

Department of Planning, Housing and Infrastructure

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# Stone Ridge Quarry Project

State Significant Development Assessment Report (SSD-10432)

October 2024





# Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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# Preface

This assessment report provides a record of the Department of Planning, Housing and Infrastructure's (the Department) assessment and evaluation of the State significant development (SSD) application for the Stone Ridge Quarry Project located within Wallaroo State Forest at Balickera NSW, lodged by Australian Resource Development Group Pty Limited. The report includes:

- an explanation of why the project is considered SSD and who the consent authority is;
- an assessment of the project against government policy and statutory requirements, including mandatory considerations;
- a demonstration of how matters raised by the community and other stakeholders have been considered;
- an explanation of any changes made to the project during the assessment process;
- an assessment of the likely environmental, social and economic impacts of the project;
- an evaluation which weighs up the likely impacts and benefits of the project, having regard to the proposed mitigations, offsets, community views and expert advice; and provides a view on whether the impacts are on balance, acceptable; and
- an opinion on whether the project is approvable or not, along with the reasons, to assist the Independent Planning Commission in making an informed decision about whether development consent for the project can be granted and any conditions that should be imposed.

# Executive Summary

On 1 June 2023, Australian Resource Development Group Pty Limited (ARDG) submitted a State significant development (SSD) application and accompanying Environmental Impact Statement for the Stone Ridge Quarry Project (the Project) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The application sought approval to develop a new hard rock quarry to extract, process and transport up to 1.5 million tonnes per annum of hard rock material over a 30-year period.

## Strategic context

The Project is located within the Wallaroo State Forest at Balickera, in the lower Hunter region of NSW. Italia Road extends along the western boundary of the site and the Pacific Highway is located approximately 1.5 kilometres (km) to the south-east. Several rural residential dwellings are located to the north-west along Italia Road and to the south-east near the Pacific Highway. The western side of Italia Road is comprised of remnant woodland vegetation interspersed with several industrial, recreational and extractive industry developments, including the existing Seaham Quarry and the recently approved (but not yet operational) Eagleton Quarry.

The Project is also located within the catchment of Grahamstown Dam, which is located on the eastern side of the Pacific Highway approximately 2.5 km from the Project area. Grahamstown Dam is the Hunter region's largest drinking water supply dam.

The quarry would primarily supply the Lower Hunter, Central Coast and northern Sydney construction markets and renewable energy sector. The construction sector is a key contributor to economic growth in NSW, employing approximately 400,000 workers. Competitive and reliable supplies of quarry products are critical to the NSW construction industry. Demand for these products is driven by government spending on public infrastructure and private investment in commercial, industrial and residential development.

The need for infrastructure investment in NSW, including within the Hunter region, is identified in several key State and regional strategy documents. This infrastructure pipeline includes multi-billion dollar road and rail projects in the Sydney metropolitan area, new and upgraded education and health infrastructure throughout the State, and several major infrastructure projects within the Hunter region that will require a reliable and affordable supply of hard rock quarry products over the next few years. The increased demand for construction materials that could be partially met by the Project, combined with the surrounding rural and residential development and the recognised historic, tourism and ecological values of the region, prompts the need for careful and balanced consideration of these potentially competing land uses.

## Assessment process

The Project is an extractive industry development that would extract more than 500,000 tonnes of extractive materials per year, and from a total resource of more than 5 million tonnes. Accordingly, the Project is declared to be State significant development under section 4.36 of the EP&A Act, as it meets the criteria specified in section 7 of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

The NSW Independent Planning Commission is the declared consent authority under section 4.5(a) of the EP&A Act and section 2.7(1) of the Planning Systems SEPP as more than 50 unique public submissions objecting to the Project were received.

The Department publicly exhibited the Project from 22 June 2023 until 1 August 2023 (42 days). In response to government and community feedback, ARDG amended the Project to reduce the disturbance footprint by approximately 11 hectares (ha) and revise the conceptual quarry layout and extraction staging. On 27 March 2024, ARDG submitted a Submissions Report and Amendment Report. The Submissions Report provided ARDG's consideration of issues raised in submissions and government agency advice whilst the Amendment Report provided further detailed assessment of the amended Project. The Department forwarded both of these reports to relevant government agencies for comment.

In assessing the Project, the Department sought advice from affected government agencies and provided it to ARDG in conjunction with several requests for additional information. ARDG's responses to these requests have been carefully considered in the Department's assessment and evaluation of the Project.

The Department's assessment report and recommended conditions will now be referred to the NSW Independent Planning Commission to make a determination on the Project.

## Engagement

During the public exhibition of the Project, the Department received 162 public submissions, including 144 from individuals and 18 from special interest groups. A total of 139 submissions objected, 17 expressed support and six commented on the Project. Of the 139 objecting submissions, 134 were considered unique submissions.

The Department also received advice from nine State government agencies and Port Stephens Council. The Department carried out a site visit in June 2023.

The Department considers that its engagement process met the community participation requirements of the EP&A Act and Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).



## Assessment

### Biodiversity

Impacts to biodiversity were raised as an issue in the overwhelming majority of community submissions, with key concerns related to impacts to threatened flora and fauna from loss of habitat caused by the proposed removal of vegetation. The Project area provides important habitat for a variety of species and ecological communities. The Project would disturb 68.02 ha of native vegetation, including habitat for 18 threatened fauna species listed under either or both the *Biodiversity Conservation Act 2016* and *Environment Protection and Biodiversity Conservation Act 1999*. For these reasons, impacts to biodiversity required careful consideration during the Department's assessment of the Project.

The Department agrees that the clearing of large areas of remnant vegetation has the potential to adversely affect a range of biodiversity values. However, the Department considers that the Project has been designed to avoid, mitigate and manage biodiversity impacts where practicable. The final disturbance footprint has been minimised and would avoid 11.01 ha when compared with the disturbance footprint presented in the EIS. The Department has carefully considered these impacts on biodiversity values and considers that they would be suitably mitigated, managed and/or offset under the proposed Biodiversity Offset Strategy.

Additionally, the recommended conditions of consent would provide for sound management of retained biodiversity values on the site and assurance to the community and regulatory agencies over the management of residual biodiversity impacts. Overall, the Department considers the impacts of the Project on biodiversity are acceptable, subject to the recommended conditions.

### Water resources

The Department acknowledges the community's concerns regarding potential impacts on water resources from the Project, particularly given the quarry would be located within the Grahamstown Dam drinking water catchment.

However, the Department considers that the proposed water management system has been suitably designed in accordance with Hunter Water requirements to ensure a Neutral or Beneficial Effect on the drinking water catchment. Hunter Water has recommended that this water management system be implemented in full.

The Department accepts that only relatively minor volumes of treated water would need to be discharged offsite, and the Environment Protection Authority (EPA) has confirmed that these would be regulated by an Environment Protection Licence. The predicted water deficits during drier years are also minor and there are measures available to readily manage any water supply shortfalls.

The Department notes that the predicted impacts to groundwater resources would be very localised and limited to a 'less productive' aquifer. The predicted impacts are less than the Level 1 minimal impact considerations set out in the *NSW Aquifer Interference Policy*. Accordingly, the Department considers these impacts acceptable.

With the measures proposed by ARDG and the recommended performance measures and conditions, the Department considers that the risks of impact to surface water and groundwater resources and riparian environments are low and that the Project could be suitably managed to avoid any unacceptable impacts.

## Traffic

Potential impacts to the safety and performance of the local road network were also key concerns for the community. This was largely due to the proposed road haulage of quarry products and potential interactions with existing road users along Italia Road and the intersection of the Pacific Highway.

To address these concerns, ARDG has committed to upgrading the intersection of Italia Road and the Pacific Highway prior to commencing quarry product haulage. It has also proposed that all quarry related vehicles would turn left from the intersection when accessing the Pacific Highway, eliminating the need for quarry trucks to undertake an at-grade crossing of the highway. This would improve the efficiency and safety of this intersection, when compared to existing conditions.

ARDG has also committed to upgrading the intersection of Italia Road and Hamburger Trail, which would form the entry to the Project access road and be suitable for quarry related heavy vehicles.

It is predicted that a satisfactory level of service would still be experienced by motorists on the local and regional road network over the life of the Project.

ARDG has agreed to pay road maintenance contributions to Council for the ongoing maintenance of the local roads which would be utilised by quarry-related heavy vehicles.

Port Stephens Council and Transport for NSW are satisfied with these outcomes.

The Department has recommended conditions requiring ARDG to prepare a Traffic Management Plan prior to the commencement of construction and construct the road and intersection upgrades prior to the commencement of quarry product transportation. The recommended conditions also require strict monitoring of road haulage rates. Subject to these conditions, the Department considers that the traffic and transport impacts of the Project are acceptable.

## Air quality

The Department acknowledges that potential air quality impacts was another key issue raised in the public submissions. However, ARDG has demonstrated that air emissions associated with the Project

are likely to remain below the applicable EPA incremental and cumulative impact assessment criteria at the vast majority of receptor locations. The Air Quality Impact Assessment (AQIA) identified only 4 days where 24-hour Particulate Matter <10 µm (PM10) concentrations would exceed the impact assessment criteria at three receptor locations. These exceedances were due to the combined cumulative impacts from the Project and other quarries in the area. The assessment adopted a conservative assumption that the peak modelled impacts from all quarry operations coincided with peak background PM10 concentrations. However, the AQIA concluded, and the Department and EPA agree, that it is unlikely that the peak predicted impacts from all modelled quarries would coincide with the peak background PM10 concentrations. The Department considers that with the implementation of a reactive real-time monitoring system at the quarry site, air quality impacts could be appropriately mitigated and managed. The Department has recommended a comprehensive range of air quality conditions to ensure this is the case.

## Noise

The Department is aware that increased noise levels associated with the Project was raised as a concern in 55% of public submissions. Notwithstanding these concerns, the Department accepts that the Project is unlikely to exceed the assessment criteria at any of the affected sensitive receiver locations.

ARDG has proposed a series of design mitigation, monitoring and management measures to reduce predicted noise to acceptable levels during operation of the Project. The Department has recommended stringent operational noise conditions to ensure this is the case.

## Other issues

The Department has also assessed the impacts of the Project on other values including social, economic, blasting, hazards and waste, greenhouse gas, Aboriginal cultural heritage, historic heritage, visual amenity and rehabilitation and final landform impacts. The Department considers that following the implementation of reasonable and feasible mitigation measures, the residual impacts of the Project can be suitably managed.

## Conclusion

The Department has carried out a detailed assessment of the merits of the Project, having regard to ARDG's Project documentation, advice from NSW government agencies, and all public submissions. The Department has also considered the objects of the EP&A Act and relevant considerations under Section 4.15(1) of the EP&A Act.



The Department acknowledges the considerable public interest in the Project, and in particular the community's concerns regarding the potential biodiversity, traffic, noise, and air quality impacts from the Project.

The Department has carefully considered all the issues raised throughout its assessment process, including ARDG's responses to the community concerns raised in submissions and feedback from government agencies. It has also considered the suitability of the site and whether it is in the public interest to allow the Project to proceed. Based on this assessment, the Department considers that ARDG has designed the Project in a way that would achieve a practicable balance between maximising resource recovery and minimising associated impacts on the surrounding landholders and the environment through contemporary practices and mitigation measures. The Department recognises that the Project's ability to avoid impacts is restricted by the location of the resource and that complete avoidance is impractical.

The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the Project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed, offset and/or compensated for. The recommended conditions were provided to key NSW government agencies and their comments taken into account in finalising the conditions. ARDG has also reviewed the recommended conditions. The Department considers that the conditions reflect current best practice for the regulation of hard rock quarrying projects in NSW and would lead to acceptable environmental outcomes.

The Department recognises that the proposed quarry would contribute a range of high-quality construction materials to local and regional markets. It would contribute significantly to the supply of materials for the construction of housing and major regional infrastructure projects. The Department also recognises that the proximity of the Project's hard rock resources to the Pacific Highway via Italia Road would allow for the safe and efficient distribution of products to the market. The Department accepts there is a strategic need for hard rock quarry materials in the Hunter, Central Coast and Sydney regions and considers the site to be well-suited for the Project.

The Department also considers that the Project would result in significant economic benefits to the region and to the State of NSW through the supply of materials critical to the construction industry and is therefore justified from an economic efficiency perspective.

The Department has carefully weighed the environmental impacts of the Project against the significance of the Project's identified hard rock resource and the wider socio-economic benefits associated with operating the quarry for 30 years under a contemporary development consent. On balance, the Department considers that the benefits of the Project outweigh its residual costs, the site is suitable for the proposed development, and that the Project is in the public interest and is approvable, subject to the recommended strict conditions of consent.

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# 1 Introduction

1. Australian Resource Development Group Pty Limited (ARDG) proposes to develop a new hard rock quarry known as Stone Ridge Quarry. The proposed quarry is located within the Wallaroo State Forest at Balickera, in the Port Stephens local government area, approximately 30 kilometres (km) north of Newcastle, NSW (see **Figure 2-1**).

## 2 Project

2. On 1 June 2023, ARDG submitted a State significant development (SSD) application and accompanying Environmental Impact Statement (EIS) for the Stone Ridge Quarry Project (the Project) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The application sought approval to develop a new hard rock quarry to extract, process and transport up to 1.5 million tonnes per annum (Mtpa) of hard rock material over a 30-year period.
3. On 27 March 2024, in response to government and community feedback, ARDG amended the Project to reduce the disturbance footprint and revise the conceptual quarry layout and extraction staging. The key aspects of the Project (as amended) are presented in **Table 2-1**. A comparison of the original and amended Project is presented in **Appendix A**. The key features of the Project are also shown in **Figure 2-2**.

**Table 2-1** | Key aspects of the Project

Aspect	Description
Project life	30 years
Production limit	1.5 Mtpa of quarry products
Project area*	Approximately 139 ha, with 68.02 ha disturbance footprint
Depth of extraction	Pit floor -2 m Australian Height Datum (AHD)
Extraction method	Drill, blast, load and haul
Material processing	On site mobile crushing and screening and fixed processing plant
Quarry products	Concrete, asphalt and sealing aggregates, gabion, armour stone, road base and other crushed rock products

Aspect	Description
<b>Resource estimate</b>	Approximately 49 Mt
<b>Product transport</b>	<p>Road transport via Italia Road and the Pacific Highway</p> <p>Up to 60 truck movements (30 laden trucks) per hour and 334 truck movements (167 laden trucks) per day</p>
<b>Workforce</b>	<ul style="list-style-type: none"> <li>• Construction: 10 to 15 full time equivalent (FTE) positions</li> <li>• Operation: Up to 10 FTE positions and 5 part-time positions</li> </ul>
<b>Project hours</b>	<ul style="list-style-type: none"> <li>• Construction: 7am to 6pm Monday to Friday, 8am to 1pm Saturday</li> <li>• Operation: <ul style="list-style-type: none"> <li>– Drilling, extraction and processing 7am to 6pm Monday to Friday, 7am to 3pm Saturday</li> <li>– Blasting 9am to 5pm Monday to Friday</li> <li>– Truck loading, product transport and maintenance 6am to 10pm Monday to Friday, 7am to 3pm Saturday</li> <li>– No operation on Sundays or public holidays apart from maintenance</li> </ul> </li> </ul>

*\* Revised through Project amendments or additional information provided during the Department's assessment*



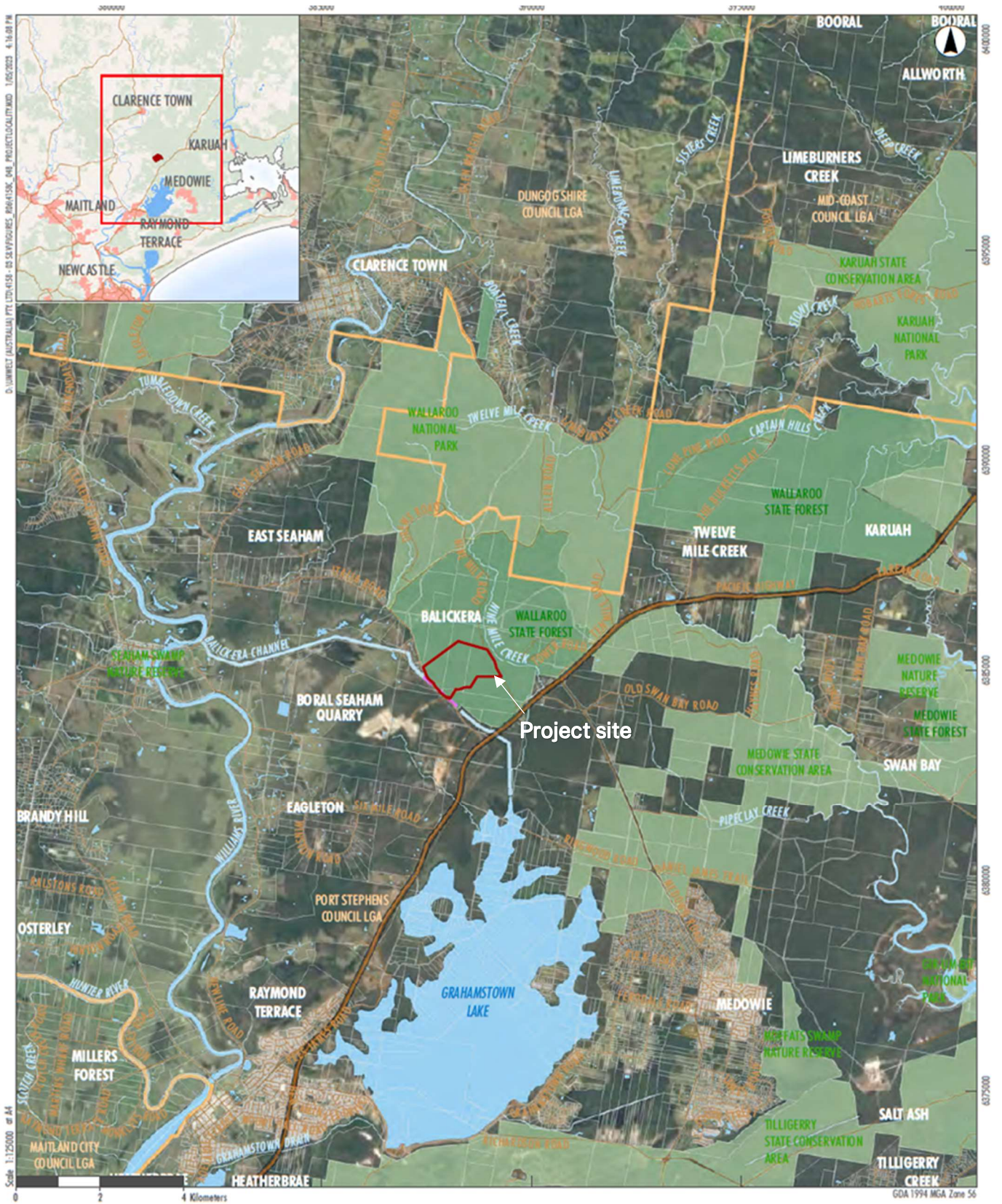


Figure 2-1 | Local context



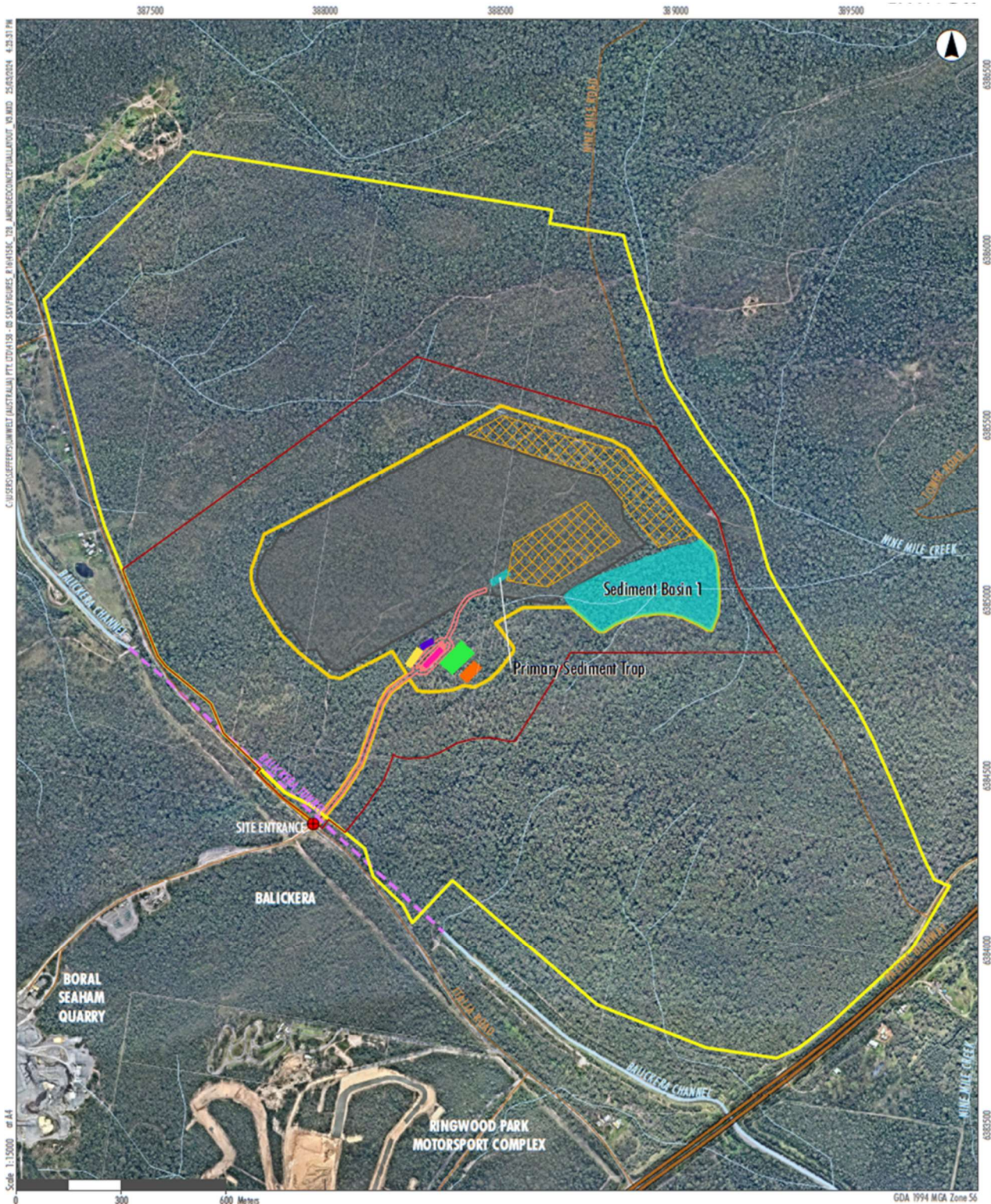


FIGURE 3.1  
Amended Conceptual Quarry Layout

Figure 2-2 | Site layout



## 3 Strategic context

### 3.1 Project setting

4. The Project is located within the Wallaroo State Forest at Balickera, NSW. Wallaroo State Forest extends beyond the Project area to the north, east and south, while Italia Road extends along the western boundary of the site. The Pacific Highway is located approximately 1.5 km to the south-east of the Project area.
5. Several rural residential dwellings are located to the north-west along Italia Road and to the south-east near the Pacific Highway. The western side of Italia Road is comprised of remnant woodland vegetation interspersed with several industrial, recreational and extractive industry developments, including the existing Seaham Quarry and the recently approved (but not yet operational) Eagleton Quarry.
6. The Project is also located within the catchment of Grahamstown Dam, which is located on the eastern side of the Pacific Highway approximately 2.5 km from the Project area. Grahamstown Dam is the Hunter region's largest drinking water supply dam.

### 3.2 Strategic policy

7. The Hunter Regional Plan 2041 (NSW Government, 2022) sets out the NSW Government's strategic vision for the Hunter region. It aims to strengthen the region's economic resilience, maintain its well-established economic and employment bases, and build on its existing strengths to foster greater market and industry diversification. It also aims to protect its diverse terrestrial and aquatic ecological systems, conserve its heritage values, and create thriving communities that enrich the quality of life and wellbeing of their residents.
8. Importantly, the Hunter Regional Plan 2041 emphasises the need to manage different land uses in pursuit of complementary outcomes and attainment of its overriding goals. The increased demand for construction materials that could be partially met by the Project, combined with the surrounding rural and residential development and the recognised historic, tourism and ecological values of the region, prompts the need for careful and balanced consideration of these potentially competing land uses.

### 3.3 Resource and markets

9. The hard rock resource comprises rhyodacite and dacite. Products from the quarry would include concrete, asphalt and sealing aggregates, gabion, armour stone, roadbase and other crushed rock products.

10. The quarry would primarily supply the Lower Hunter, Central Coast and northern Sydney construction markets and renewable energy sector.
11. Owing to their relative proximity to these markets and key transportation corridors including the Pacific Highway, Hunter Expressway and New England Highway there are several other existing and proposed hard rock quarries within approximately 30 km of the Project (see **Table 3-1**). While it is difficult to quantify the amount of hard rock material required over the next few years, the recent influx of SSD applications for hard rock quarries in the region points to a strong demand for hard rock material in the short-to-medium term.

