 7.5 of the EIS and Section 7 of the Amendment Report, the Project has been assessed against the principles of ecologically sustainable development as required by the EP&A Act and EP&A Regulation. This assessment has indicated that while the Project, like any large-scale development, would have impacts, these impacts can be effectively managed, mitigated and offset and the development will result in significant economic benefits to both the local and regional area as well as the State of NSW.

In economic terms, the Project is predicted to have net benefits to the State of NSW of approximately \$290 million in NPV terms at a 7% discount rate. The Project is predicted to have significant economic benefits to NSW under different discount rates tested and sensitivities to different price and costs assumptions.

The Project is estimated to provide the following annual direct and indirect annual effects to the local economy:

- \$102 M in output
- \$58 M in value-added
- \$14 M in gross wages
- 176 jobs.

The main environmental impacts associated with the Project are internalised into the production costs of ARDG via mitigation, offset and compensation costs. Residual local environmental impacts after mitigation, offset and compensation are likely to be immaterial.

The Project therefore provides a large, economically viable hard rock resource to meet existing and projected demand for quarry products with limited or fully mitigated environmental impacts. Having regard to the costs associated with impact mitigation and potential externalities, the Project is predicted to have significant social and economic benefits to the State of NSW and local region.

The assessment therefore concludes that the Project is consistent with the principles of ESD.

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