**Table 3-1** | Proposed and operating SSD hard rock quarries within 30km of the Project

Proposal / Project	Location	Production rate	Status
<b>Hillview Quarry</b>	Stroud	750,000 tpa over 20 years	Applicant preparing EIS
<b>Seaham Quarry</b>	Eagleton	2 Mtpa over 30 years	Applicant preparing Submissions Report
<b>Deep Creek Quarry</b>	Limeburners Creek	500,000 tpa over 30 years	Approved in 2024, yet to commence operations
<b>Eagleton Quarry</b>	Eagleton	600,000 tpa over 30 years	Approved in 2024, yet to commence operations
<b>Karuah South Quarry</b>	Karuah	600,000 tpa over 25 years	Applicant preparing Submissions Report
<b>Karuah East Quarry</b>	Karuah	1.5 Mtpa until December 2034	Operating quarry approved in 2014
<b>Brandy Hill Quarry</b>	Brandy Hill	1.5 Mtpa until July 2050	Operating quarry approved in 2020

### 3.4 Demand for construction materials

12. The construction sector is a key contributor to economic growth in NSW, employing approximately 400,000 workers.
13. The need for infrastructure investment in NSW, including within the Hunter region, is identified in several key State and regional strategy documents, including:
  - *Future Transport Strategy: Our vision for transport in NSW (Transport for NSW (TfNSW), 2022)*, which sets the strategic direction for TfNSW to achieve world-leading mobility

for customers, communities, businesses and people. Within the Lower Hunter and Newcastle regions this includes establishing better road, rail and freight connections with the aim of creating ‘30-minute cities’;

- *Hunter Regional Plan 2041 (NSW Government, 2022)*, which predicts that the Hunter region will require an additional 101,800 dwellings by 2041 to meet the needs of a growing population. The Plan also recognises the Hunter region as a leading regional economy and identifies the need for additional employment land, expanded freight and passenger rail networks, and better inter-regional transport connections; and
- *State Infrastructure Strategy 2022-2042: Staying ahead (NSW Government, 2022)*, which sets out Infrastructure NSW’s independent advice to the NSW Government on the State’s needs and strategic priorities for infrastructure over the long term. The Strategy identifies that the future infrastructure investment pipeline in NSW remains healthy and consistent with the commitments of the past 10 years. It also recommends that infrastructure spending should target freight and energy infrastructure and provide for productive regional industries and connected regional communities.

14. To meet the identified infrastructure needs, the NSW Government has committed over \$108 billion in infrastructure spending over the four years to 2025. This infrastructure pipeline includes multi-billion dollar road and rail projects in the Sydney metropolitan area, new and upgraded education and health infrastructure throughout the State, and several major infrastructure projects within the Hunter region, including the Newcastle Power Station, Jesmond to Rankin Park Bypass, M1 Pacific Motorway Extension to Raymond Terrace, and Lower Hunter Freight Corridor, that will require a reliable and affordable supply of hard rock quarry products over the next few years.

## 4 Statutory context

### 4.1 Permissibility and assessment pathway

15. Details of the legal pathway under which consent is sought and the permissibility of the Project are provided in **Table 4-1** below.

Table 4-1 | Permissibility and assessment pathway

Consideration	Description
Assessment pathway	<p><b>State significant development</b></p> <p>The Project is an extractive industry development that would extract 1.5 Mtpa from a total resource of 49 million tonnes. Accordingly, the Project is declared to be State Significant</p>



Consideration	Description
	<p>Development (SSD) under section 4.36 of the EP&amp;A Act, as it meets the criteria specified in section 7 of Schedule 1 of the <i>State Environmental Planning Policy 2021</i> (Planning Systems SEPP).</p>
<p><b>Consent authority</b></p>	<p><b>Independent Planning Commission (the Commission)</b></p> <p>The Commission is the declared consent authority under section 4.5(a) of the EP&amp;A Act and section 2.7(1) of the Planning Systems SEPP as more than 50 unique public submissions objecting to the Project were received.</p>
<p><b>Permissibility</b></p>	<p>The Project area is zoned RU3 Forestry under the <i>Port Stephens Local Environmental Plan 2013</i> (Port Stephens LEP) with part of the access road and intersection works on land within the RU2 Rural Landscape zone.</p> <p>The taking of forest material, which is defined as rock, stone, clay, shells, earth, sand, gravel or any like material under the <i>Forestry Act 2012</i>, can be carried out in accordance with a Forest Materials Licence (FML) under section 42 of the <i>Forestry Act 2012</i>. ARDG holds a Deed of Agreement (Deed) for a FML with Forestry Corporation of NSW (FCNSW) which allows them to seek approval for the operation of a hard rock quarry within a defined Licence Area within the State Forest.</p> <p>The Port Stephens LEP provides that ‘uses authorised under the Forestry Act 2012 are permitted without consent on land zoned RU3 and the access road would comprise ‘roads’ and ‘extractive industries’ uses which are permitted with consent in the RU2 zone.</p> <p>Notwithstanding this, section 2.9(3) of the State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP) also provides that development for the purpose of an extractive industry may be carried out with consent on land on which development for the purposes of agriculture is permissible (with or without consent).</p> <p>Use of land zoned RU3 for the purposes of ‘aquaculture’, which falls within the definition of ‘agriculture’, is permitted with consent under the Port Stephens LEP. As the provisions of the Resources and Energy SEPP prevail to the extent of any inconsistency with the Port Stephens LEP (section 3.28 of the EP&amp;A Act), it follows that use of land within the RU3 zone for the purpose of extractive industry is permissible with consent, requiring development consent under Part 4 of the EP&amp;A Act.</p> <p>Therefore, the Department considers that the Project is permissible with development consent.</p>

## 4.2 Integrated and other NSW approvals

16. Under Section 4.41 of the EP&A Act, several approvals are integrated into the SSD approval process and consequently are not required to be separately obtained for the Project. These include:
  - approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1977*;
  - certain water approvals under the *Water Management Act 2000*; and
  - authorisation to take forest materials under the *Forestry Act 2012*.
17. Under Section 4.42 of the EP&A Act, several other approvals (if required) cannot be refused and must be granted in terms substantially consistent with any consent granted for the Project. These include:
  - consents under the *Roads Act 1993* (Roads Act); and
  - an EPL under the *Protection of the Environment Operations Act 1997* (POEO Act).
18. The Department has consulted with the relevant government authorities responsible for these other approvals (see **Section 5**) and considered their advice in its assessment of the Project (see **Section 6**).

## 4.3 Water licenses

19. The Project is predicted to require up to 39 megalitres (ML) per year of licensed groundwater allocation from the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources 2016 (New England Fold Belt Coast Groundwater Source). ARDG notes that there are available entitlements and has committed to obtaining the required groundwater entitlements for the Project.
20. The Project is not expected to require any licensed surface water entitlement. All surface water runoff capture within the Project dams/water storages are considered as excluded works under Schedule 1 of the *Water Management (General) Regulation 2018* and therefore exempt from requiring a Water Access Licence under Schedule 4 Clause 12 of the *Water Management (General) Regulation 2018*.

## 4.4 Mandatory matters for consideration

### 4.4.1 Matters if consideration required by the EP&A Act

21. Section 4.15 of the EP&A Act sets out matters to be considered by a consent authority when determining a development application. The Department's consideration of these matters is shown in **Table 4-2** below.

**Table 4-2** | Matters for consideration

Matter for consideration	Department's assessment
Applicable environmental planning instruments	<b>Appendix C</b>
Issues raised in submissions	<b>Section 5</b> – Engagement; and <b>Section 6</b> - Assessment
The likely environmental, social and economic impacts	<b>Section 6</b> - Assessment
The suitability of the site for the development	<b>Section 3</b> Strategic context; and <b>Section 6</b> – Assessment
EP&A Regulation	<b>Appendix C</b>
The public interest	<b>Section 5</b> – Engagement; <b>Section 6</b> – Assessment; and <b>Section 7</b> - Evaluation

### 4.4.2 Objects of the EP&A Act

22. In determining the application, the consent authority should consider whether the project is consistent with the relevant objects of the EP&A Act (s 1.3) including the principles of ecologically sustainable development. Consideration of those factors is described in **Appendix C**.
23. As a result of the analysis in **Appendix C**, the Department is satisfied that the development is consistent with the objectives of the EP&A Act and the principles of ecologically sustainable development (ESD).

## 4.5 Biodiversity assessment

24. Section 1.7 of the EP&A Act provides that the operation of the EP&A Act is subject to the requirements of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act). Section 7.9 of the BC Act requires that:
- an application for development consent for SSD is to be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values; and
  - an EIS that accompanies any such application is to include the biodiversity assessment required by the environmental assessment requirements of the Planning Agency Head under the EP&A Act.
25. Section 7.14 of the BC Act requires the consent authority to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR. It also enables the consent authority to grant a development consent subject to the requirement to retire biodiversity credits in accordance with the biodiversity offsets scheme established under the BC Act.
26. A BDAR prepared in accordance with the Biodiversity Assessment Method (BAM) established under the BC Act, accompanied the EIS for the Project (see **Appendix B**). The BDAR was subsequently revised (the Revised BDAR) and included as part of the Submissions Report for the Project. **Section 6.1** provides a summary of the findings of the Revised BDAR.

## 4.6 Commonwealth matters

27. On 8 December 2022, a delegate of the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly Department of Agriculture, Water and the Environment) determined that the Project was a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), due to its potential impacts on threatened species and communities (see Sections 18 & 18A of the EPBC Act).
28. In its determination, the Commonwealth agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments. The Department issued SEARs for the Project addressing matters of national environmental significance (MNES) on 19 January 2023.
29. The Department's assessment of impacts to MNES is provided in **Section 6.1** and **Appendix D**.

30. Following the Commission's determination of SSD 10432 (if approved), the matter would be referred to DCCEEW for determination under the EPBC Act in accordance with the relevant provisions of that Act.

## 5 Engagement

### 5.1 Department's engagement

31. The Department publicly exhibited the Project on the NSW planning portal from 22 June 2023 until 1 August 2023.
32. The Department advertised the exhibition in the Newcastle Herald and Port Stephens Examiner. As the Project is a 'controlled action' under the EPBC Act, an advertisement was placed in The Australian newspaper in accordance with the NSW Assessment Bilateral Agreement. The Department also notified adjoining and nearby landowners and sought advice from key government agencies and Port Stephens Council (Council).
33. The Department carried out site visit on 20 June 2023.
34. The Department considers that its engagement process met the community participation requirements of the EP&A Act and associated EP&A Regulation.

#### 5.1.1 Summary of public submissions

35. A total of 162 community submissions were received during the exhibition including 144 submissions from individuals and 18 from special interest groups. These submissions comprised:
  - 17 (10%) expressing support for the Project, including 15 from individuals and two from special interest groups;
  - 139 (86%) objecting to the Project, including 125 from individuals and 14 from special interest groups; and
  - 6 (4%) commenting on the Project, including four individuals and two special interest groups.

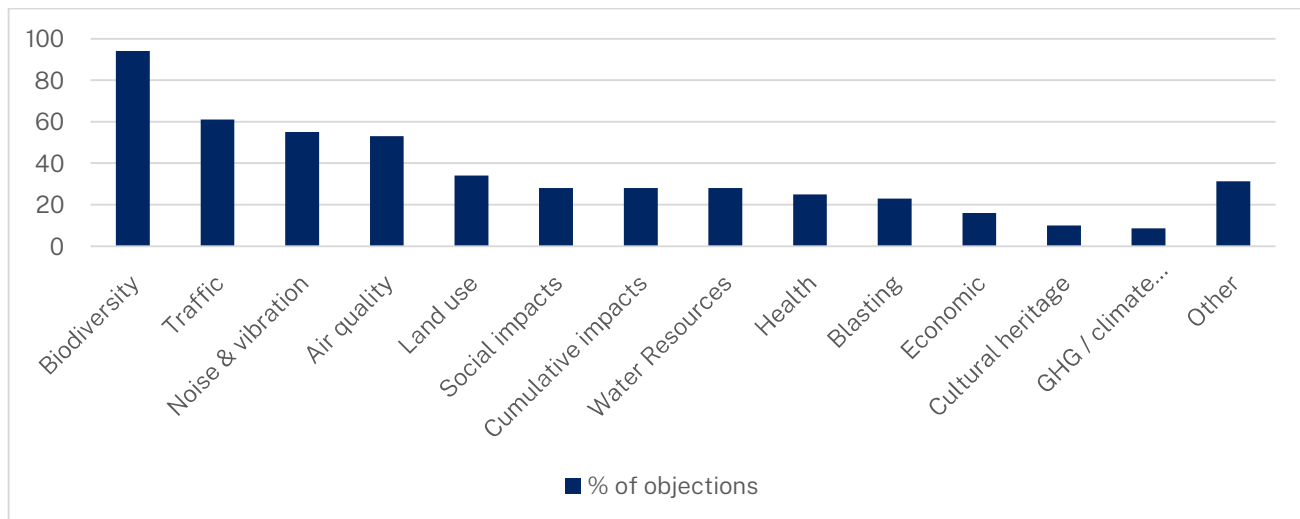


36. Of the 139 objecting submissions, 134 were considered to be unique submissions<sup>1</sup>. A summary of the public submissions received on the Project is presented in **Table 5-1**. A link to all submissions in full is provided in **Appendix B**.

**Table 5-1** | Summary of public submissions

Proximity	Submissions	Support	Object	Comment
Within approximately 5 km of Project area	17	0	16	1
Between approximately 5 km and 100 km of Project area	112	9	100	3
Greater than 100 km from the Project area	33	8	23	2
<b>TOTAL</b>	<b>162</b>	<b>17</b>	<b>139</b>	<b>6</b>

37. The key issues raised by the public relate to biodiversity, traffic, noise and vibration and air quality impacts. Figure 5-1 shows the frequency of the most common issues raised in objecting community and special interest group submissions as a percentage. These submissions have been given detailed consideration in the assessment of the Project’s impacts, as set out in **Section 6**.



**Figure 5-1** | Key issues raised by submitters

<sup>1</sup> Each petition or submission that contains the same or substantially the same text is counted as one submission in accordance with section 2.7(6) of the Planning System SEPP.

## 5.1.2 Summary of agency advice

38. Several State government agencies raised issues or expressed concerns about specific aspects of the Project and/or provided recommendations relating to their administrative or regulatory responsibilities. A link to all advice received from agencies is provided in **Appendix B**.

39. A summary of the comments made by State government agencies is provided in **Table 5-2**.

**Table 5-2** | Summary of agency advice

Agency	Advice summary
<p><b>Heritage NSW</b></p>	<p>Following review of the EIS, Heritage NSW requested an updated Aboriginal Heritage Information Management System search and additional information on the Registered Aboriginal Party consultation process.</p> <p>Following review of the Amendment Report and Submissions Report, Heritage NSW advised that its previous comments had been addressed.</p>
<p><b>Hunter Water Corporation (Hunter Water)</b></p>	<p>Following review of the EIS, Hunter Water:</p> <ul style="list-style-type: none"> <li>• requested further assessment of vibration impacts to Balickera Tunnel, including potential impacts to bats;</li> <li>• recommended a water monitoring program be implemented during Project operation; and</li> <li>• recommended an operational management plan be implemented to manage potential spills of fuels and chemicals within the drinking water catchment;</li> </ul> <p>Following review of the Amendment Report and Submissions Report, Hunter Water:</p> <ul style="list-style-type: none"> <li>• acknowledged the rationale for the design of the water management system to achieve the required water quality objectives and recommended it be implemented;</li> <li>• reiterated the importance of ensuring risks of pollution from dam overflows are properly managed and that site rehabilitation planning and works consider this risk;</li> <li>• acknowledged that predicted vibration impacts are substantially lower than for the original Project and are a low risk of impact to infrastructure, including Balickera Tunnel;</li> <li>• provided recommendations for the operational blast monitoring program;</li> <li>• commented that the revised vibration limit is considered sufficiently low to mitigate impacts to bats in Balickera Tunnel; and</li> </ul>

Agency	Advice summary
	<ul style="list-style-type: none"> <li>acknowledged that no direct impacts on the heritage values of Balickera Canal and Tunnel are likely from the Project.</li> </ul>
<b>NSW DCCEEW – Water Group (Water Group)</b>	<p>Following review of the EIS, the Water Group:</p> <ul style="list-style-type: none"> <li>requested further clarification of water supply and licensing requirements;</li> <li>requested an assessment of impacts to an additional landholder bore;</li> <li>requested further information regarding potential impacts to Groundwater Dependent Ecosystems (GDEs);</li> <li>provided post-approval recommendations for ongoing survey, monitoring and management of GDEs;</li> <li>provided a post-approval recommendation that all works within waterfront land are designed and constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land (DPE 2022); and</li> <li>provided post-approval recommendations for ongoing review of groundwater inflow predictions.</li> </ul> <p>After reviewing the Amendment Report and Submissions Report, the Water Group:</p> <ul style="list-style-type: none"> <li>requested further assessment of impacts to GDEs from installation of the proposed production bore; and</li> <li>provided post-approval recommendations for water licencing requirements and preparation of construction and operational environmental management plans.</li> <li>After reviewing additional information regarding potential impacts to GDEs, the Water Group commented its support for the proposed groundwater monitoring and management.</li> </ul>
<b>Environment Protection Authority (EPA)</b>	<p>Following review of the EIS, EPA:</p> <ul style="list-style-type: none"> <li>commented that the EIS provided the information required by the SEARs; and</li> <li>recommended the Department 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).</li> <li>After reviewing the Submissions Report, EPA advised that its comments had been generally addressed, and made further recommendations regarding operational noise performance limits for conditions of consent.</li> </ul>
<b>Biodiversity Conservation</b>	<p>Following review of the EIS, BCS requested:</p>

Agency	Advice summary
<b>and Science Group of NSW DCCEEW (BCS)</b>	<ul style="list-style-type: none"> <li>• further survey and assessment of impacts to microbats, hollow-dependent fauna, and groundwater drawdown zones;</li> <li>• revised Plant Community Types (PCTs) mapping and assessment;</li> <li>• additional clearing protocols and measures to mitigate loss of habitat connectivity and vehicle strike for threatened species;</li> <li>• additional information regarding threatened species survey methodologies;</li> <li>• further assessment of MNES; and</li> <li>• that sediment basin SW1 not be located within a waterway.</li> </ul> <p>Following review of the Amendment Report and Submissions Report, BCS requested further information including:</p> <ul style="list-style-type: none"> <li>• additional survey and assessment of impacts to amphibians;</li> <li>• an adaptive management plan for potential impacts to microbats;</li> <li>• additional PCT mapping and assessment; and</li> <li>• additional measures to mitigate loss of habitat connectivity and vehicle strike for threatened species on site.</li> </ul> <p>Following review of additional information, BCS accepted the applicant's responses regarding PCT mapping, amphibian surveys and EPBC assessment. It also advised that foraging and breeding habitat for Eastern Cave Bat should be assumed to be present within the Project area and offset accordingly. BCS also made further recommendations for the adaptive management plan to mitigate unforeseen impacts to roosting microbats within the Balickera Tunnel.</p>
<b>Transport for NSW (TfNSW)</b>	<p>Following review of the EIS, TfNSW, requested updates to the Traffic Impact Assessment (TIA) and associated SIDRA modelling.</p> <p>Following review of the Submissions Report, TfNSW commented that its earlier comments had been addressed and provided recommendations for conditions of consent.</p>
<b>NSW Rural Fire Service (RFS)</b>	<p>Following review of the EIS, RFS provided recommended conditions for post-approval bushfire management.</p>
<b>Forestry Corporation of NSW (FC NSW)</b>	<p>Following review of the EIS, FC NSW expressed its support for the Project. It also made recommendations for conditions of consent.</p>

40. The following agencies either raised no concerns or provided no comments on the Project:

- Department of Regional NSW – Mining, Exploration & Geoscience & Resources Regulator (MEG / Resources Regulator)
- Heritage Council of NSW;
- NSW Health;
- DPI Fisheries; and
- Crown Lands.

### 5.1.3 Summary of Council submissions and advice

41. Following review of the EIS, Council made the following comments on the Project:

- raised concerns with:
  - the adequacy of the biodiversity assessment with regard to avoidance of impacts, potential long-term irreversible effects on threatened species and ecological communities, impacts to breeding colonies of microbats, indirect impacts from groundwater drawdown, and the proposed offset strategy;
  - the adequacy of the traffic impact assessment;
- recommended:
  - a reduction of the Project disturbance footprint; and
  - additional assessment of cumulative impacts.

42. Following review of the Amendment Report and Submissions Report, Council made the following comments:

- raised further concerns regarding:
  - potential long term impacts on threatened species;
  - the extent of the reduction in the Project disturbance footprint;
  - enforcement of the requirement for trucks to adhere to the ‘left-in/left-out’ operation of the Italia Road and Pacific Highway intersection; and
- provided recommendations for conditions of consent in relation to road upgrades and operational blast management.



## 5.2 Response to submissions and amendment report

43. On 3 August 2023, following the public exhibition period, the Department asked ARDG to respond to the issues raised in submissions and the advice received from government agencies.
44. On 27 March 2024, ARDG provided a Submissions Report and Amendment Report (see **Appendix B**). The Department published these reports on the NSW Planning Portal and forwarded them to relevant government agencies and Council for comment.
45. ARDG also provided additional information to address several matters raised by agencies and the Department throughout the assessment of the proposal. The Department's requests for further information and ARDG's responses have also been published on the NSW planning portal.

# 6 Assessment

46. Given that the Project proposes the clearing of remnant vegetation within the Wallaroo State Forest, which is located within the Grahamstown Dam drinking water catchment, impacts to biodiversity and water resources were key assessment issues for the Department. Owing to the Project's potential for amenity impacts on nearby residents, noise and air quality were also key assessment issues for the Department. Lastly, due to the proposed road haulage of quarry products and concerns over the use of the Italia Road intersection with the Pacific Highway, impacts on the safety and efficiency of the road network was another focus of the Department's assessment.

## 6.1 Biodiversity

### 6.1.1 Introduction

47. Impacts to biodiversity were raised as an issue in 94% of objecting submissions, with key concerns related to impacts to threatened flora and fauna from loss of habitat caused by the proposed removal of vegetation.
48. The EIS included a BDAR and Biodiversity Offset Strategy (BOS), which were prepared by Umwelt in accordance with the BAM under the BC Act. The BDAR described and assessed potential impacts to biodiversity from the Project, including threatened biodiversity listed under the BC Act and MNES listed under the EPBC Act.
49. Following their review of the EIS, BCS and Council raised several issues regarding the assessment of biodiversity impacts and requested further information regarding the BDAR. A

Revised BDAR was subsequently prepared as part of the Submissions Report. ADRG also provided additional supplementary information to address further issues raised by BCS following lodgement of the Revised BDAR (see **Appendix B** and **Appendix F**).

50. The Department is satisfied that the Revised BDAR and additional information are adequate for assessing the biodiversity impacts and offsetting requirements for the Project.

### 6.1.2 Existing environment

51. The Project area consists of undulating native forest terrain with a mix of mature trees and regeneration. Intact native vegetation surrounds the Project area, providing biodiversity corridors that connect habitat areas and support ecological processes for plants and wildlife movement. Good quality riparian vegetation exists along the drainage lines throughout the Project area.

### 6.1.3 Assessment of biodiversity impacts

52. Potential biodiversity impacts from the Project include loss of native vegetation and fauna habitats, habitat fragmentation or isolation, altered hydrology regimes and the potential incremental decline in quality and extent of habitat during construction and operation.
53. The Project would directly impact terrestrial biodiversity through the clearing of 68.02 ha of native vegetation for the quarry pit, stockpile areas, offices, ancillary infrastructure and access road.
54. The BDAR indicated that the proposed clearing would directly impact habitat for 18 threatened fauna species listed under the BC Act and/or the EPBC Act, namely Squirrel Glider (*Petaurus norfolcensis*), Brush-tailed Phascogale (*Phascogale tapoatafa*), Koala (*Phascolarctos cinereus*), South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*), Varied Sitella (*Daphoenositta chrysoptera*), Little Lorikeet (*Glossopsitta pusilla*), White-bellied Sea-Eagle (*Haliaeetus leucogaster*), Little Bent-winged Bat (*Miniopterus australis*), Large Bent-winged Bat (*Miniopterus orianae oceanensis*), Greater Broad-nosed Bat (*Scoteanax rueppellii*), Spotted-tailed Quoll (*Dasyurus maculatus*), White-throated Needletail (*Hirundapus caudacutus*), Swift Parrot (*Lathamus discolor*), Yellow-bellied Glider (south-eastern) (*Petaurus australis australis*), New Holland Mouse (*Pseudomys novaehollandiae*), Grey-headed Flying-fox (*Pteropus poliocephalus*), Rufous Fantail (*Rhipidura rufifrons*), and Black-faced Monarch (*Monarcha melanopsis*).
55. Three of these species (Squirrel Glider, Brush-tailed Phascogale, and Koala) would require offsetting via the retirement of species credits. Impacts to the habitat for the remaining species would be offset via the retirement of ecosystem credits.

Additionally, a microbat call recorded during threatened species surveys was identified by Umwelt as one of four possible species, three of which are not threatened (Chocolate Wattled Bat (*Chalinolobus morio*), Eastern Forest Bat (*Vespadelus pumilus*), Little Forest Bat (*Vespadelus vulturnus*)) and one of which is listed as 'Vulnerable' under the BC Act (Eastern Cave Bat (*Vespadeuls trougtoni*)). Whilst a positive identification for the Eastern Cave Bat was not confirmed during surveys, Umwelt consider it unlikely that the species is present on the site for the following reasons:

- the species is not typically associated with the PCTs identified within the Project area;
- there are no rocky escarpments within 2 km of the Project area that would provide the preferred suitable roosting habitat for a local population of the species;
- the species has not previously been identified within the Balickera Tunnel despite extensive surveys having been conducted as part of the tunnel remediation works recently completed by Hunter Water; and
- the nearest confirmed sighting of the species identified through trapping surveys, based on publicly available Bionet Atlas records, is located over 75 km away from the Project area in more suitable habitat.

56. Notwithstanding this, based on advice from BCS, the Department has taken a precautionary approach and assumed that the bat call was from the Eastern Cave Bat (*Vespadeuls trougtoni*). As such, foraging habitat for the species is assumed to be present within the Project disturbance footprint. Accordingly, species credits for this species have been included within the biodiversity offsetting obligations for the Project (see below). However, in recognition of the fact that the species presence was not able to be confirmed during the surveys, the Department's recommended conditions allow ARDG to undertake additional targeted surveys for this species prior to the commencement of vegetation clearing and based on the results of those surveys, adjust the species credit offsetting obligations accordingly in consultation with BCS and to the satisfaction of the Planning Secretary.

57. The proposed vegetation clearing would also impact four Plant Community Types (PCTs), two of which (PCT 762 and PCT 1618) constitute threatened ecological communities (TEC) as they meet the definition of *River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions*, which is listed as Endangered under the BC Act. These two PCTs also meet the definition of *Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Queensland bioregions*, which is listed as Endangered under the EPBC Act. All four PCTs provide habitat for threatened species and generate ecosystem-credits that would require offsetting.

The impacts from the Project on vegetation communities, threatened fauna species and the associated biodiversity credits required to offset these impacts are summarised in **Table 6-1** *Note: \*this species is assumed to be present within the Project disturbance footprint. The species credit obligations in the above table represent the worst-case scenario for impacts to foraging habitat for this species. The Department has recommended that these species credit obligations are reviewed in consultation with BCS following the completion of additional targeted surveys prior to the commencement of vegetation clearing.*

## Koala

58. Numerous public submissions and Council raised concerns in relation to potential impacts to the local Koala population. The Department also notes that four Koalas were observed within the Project area during targeted species surveys. Accordingly, at the Department’s request, Umwelt provided additional assessment of Koala impacts against the performance criteria for developments in Council’s Comprehensive Koala Plan of Management (CKPoM) (PSC, 2002) (refer to **Appendix F**). The extent of koala habitat mapped within the CKPoM relative to the Project disturbance footprint is shown in **Figure 6-1**. The mapped categories of koala habitat (as outlined in the CKPoM) within the Project disturbance footprint are as follows:

59. .

**Table 6-1 | Biodiversity impacts of the Project**

Ecological feature	BC Act listing	EPBC Act listing	Impact area (ha)	Impact credits
<b>Ecosystem credits</b>				
PCT 762 Cabbage Gum open forest or woodland on flats of the North Coast	Endangered	Endangered	0.33	13
PCT 1590 Spotted Gum – Broad leaved Mahogany – Red Ironbark shrubby open forest	Not listed	Not listed	39.27	1092
PCT 1618 Smooth-barked Apple – White Stringybark – Red Mahogany – <i>Melaleuca sieberi</i> shrubby open forest on lowlands of the lower North Coast	Endangered	Endangered	0.88	34

Ecological feature	BC Act listing	EPBC Act listing	Impact area (ha)	Impact credits
PCT 1619 Smooth-barked Apple – Red Bloodwood – Brown Stringybark – Hairpin Banksia heathy open forest of coastal lowlands	-	Not listed	27.54	763
<b>Species credit species</b>				
<i>Petaurus norfolcensis</i> (Squirrel Glider)	Vulnerable	Not listed	68.01	2519
<i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)	Vulnerable	Not listed	68.01	2519
<i>Phascolarctos cinereus</i> (Koala)	Endangered	Endangered	68.01	2519
<i>Vespadelus troughtoni</i> (Eastern Cave Bat)*	Vulnerable	Not listed	68.01	3778

Note: \*this species is assumed to be present within the Project disturbance footprint. The species credit obligations in the above table represent the worst-case scenario for impacts to foraging habitat for this species. The Department has recommended that these species credit obligations are reviewed in consultation with BCS following the completion of additional targeted surveys prior to the commencement of vegetation clearing.

## Koala

60. Numerous public submissions and Council raised concerns in relation to potential impacts to the local Koala population. The Department also notes that four Koalas were observed within the Project area during targeted species surveys. Accordingly, at the Department's request, Umwelt provided additional assessment of Koala impacts against the performance criteria for developments in Council's Comprehensive Koala Plan of Management (CKPoM) (PSC, 2002) (refer to **Appendix F**). The extent of koala habitat mapped within the CKPoM relative to the Project disturbance footprint is shown in **Figure 6-1**. The mapped categories of koala habitat (as outlined in the CKPoM) within the Project disturbance footprint are as follows:

- Preferred Koala Habitat – 0.788 ha (1.16 % of disturbance footprint);
- 50 m Buffer over Marginal Habitat – 1.704 ha (2.50 % of disturbance area);
- 50 m Buffer over Cleared – 0.197 ha (0.29 % of disturbance area); and
- Marginal Habitat – 65.401 ha (96.05 % of disturbance area).

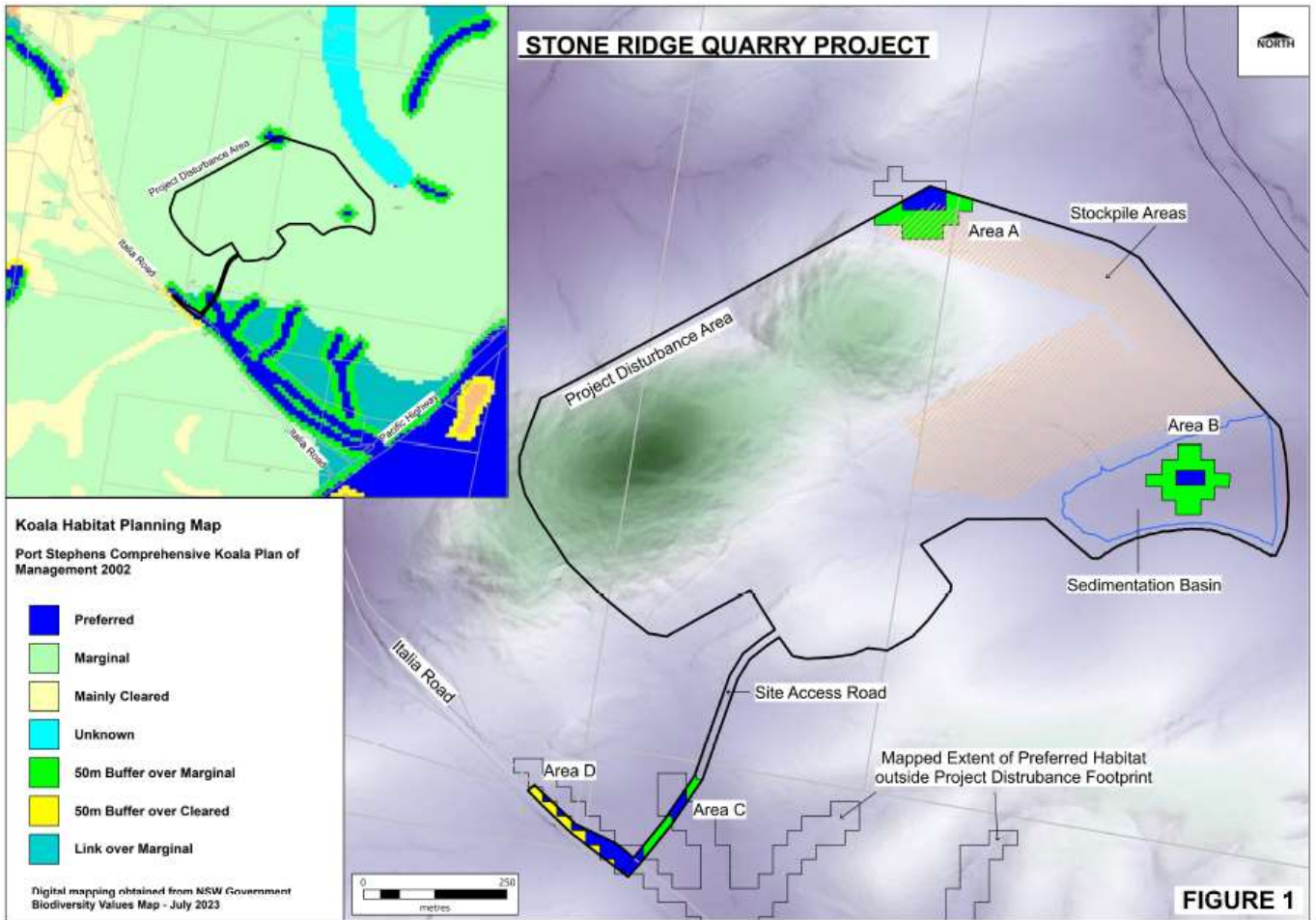


Figure 6-1 Project disturbance footprint and koala habitat mapping from CKPoM

61. The Department considers that the koala habitat loss from the Project would be minor in the context of the large expanse of forest vegetation adjoining the Project area that is also likely to contain suitable Koala feed tree species, particularly to the south and east. The Project would also maintain vegetated corridors to the north and south of the Project area to allow movement of this species to adjoining habitat to the northeast. Whilst the Department acknowledges that the entire Project disturbance footprint contains Koala habitat, the majority (approximately 96%) is mapped as Marginal habitat under the CKPoM. The removal of 2.69 ha of Preferred koala habitat (as mapped under the CKPoM) is unlikely to represent a significant reduction in important available habitat for this species in the locality.

62. ARDG has also committed to mitigating and managing impacts on Koalas through:

- implementing clearing protocols including pre-clearing fauna surveys, fauna translocation protocol and vegetation clearing protocol;
- management and control measures for weeds and vertebrate pests;
- measure to ensure the salvage, storage and redistribution of habitat features within the rehabilitation areas; and



- offsetting impacts to koala habitat in accordance with the NSW biodiversity offsetting requirements which are based on a no-net-loss principle and like-for-like offsetting requirements.
63. With the consideration of the minor habitat loss (2.69 ha of Preferred Koala habitat, including buffers) in the context of the large areas of surrounding habitat, coupled with the proposed Koala impact mitigation, management and offsetting measures, the Department considers that the project would not be inconsistent with the performance criteria in the CKPoM.

### Groundwater dependent ecosystems (GDEs)

64. GDEs are ecosystems which require access to groundwater to meet all or some of their water requirements. No high-priority GDEs have been identified within the predicted radius of groundwater drawdown from the Project. High probability GDEs (corresponding to the areas mapped as PCT 1719 Prickly-leaved Paperbark Forest on the Coastal Lowlands of the Central Coast and North Coast) were identified within the Project area, but outside the proposed disturbance footprint (refer to **Figure 6-2**).
65. The BDAR and Groundwater Impact Assessment (GHD, 2024) concluded that the presence of the high probability GDEs within the Project area is likely due to shallow groundwater in the overlying alluvial/colluvial material, which is recharged from creeks and rainfall, rather than the deeper, fractured rock aquifer. Therefore, the modelled drawdown of groundwater in the deeper, fractured rock system (refer to **Section 6.2**), which is separated from the alluvial/colluvial aquifer by an aquitard, is not predicted to adversely impact these high probability GDEs.
66. The BDAR and Groundwater Impact Assessment also found that the Project is unlikely to have an impact on aquatic GDEs or the baseflow of streams in the drawdown zone, as the groundwater elevation is already below the creeks in the area.
67. The Water Group initially questioned the BDAR's conclusions regarding potential impacts to GDEs, however on review of additional information provided by ARDG, it made recommendations for conditions of consent, which included ongoing monitoring of groundwater drawdown, and development of a GDE monitoring and management plan. The Department supports the Water Group's recommendations and considers that risks to GDEs can be appropriately managed through the recommended conditions of consent.

### Bats in Balickera Tunnel

68. Balickera Tunnel extends over a length of approximately 1,220 m and is positioned parallel to the proposed extraction area at a distance of approximately 300 m at its nearest point. The



BDAR identified that the tunnel provides important habitat for threatened microbat species. Following review of the EIS, BCS requested further assessment of potential impacts to roosting microbats within the tunnel from proposed blasting activities. In response, Umwelt provided further detailed assessment which concluded that risks to roosting microbats were low for the following reasons:

- due to the orientation and lower RL of the tunnel, the entries to the tunnel are well shielded from any direct overpressure impacts from the Project;
- the orientation of the tunnel effectively precludes flyrock and blast fume from entering the tunnel;
- there is no risk of strata movement or detachment of small rock debris within the tunnel at the estimated vibration levels;
- the tunnel presents a dynamic and noisy environment, and the bats living in the tunnel have already experienced exposure to noise and vibration due to the movement of water through the tunnel, blasting at the adjacent Seaham Quarry, traffic on Italia Road and tunnel remediation works undertaken by Hunter Water during 2021 and 2022; and
- blasting can be managed to ensure vibration within the tunnel does not exceed 10 mm/s which, based on the findings of a comparative study undertaken in a mine in Western Australia, is appropriate for mitigating adverse impacts to roosting microbats.

69. Notwithstanding these conclusions, ARDG has also committed to developing and implementing an adaptive management plan that would include monitoring of vibration levels and bat movements within the tunnel during blasting and procedures for ongoing monitoring and adaptive management to mitigate any potential impacts. The Department and BCS accept these conclusions and ARDG's proposed adaptive management plan, which has been included as a requirement in the recommended conditions of consent.

### **Serious and Irreversible Impacts (SAIL)**

70. An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct. No SAIL entities, as defined under clause 6.7 of the *Biodiversity Conservation Regulation 2017*, were observed during the biodiversity surveys undertaken for the BDAR.
71. Breeding habitat for the Eastern Cave Bat, Little Bent-winged Bat and the Eastern Bent-winged Bat is a potential SAIL entity. Confirmed calls of the Little Bent-winged Bat and Eastern Bent-winged Bat, and a potential call of the Eastern Cave Bat, were recorded during biodiversity surveys. Both species of the Bent-winged Bats are known to roost in the Balickera Tunnel, however the females are reported as absent during summer indicating that the tunnel

is not used as breeding habitat. The tunnel has also not been reported as providing roosting or breeding habitat for the Eastern Cave Bat. Notwithstanding the identification of these bats within the Balickera Tunnel, the BDAR concluded, and the Department agrees, that the risks to roosting microbats from the Project is low (for the reasons outlined above). Further, it is unlikely that the tunnel is used for breeding habitat. Accordingly, the Department considers it unlikely that the Project would result in adverse impacts to breeding microbat species or any other SAI entities.

### Other indirect impacts

72. The Project also has the potential to cause indirect and ‘prescribed<sup>2</sup>’ impacts on land adjacent to the disturbance footprint during construction and operation, including increased levels of dust, light and noise; erosion of soils; downstream modification of hydrology, reduction in habitat connectivity, reduction in habitat suitability due to site occupation, increased risk of vehicle strike on native fauna, and the transfer of weeds and pathogens.

#### 6.1.4 Avoidance, minimisation and mitigation

73. The Department considers that biodiversity impacts have been adequately avoided by minimising disturbance where practicable. Through refinement of the Project design, ARDG has reduced the clearing of native vegetation by 11.01 ha when compared with the disturbance footprint presented in the EIS (see **Figure 6-3**).

74. Other avoidance measures implemented by ARDG include:

- avoiding the north-western section of the Project area, which contains areas occupied by the Rusty Greenhood (*Pterostylis chaetophora*) and habitat which potentially facilitates wildlife movement to the west;
- avoiding impacts to PCT 1716 Prickly-leaved Paperbark forest on coastal lowlands of the Central Coast and Lower North Coast, which is considered to be a high-probability GDE and corresponds to the *Subtropical coastal floodplain forest* EEC listed under the BC Act and *Subtropical Eucalypt floodplain forest and woodland* listed under the EPBC Act; and
- aligning the site access from Italia Road with the existing access track, to minimise impacts to PCT 762 Cabbage Gum open forest or woodland on flats of the North Coast, which corresponds to the *River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions* EEC listed under the BC Act

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<sup>2</sup>Prescribed impacts are those that may affect biodiversity values in addition to, or instead of, impacts from clearing native vegetation. They are defined under Clause 6.1 of the Biodiversity Conservation

and *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* EEC listed under the EPBC Act.

75. ARDG has committed to mitigating impacts on biodiversity by:

- implementing a vegetation clearing protocol that requires pre-clearance surveys and supervision of vegetation clearing, staged clearing works, sequential and directional clearing towards areas of refuge, sectional dismantling of hollow-bearing trees, and cessation of clearing works when temperatures exceed 35 degree Celsius;
- engaging an ecologist to supervise felling of all hollow-bearing trees to manage hollow-dependant fauna;
- installing nest boxes within the Project area to compensative for hollows removed during tree clearing;
- scheduling vegetation clearing works for the most suitable time of year to minimise impacts during the breeding seasons of identified potential threatened species and other fauna;
- implementing fauna relocation and injury management protocols;
- installing and maintaining temporary erosion and sediment controls during construction and permanent controls during operation;
- stabilising (landscaping and revegetation) all disturbed areas not required for the operation of the Project, to reduce the potential for future erosion;
- workforce education and training;
- weed management; and
- fencing, access control and fauna exclusion.

76. The Department has recommended a condition requiring ARDG to prepare and implement a Biodiversity Management Plan that incorporates these mitigation measures, as well as other contemporary biodiversity management practices.

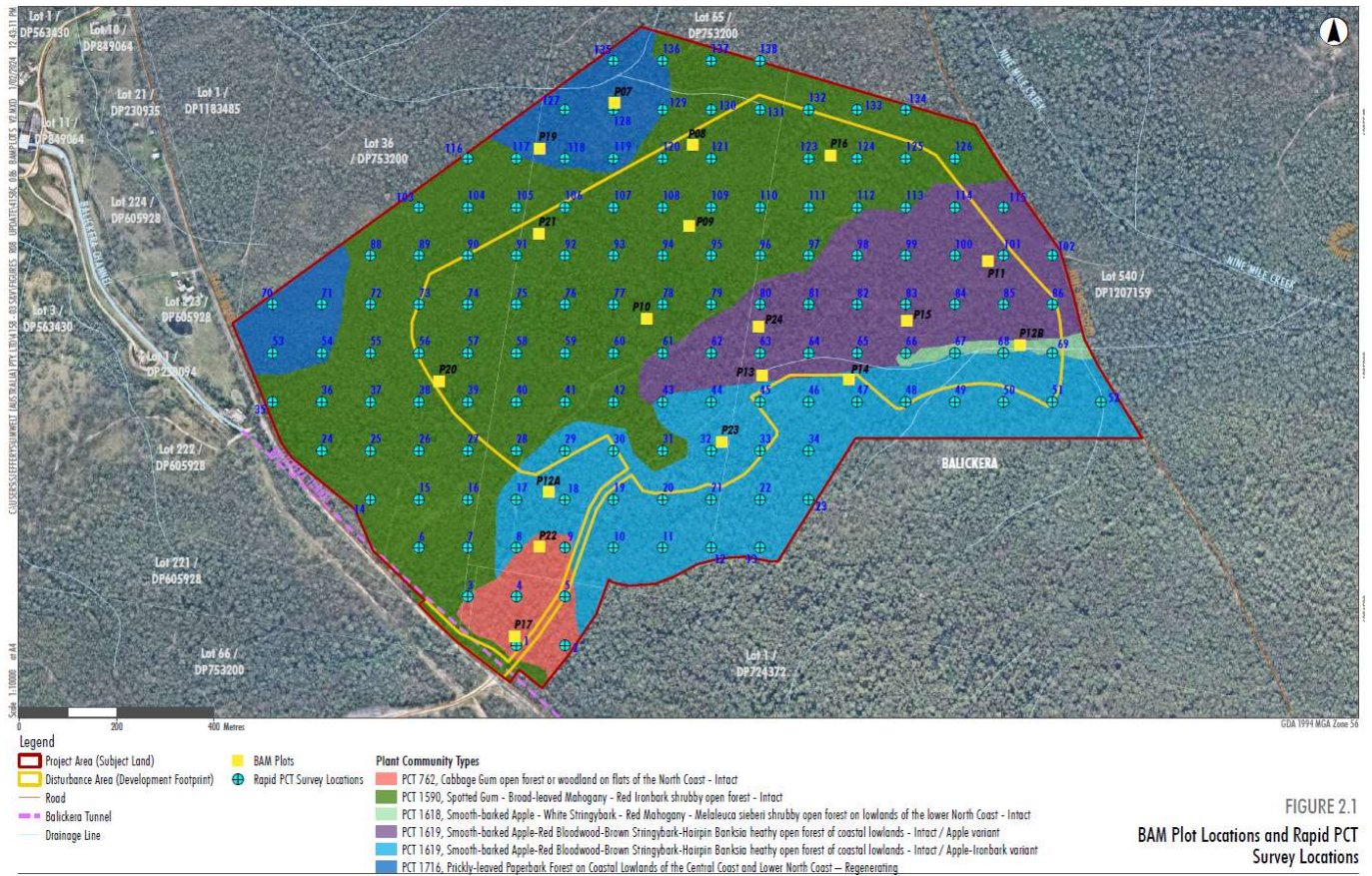


Figure 6-2 | Vegetation communities impacted by the Project



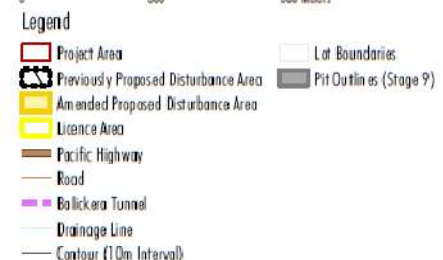
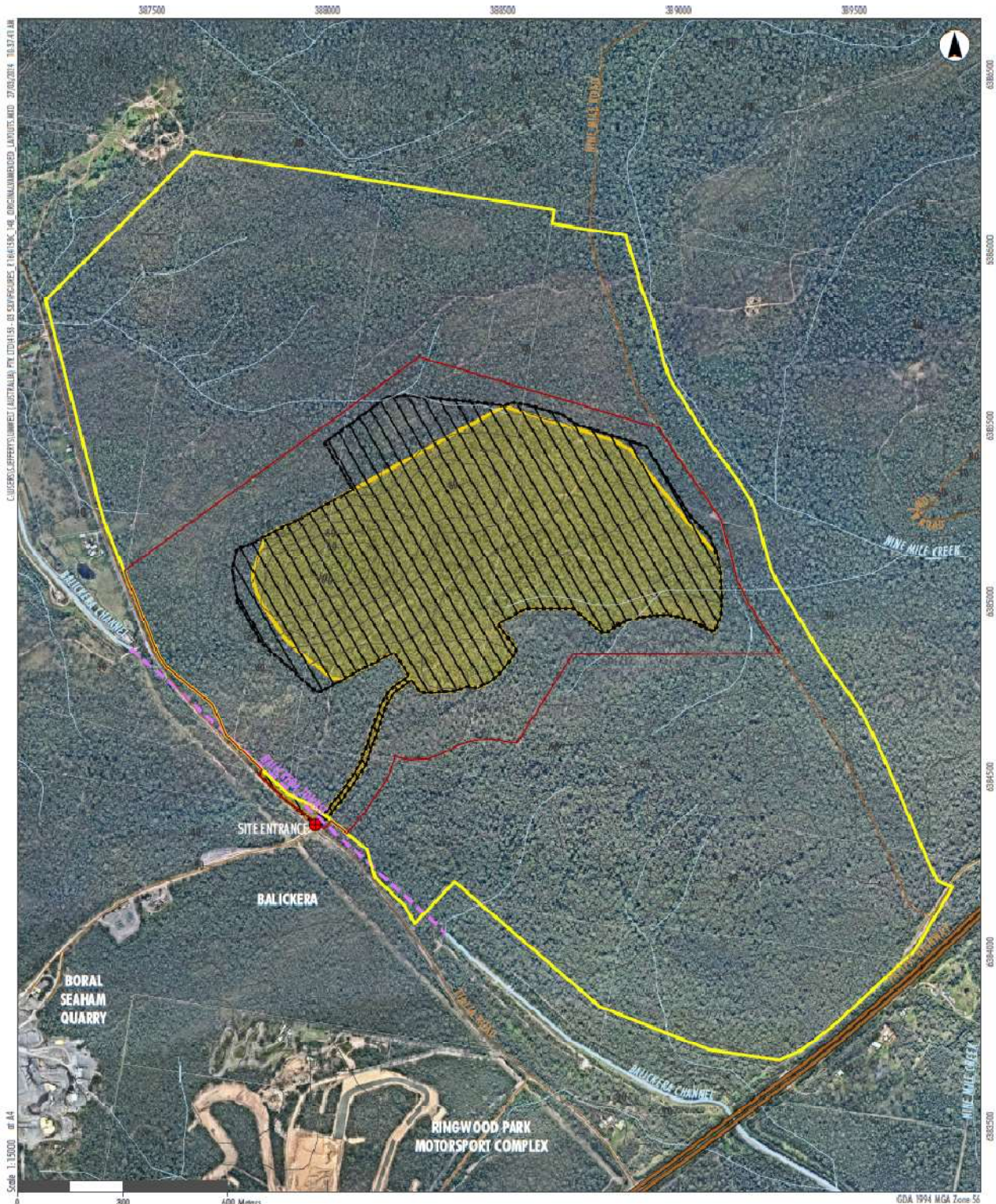


FIGURE 3.2  
Original v Amended Layouts

Figure 6-3 | Original (EIS) vs amended Project (Amendment Report) layouts



### 6.1.5 Offsetting

77. To offset the residual biodiversity impacts of the Project, ARDG proposes to implement a staged BOS, including the retirement of:
- 1,902 ecosystem credits for four native plant community types; and
  - 7,557 species credits for three threatened fauna species.
78. ARDG are committed to further investigating the retirement of biodiversity credits through the establishment of a Biodiversity Stewardship Site within the Wallaroo State Forest.
79. ARDG indicated that where credits are not generated and retired within the Wallaroo State Forest they would be purchased from the market or a payment would be made to the Biodiversity Conservation Fund. The like-for-like credit rules would be followed for nationally listed entities which require credits.
80. ARDG have proposed a staged approach for the retirement of credit liabilities based on the incremental removal of vegetation, as follows:
- Stage 1 – 31.64 ha: 858 ecosystem credits and 3516 species credits;
  - Stage 2 – 20.75 ha: 576 ecosystem credits and 2304 species credits; and
  - Stage 3 – 15.63 ha: 434 ecosystem credits and 1737 species credits
81. The Department accepts this staged approach and has recommended conditions requiring the retirement of corresponding credit liabilities prior to each stage of vegetation clearing.
82. Additionally, ARDG has committed to offsetting impacts to foraging habitat for the Eastern Cave Bat, which has been assumed to be present within the Project disturbance area. The Department has recommended a condition requiring the retirement of 3,778 species credits to offset impacts to 68.01 ha of foraging habitat for this species. This represents a conservative worst-case scenario for these impacts. However, in recognition of the uncertainty regarding the extent of foraging habitat within the Project disturbance footprint, the Department's recommended conditions would also allow ARDG to undertake further targeted survey to confirm the area of foraging habitat for Eastern Cave Bat and adjust the offset credit liability accordingly in consultation with BCS.

### 6.1.6 Biodiversity Matters of National Environmental Significance (MNES)

83. The Project has been declared a 'controlled action' under the EPBC Act due to potentially significant impacts on several MNES entities, including one EEC and seven fauna species listed under the Act.

84. The amended BDAR included assessments of significance for all the EPBC-listed entities potentially impacted by the Project. It concluded that the Project is likely to significantly impact the following MNES entities:
- Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Queensland bioregions (corresponding to PCT762 and PCT 1618), listed as 'Endangered';
  - Koala (*Phascolarctos cinereus*) (combined populations of Qld, NSW and the ACT), listed as 'Endangered'; and
  - Grey-headed Flying-Fox (*Pteropus poliocephalus*), listed as 'Vulnerable'.
85. In accordance with the Commonwealth-NSW Bilateral Agreement relating to environmental assessment, the Department has assessed the Project's impacts on these species (below). The Department has also undertaken a detailed consideration of the assessments of significance for all other EPBC-listed species potentially impacted, BCS's advice, relevant approved conservation advice, recovery plans and threat abatement plans (TAPs). A summary of this assessment is provided in **Appendix D**. The Department accepts that there is unlikely to be a significant impact on the other EPBC-listed entities.
86. The Revised BDAR indicated that the Project would result in the disturbance to 1.21 ha of Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions. Assessments determined that the Project has potential to have a significant impact at a local scale on this EEC, but while the Project would fragment a small patch of this ecological community, it was not considered likely to provide habitat critical to survival of the community. Further, the assessment concluded that the loss of this habitat would contribute a minor adverse cumulative impact at a regional and national level, which is considered unlikely to be significant at these scales. To mitigate the impacts of the Project on this ecological community, ARDG has committed to implementing a comprehensive weed management program and demarcating the approved disturbance footprint.
87. The Revised BDAR indicated that the Project would lead to a long-term decrease of approximately 68.02 ha of Koala habitat which therefore is likely to reduce the area of occupancy of this species. The Department's assessment has found that while there is the potential for significant impact on this population, the Project is unlikely to fragment an existing Koala population into two or more populations or disrupt the breeding cycle of an important population of this species.
88. The Revised BDAR also found that the Project would remove 68.02 ha of known foraging habitat for the Grey-headed flying fox (*Pteropus poliocephalus*). However, it is unlikely to impact significant breeding and roosting habitat necessary for maintaining genetic diversity.



The Project disturbance footprint is also unlikely to contain an important population of the species.

89. Although the Project would impact habitat critical to the survival of the species, the Grey-headed flying fox has a large home range, is highly mobile and has large areas of available habitat including significant areas under permanent conservation in nearby national parks and conservation reserves.
90. There is a substantial area of high-quality remnant vegetation nearby to the Project and it is considered that the removal of 68.02 ha of foraging habitat is unlikely to modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the grey-headed flying-fox would decline.
91. The impacts to all impacted MNES entities would be offset using ecosystem credits required for PCTs associated with each species, and additional species credits for the Koala, in accordance with the requirements of the BAM. The Department accepts the proposed offsetting approach, so long as all credits associated with vegetation removal are retired prior to disturbance, in a staged manner as proposed, and 'like-for-like' direct offsets are delivered for impacts to MNES. Accordingly, the Department has recommended conditions requiring implementation of ARDG's biodiversity offset strategy, including a note that offsets for MNES must meet Commonwealth offset requirements.
92. The Department has recommended that these measures be included as part of the Biodiversity Management Plan. On this basis, the Department considers the Project's impacts on these MNES entities are acceptable.

### 6.1.7 Summary

93. The Department considers that the Project has been designed to avoid, mitigate and manage biodiversity impacts where practicable. The final disturbance footprint has been minimised and would avoid 11.01 ha when compared with the disturbance footprint presented in the EIS.
94. However, the Project would result in a range of residual impacts on biodiversity through the disturbance of 68.02 ha of native vegetation, including habitat for 18 threatened fauna species listed under either or both the BC Act and EPBC Act.
95. The Department has carefully considered these impacts on biodiversity values and considers that they would be suitably mitigated, managed and/or offset under the proposed BOS.
96. Additionally, the recommended conditions of consent would provide for sound management of retained biodiversity values on the site and assurance to the community and regulatory agencies over the management of residual biodiversity impacts. Overall, the Department

considers the impacts of the Project on biodiversity are acceptable, subject to the recommended conditions.

## 6.2 Water resources

### 6.2.1 Introduction

97. Impacts to water resources were raised as an issue in 28% of objecting submissions, with the key concern relating to potential impacts to the Grahamstown Dam drinking water catchment from uncontrolled discharge of potentially contaminated water from the quarry.
98. Whilst there is no statutory requirement for the Project to achieve a Neutral or Beneficial Effect (NorBE) on water quality, given its location within the Grahamstown Dam drinking water catchment, Hunter Water expected ARDG to demonstrate that the Project could achieve such an outcome.

### 6.2.2 Surface water

99. The EIS included a Surface Water Impact Assessment (SWIA) prepared by Umwelt (Australia) Pty Ltd (Umwelt). A revised SWIA was subsequently prepared by Engeny Australia Pty Ltd (Engeny) in response to agency advice and to reflect the amended Project. The revised SWIA was submitted as part of the Amendment Report and Submissions Report.
100. Hunter Water, the Water Group, EPA and Council did not raise any specific concerns in relation to the revised SWIA. Hunter Water recommended that the proposed water management system (see below) is implemented in full, and EPA noted that the Project would require an EPL. On this basis, the Department considers that the revised SWIA is adequate to assess the surface water impacts associated with the Project.

### Existing surface water environment

101. The Project is located in the catchment of the Williams River (including the Caswells Creek tributary), Nine Mile Creek and the Grahamstown Dam. Surface water use in the area is regulated under the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources (2009). There are no known licenced surface water users on Nine Mile Creek between the Project area and Grahamstown Dam. Hunter Water is the only licenced water user within the Williams River catchment downstream of the Project area.

### Proposed water management system

102. The conceptual water management strategy for the Project is to:

- direct undisturbed catchment runoff around disturbed operational areas;
- contain and reuse dirty water runoff from disturbed areas;
- minimise the volume and frequency of controlled discharges;
- minimise the risk of uncontrolled discharges; and
- ensure a NorBE on water quality.

103. The conceptual water management system (Figure 6-4) comprises:

- clean water diversions channels and bunds to divert clean water from the quarry disturbance areas;
- dirty water drains and a primary sediment trap directing dirty water runoff to a dirty water management dam (Sediment Basin 1) located on the south-eastern perimeter of the extraction area, which provides a storage capacity of 110 ML;
- an in-pit sump within the excavation area to store up to 100 ML of excess water during rainfall events;
- a water treatment system to ensure controlled discharge water quality targets are achieved and appropriate water inventory management is implemented to minimise the volume and frequency of uncontrolled discharges; and
- a licenced discharge point (LDP) at the tributary of Nine Mile Creek which would receive treated and untreated discharges from Sediment Basin 1.

104. Sewage would be appropriately stored and removed from the site by a licenced contractor. All fuels, oils and greases, pesticides and herbicides, and chemicals used on-site would be used and stored in accordance with relevant Australian Standards, to ensure such pollutants do not threaten drinking water quality within the catchment.

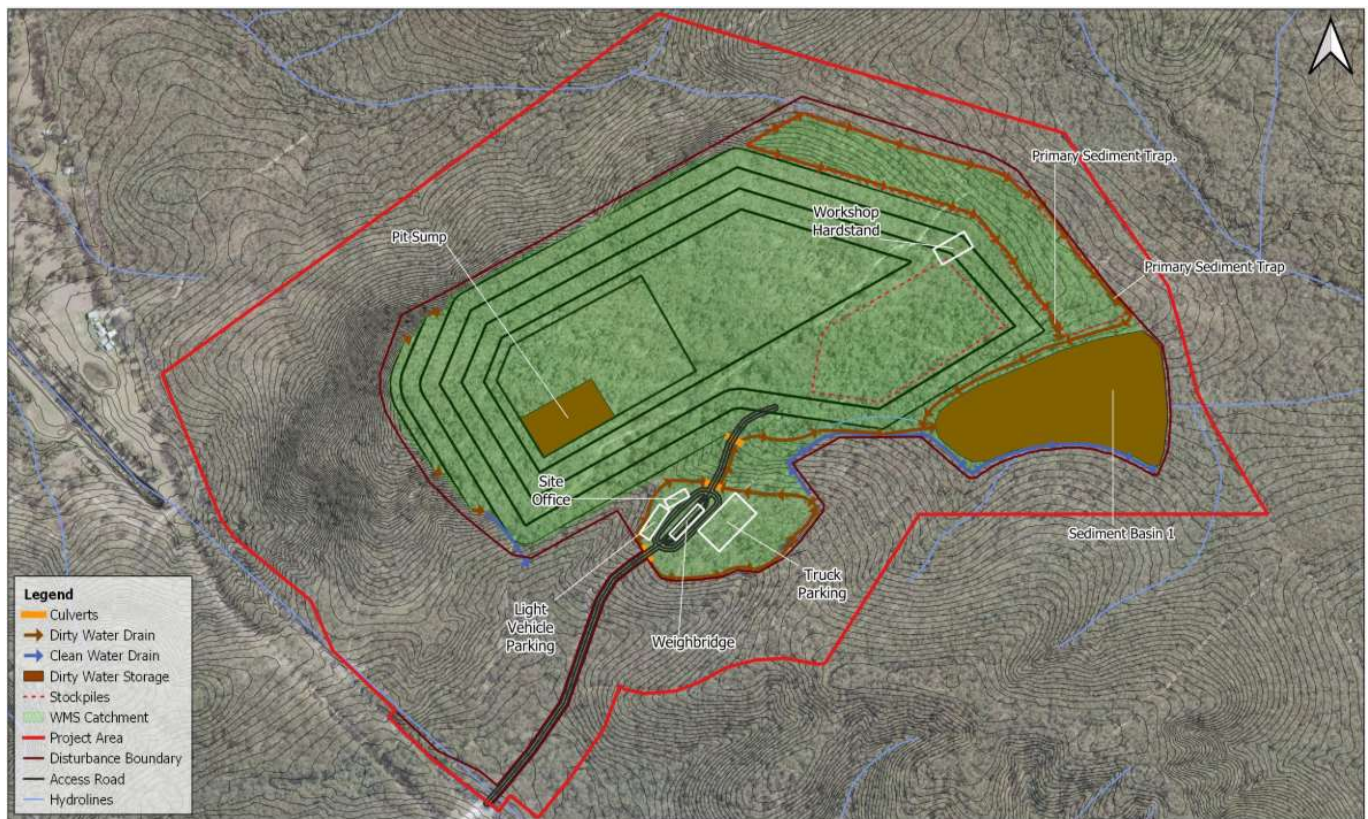


Figure 6-4 Conceptual water management system

### Site water discharges

105. Engeny developed a site water balance model for the Project to estimate the water requirements and discharges; assess the adequacy of the proposed water management system and determine the surface water licencing requirements.
106. Modelling indicated that up to 40.4 ML would be discharged via the licenced discharge point in an average year and up to 286.1 ML would be discharged in a wet year. No discharges would occur during dry years. The average number of discharge days would be two per year during year 1 and 9 per year during year 9.
107. The modelling demonstrated that there is sufficient capacity in the onsite water management system to contain the 500-year 24-hour rainfall event, meaning that uncontrolled discharges of dirty water from the site are predicted to occur less than every 500 years. This is in accordance with the recommended requirements of Hunter Water, EPA and Council.
108. The water storages within the conceptual WMS have been sized to minimise the risk of uncontrolled discharge and therefore, no uncontrolled discharges were predicted for the modelled historical climate data set.
109. Any shortfalls in water supply would be met via the establishment of a groundwater supply bore, which would extract up to 56 ML/ year.

110. The Department accepts that predicted water deficits are minor and that there are additional measures available to manage any water supply shortfalls (i.e. chemical dust suppressants, scaling of operations, and/or third-party purchases). The Department has recommended a condition requiring the company to ensure that it has sufficient water for all stages of the Project, and if necessary, reducing operational activities to match available water supply.
111. The Department considers that the site water balance should be continually refined based on accurate metering of captured and pumped water within the Project's water management system, to inform surface and groundwater model updates and water licensing requirements. The Department has recommended that an updated Site Water Balance is prepared as part of the Water Management Plan and that this be reviewed annually as part of the Annual Review.

### Surface water impacts

112. Potential impacts to surface water resources associated with the Project include:
- changes to surface water quality in Nine Mile Creek and downstream Grahamstown Dam;
  - hydrology and watercourse stability impacts due to a modified flow regimes within downstream watercourses; and
  - flooding.

### Water quality impacts

113. As noted above, several public submitters and government agencies raised concerns about the adverse water quality impacts due to water discharges from the quarry, particularly on the Grahamstown Dam drinking water supply. Hunter Water required that the water management system be sufficient to demonstrate that a NorBE on water quality would be achieved in accordance with the guideline *Protecting our Drinking Water Catchments* (Hunter Water, 2017).
114. In order to demonstrate that the water management system would be sufficient to achieve a NorBE on water quality, Engeny compared pre-and post-development loads (i.e. kg/ha/year) of phosphorous, nitrogen and total suspended solids (TSS) in the catchment. The analysis determined that average pollutant export rates would reduce by between 10-78% when comparing the pre- and post-development water quality scenarios.
115. Hunter Water accepted this analysis and recommended that the proposed water management system is implemented in full. The EPA provided recommended conditions for the water management system, including that it is designed, constructed and operated in accordance with the guideline *Managing Urban Stormwater, Soils and Construction Vol.1* (Landcom, 2004)



and Vol. 2E Mines and Quarries (DECC, 2008) (the Blue Book), and the NSW Water Quality Objectives. The Department accepts the importance of maintaining an efficient water management system within the drinking water catchment and has recommended requirements as part of the Water Management Plan to reflect the recommendations made by Hunter Water and EPA.

### Hydrology and watercourse stability impacts

116. In relation to catchment flow volumes, Engeny predicted that the Project would reduce total catchment runoff by approximately 23.5 ML/year on average. This would result in negligible impacts on the flow volumes in Nine Mile Creek, Caswells Creek, Williams River, and Grahamstown Dam due to the reduced catchment associated with the quarry operations. The maximum operational areas of the quarry within each catchment and the associated reduction in catchment areas are presented in **Table 6-2**.

117. The reduction in catchment yields in Grahamstown Dam is considered relatively minor and would be reduced further during wet years by controlled discharges from the site. The Project area represents a very small portion (around 0.44%) of the Grahamstown Dam catchment area (11,500 ha) and would therefore have negligible impacts on runoff volume in the drinking water catchment. Hunter Water did not raise any concerns regarding reduced runoff volumes reporting to Grahamstown Dam.

**Table 6-2** | Catchment yield impacts from the Project

Catchment	Total catchment area (ha)	Project water management system catchment area (ha)	Catchment reduction (%)
Grahamstown Dam	11,500	50.7	0.44
Nine Mile Creek	1,970	40.5	2.06
Williams River	97,400	11.5	0.01
Caswells Creek	1,075	11.7	1.09

118. Controlled and uncontrolled discharges from Sediment Basin 1 have the potential to alter the natural flow regime within Nine Mile Creek and cause adverse downstream erosion and scouring impacts. However, these impacts are predicted to be minor given the relatively small volume and frequency of the predicted discharges. ARDG has committed to commissioning a baseline riparian corridor assessment and detailed hydrological and hydraulic assessment of the receiving streams to inform maximum discharge flow rates to minimise these impacts.

119. To minimise the risk of impacts on watercourses and the associated riparian corridor, ARDG has committed to designing and constructing all works on waterfront in accordance with the Guidelines for Controlled Activities on Waterfront Land. The Department's recommended conditions reflect this requirement.
120. The Department has also recommended that the treatment dam and spillway be designed and managed in accordance with the Blue Book and that a program to monitor and report on watercourse stability during construction and operation be included as part of the Water Management Plan.

### **Flooding impacts**

121. The Port Stephens LEP flood mapping indicates that the Project area, including the quarry access off Italia Road, is not located in a flood planning area. The Project area is located on a ridgeline with no upslope catchment and as such, no local flooding issues are expected on-site nor are any impacts on local flood regimes expected downstream of the Project.

### **Surface water licencing**

122. Under the WM Act, ARDG is required to hold a surface water access licence (WAL) for the interception of surface water flows. The Project is located in the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.
123. Water Group accepted that the on-site dirty water dam (Sediment Basin 1) is exempt from licensing requirements, however noted that the capture of clean runoff from undisturbed areas would require ARDG to obtain a WAL to account for surface take volumes which exceed the maximum harvestable right for the property.
124. The Department has recommended a condition requiring calculations on harvestable rights allocations and residual licencing requirements under the WM Act be included in the Water Management Plan, and that any WAL requirements are obtained by ARDG prior to the water being taken.

### **6.2.3 Groundwater**

125. The EIS included Groundwater Impact Assessment (GHD, May 2023) prepared with reference to the Groundwater Assessment Toolbox for Major Projects in NSW (DPE, 2022) and the requirements of the *NSW Aquifer Interference Policy (AIP) (NOW, 2012)*. The GIA was subsequently revised by GHD to take into consideration the amended Project and lodged as part of the Submissions Report and Amendment Report.

126. Conceptual and analytical groundwater models were used to assess the Project's impacts with reference to the minimal impact considerations set out in the AIP. The conceptual model was based on groundwater monitoring data, lithology logs, core photographs, interpreted geology, and previous hydrogeological assessments for the nearby Eagleton and Seaham quarries. The Marinelli and Niccoli (2000) steady-state analytical model was used to complete an assessment of the likely groundwater inflow rates and radius of drawdown from the proposed quarry extraction area. The Department considers, and the Water Group agrees, that the assessment approach adopted in the GIA is adequate to assess the groundwater impacts of the Project.

### Groundwater environment

127. Groundwater resources in the vicinity of the Project are regulated under the Water Sharing Plan for the North Coast Fractured and Porous Rock Groundwater Sources (New England Fold Belt Coast Groundwater Source). The New England Fold Belt Coast Groundwater Source is a fractured aquifer system with groundwater contained within and moving through fractures in the rock that have occurred due to folding and faulting of the rock formations. Yields within the groundwater source are generally low. The local flow system occurs in unconfined and confined fractured rock aquifers within the Eagleton Volcanics. This groundwater source is classified as 'less productive' under the AIP.

128. The conceptual hydrogeological model (see Figure 6-5 and Figure 6-6) consists of five hydrostratigraphic layers:

- clay layer, up to 11 m thick, discontinuous across the Project area;
- shallow perched aquifer system (on the lower western flanks);
- low permeability dacite aquitard (on the lower western flanks);
- unconfined fractured rock aquifer (Eagleton Volcanics); and
- confined fractured rock aquifer (Eagleton Volcanics).

129. The nearest high priority GDEs are located near the Williams River to the north and east of Seaham, approximately 8 km and 5 km from the Project, respectively. High probability GDEs are associated with Nine Mile Creek to the north and north-east of the Project, and Caswell's Creek and Williams Creek to the west. Four registered bores are located within a 5 km radius of the Project, including three basic landholder rights bores and one monitoring bore.

130. The average depth to groundwater in the fractured rock aquifer in the Project area varies between 7.31 and 23.3 m below ground level. Average groundwater levels in the area where the high probability GDEs are present (within the maximum extent of predicted drawdown) are



between approximately 7 m and 13 m below ground level. However, the groundwater within the fractured rock aquifers near high probability GDEs is lower (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 in the deeper, more permeable units at a depth.

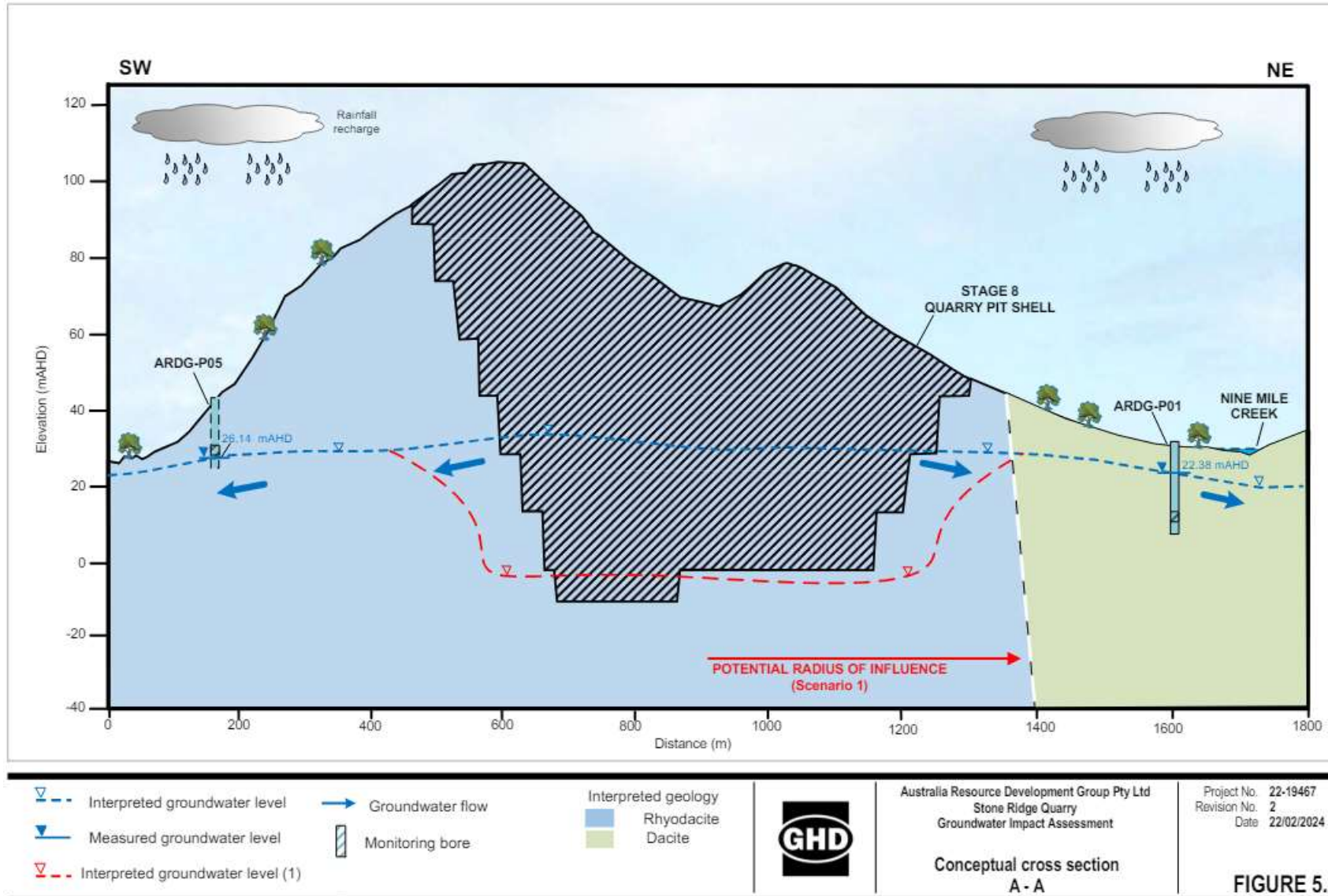


Figure 6-5 Conceptual hydrogeological model cross section A - A

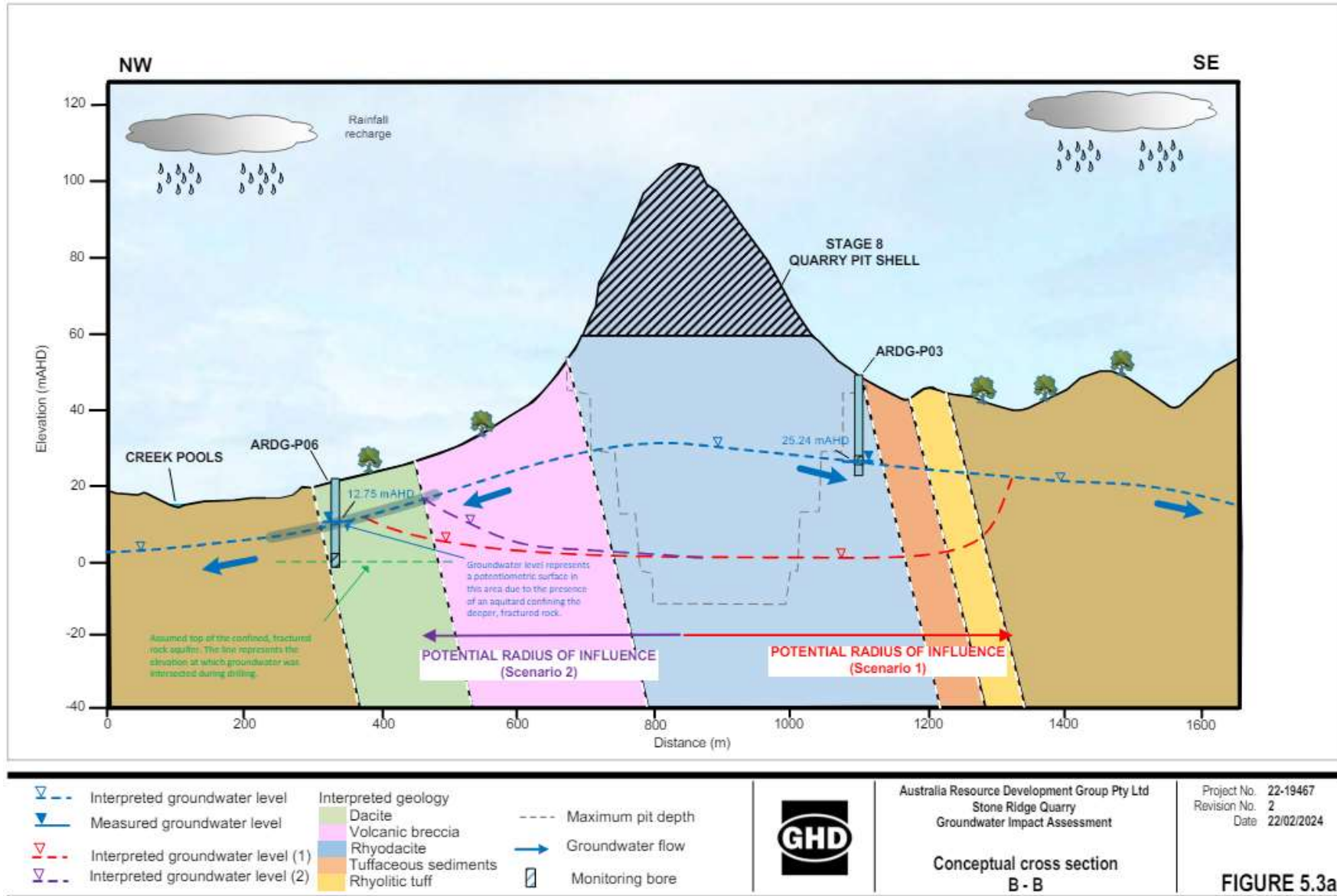


Figure 6-6 Conceptual hydrogeological model cross section B - B

## Predicted groundwater impacts

131. The proposed quarry design involves extraction of rock down to -2 m AHD, which would result in groundwater above this elevation seeping to the floor of the excavation. The GIA predicted that groundwater inflows to the quarry pit would range from 8.7 ML/year to 14.3 ML/year. This would cause drawdown within the connected groundwater source. The predicted radius of drawdown from extraction of the quarry pit (468 m) was used to assess the impact of the Project on existing groundwater users. Maximum modelled groundwater drawdown is predicted to be 3.47 m at a distance of 200m and 0 m at a distance of 400m from the centre of the extraction area in Year 30. No drawdown due to extraction of the quarry pit is expected to occur at any landholder bores.
132. The predicted drawdown for the proposed production bore located approximately 300 m to the north-west of the extraction area, would not exceed one metre at distances beyond 600 m. Given that the nearest water supply bores (GW060834 and GW060853) are located more than one kilometre to the north-west of this location, it is unlikely that the production bore would cause more than a 2 m water table decline cumulatively at any water supply work. The Project therefore meets the NSW Aquifer Interference Policy (AIP) Level 1 Minimal Impact Considerations for impacts to landholder bores.

## Groundwater Dependent Ecosystems

133. High priority GDEs are well outside the Project's radius of drawdown from extraction of the quarry pit and operation of the proposed production bore. No drawdown is therefore expected to occur at any of the high priority GDEs as a result of the Project.
134. A refined, conservative predicted radius of drawdown (389 m; Scenario 2 based on Kmax) was used to assess the potential impact of the Project on high probability GDEs located in the western flank area. This scenario is based on a reduced groundwater level which more closely represents impacts to the terrain surrounding the quarry footprint. Drawdowns greater than one metre are not expected to occur at distances exceeding 300 m from the centre of the pit. Therefore, drawdowns in the area of the high probability GDEs are not expected to be greater than one metre.
135. Given the depth to aquifers in this area (i.e., 20 m below the surface) the GIA concludes 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 regional groundwater table from which it is disconnected in this area. The terrestrial vegetation in these areas that have groundwater dependence would therefore be highly unlikely to be impacted by any drawdown induced in the much deeper bedrock layers. Even if drawdowns in the

fractured rock aquifer of up to 5 m occurred, given that groundwater is at 20 m below the surface, it would be unlikely to have a material impact on vegetation associated with the perched systems, which are primarily influenced by rainfall and surface flow recharge. Therefore, the modelled drawdown of groundwater in the deeper, fractured rock system is not predicted to adversely impact these high probability GDEs.

136. The impact of the Amended Project therefore meets the AIP Level 1 Minimal Impact Considerations for landholder bores and GDEs.

### Groundwater quality

137. The GIA concluded, and the Department agrees, that the Project is not expected to cause any significant change in groundwater quality or in the beneficial use of the groundwater. The GIA predicted that the increased groundwater recharge in the post-closure phase of the Project may result in a localised improvement in groundwater quality. As such, the Project meets the Level 1 Minimal Impact Considerations for groundwater quality under the AIP.

### Final void recovery

138. The final landform design will include a final void (refer to **Figure 6-7**). The landform outside of the quarry pit final void would be free draining.

139. Due to the location of the final void on a ridgeline, surface water inflows to the final void would predominantly be associated with direct rainfall on void surfaces as there would be negligible external runoff. Inflow from groundwater seepage is also expected. The final void may fill and spill off-site over time. The void is not predicted to spill until approximately 135 years after quarry closure, if at all, due to its very large capacity. There may be outflow seepage from the final void to regional groundwater which may increase the time before the void spills or prevent it from spilling. The final void water level is expected to reach the pre-mining water table level of 23.4 m AHD approximately 53 years after closure.

140. The SWIA (Umwelt, 2023) indicated that whilst groundwater Electronic Conductivity (EC) exceeds receiving surface water quality, groundwater inflows are expected to cease as the final void water level increases beyond 23.4 m AHD. With the cessation of groundwater inflows, water quality characteristics within the final void would be dominated by surface water inflows and any spills that may occur would have EC comparable to local catchment surface flows.



## Groundwater licencing

141. Take of groundwater associated with the Project (through passive inflow or direct take through extraction of the quarry pit) will require a WAL under the WM Act. ARDG requires 39 ML/year of licensed groundwater entitlement in the early stages of the Project.
142. ARDG has demonstrated, and both the Department and Water Group agree, that there is sufficient market capacity for the groundwater licencing requirements of the Project to be met.
143. The Department's recommended conditions require ARDG to report on all water extracted from the Project each year and note the company's requirement to obtain all necessary water licences under the WM Act.

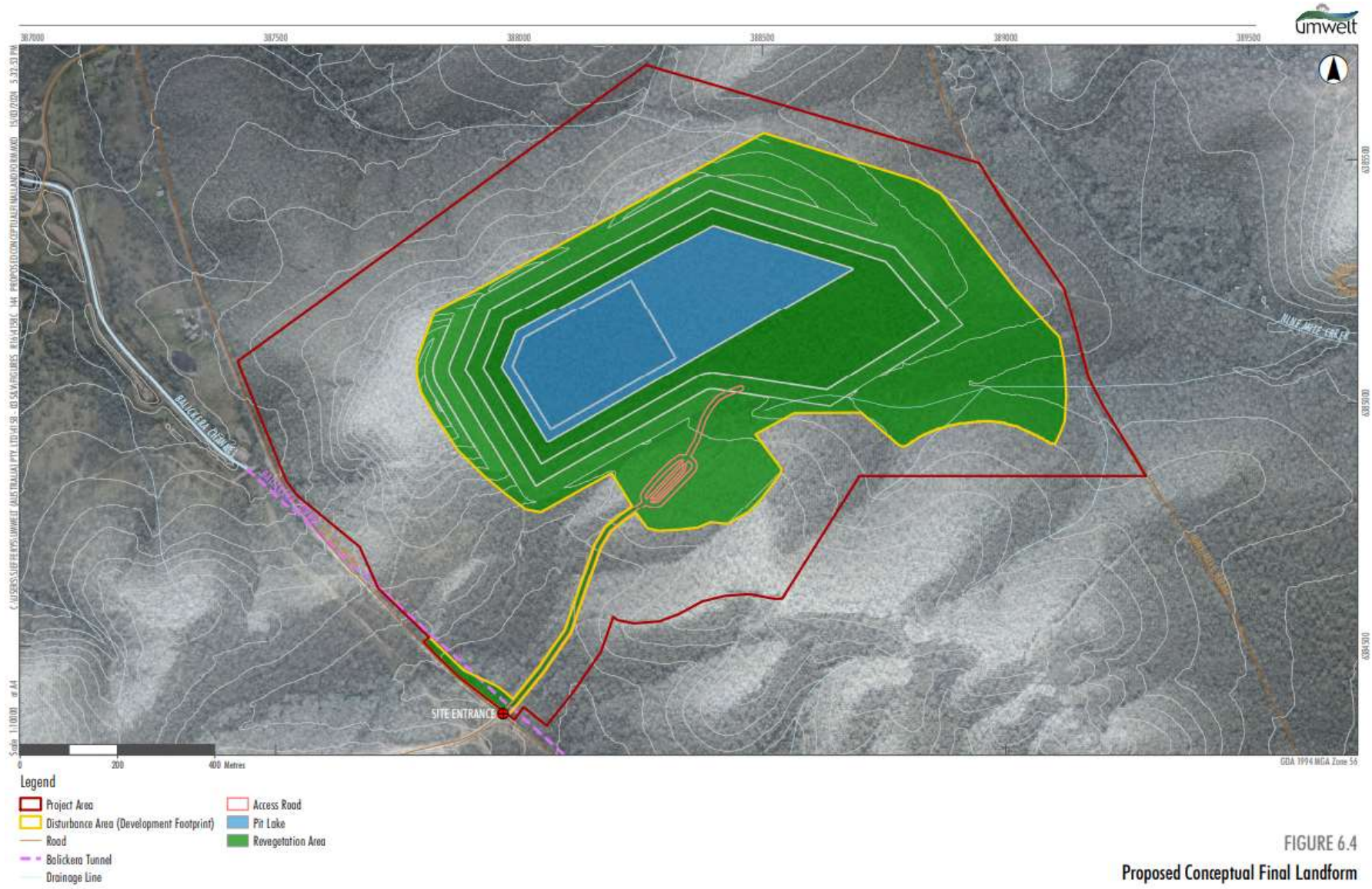


FIGURE 6.4  
Proposed Conceptual Final Landform

Figure 6-7 Conceptual final landform

## 6.2.4 Water monitoring, mitigation and management

144. In addition to water management system described in **Section 6.2.2**, ARDG has committed to implementing the following surface water and groundwater monitoring, mitigation and management measures:

- implementing a surface water and groundwater monitoring program that includes:
  - monitoring surface water quality at three reference sites along Nine Mile Creek, an additional downstream site in a tributary of Caswells Creek, and within Sediment Basin 1, the Pit Sump and the licensed discharge point (during discharge);
  - monitoring stored water volumes and discharge flow rates and volumes across the water management system; and
  - monitoring water levels and water quality within the existing groundwater monitoring network and expanding the network to include an additional bore approximately 1km to the north-west of the Project area to verify drawdown predictions;
- installing an automatic weather station to provide continuous recording of rainfall depth;
- undertaking routine stream stability monitoring as recommended in the baseline stream stability assessment that will be completed prior to construction;
- implementing an inspection and water quality testing program for potable water stored on site;
- storing all fuels, chemicals and liquids within an impervious bunded area, at least 50 m from drainage lines or waterways and ensuring all refuelling of plant and equipment is undertaken within this area;
- undertaking concrete washout in bunded areas away from drainage lines;
- implementing general erosion and sediment controls including minimising disturbance, appropriately locating and stabilising topsoil stockpiles, installing and maintaining sediment control devices;
- maintaining emergency spill kits on site and ensuring personnel are appropriately trained to respond in the event of a fuel, chemical or other liquid spill;
- undertaking additional survey and investigation to confirm the nature and extent of groundwater dependency of vegetation within the zone of predicted drawdown;
- updating groundwater drawdown predictions based on ongoing groundwater monitoring prior to quarry activities progressing below the water table; and

- developing and implementing a GDE adaptive monitoring and management plan prior to the pit floor progressing below 28 m AHD.

145. Hunter Water, EPA and the Water Group accepted the proposed surface water and groundwater monitoring and mitigation measures.

## 6.2.5 Summary

146. The Department acknowledges the community's concerns regarding potential water resources impacts from the Project, particularly given the quarry would be located within the Grahamstown Dam drinking water catchment.

147. However, the Department considers that the proposed water management system has been suitably designed to ensure a NorBE on the drinking water catchment. Hunter Water has also recommended that this water management system be implemented in full.

148. The Department accepts that only relatively minor volumes of treated water would need to be discharged offsite, and EPA has confirmed that these would be regulated by an EPL. The predicted water deficits during drier years are also minor and there are measures available to readily manage any water supply shortfalls.

149. The Department notes that the predicted impacts to groundwater resources would be very localised and limited to a 'less productive' aquifer. The predicted impacts are less than the Level 1 minimal impact considerations set out in the AIP. Accordingly, the Department considers these impacts acceptable.

150. With the measures proposed by ARDG and the performance measures and conditions recommended by the Department, the Department considers that the risks of impact to surface water and groundwater resources and riparian environments are low and that the Project could be suitably managed to avoid any unacceptable impacts.

## 6.3 Traffic

### 6.3.1 Introduction

151. Traffic and transport were the second most frequently raised issue in public submissions, with 61% of objecting submissions noting concerns primarily in relation to the safety risks and increased wait times at key intersections along the proposed transport route.

152. The EIS included Traffic Impact Assessment (TIA) prepared by GHD to assess the potential impacts of the Project on the efficiency and safety of the local and regional road networks.

The TIA was updated in response to community and agency feedback and lodged as part of the Submissions Report and Amendment Report.

153. An addendum to the TIA was also prepared by Umwelt to consider the traffic impacts associated with a potential future scenario where the Project and the neighbouring Eagleton Quarry and Seaham Quarry were developed.

154. The Department considers, and TfNSW agrees, that the TIA and associated supplementary information has been prepared in accordance with the relevant guidelines and is adequate to assess the traffic impacts of the Project.

### **6.3.2 Pacific Highway /Italia Road upgrade**

155. The Project proposes that the road haulage of quarry products would not be undertaken until an upgrade of the Italia Road / Pacific Highway intersection is completed. The Department notes that construction of the proposed intersection upgrade would be approved via a separate local development application. Notwithstanding this, the proposed upgrade of the Italia Road / Pacific Highway intersection (refer to Figure 6-8) includes:

- construction of a dedicated left-turn northbound acceleration lane from Italia Road onto the Pacific Highway;
- widening the existing bridge over the Balickera Canal (to accommodate the northbound acceleration lane); and
- lengthening the northbound deceleration lane into Italia Road off the Pacific Highway.

156. TfNSW and Council requested that no quarry product is to be transported from the site until the Italia Road/Pacific Highway intersection upgrade is constructed and restricts heavy vehicles to left in and left out access to the Pacific Highway. The Department has recommended a condition to reflect this requirement.



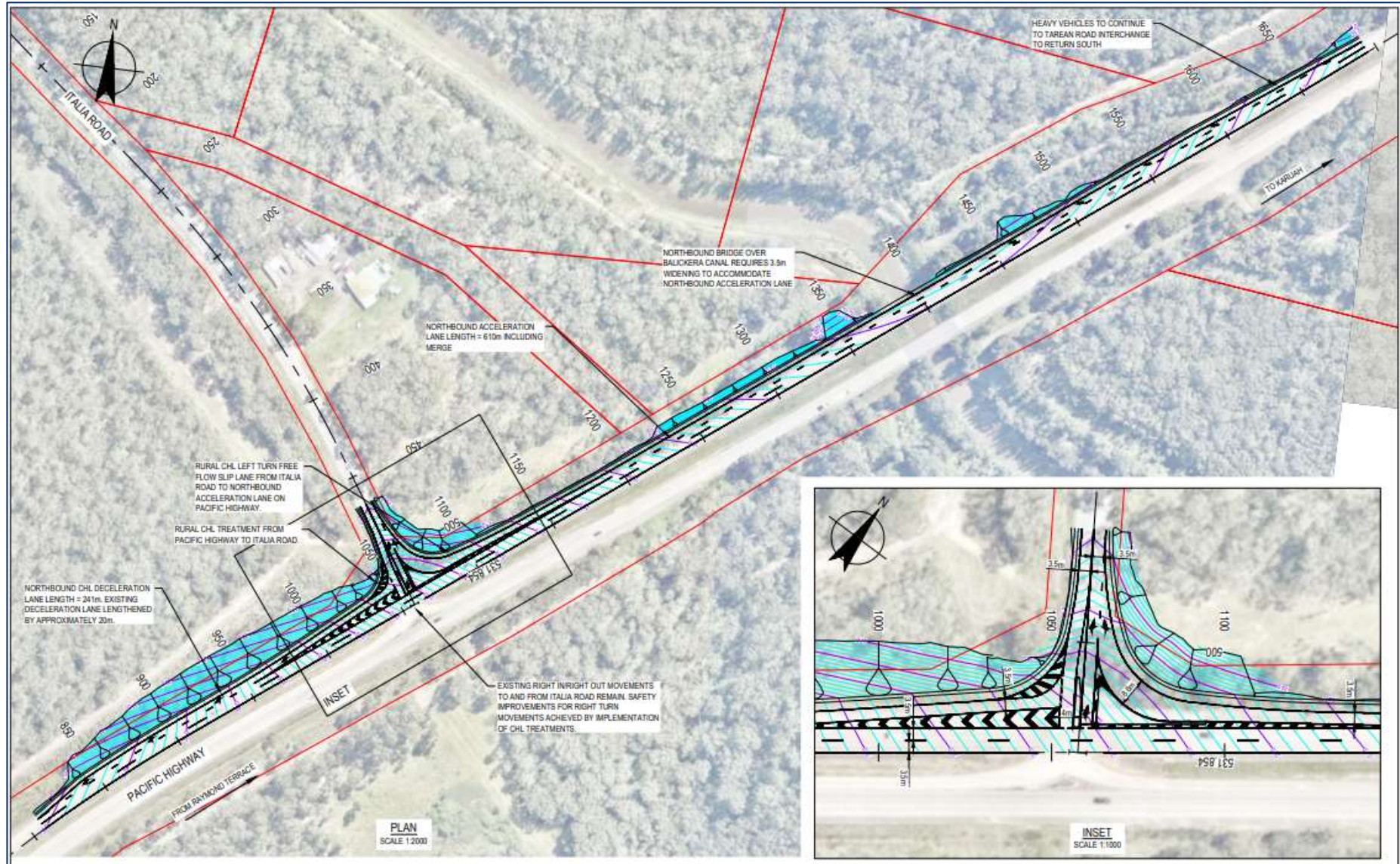


Figure 6-8 Italia Road / Pacific Highway intersection upgrade



### 6.3.3 Site access intersection

157. The Project also proposes the construction of an upgraded intersection connecting Italia Road with the site access road. The Project access road will utilise the existing Hamburger Trail in an upgraded intersection which is located directly opposite, and north of, the existing Seaham Quarry access. Together the two accessways would form a cross-intersection with Italia Road, as shown conceptually in **Figure 6-9**.

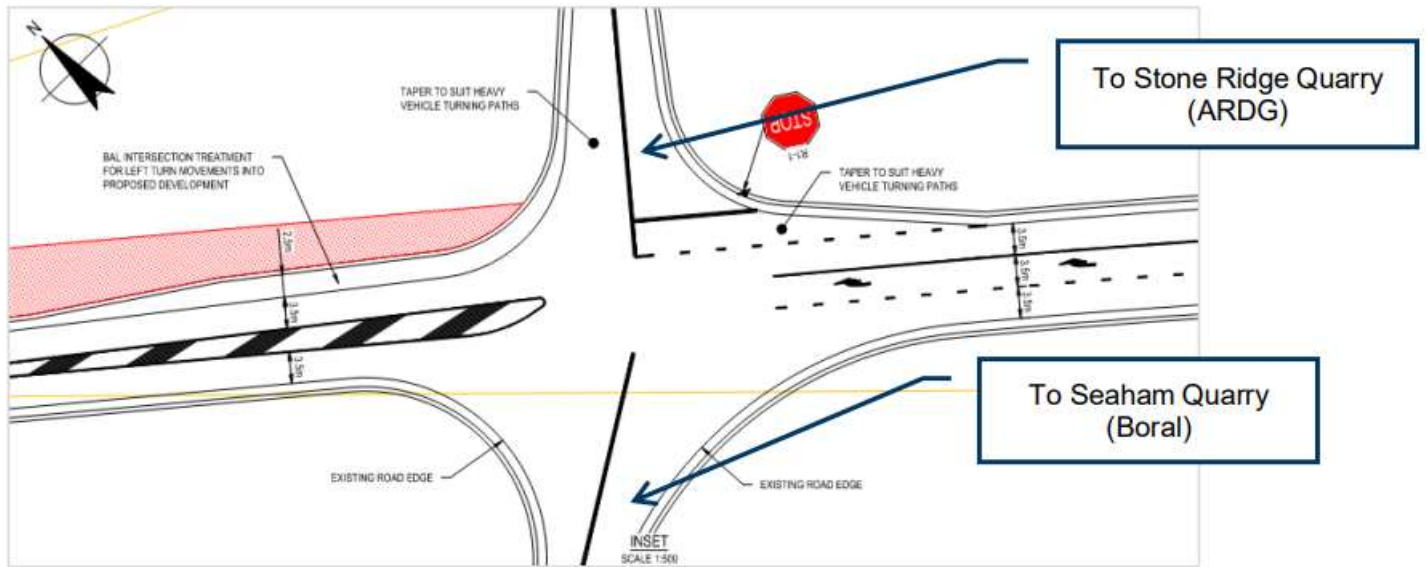


Figure 6-9 Italia Road / Site Access Road intersection upgrade

### 6.3.4 Transport route

158. The local and regional road network proposed to be used as the primary haulage route for the Project would involve trucks travelling from the quarry site turning onto Italia Road and turning left onto Pacific Highway. Quarry trucks making deliveries to the south of Italia Road would then make a U-turn at the Tarean Road Interchange (approximately 11 km to the north) and head south along the Pacific Highway (see **Figure 6-10**).



Figure 6-10 Proposed U-turn movement at Tarean Road interchange

159. Key features of the roads along the proposed primary haulage route are presented in Table 6-3.

**Table 6-3** | Key features of the roads along proposed haulage route

Road	Key features
<b>Internal access road</b>	Access is currently provided by several unsealed tracks. All access roads to be used by quarry vehicles would be either constructed or (if existing) upgraded to accommodate quarry vehicle traffic.
<b>Italia Road</b>	A local road under the care and maintenance of Council which connects the rural localities of Seaham and East Seaham to the Pacific Highway. The road is sealed, with a single lane of traffic in each direction, and a posted speed limit of 90 km/hour. The key generator of heavy vehicle traffic on Italia Road is currently Seaham Quarry.
<b>Pacific Highway (A1)</b>	A major highway under the care and maintenance of TfNSW. Near the Italia Road intersection it is a four lane, two-way sealed road with a 100 km/hour speed limit, used to distribute traffic between Northern NSW, Newcastle, Central Coast and Sydney.

Road	Key features
<b>Tarean Road Interchange</b>	Tarean Road is a local road under the care and maintenance of Council, which runs through the town of Karuah, linking the Pacific Highway at each end. The road is a two-lane road with sealed shoulders and a speed limit of 80 km/hr. The Tarean Road southern interchange at the Pacific Highway is located approximately 11 km north of the Quarry and is proposed to be utilised by heavy vehicles to undertake a U-turn and travel south along the Pacific Highway.

### 6.3.5 Traffic predictions and impacts

160. GHD indicated that during operation, the Project would result in traffic movements to and from the site of up to:

- 364 vehicle trips per day (vtpd), including 334 haulage trucks and 15 light vehicles (employees, service and visitor vehicles); and
- 75 vehicle trips per hour (vtph) during peak times, including 60 heavy vehicles and 15 light vehicles.

161. When compared to existing traffic volumes, the additional total vehicle movements associated with the Project represent an increase of around 26% on Italia Road and very minor increases along the Pacific Highway. However, the change in heavy vehicles travelling on Italia Road would be more substantial, increasing by between approximately 80% and 136% during peak morning and afternoon periods.

162. GHD indicated that during construction of the Project, traffic movements to and from the site are limited and impacts predicted are less than during operation.

### Road network and intersection capacity

163. The TIA modelled the potential impact of the Project on the capacity of the road network and on the performance of the Italia Road and Pacific Highway intersection using SIDRA modelling. The modelling results, which represented the upgraded intersection with background growth, additional quarry traffic from the Project and two neighbouring quarries (recently approved Eagleton Quarry and existing Seaham Quarry) showed that a satisfactory level of service would continue to be experienced by motorists travelling on the Pacific Highway (LoS A).

164. An improved and satisfactory performance was modelled for motorists at the Italia Road / Pacific Highway intersection (once upgraded), with motorists turning left from Italia Road maintaining a LoS of B and motorists turning right experiencing an improved LoS from E to C

(AM peak) or maintaining a LoS of C (PM peak). It is noted that quarry trucks would not be making this right turn movement, instead turning left to use the Tarean Road Interchange for U-turns.

165. Modelling indicated that with the upgrade of the intersection (see Figure 6-8) and the diversion of quarry trucks north to the Tarean Road interchange, average wait times for vehicles turning right from Italia Road onto the Pacific Highway would be reduced from 201 seconds (existing conditions with 10 years of background traffic growth) to 136 seconds.
166. GHD identified that there is sufficient capacity at the Tarean Road Interchange to accommodate the additional heavy vehicle movements.
167. The Department accepts these outcomes and considers that the increased number of heavy vehicles associated with the Project is unlikely to result in an unacceptable impact to the safety and efficiency of the local and regional road network, provided the Italia Road/Pacific Highway intersection upgrade is constructed prior to the commencement of quarry product transportation.

## Road safety

168. Numerous community submissions raised road safety risks associated with additional heavy vehicles as a concern, particularly in relation to the Italia Road/Pacific Highway intersection.
169. GHD acknowledged that the existing configuration of the Italia Road/ Pacific Highway intersection, as an at-grade sign-controlled intersection on a high-speed road with high opposing traffic flows would present safety risks for additional heavy vehicle use in the absence of any upgrade. GHD confirmed that the proposed upgrade of this intersection (as described above) would significantly reduce the safety risks at this location by providing for safer merging with traffic on the Pacific Highway, eliminating the need for heavy vehicles to cross oncoming traffic on the Pacific Highway, and providing increased stopping distance for all vehicles exiting the Pacific Highway onto Italia Road . TfNSW, Council and the Department are satisfied with this outcome.
170. The information provided on the design of the Italia Road / Hamburger Trail (site access road) intersection upgrade confirms that it provides appropriate sight distances which are compliant with relevant Australian standards.
171. GHD confirmed that there are currently no bicycle lanes or pedestrian/shared paths along Italia Road or Pacific Highway. School bus services operate along Italia Road, however GHD predicted that the Project would not impact these services given the low existing traffic volumes and the fact that quarry trucks would be required to give way to eastbound buses and other traffic when turning onto Italia Road.

172. The Department has recommended requirements to minimise traffic safety issues and disruption to local road users, including that the intersection upgrades be constructed prior to the commencement of quarry product transportation. On this basis, the Department considers that the additional traffic associated with the Project would not present unacceptable safety risks to existing road users. This conclusion is also consistent with the final advice provided by the relevant roads authorities (TfNSW and Council).

### Contributions to Council

173. ARDG has committed to pay annual Section 7.11 contributions to Council in accordance with the relevant Local Infrastructure Contributions Plan for ongoing maintenance of local roads along the vehicle route. It is noted that this is in addition to paying for the upgrade of the joint funding of the Italia / Pacific Highway intersection. Council indicated that this amount is currently \$0.086/t/km over the life of the quarry.

### 6.3.6 Traffic mitigation and management

174. ARDG's proposed measures to mitigate and manage traffic and transport impacts include:

- upgrade of the Italia Road and Pacific Highway intersection to include acceleration and deceleration lanes and bridge widening works;
- a requirement that all quarry related heavy vehicles travelling from the site south along the Pacific Highway utilise the Tarean Road Interchange to perform a U-turn;
- providing a Channelised Right Turn (CHR) treatment intersection upgrade on Italia Road at the site access, to enable safe right turns into the site; and
- paying annual contributions to Council for ongoing maintenance of local roads over the life of the quarry.

175. In addition, the Department has recommended conditions requiring ARDG to:

- ensure all road and intersection upgrades are completed to the satisfaction of the relevant road authorities prior to the commencement of quarry product transportation;
- prepare and implement a Traffic Management Plan (TMP) for the construction and operational phases of the Project which defines the vehicle routes and details measures to minimise traffic impacts;
- prepare and implement a drivers' code of conduct, which stipulates the haulage route, speed limits, quiet driving practices (including compression braking restrictions), driver behaviour expectations and safety requirements;



- weigh haul trucks entering and leaving the quarry to record the quarry product volumes existing the site; and
- limit total truck movements at the site (i.e. arrivals and dispatches) to a maximum of 334 movements per day and 60 movements per hour from 6 am to 10 pm Monday to Friday and 7 am to 3 pm on Saturdays.

### 6.3.7 Summary

176. The Department acknowledges that traffic and transport impacts from road haulage activities are key community concerns for the Project.

177. To address these concerns, ARDG has committed to upgrading the intersection of Italia Road / Pacific Highway and require all quarry related vehicles to utilise the Tarean Road Interchange when leaving the quarry and travelling south. This would improve the efficiency and safety of this intersection, when compared to existing conditions.

178. ARDG has also committed to upgrade the intersection of Italia Road and Hamburger Trail, which would form the entry to the Project access road and be suitable for quarry related heavy vehicles.

179. It is predicted that a satisfactory level of service would still be experienced by motorists on the local and regional road network during the construction and over the life of operation of the quarry.

180. ARDG has agreed to pay road maintenance contributions to Council for the ongoing maintenance of the local roads which would be utilised by quarry-related heavy vehicles.

181. Council and TfNSW are satisfied with these outcomes.

182. The Department has recommended conditions requiring ARDG to prepare a TMP prior to the commencement of construction and construct the road and intersection upgrades prior to the commencement of quarry product transportation. The recommended conditions also require strict monitoring of road haulage rates. Subject to these conditions, the Department considers that the traffic and transport impacts of the Project are acceptable.

## 6.4 Air quality

### 6.4.1 Introduction

183. Air quality was a key issue raised in public submissions, with 53% of objecting submissions raising concerns regarding increased dust emissions, diesel exhaust emissions and dust

associated with the road haulage of quarry products and particulate matter contaminating rainwater tanks.

184. The EIS included an Air Quality and Greenhouse Gas Assessment (AQGHGA) prepared by Jacobs Group (Australia) Pty Limited (Jacobs) which assessed the operational incremental and cumulative air quality impacts of the Project based on maximum annual production rates.

185. The AQGHGA was prepared in accordance with the EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in NSW. An addendum air quality and greenhouse gas review was provided to reflect the revised concept quarry layout and included in the Amendment Report and Submissions Report.

186. The Department considers, and EPA agrees, that the AQGHGA and associated supplementary information has been prepared in accordance with the relevant guidelines and is adequate to assess the air quality and greenhouse gas impacts of the Project.

#### **6.4.2 Air quality mitigation and management measures**

187. ARDG has committed to implementing a range of mitigation measures to minimise dust impacts associated with the Project, including:

- minimising the area of disturbed land at any one time;
- use of water carts/trucks to control emissions from haul roads and stockpiles;
- limiting vehicle speeds;
- enclosing dust-generating components;
- progressively rehabilitating exposed areas;
- minimising activities when excessive visible dust is generated;
- stabilising and minimising the extent of materials stored on-site;
- completing regular servicing and maintenance on machinery;
- minimising fall distance during loading and unloading of materials;
- management of dust generating activities during unfavourable meteorological conditions;
- undertaking routine inspections (and where necessary cleaning) of water tanks and solar cells at residential locations along Nine Mile Creek Road, Ferodale; and
- monitoring background PM10 levels and implementing additional dust management controls when levels exceed 80  $\mu\text{g}/\text{m}^3$ .

188. The Department supports these mitigation measures and has recommended that comprehensive dust controls be implemented during construction and operation of the Project.

### 6.4.3 Predicted air quality impacts

189. The AQGHGA indicated that the key emission sources from the Project would include:

- dust from land clearing, construction of haul roads and site infrastructure, excavation of water management areas, drilling and blasting, loading/unloading of material, crushing and screening processes, placement of product in stockpiles and windblown dust from exposed areas and stockpiles; and
- fuel combustion-based emissions on and off site from quarry plant, equipment and product haulage trucks.

190. In addition to emissions from the Project, the AQGHGA identified potential combined cumulative emissions from neighbouring quarries (Seaham Quarry, Brandy Hill Quarry) and the recently approved Eagleton Quarry.

191. Emission calculations and dispersion modelling for incremental (Project-only), cumulative (Project + background) and combined cumulative (Project + background + other quarries) scenarios indicated that the Project:

- would comply with applicable Total Suspended Particulate (TSP) and Deposited Dust impact assessment criteria for incremental, cumulative and combined cumulative emissions at all receptor locations;
- would comply with applicable Particulate Matter <10 µm (PM10) impact assessment criteria for incremental and cumulative emissions at all receptor locations and for most combined cumulative emissions at the majority of receptor locations, with the exception of private dwellings R1, R18 and R20 which would have exceedances of the 24-hour criterion during peak daily activities;
- would comply with applicable Particulate Matter <2.5 µm (PM2.5) impact assessment criteria for incremental, cumulative and combined cumulative emissions at all receptor locations; and
- would comply with all mitigation and acquisition criteria listed the VLAMP at all private receivers locations.

192. The magnitude of the worst-case exceedances are shown in **Table 6-4**. ARDG indicated the key driver of exceedances is the adopted background level (41 µg/m<sup>3</sup>), which is the major contributor to the total modelled PM10 concentrations (over 74% in the case of the three

exceedances). Review of 2023 local background concentrations identified only 4 days where background concentration would result in levels exceeding impact assessment criteria at R1, R18 and R20 (see **Figure 6-11**). ARDG noted that combined cumulative impacts adopted a conservative assumption that the peak modelled impacts from all operations coincided with peak background contributions from all other sources. However, the AQIA concluded, and the Department and EPA agree, that it is unlikely that the peak predicted impacts from all modelled quarries would coincide with the highest 24 hour background levels. This is particularly the case for the three receptors identified as having potential exceedances of criteria as these receivers are located between the Project and the Seaham and Eagleton Quarries and prevailing winds driving high levels of PM10 from the Project would align with lower contributions from other sources.

**Table 6-4** | Predicted exceedances of 24-hour averaged PM10

Receptor	Background ( $\mu\text{g}/\text{m}^3$ )	Criterion ( $\mu\text{g}/\text{m}^3$ )	Combined cumulative concentration ( $\mu\text{g}/\text{m}^3$ )
R1	41	50	51.2
R18			53.6
R20			55.1

193. The Department accepts that the modelled dust emission results would comply with applicable NSW EPA particulate matter impact assessment criteria for incremental, cumulative and combined cumulative emissions at the vast majority of receptor locations. EPA did not raise any specific concerns in relation to the modelled air quality impacts on sensitive receptors and made recommendations for conditions of consent regarding the ongoing management and monitoring of air quality.

194. Notwithstanding this, to minimise the combined cumulative impacts of the Project, the Department considers it important that ARDG implement a comprehensive reactive management system on-site. As discussed below, the Department has recommended that this system includes real-time monitoring capability, which will enable quarry personnel to respond to elevated dust levels prior to reaching critical levels and modify activities and/or increase mitigation measures as required.

## Human health

195. Several submissions raised health concerns relating to the potential risk of silica dust impacting surrounding residents.

196. No criteria for residential receptors exist within NSW for respirable silica. The Victorian EPA define an annual average criterion of  $3 \mu\text{g}/\text{m}^3$  for assessing human health impacts of respirable crystalline silica (as PM<sub>2.5</sub>). This criterion is listed within the *Protocol for Environmental Management for Mining and Extractive Industries* (2007), which is an incorporated document of the *Victorian State Environment Protection Policy (Air Quality Management) 2001*.
197. The air quality modelling results for the Project indicate that the highest annual average concentration of PM<sub>2.5</sub> predicted at an off-site receiver due to the Project was  $<0.1 \mu\text{g}/\text{m}^3$  at the dwelling and  $0.8 \mu\text{g}/\text{m}^3$  at the property boundary. Based on these predictions, the risks to surrounding residents from respirable silica from the quarrying operations is considered unlikely to cause adverse impacts. The Department accepts that the risks of adverse health impact to surrounding residents from silica dust is low and therefore acceptable.

## Odour

198. Odour may be generated during the use of the on-site mobile emulsion road chip pre-coating plant. Potential odour impacts were modelled and indicate that odour is unlikely to present an issue to surrounding amenity. The result show sensitive receptors are predicted to be well below the most stringent 2 Odour Unit criterion from the EPA's Approved Methods.
199. On this basis, the Department accepts that the risks of odour impact to sensitive receptors from the mobile road chip pre-coating plant is unlikely and therefore acceptable.

## Post-blast fumes

200. The AQGHGIA included modelling of post-blast fumes which predicted a maximum 1-hour average NO<sub>2</sub> concentration from blasting activities of less than  $5 \mu\text{g}/\text{m}^3$  at the most-affected sensitive receptor. With the addition of the maximum measured 1-hour average background level of  $78 \mu\text{g}/\text{m}^3$  (from the EPA Beresfield station in 2023), the assessment concluded that the cumulative concentrations would remain below the EPA's  $164 \mu\text{g}/\text{m}^3$  1-hour assessment criterion, and that the Project would not result in adverse blast fume impacts.
201. The Department accepts that the risks of post-blast fume impacts to sensitive receivers is low and therefore acceptable.

## Diesel exhaust emissions

202. Emissions from diesel exhausts associated with off-road vehicles and equipment was modelled to quantify potential impacts as part of the AQGHGIA.
203. The modelled worst-case nitrogen dioxide (NO<sub>2</sub>) emissions determined that the Project would result in maximum 1-hour and annual average NO<sub>2</sub> concentrations of 1.6 and  $7.5 \mu\text{g}/\text{m}^3$



respectively at the most affected nearby receptor. With the addition of 2023 background conditions, the concentration of 17.6  $\mu\text{g}/\text{m}^3$  over the 1-hour averaging period remains below the 31  $\mu\text{g}/\text{m}^3$  EPA criterion. Similarly, the annual average concentration of 85.5  $\mu\text{g}/\text{m}^3$  remains well below the EPA criterion of 164  $\mu\text{g}/\text{m}^3$ .

204. ARDG has committed to ensure that all plant and equipment are operated in a proper and efficient manner to minimise diesel emission impacts.

205. The Department accepts that the risks of diesel exhaust emissions impacting sensitive receptors is negligible and therefore acceptable.

#### 6.4.4 Air quality monitoring, mitigation and management

206. ARDG has committed to implementing a range of mitigation and management measures to minimise dust impacts associated with the Project.

207. In-line with EPA recommendations, the Department has recommended conditions requiring mitigation measures to be benchmarked against best management practice to achieve emission controls equal to or greater than the control efficiencies included in the AQGHGIA.

208. The Department has also recommended other robust and contemporary air quality management conditions requiring ARDG to:

- comply with strict air quality criteria;
- operate a network of real-time meteorological and air quality monitoring systems to:
  - guide the day-to-day planning of quarrying operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of consent; and
  - relocate, modify or stop operations on the site to ensure compliance with the air quality criteria.

209. Subject to the recommended conditions, the Department considers that the air quality impacts of the Project are acceptable.

#### 6.4.5 Summary

210. The Department acknowledges that potential air quality impacts was a key issue raised in the public submissions.

211. EPA and the Department are satisfied that the AQGHGIA was prepared in accordance with the relevant guidelines and is adequate to assess the air quality impacts associated with the Project.

212. The Department accepts that air emissions associated with the Project are likely to remain below the applicable EPA incremental and cumulative impact assessment criteria at the vast majority of receptor locations. The Department considers that with the implementation of a reactive real-time monitoring system at the quarry site, air quality impacts could be appropriately mitigated and managed. The Department has recommended a comprehensive range of air quality conditions to ensure this is the case.

## 6.5 Noise

### 6.5.1 Introduction

213. Noise was raised as an issue in 55% of objecting submissions, with concerns that noise associated with the Project could affect the sleep and amenity of surrounding residents.

214. The Department considers that the aspects of the Project that have the greatest potential for adverse noise impacts are those associated with noise from:

- operation of plant and equipment during extraction, processing and truck loading; and
- road haulage, particularly during the early morning shoulder period (i.e. 6 am - 7 am).

215. The EIS included a Noise and Vibration Impact Assessment (NVIA) prepared by Umwelt (Australia) Pty Limited (Umwelt) in accordance with the Noise Policy for Industry (NPfI), Road Noise Policy (RNP) and Interim Construction Noise Guideline (ICNG). The NVIA assessed the construction, operational and traffic noise impacts associated with the Project. An addendum to the NVIA was subsequently prepared by Umwelt to consider the amended Project and lodged as part of the Amendment Report and Submissions Report.

216. The Department considers, and the EPA agrees, that the NVIA and associated supplementary information has been prepared in accordance with the relevant guidelines and is adequate to assess the noise and vibration impacts of the Project.

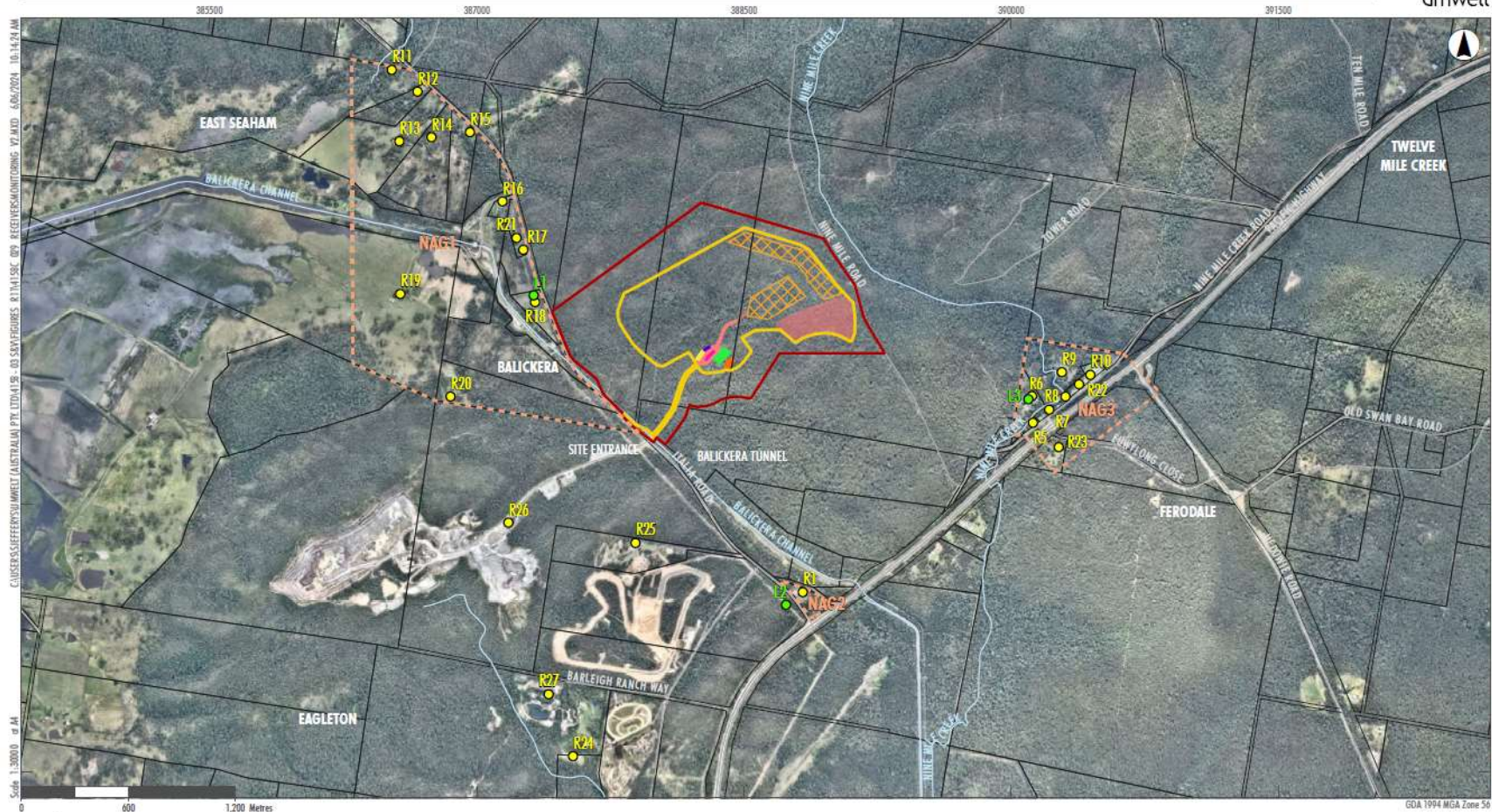
### 6.5.2 Existing noise environment

217. The existing noise environment is rural with typically low background noise levels. The key noise contributors are traffic along Italia Road and the Pacific Highway, agricultural activities and industrial contributions from the Seaham Quarry and Ringwood Park Motor Complex on the southern side of Italia Road.

218. Noise (and air quality) sensitive receivers are shown in **Figure 6-11**. These include 20 residential, three industrial and one recreational receiver. The majority of the residential receivers are located west and northwest of the Project (grouped and referred to as Noise Assessment

Group (NAG) 1) along Italia Road with the closest (Receiver 18) approximately 400m northwest of the Project area. A single residence (NAG 2) is located approximately 1,210m south of the Project at the Italia Road and Pacific Highway intersection. A second cluster of residential receivers (NAG 3) is located to the east, with the closest (Receptor 6) located approximately 1,040m from the Project boundary.

219. Project Noise Trigger Levels (PNTLs) were calculated for each receiver in accordance with the requirements of the NPfl.



**FIGURE 1.3**  
Sensitive Receivers and Noise Monitoring Locations

Image Source: Nearmap (2022) Data source: NSW F5DF (2022)

Figure 6-11 | Receiver locations



### 6.5.3 Noise mitigation measures

220. ARDG committed to:

- limit operation to only loading and transport of road registered trucks and maintenance operations during the morning shoulder period (6.00 am to 7.00 am) and evening period (6:00 pm to 10:00 pm);
- sequencing extraction in 15 m bench heights to always maintain a face between the nearest sensitive receivers and extraction area;
- cutting the processing area into the existing surface level and then relocating it within the pit during latter stages of the Project to increase acoustic shielding to the nearest sensitive receivers; and
- preparing and implementing a noise management plan that sets out the detailed measures to be implemented for the ongoing mitigation and monitoring of noise impacts from the Project.

221. Both EPA and the Department support ARDG's proposed mitigation and management measures.

### 6.5.4 Predicted noise impacts

#### Operational noise

222. Umwelt modelled four operational scenarios, including noise emissions from quarrying operations at Stage 0 (pre-operations and site preparation/earthworks); Stage 1 (initial processing of quarry materials); Stage 5 (mid-life of operations); and Stage 9 (end of life of operations). The worst-case noise level predictions from these scenarios for all sensitive receivers during the 'daytime' and 'morning shoulder' and 'evening' periods are presented in **Table 6-5** and **Table 6-6** respectively.

223. The noise modelling results predict that noise levels from worst-case quarry operations would be below the relevant PNTL at all receivers during all stages of the quarry life.

224. Predicted noise levels indicate that no residence or privately-owned land would be subject to voluntary mitigation or land acquisition rights in accordance with the VLAMP.

225. The Department and EPA accept that the proposed quarrying operations would not cause adverse noise impacts at any receptor locations.



**Table 6-5 | Predicted worst-case daytime noise levels**

Receiver	NAG or Receptor	PNTL dB(A), $L_{Aeq(15min)}$	Predicted worst case noise level dB(A), $L_{Aeq(15min)}$
R1	NAG 2	53	31
R5	NAG 3	53	41
R6, R8	NAG 3	53	42
R7	NAG 3	53	40
R9, R10, R23	NAG 3	53	45
R22	NAG 3	53	44
R11, R20	NAG 1	40	30
R12	NAG 1	40	31
R13	NAG 1	40	33
R14	NAG 1	40	36
R15	NAG 1	40	34
R16	NAG 1	40	38
R17, R18, R21	NAG 1	40	39
R19	NAG 1	40	32
R24	n/a (Hunter Valley Paintball)	53	27
R25	n/a (Ringwood Park Motor Complex/Circuit Italia)	63	36
R26	n/a (Boral Quarry)	68	44
R27	n/a (Eagleton Quarry)	68	29

**Table 6-6 | Predicted worst-case noise levels for morning shoulder and evening periods**

Receiver	NAG or Receptor	PNTL dB(A), LAeq(15min)		Predicted worst case noise level dB(A), LAeq(15min)
		Morning shoulder	Evening	
<b>R1</b>	NAG 2	47	46	23
<b>R5, R7, R8</b>	NAG 3	47	44	26
<b>R6, R22</b>	NAG 3	47	44	27
<b>R23</b>	NAG 3	47	44	31
<b>R9</b>	NAG 3	47	44	28
<b>R10</b>	NAG 3	47	44	30
<b>R11, R12 R19</b>	NAG 1	40	36	<20
<b>R13 R14 R15 R20</b>	NAG 1	40	36	20
<b>R16</b>	NAG 1	40	36	24
<b>R17 R18</b>	NAG 1	40	36	22
<b>R21</b>	NAG 1	40	36	23
<b>R24</b>	n/a (Hunter Valley Paintball)	53	53	<20
<b>R25</b>	n/a (Ringwood Park Motor Complex/Circuit Italia)	63	63	27
<b>R26</b>	n/a (Boral Quarry)	68	68	35
<b>R27</b>	n/a (Eagleton Quarry)	68	68	<20

## Cumulative noise

226. The NPfI states that the cumulative Project amenity noise limits should not be exceeded. The Project amenity noise limits are higher than the adopted PNTLs. Since the predicted operational noise levels are below the PNTLs (refer to **Table 6-5** and **Table 6-6**), they are also below the adopted Project amenity noise limits. As such, cumulative noise levels would be acceptable and no further consideration of cumulative noise is required under the provisions of the NPfI. The Department accepts this outcome.

## Road noise

227. The Project would generate an estimated 313 heavy vehicle movements and 30 light vehicles movements per day (6:00am to 10:00pm). All Project-related heavy vehicles would travel south-east along Italia Road to the Pacific Highway. Umwelt indicated that the potentially most impacted receiver is Receiver 1 located 50 m from the carriageway of Italia Road and 155 m from the Pacific Highway.

228. The predicted road noise impacts at receiver R1 are presented in **Table 6-7**. Due to the impact of the existing road noise from the Pacific Highway, which is already equal to the Daytime RNP criterion of 60 dB(A) LAeq(15 hour) and above the Morning shoulder and Night time criterion of 55 dB(A) LAeq(9 hour), neither construction nor operation of the Project is expected to increase the existing road noise levels experienced at Receiver R1.

**Table 6-7** | Operational road noise assessment – receiver R1

Time period	RNP Criteria	Existing traffic noise	Predicted Project traffic noise	Combined traffic noise	Noise level change due to the Project
Day LAeq(15 hour)	60	60	52	60	0
Morning shoulder / Night LAeq(9 hour)	55	58	43	58	0

229. The EPA recommended further consideration of how low traffic flows were addressed in the road noise modelling. The Department consulted further with EPA's technical specialist and the Department's noise specialist and considered that predictions were well below the criteria and use of an alternative modelling approach was unlikely to increase the predicted noise

above the criteria. Accordingly, the Department considers that the road noise modelling approach and predictions are acceptable.

### **Construction noise**

230. Construction noise levels are predicted to comply with the daytime noise management levels at all sensitive receivers. It is also noted that the predicted construction noise impacts under the worst case would also meet the operational PNTLs at all receivers.

### **6.5.5 Noise monitoring, mitigation and management**

231. In accordance with EPA recommendations, the Department has recommended conditions requiring ARDG to employ best practice noise management and to take all reasonable steps to manage construction, operational and road noise generated by the Project.

232. The recommended conditions also require ARDG to:

- undertake noise monitoring at least quarterly during operations to determine compliance with the applicable noise criteria;
- regularly assess the noise monitoring data, and modify or stop operations on the site to ensure noise compliance; and
- establish suitable protocols for receiving and handling community complaints and investigating any potential exceedances.

233. The Department considers that with the implementation of ARDG's proposed design mitigation measures and the recommended noise management and monitoring conditions, noise impacts on affected sensitive receivers can be appropriately mitigated and managed during both construction and operation of the Project.

### **6.5.6 Summary**

234. The Department and EPA consider that the revised NIA has been prepared in accordance with the relevant government guidelines and policy, including the NPfI, VLAMP and RNP.

235. The Department is aware that increased noise levels associated with the Project was a key issue raised in public submissions. Notwithstanding these concerns, the Department accepts that the Project is unlikely to exceed any of the PNTLs at any of the affected sensitive receiver locations.

236. The Department supports the design mitigation, monitoring and management measures proposed by ARDG to reduce predicted noise levels to acceptable levels during operation of

the Project in accordance with the NPfl. The Department has recommended stringent operational noise conditions to ensure this is the case.

## 6.6 Other issues

237. Other issues associated with the Project include social impacts, economic impacts, blasting, hazards and waste, greenhouse gas emissions, Aboriginal cultural heritage, historic heritage, visual amenity and rehabilitation and final landform. The Department’s assessment of these issues is summarised in **Table 6-8** below.

**Table 6-8** | Assessment of other issues

Issue	Assessment	Recommended conditions
<p><b>Social</b></p>	<p>Key concerns regarding social issues related to potential impacts on the amenity of local residents and potential conflicts of recreational land uses in the local area.</p> <p>Public access would be excluded from the 139 ha Project area which 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.</p> <p>The Department recognises that many of the social impacts from the Project are related to noise, blasting, air quality, traffic and other environmental impacts that have been assessed separately in accordance with relevant legislation and government policy.</p> <p>Key perceived negative social impacts identified by the Social Impact Assessment (SIA) included traffic safety, social amenity, health and wellbeing, property rights, water, ecological impacts, decision making and engagement, land management, perceived benefits included employment and improved intersection.</p> <p>The SIA identified positive impacts including regional economic benefits and increased supply of hard rock products for the construction industry.</p> <p>ARDG has proposed a range of mitigation and management strategies to address the identified social impacts of the Project. These measures are additional to those proposed to mitigate the noise, air quality, blast and traffic impacts, and include commitments to implement:</p>	<p>The Department has recommended the establishment of a CCC in accordance with the Department’s Community Consultative Committee Guidelines: State Significant Projects (2023), as well as a requirement to regularly publish relevant documentation on ARDG’s website and implement a protocol for managing and reporting community complaints.</p>



Issue	Assessment	Recommended conditions
	<ul style="list-style-type: none"> <li>• a Community Engagement Strategy to provide a framework for ongoing engagement which would complement the Community Consultative Committee;</li> <li>• an Employment, Training and Procurement Strategy to maximise local employment and sourcing; and a</li> <li>• Social Impact Management Plan.</li> </ul> <p>Overall, the SIA concluded that identified negative social impacts of the Project can be reasonably mitigated or managed to reduce their significance, with positive impacts increasing in significance if appropriate enhancement measures are put in place.</p> <p>The Department accepts this conclusion and supports ARDG's social mitigation and management commitments.</p> <p>In recognition of the need to maintain effective community engagement and implement measures to mitigate negative social impacts, the Department has recommended conditions requiring ARDG to:</p> <ul style="list-style-type: none"> <li>• establish and operate a Community Consultative Committee (CCC);</li> <li>• regularly publish relevant environment and community information on their website; and</li> <li>• establish and operate a protocol for managing and reporting community complaints.</li> </ul> <p>The Department considers that with the implementation of the mitigation measures proposed by ARDG and the application of the Department's recommended conditions (coupled with the management measures proposed in respect of noise, air quality, blasting and traffic impacts), the extent of social impacts can be appropriately managed and mitigated.</p>	
<b>Economic</b>	Economic issues were raised in approximately 16% of objecting submissions, with key concerns relating to potential reduction in property prices as a result of the quarry, potential reduction in	No conditions are considered necessary

Issue	Assessment	Recommended conditions
	<p>current land uses and potential jobs not outweighing the potential impacts.</p> <p>The Department notes that property values are not a consideration for assessment under the EP&amp;A Act and accordingly have not been a consideration in the Department's assessment of the Project.</p> <p>The EIS included an Economic Impact Assessment (EIA) for the Project which was prepared by Gillespie Economics and provided a Cost Benefit Analysis (CBA) and Local Effects Analysis (LEA).</p> <p>The LEA identified that the Project would provide local economic benefit through the generation of 12 FTE jobs and 35 FTE indirect transport jobs at full production.</p> <p>Overall, the CBA calculated that the Project would confer an estimated net benefit to NSW of \$290 million in NPV terms over the life of the quarry using a 7 percent real discount rate.</p> <p>The Department accepts that the Project would generate up to 12 direct FTE jobs during operation, and that a significant percentage of the workers would likely reside in the local and regional area. The Department also recognises that a key economic benefit of the Project would be improving the security of supply of hard rock products to the domestic market to meet the needs of planned infrastructure and housing construction projects.</p> <p>The Department considers that the Project would result in positive economic benefits to the local and regional areas and to the State of NSW and is therefore considered desirable and justified from an economic efficiency perspective.</p>	
<b>Blasting</b>	<p>The EIS included a blasting impact assessment which was prepared by Enviro Strata Consulting and predicted the airblast overpressure and ground vibration levels at nearest residential receivers from the quarry with four different maximum instantaneous charge (MIC) scenarios. An addendum to the assessment was also provided as part of the Amendment Report.</p> <p>Blast and vibration issues were raised in 23% of public submissions, with issues related to reduced amenity from</p>	<p>The Department has recommended standard conditions requiring ARDG to:</p> <ul style="list-style-type: none"> <li>ensure that blasting does not cause exceedances of</li> </ul>

Issue	Assessment	Recommended conditions
	<p>blasting at the existing and proposed quarries in the area and disturbance to local fauna.</p> <p>EPA did not raise any issues in relation to the blasting and vibration assessment, however provided recommended conditions for blasting limits, time restrictions, monitoring and the preparation of a Blast Management Plan.</p> <p>Blasting is proposed to be undertaken at a frequency of up to 2 blasts per fortnight. ARDG has committed to restricting blasts to between 9 am and 5 pm Monday to Friday and drilling to between 6am and 6 pm Monday to Friday and 7 am to 3 pm on Saturdays. These time restrictions are in line with those recommended by EPA.</p> <p>Enviro Strata Consulting found that the quarry blasting would meet the relevant ground vibration and air blast overpressure objectives at all sensitive receivers with the exception of R18 which could be managed with the introduction of some limited management measures via the application of reduced charge masses.</p> <p>With respect to infrastructure, modelling indicates that predicted vibration and overpressure levels associated with the Project will meet criteria for infrastructure and heritage items under all assessed blast scenarios. Importantly, this includes Hunter Water Corporation’s Balickera Tunnel.</p> <p>Fly rock risk will be managed through exclusion zones and road closures.</p> <p>As well as committing to restricting blasting times, ARDG committed to preparing and implementing a Blast Management Plan which includes vibration monitoring protocols, Pre-Blast Assessment Protocols, a Road Closure Management Plan, A Resident Notification System and liaising with adjacent quarries to prevent concurrent blasting.</p> <p>The Department supports these commitments. In addition, the Department has recommended conditions for blast criteria; blast timing and frequency restrictions; property inspections and investigations at the request of property owners; and blast</p>	<p>blasting criteria at private residences;</p> <ul style="list-style-type: none"> <li>• limit the frequency of blasts to 2 per fortnight during operations;</li> <li>• notify the community of scheduled blasts and monitoring each blast to evaluate compliance with the relevant blasting criteria;</li> <li>• ensure the safety of people and livestock from blasting impacts;</li> <li>• protect public and private infrastructure from blasting impacts;</li> <li>• minimise blast-related dust and fume emissions; and</li> <li>• allow nearby landowners to request an independent review of impacts at their property, should they consider the Project to be exceeding the relevant blasting, noise, or air quality criteria.</li> </ul>

Issue	Assessment	Recommended conditions
	<p>operating conditions. Overall, the Department considers the blasting impacts of the Project to be acceptable, subject to the implementation of ARDG's commitments and the recommended conditions of consent.</p>	
<p><b>Hazards and waste</b></p>	<p>The EIS included an assessment of hazards and risks associated with the project, including waste, dangerous good storage and bushfires.</p> <p>The assessment indicated the project would generate small quantities of waste during construction and operation, including scrap building materials, organic material from vegetation clearing, general office wastes, sewage from on-site amenities and waste greases and oil.</p> <p>ARDG has indicated that most wastes generated at the site would be managed by way of Council collection services or via appropriately licensed waste contractors. Sewage would be managed using a contained pump-out (or similar) system and off-site disposal by a licenced contractor.</p> <p>A bushfire risk assessment was conducted in accordance with NSW Rural Fire Service (RFS) Planning for Bushfire Protection 2019. The site is located on land that is mostly designated as Category 1 vegetation on the Port Stephens Council Bushfire Prone Land Map with the exception of a small area on the western side of the Project area which is mapped as Category 2 vegetation.</p> <p>In accordance with the guidelines, ARDG has committed to complying with required emergency evacuation arrangements and asset protection zones.</p> <p>NSW RFS suggested a Fire Management Plan be prepared and include internal access, water supplies, location and type of hazardous materials. ARDG has committed to developing a Bushfire Emergency Management Plan.</p> <p>The Department considers that waste and hazards can be appropriately managed during construction and operation of the quarry. The Department has recommended specific conditions to</p>	<p>The Department has recommended standard conditions requiring ARDG to:</p> <ul style="list-style-type: none"> <li>• appropriately store, handle and dispose of any waste generated or received on site;</li> <li>• store, handle and transport dangerous goods in accordance with Australian Standards and the Australian Dangerous Goods Code;</li> <li>• provide for asset protection in accordance with the updated guidelines;</li> <li>• ensure there is adequate equipment to respond to any fires on the Project site; and</li> <li>• assist RFS and emergency services to the extent practicable if there is a fire in the vicinity of the site.</li> </ul>

Issue	Assessment	Recommended conditions
	<p>ensure appropriate waste and bushfire management measures are implemented.</p>	
<p><b>Greenhouse gas emissions</b></p>	<p>An assessment of greenhouse gas (GHG) emissions for the Project was included in the original AQGHGA and an addendum assessment was included as part of the Amendment Report. The assessment estimated the following emissions:</p> <ul style="list-style-type: none"> <li>• 3,561 tonnes CO<sub>2</sub> equivalent (t CO<sub>2</sub>-e) Scope 1 emissions would be generated on an annual basis (106,832 t CO<sub>2</sub>-e over the life of the Project) through the consumption of diesel by on-site equipment, detonation of explosives used for blasting and loss of carbon sink due to removal of vegetation;</li> <li>• 1,057 t CO<sub>2</sub>-e Scope 2 emissions would be generated each year (31,724 t CO<sub>2</sub>-e over the life of the Project) through on site electricity use; and</li> <li>• 631 t CO<sub>2</sub>-e Scope 3 emissions annually (18,924 t CO<sub>2</sub>-e over the life of the Project) generated through the production and transport of fuels and emissions from transportation.</li> </ul> <p>The annual contribution of GHG emissions from the Project (0.0053 t CO<sub>2</sub>-e) is estimated to make up 0.004% of the annual emissions for NSW, 0.0011 % of the annual emissions for Australia under the Kyoto Protocol.</p> <p>ARDG has committed to implementing the following mitigation measures to minimise GHG emissions from the Project:</p> <ul style="list-style-type: none"> <li>• maintaining equipment and plant in a good condition to ensure efficient operations;</li> <li>• ensuring plant and equipment are switched off when not in use and operated in the most efficient mode; and</li> <li>• minimising the extent of vegetation clearance and implementing revegetation and regeneration of completed areas as soon as practicable;</li> </ul> <p>The Department considers that the Project would provide a negligible contribution to Australia’s GHG emissions.</p>	<p>The Department has recommended conditions requiring ARDG to maximise the energy efficiency and minimise the GHG emissions from the Project.</p>



Issue	Assessment	Recommended conditions
<p><b>Aboriginal cultural heritage</b></p>	<p>The EIS included an Aboriginal Cultural Heritage Assessment (ACHA) which was prepared by Umwelt in 2023. In response to requests made on the EIS by Heritage NSW a revised ACHA was included as part of the Submissions Report. The ACHA was prepared in accordance with the relevant guidelines and involved consultation with representatives of 13 Registered Aboriginal Parties (RAPs).</p> <p>Heritage NSW indicated that it was satisfied with the updated ACHA.</p> <p>The ACHA confirmed that no Aboriginal objects or areas of archaeological potential were identified during the survey, and the entirety of the Project area is considered to be of low archaeological potential.</p> <p>ARDG has committed to:</p> <ul style="list-style-type: none"> <li>ensuring all staff and contractors are aware of the statutory legislation protecting sites and places of Aboriginal significance; and</li> <li>ensuring all work ceases in the area in the event that any Aboriginal objects be uncovered during works and that Aboriginal stakeholders and archaeologist are contacted for advice.</li> </ul> <p>Heritage NSW supports these heritage management commitments. The Department accepts that no impacts to Aboriginal cultural heritage sites as a result of the Project are expected and unexpected finds can be appropriately managed.</p>	<p>The Department has recommended standard conditions requiring ARDG to protect, monitor, record and manage unexpected Aboriginal heritage items and ensure that the Project does not impact on any identified Aboriginal objects located outside proposed disturbance areas.</p>
<p><b>Historic heritage</b></p>	<p>An assessment of the potential impacts of the Project on historic heritage values was undertaken by Umwelt in accordance with guidelines set out in the NSW Heritage Manual 1996 (Heritage Office and Department of Urban Affairs and Planning).</p> <p>Umwelt confirmed that the Project area does not contain registered heritage items or unregistered potential heritage items. Balickera House is located outside of the Project area and would not be directly impacted by the Project. The blasting assessment confirmed predicted vibration and overpressure</p>	<p>The Department has recommended a condition requiring appropriate procedures to be implemented if unexpected historic relics are discovered during construction or operation of the Project.</p>

Issue	Assessment	Recommended conditions
	<p>levels would be unlikely to adversely affect the structure or heritage values.</p> <p>ARDG have committed to implement:</p> <ul style="list-style-type: none"> <li>• an unexpected finds protocol;</li> <li>• heritage specific inductions for team members and construction contractors; and</li> <li>• ceasing works if unexpected finds are encountered and seeking advice from a qualified archaeologist.</li> </ul> <p>On this basis, the Department considers there is low potential for adverse impacts to historic heritage from the Project.</p>	
<p><b>Visual amenity</b></p>	<p>The EIS included a qualitative visual impact assessment.</p> <p>The assessment identified:</p> <ul style="list-style-type: none"> <li>• existing regrowth and remnant vegetation retained around the proposed disturbance area will shield views of operations from surrounding public and private property viewing locations;</li> <li>• the quarry extraction and infrastructure areas are not likely to be visible from public or private viewing locations; and</li> <li>• possible indirect glow associated with lighting for mobile equipment and the loading/operations area of the quarry which would be operational up until 10 pm Monday to Friday are not expected to significantly or adversely affect the amenity of any residences in the area.</li> </ul> <p>The visual impact assessment concluded potential for any adverse visual impacts associated with the Project is considered to be limited.</p> <p>Impacts would be further reduced through the implementation of the following measures:</p> <ul style="list-style-type: none"> <li>• where possible shielding mobile equipment behind the active quarry face;</li> <li>• maintaining vegetation buffers; and</li> <li>• directing lighting downwards and away from residential areas and public roads.</li> </ul>	<p>The Department has recommended standard conditions requiring ARDG to:</p> <ul style="list-style-type: none"> <li>• minimise the visual impacts of the development;</li> <li>• detail the proposed visual mitigation measures in the Rehabilitation Management Plan;</li> <li>• ensure all external lighting complies with relevant Australian Standards; and</li> <li>• integrate the final landform with surrounding natural landforms as far as is reasonable and feasible.</li> </ul>

Issue	Assessment	Recommended conditions
	<p>The Department accepts these commitments and conclusions and considers that the visual amenity impacts from the Project would be minimal and are therefore acceptable.</p>	
<p><b>Final landform and rehabilitation</b></p>	<p>The Project would result in approximately 139 ha Project area which represents less than 4% of the total area of the Wallaroo State Forest.</p> <p>The Project has been refined to avoid main areas of occupied habitat for the threatened orchid species, <i>Pterostylis chaetophora</i> PCT and minimise impacts to PCTs and threatened species habitats generally. The Project has been designed to use existing tracks and retain areas of suitable wildlife corridors.</p> <p>The EIS and amendment report included detail of the Rehabilitation and Final Landform of the Project.</p> <p>The EIS and submissions report took consideration of the location of the Project which limits the post-closure land use options for the site to those permitted within the State Forest and consistent with the underlying object of being safe, stable and non-polluting.</p> <p>The broad objective for post-quarry landform is to rehabilitate the site with pockets of woodland species across the benches consistent with endemic vegetation types to provide biodiversity habitat values and retaining a pit lake which could provide water storage which may be used for emergency fire-fighting water supply.</p> <p>ARDG have committed to providing a life of operations rehabilitation management strategy relevant to achieving the conceptual final landform and a Detailed Quarry Closure Plan, which will include investigation of alternative land uses, to be developed 3 years prior to planned cessation of quarrying activities.</p> <p>The Department has recommended that these commitments be refined and included into the Rehabilitation Management Plan, which would be required to include a conceptual closure plan and detail of specific rehabilitation performance and completion criteria, measures to meet these criteria and a program to</p>	<p>The Department's recommended conditions include a requirement for ARDG to:</p> <ul style="list-style-type: none"> <li>• complete progressive rehabilitation</li> <li>• prepare and implement a Rehabilitation Management Plan; and</li> <li>• lodge a rehabilitation bond.</li> </ul>

Issue	Assessment	Recommended conditions
	<p>monitor, review and report on the effectiveness of these measures.</p> <p>In addition, the Department has recommended conditions requiring ARDG to lodge a rehabilitation bond to ensure accumulated and anticipated costs of rehabilitation are available until rehabilitation (including achievement of all completion criteria) has been completed to the satisfaction of the Secretary.</p>	

## 7 Evaluation

238. The Department has carried out a detailed assessment of the merits of the Project, having regard to ARDG’s Project documentation, advice from government agencies and all public submissions. The Department has also considered the relevant matters and objects of the EP&A Act and relevant considerations under Section 4.15(1) of the EP&A Act.

239. The Department acknowledges the considerable level of public interest in the Project. This is understandable given the nature of hard rock quarries generally, which typically generate dust, noise, vibration and traffic as the hard rock is extracted, processed and transported by truck to market. They also often involve clearing of remnant vegetation and the establishment of large voids in the landscape. For these reasons, extractive industry proposals such as this one require careful consideration, to ensure they are established in suitable locations, and are designed, constructed and operated appropriately to avoid, minimise and mitigate impacts as far as reasonably practicable.

240. The information provided in the EIS and Amendment Report, community submissions and agency advice highlighted that the potential biodiversity, water resources, traffic, air quality, and noise impacts were the key issues associated with the Project.

241. The Project would require the clearing of 68.02 ha of native vegetation and impact threatened flora and fauna species. Despite these impacts, the Department considers that the Project has been designed to avoid and minimise biodiversity impacts where practicable and offset any residual impacts. The biodiversity impacts of the Project would be suitably mitigated, managed and/or offset in accordance with the BC Act. Additionally, the Department’s recommended conditions of consent would provide for sound management of retained biodiversity values and impacts to threatened flora and fauna and their habitats. Overall, the Department considers

the impacts of the Project on biodiversity are acceptable, subject to the recommended conditions.

242. Potential impacts to water resources were another key focus of the Department's assessment, particularly given the Project's location within the Grahamstown Dam drinking water catchment. However, the Department accepts that proposed water management system has been designed in a manner that would ensure a NorBE on the drinking water catchment and to the satisfaction of Hunter Water.
243. Further, the predicted groundwater impacts would be very localised and limited to a 'less productive' aquifer. They would also be less than the Level 1 minimal impact considerations set out in the AIP. Accordingly, the Department considers these impacts acceptable.
244. The Department considers that, with the implementation of the recommended conditions of consent, the risks of impact to surface water and groundwater resources are low and that the Project could be suitably managed to avoid any unacceptable impacts.
245. To address the community's concerns regarding the potential traffic and transport impacts of the Project, ARDG has committed to upgrading the intersection of Italia Road / Pacific Highway and ensuring that all quarry product trucks turn left onto the highway to eliminate any at-grade crossing of northbound traffic lanes at this location. This would improve the efficiency and safety of this intersection, when compared to existing conditions.
246. The proposed upgrade of the intersection of Italia Road and Hamburger Trail at the entry to the quarry access road would also help to mitigate road safety and efficiency impacts.
247. It is predicted that a satisfactory level of service would be experienced by motorists on the local and regional road network. The road maintenance contributions paid to Council by ARDG would also provide for the ongoing maintenance of the impacted local roads for the life of the Project.
248. The Department's recommended conditions require ARDG to prepare and implement a TMP, construct the road and intersection upgrades prior to quarry product transportation and strict monitoring of road haulage rates. Subject to these conditions, the Department considers that the traffic and transport impacts of the Project are acceptable.
249. Notwithstanding the community's concerns regarding the potential air quality impacts, the Department accepts that air emissions associated with the Project are likely to remain below the applicable impact assessment criteria at the vast majority of receptor locations. The Department considers that with the implementation of a reactive real-time monitoring system at the quarry site, air quality impacts could be appropriately mitigated and managed. The Department has recommended a comprehensive range of air quality conditions to ensure this is the case.



250. Similarly, the Department accepts that the Project is unlikely to exceed the relevant noise assessment criteria at any of the affected sensitive receiver locations. The Department supports the design mitigation, monitoring and management measures proposed by ARDG and has recommended stringent operational noise conditions to ensure this is the case.
251. The Department's assessment of the Project's impacts on other values including social impacts, economic impacts, human health, blasting, hazards and waste, greenhouse gas emissions, Aboriginal cultural heritage, historic heritage, visual amenity, and rehabilitation and final landform impacts has concluded that these impacts can be suitably mitigated and managed, subject to the recommended conditions.
252. The Department has recommended a comprehensive and precautionary suite of conditions to ensure that the Project complies with contemporary criteria and standards, and that residual impacts are effectively minimised, managed, offset and/or compensated for. The recommended conditions were provided to key NSW Government agencies and their comments taken into account in finalising the conditions. ARDG has also reviewed the recommended conditions.
253. The Department considers that the conditions reflect current best practice for the regulation of hard rock quarrying projects in NSW and would lead to acceptable environmental outcomes. A link to the recommended consent is provided at Appendix E.
254. The Department recognises that the proposed quarry would contribute a range of high-quality construction materials to local and regional markets. It would contribute significantly to the supply of materials for the construction of housing and major regional infrastructure projects.
255. The Department also recognises that the proximity of the Project's hard rock resources to the Pacific Highway via Italia Road facilitates safe and efficient distribution of products to the market. The Department accepts there is a strategic need for hard rock quarry materials in the Hunter, Central Coast and Sydney regions and considers the site to be well-suited for the Project.
256. The Department also considers that the Project would result in significant economic benefits to the region and to the State of NSW through the supply of materials critical to the construction industry and is therefore justified from an economic efficiency perspective.
257. The Department has carefully weighed the environmental impacts of the Project against the significance of the Project's identified hard rock resource and the wider socio-economic benefits associated with operating the quarry for 30 years under a contemporary development consent.

258. On balance, the Department considers that the benefits of the Project outweigh its residual costs, the site is suitable for the proposed development, and that the Project is in the public interest and is approvable, subject to the recommended strict conditions of consent.

# Glossary

Abbreviation	Definition
<b>AHD</b>	Australian height datum
<b>BCS</b>	Biodiversity Conservation and Science group of the NSW Department of Climate Change, Energy, the Environment and Water
<b>Council</b>	Port Stephens Council
<b>Crown Lands</b>	Crown Lands division of the Department of Planning, Housing and Infrastructure
<b>AG DCCEEW</b>	Australian Government Department of Climate Change, Energy, the Environment and Water
<b>Department</b>	Department of Planning, Housing and Infrastructure
<b>DPI</b>	Department of Primary Industries within the Department of Regional NSW
<b>EIS</b>	Environmental impact statement
<b>EPA</b>	NSW Environment Protection Authority
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2021
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>EPI</b>	Environmental planning instrument
<b>EPL</b>	Environment protection licence
<b>ESD</b>	Ecologically sustainable development
<b>FCNSW</b>	Forestry Corporation of New South Wales
<b>Heritage</b>	Heritage NSW, within the NSW Department of Climate Change, Energy, the Environment and Water

<b>Abbreviation</b>	<b>Definition</b>
<b>Hunter Water</b>	Hunter Water Corporation
<b>IPC</b>	Independent Planning Commission
<b>LEP</b>	Local environmental plan
<b>MEG / Resources Regulator</b>	Mining, Exploration and Geoscience and Resources Regulator within the Department of Regional NSW
<b>Minister</b>	Minister for Planning
<b>NorBE</b>	Neutral or Beneficial Effect
<b>Planning Systems SEPP</b>	State Environmental Planning Policy (Planning Systems) 2021
<b>RFS</b>	Rural Fire Service
<b>SEARs</b>	Planning Secretary's Environmental Assessment Requirements
<b>Secretary</b>	Secretary of the Department of Planning, Housing and Infrastructure
<b>SEPP</b>	State environmental planning policy
<b>SSD</b>	State significant development
<b>TfNSW</b>	Transport for NSW
<b>Water Group</b>	Water Group within the NSW Department of Climate Change, Energy the Environment and Water (formerly DPE Water, within the Department of Planning and Infrastructure, and Crown Lands and Water Division (CLWD) within the NSW Department of Industry)

# Appendices

## Appendix A – Summary of key amendments to the Project

Since lodgement, some key aspects of the Project have been amended in response to public submissions and agency advice via an amendment report.

A summary of the key amendments is provided in **Table 7-1** below.

**Table 7-1 | Key amendments**

Aspect	Original project in EIS	Amended project
<b>Project area</b>	Approximately 139 ha (including extraction, processing and stockpiling area and buffers), with a disturbance area of approximately 79 ha.	Approximately 139 ha (including extraction, processing and stockpiling areas and buffers) with a disturbance area of approximately 68.09 ha (reduction of approximately 10.93 ha (14%)).
<b>Rehabilitation and final landform</b>	Rehabilitation will be undertaken progressively where appropriate in the context of further resources remaining available in the Project area at the end of the planned 30-year approval life. A conceptual final landform will be prepared for the Project.	No change to rehabilitation processes. Design of final landform modified associated with amendment to conceptual quarry layout

## Appendix B – List of referenced documents

**B1 - EIS:** Refer to the ‘EIS’ folder under the ‘Assessment’ tab on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

**B2 – Submissions:** Refer to the ‘Submissions’ tab on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

**B3 – Submissions Report:** Refer to the first ‘Response to Submissions’ tab on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

**B4 – Amendment Report:** Refer to the ‘Amendments’ tab on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>



**B5 – Amendment Submissions Report:** Refer to the second ‘Response to Submissions’ tab on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

**B6– Agency Advice:** Refer to the ‘Agency Submissions’ and ‘Agency Advice’ tabs on the Department’s website at: <https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

## Appendix C – Statutory considerations

### Objects of the EP&A Act

A summary of the Department’s consideration of the relevant objects (found in section 1.3 of the EP&A Act) are provided in **Table 7-2** below.

**Table 7-2** | Objects of the EP&A Act and how they have been considered

Object	Consideration
<p><b>(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources,</b></p>	<ul style="list-style-type: none"> <li>• While the amended Project has the potential to result in both positive and negative social impacts, overall, the Department considers that any negative social impacts can be appropriately managed under recommended conditions.</li> </ul>
<p><b>(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</b></p>	<ul style="list-style-type: none"> <li>• The Department’s assessment has sought to integrate all significant environmental, social and economic considerations.</li> <li>• The Department considers that the Project can be carried out in a manner that is consistent with the principles of ESD.</li> </ul>
<p><b>(c) to promote the orderly and economic use and development of land,</b></p>	<ul style="list-style-type: none"> <li>• The Department’s assessment has sought to integrate all significant environmental, social and economic considerations.</li> <li>• The Department considers that the Project can be carried out in a manner that is consistent with the principles of ESD.</li> </ul>

Object	Consideration
<p><b>(d) to promote the delivery and maintenance of affordable housing,</b></p>	<ul style="list-style-type: none"> <li>The Project would increase the supply of construction materials critical to the construction of housing and infrastructure, helping to promote the delivery and maintenance of affordable housing.</li> </ul>
<p><b>(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</b></p>	<ul style="list-style-type: none"> <li>The Department has assessed the biodiversity impacts of the Project in accordance with relevant State legislation, policies and guidelines.</li> <li>The Department considers that the Project avoids and minimises, to the greatest extent practicable, impacts on threatened species and communities and key habitats.</li> <li>The Department has recommended conditions to ensure that the residual biodiversity impacts of the Project would be appropriately managed and offset (see <b>Section 6</b>).</li> </ul>
<p><b>(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</b></p>	<ul style="list-style-type: none"> <li>The Department has assessed the likely impacts of the amended Project on Aboriginal cultural heritage and historic heritage and considers any potential impacts would be negligible.</li> </ul>
<p><b>(g) to promote good design and amenity of the built environment,</b></p>	<ul style="list-style-type: none"> <li>The Project would not adversely impact good design or the amenity of the built environment.</li> </ul>
<p><b>(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,</b></p>	<ul style="list-style-type: none"> <li>The Project would not adversely impact the proper construction and maintenance of buildings. All structures established on site would be constructed and maintained in accordance with relevant Australian standards and the National Construction Code to ensure the health and safety of their occupants.</li> </ul>
<p><b>(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</b></p>	<ul style="list-style-type: none"> <li>The Department has led a whole-of-government assessment of the Project in consultation with other NSW Government agencies. This consultation process is discussed in <b>Section 5</b>.</li> </ul>

Object	Consideration
<p><b>(j) to provide increased opportunity for community participation in environmental planning and assessment.</b></p>	<ul style="list-style-type: none"> <li>• The Department publicly exhibited the Project.</li> <li>• The development application and accompanying documents, including the Amendment Report were made publicly available on its website (see <b>Section 5</b>).</li> <li>• The Department visited the site and meet with a local business operator.</li> <li>• The Department has carefully considered issues raised by the community during both public exhibition periods in its assessment of the Project.</li> </ul>

### Environmental Planning Instruments (EPIs)

Under section 4.15 of the EP&A Act, the consent authority is required to consider, amongst other things, the provisions of the relevant EPIs, including any exhibited draft EPIs and development control plans. The Department notes ARDG’s consideration of these instruments in its EIS and has undertaken its own consideration of the Project against the applicable provisions of relevant EPIs, including applicable State Environmental Planning Policies (SEPPs).

#### C2.1 SEPP (Resources and Energy) 2021 (Resources and Energy SEPP)

Part 2.3 of the Resources and Energy SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of an extractive industry. The Department has considered these matters in its assessment of the Project and has included a summary of these considerations in **Table 7-3**.

**Table 7-3 | Mandatory matters for consideration under Part 2.3 of the Resources and Energy SEPP**

Section	Matters for consideration	Consideration
2.16	Non-discretionary development standards for mining	<ul style="list-style-type: none"> <li>The Project is predicted to comply and has been assessed as complying with non-discretionary standards with respect to water, noise and air quality.</li> <li>The Project is predicted to exceed air blast overpressure objectives at a single sensitive receiver (R18) which would be managed with the introduction of limited management measures via the application of reduced charge masses in the north-western corner of the quarry pit during stages 6 to 9. To ensure this is the case, the Department considers it important that ARDG implement comprehensive vibration monitoring protocols, Pre-Blast Assessment Protocols, a Road Closure Management Plan, A Residence Notification System and liaise with adjacent quarries to prevent concurrent blasting.</li> </ul>
2.17	Compatibility of proposed mine, petroleum production or extractive industry with other land uses	<ul style="list-style-type: none"> <li>The Department has carefully considered the merits of the Project, having regard to existing and approved land uses in the vicinity of the site. The Department has also considered what it understands to be the preferred uses of land in the area, having regard to relevant EPIs and strategic plans.</li> <li>The Department is of the view that, subject to the recommended conditions of consent, the Project can be carried out in a manner that is compatible with surrounding industrial, recreational, rural-residential and rural land uses.</li> </ul>
2.18	Consideration of the Voluntary Land Acquisition and Mitigation Policy (VLAMP)	<ul style="list-style-type: none"> <li>The Department has considered the VLAMP in its assessment of noise and air quality impacts.</li> </ul>
2.19	Compatibility of proposed development with mining, petroleum production or extractive industry	<ul style="list-style-type: none"> <li>The Project would not conflict with existing extractive industry in the locality.</li> </ul>

Section	Matters for consideration	Consideration
2.20	Natural resource management and environmental management	<ul style="list-style-type: none"> <li>The Department has recommended a robust suite of conditions to ensure that the Project is undertaken in an environmentally responsible manner. These include conditions relating to the appropriate management of biodiversity, air quality and water resources.</li> </ul>
2.21	Resource recovery	<ul style="list-style-type: none"> <li>The Department has considered resource recovery in respect of the Project's identified hard rock resource and is satisfied that the Project can be carried out in an efficient manner that optimises resource recovery subject to environmental constraints.</li> <li>The Department has recommended conditions requiring ARDG to implement reasonable and feasible measures to minimise waste and maximise the salvage and re-use of resources within the disturbance area (including water, soil and vegetative resources).</li> </ul>
2.22	Transport	<ul style="list-style-type: none"> <li>The Department consulted with Port Stephens Council and TfNSW during its assessment of the Project. The Project would not significantly impact the safety and efficiency of the local road network.</li> <li>The Department has recommended conditions requiring the payment of contributions for ongoing maintenance for Project-related use of local roads, and the preparation of a Traffic Management Plan for the Project.</li> </ul>
2.23	Rehabilitation	<ul style="list-style-type: none"> <li>The Department has recommended strict conditions to ensure that the site is rehabilitated in a timely and integrated manner and that the final landform is safe, stable and non-polluting.</li> </ul>

## C2.2 SEPP (Biodiversity and Conservation) 2021

SEPP (Biodiversity and Conservation) 2021 aims to conserve and manage Koala habitat to reverse the current trend of Koala population decline.

The Project area is within the Port Stephens LGA and Council has prepared a Comprehensive Koala Plan of Management (CKPoM) (PSC, 2002). At the Department's request, Umwelt provided additional assessment of Koala impacts against the performance criteria for developments in Council's CKPoM.

The mapped categories of koala habitat within the Project disturbance footprint are as follows:

- Preferred Koala Habitat – 0.788 ha (1.16 % of disturbance footprint);
- 50 m Buffer over Marginal Habitat – 1.704 ha (2.50 % of disturbance area);
- 50 m Buffer over Cleared – 0.197 ha (0.29 % of disturbance area); and
- Marginal Habitat – 65.401 ha (96.05 % of disturbance area).

The Department considers that the koala habitat loss from the Project would be minor in the context of the large expanse of forest vegetation adjoining the Project area that is also likely to contain suitable Koala feed tree species, particularly to the south and east. The Project would also maintain vegetated corridors to the north and south of the Project area to allow movement of this species to adjoining habitat to the northeast. The majority of the Project disturbance footprint (approximately 96%) is mapped as Marginal Habitat under the CKPoM. The removal of 2.69 ha of koala habitat is unlikely to represent a significant reduction in important available habitat for this species in the locality.

ARDG has also committed to mitigating and managing impacts on Koalas through:

- implementing clearing protocols including pre-clearing fauna surveys, fauna translocation protocol and vegetation clearing protocol;
- management and control measures for weeds and vertebrate pests;
- measure to ensure the salvage, storage and redistribution of habitat features within the rehabilitation areas; and
- offsetting impacts to koala habitat in accordance with the NSW biodiversity offsetting requirements which are based on a no-net-loss principle and like-for-like offsetting requirements.

With the consideration of the minor habitat loss (2.69 ha) in the context of the large areas of surrounding habitat, coupled with the proposed Koala impact mitigation, management and offsetting measures, the Department considers that the project would not be inconsistent with the performance criteria in the CKPoM.

### **C2.3 SEPP (Resilience and Hazards) 2021**

Chapter 3 of this SEPP regulates the development of ‘hazardous and offensive’ industry. ARDG note that as the site is largely comprised native vegetation it is unlikely that any substantial ground contamination is present.

The Department considers that the hazards and risks associated with the Project have been assessed in a manner consistent with the requirements of Chapter 3 of this SEPP and can be appropriately managed under the recommended conditions.



Chapter 4 of this SEPP regulates the remediation of contaminated land. The Department considers that the Project area does not have a significant risk of contamination given its historical and current land uses, and that the development has been assessed in a manner consistent with the requirements of Chapter 4 of this SEPP.

## **C2.4 SEPP (Transport and Infrastructure) 2021**

This SEPP requires the consent authority to notify relevant public authorities about development that may affect public infrastructure or land. The Department notified TfNSW and Council.

The Department carefully considered the advice from these authorities, particularly in relation to the Project's proposed traffic generation on the road network, in its assessment of this application.

## **Appendix D – Assessment of Matters of National Environmental Significance**

The Project was declared to be a 'controlled action' under the Commonwealth EPBC Act due to its potential impacts on listed threatened species and communities. In its determination, the DCCEEW agreed that the proposal may be assessed by the NSW Government, in accordance with the Bilateral Agreement between the NSW and Commonwealth Governments.

The Department provides the following additional information for the Commonwealth Minister to take into account when deciding whether or not to approve the Project under the EPBC Act.

The Department's assessment has been prepared based on the information contained in:

- the EIS, particularly the BDAR (see **Appendix B1**);
- the Submissions Report, particularly the Revised BDAR (see **Appendix B3**);
- environmental assessment requirements issued by DCCEEW;
- advice provided by BCS, in particular its assessment of impacts on MNES (see **Appendix B6**); and
- additional information provided by Umwelt on behalf of ARDG during the assessment process (see **Appendix F**).

This Appendix is supplementary to, and should be read in conjunction with, **Section 6.1** of the Department's Assessment Report.

### **D1 – Potential impacts to EPBC Act listed threatened species and communities**

In its referral decision, the Commonwealth determined that the Project is a controlled action in that the proposed action:

- is likely to have a significant impact on one EPBC Act-listed endangered ecological community (EEC) (*Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland*) and two EPBC Act-listed threatened fauna species [Koala (*Phascolarctos cinereus*) and Grey-headed Flying-fox (*Pteropus poliocephalus*)]; and
- has the potential to have a significant impact on five other EPBC Act-listed threatened fauna species [Swift Parrot (*Lathamus discolor*), Spotted-tailed Quoll South-eastern mainland population (*Dasyurus maculatus maculatus*), Yellow-bellied Glider (south-eastern) (*Petaurus australis australis*), New Holland Mouse (*Pseudomys novaehollandiae*) and South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*)].

The Revised BDAR and supplementary information provided by ARDG considered the impacts of the Project on these species and community, including completion of significant impact assessments in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (DoE, 2013).

The Commonwealth also required that evidence be provided to demonstrate why other EPBC Act-listed threatened species and communities likely to be located in the Project area or in the vicinity would not be significantly impacted by the Project. In accordance with this requirement, the Revised BDAR also completed significant impact tests and considered potential impacts on:

- two additional EPBC Act-listed EEC (Central Hunter Valley eucalypt forest and woodland and the Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld);
- two additional EPBC Act-listed threatened fauna species [Large-eared Pied Bat (*Chalinolobus dwyeri*) and White-throated Needletail (*Hirundapus caudacutus*)<sup>3</sup>]; and
- three EPBC Act-listed migratory fauna species [Black-faced Monarch (*Monarcha melanopsis*), White-throated Needletail (*Hirundapus caudacutus*) and Rufous Fantail (*Rhipidura rufifrons*)].

BCD has confirmed that it is satisfied with the information contained in the Revised BDAR and supplementary information regarding the assessment of impacts to MNES. Further consideration by the Department is provided below.

### ***Threatened Ecological Communities (TEC)***

#### ***Coastal Swamp Sclerophyll Forest of NSW and South East Qld***

The DCCEEW referral documentation submitted for the Project indicated that the Project has the potential to have a significant impact on the *Coastal Swamp Sclerophyll Forest of NSW and South East Qld* EEC listed under the EPBC Act. However, the Revised BDAR confirmed that further site-based

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<sup>3</sup> Listed as both a vulnerable species and migratory species under the EPBC Act.

floristic plot surveys and analysis did not identify the presence of this EEC in the Project area. Umwelt therefore concluded that the Project would not result in a significant impact on this EEC. The Department accepts this conclusion.

#### *Central Hunter Valley eucalypt forest and woodland*

The Central Hunter Valley eucalypt forest and woodland TEC listed was considered to have potential to occur within the study area. However, the Revised BDAR confirmed that further detailed analysis of the key diagnostic features for this community (including the geological substrate and the dominant community species) indicated that this TEC is not present within the study area. Umwelt therefore concluded that the Project would not result in a significant impact on this TEC. The Department accepts this conclusion.

#### *Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld bioregions*

The Revised BDAR identified that several plant community types (PCTs) within the study area (ie. PCTs 762, 1618 and 1716) correspond to the Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld bioregions EEC listed under the EPBC Act.

The Revised BDAR confirmed that the Project would result in the disturbance to 1.21 ha of this EEC, which occurs on the western limit of a single patch of the community. The assessment of significance undertaken by Umwelt determined that the Project has potential to have a significant impact on this EEC at a local scale, but while the project would fragment a small patch of this ecological community, it was not considered likely to provide habitat critical to survival of the community. Further, the assessment concluded that the loss of this habitat would contribute a minor adverse cumulative impact at a regional and national level, which is considered unlikely to be significant.

ARDG has committed to implementing mitigation measures to minimise indirect impacts to this EEC, including a comprehensive weed management program and demarcating the approved disturbance footprint. Direct impacts associated with the Project would be offset on a like-for-like basis through the provision of 47 ecosystem credits for the associated PCTs (see below).

The Department agrees with this assessment and considers that indirect impacts to this EEC can be controlled by the proposed mitigation measures and that residual impacts to the community would be adequately offset through the retirement of ecosystem credits (see below). On this basis, the Department considers the Project's impacts on the Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld EEC are acceptable.

### ***Threatened Fauna Species***

#### *Koala*

The DCCEEW referral indicated that the Project is likely to have a significant impact on the Koala which is listed as critically endangered under the EPBC Act.

The Revised BDAR confirmed that Koalas have been identified during surveys of the study area. The Project would lead to a long-term decrease of approximately 68.02 ha of suitable foraging and potential breeding and shelter habitat for the Koala, which therefore is likely to reduce the area of occupancy of this species.

The Revised BDAR determine that there are larger areas of suitable Koala habitat in the locality, most proximately within the Wallaroo National Park (2,780 ha), the Karuah National Park (3,534 ha) and the Medowie State Conservation Area (2,851 ha). On this basis, the assessment of significance indicated that the Project is unlikely to result in fragmentation of an existing Koala population into two or more populations. As no Koala breeding activity was observed during surveys, it was also determined that the Project is unlikely to disrupt the breeding cycle of an important population of this species.

However, the National Recovery Plan for the Koala identifies that the disturbance of habitat used by Koalas for feeding or resting may adversely affect habitat critical to the survival of the species and contribute to a decline in its population size. As the disturbance area contains known Koala habitat, it was determined that the Project has the potential to adversely affect habitat critical to the survival of the species and may result in its decline. On this basis, the Revised BDAR concluded that the Project is likely to have a significant impact on the Koala at a local and state levels. ARDG has committed to offset the impacts to the Koala through the retirement of 2519 species credits, following like-for-like offsetting rules and in accordance with the BAM.

The Revised BDAR considered that indirect impacts to Koala, such as a decline in quality and extent in adjacent habitat to the Project area due to weeds and pest species, are unlikely due to the proposed mitigation measures (see below).

The Department agrees that 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. The Department accepts that indirect impacts to the Koala can be controlled by the proposed mitigation measures. The residual impacts to Koalas would be adequately offset through the retirement of species credits (see below). On this basis, the Department considers the Project's impacts on the Koala are acceptable.

#### *Grey-headed Flying-fox*

The DCCEEW referral indicated that the Project is likely to have a significant impact on the Grey-headed Flying-fox which is listed as vulnerable under the EPBC Act.

The Grey-headed Flying-fox was observed foraging within the study area during surveys. The Project would result in the removal of 68.02 ha of foraging habitat for this species. However, the habitat within the study area was not considered likely to contain significant breeding or roosting habitat necessary for maintaining genetic diversity of the Grey-headed Flying-fox. The Project disturbance area was

also considered unlikely to contain an 'important population', or result in a long-term decrease in the size of an 'important population' of this species.

The Revised BDAR noted that the Grey-headed Flying-fox has a large home range, is highly mobile and has large areas of available habitat including significant areas under permanent conservation in nearby national parks and conservation reserves. The removal of foraging habitat associated with the Project was therefore considered unlikely to modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the Grey-headed Flying-fox would decline.

However, the Revised BDAR determined that Project would impact habitat critical to the survival of the species and therefore has potential to substantially interfere with the recovery of habitat for this species on local and regional levels. On this basis, the Revised BDAR concluded that the Project is likely to have a significant impact on the Grey-headed Flying-fox at these levels.

ARDG has committed to offset the impacts to the Grey-headed Flying-fox through the retirement of 1902 ecosystem credits required for PCTs associated with the species, as per the requirements of the BAM, as well as implement mitigation measures to minimise any indirect impacts to the species.

The Department agrees that the Project has the potential to have a significant impact on the Grey-headed Flying-fox, however accepts that the residual impacts to the species would be adequately offset through the retirement of ecosystem credits (see below). On this basis, the Department considers the Project's impacts on the Grey-headed Flying-fox are acceptable.

#### *Swift Parrot*

Swift Parrot was not recorded in the study area or surrounds during surveys, however has previously been identified within the locality including in significant areas under permanent conservation in nearby national parks and conservation reserves. The Project would clear 68.02 ha of key foraging resources for this species. The assessment of significance considered that the scale of the impact proposed is not likely to lead to a long term decrease in the size of the Swift Parrot population. Given the parrot is capable of flying large distances, the Project is not considered likely to fragment the population. Umwelt also confirmed that the Project area does not provide 'important habitat' for the species, as mapped under the BAM. Any residual impacts to the Swift Parrot would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below).

The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *Spotted-tailed Quoll South-eastern mainland population*

Spotted-tailed Quoll was not recorded in the study area despite targeted surveys, however has been previously identified in vegetated areas within the locality. The Project would clear 68.02 ha of suitable habitat for this species. The assessment of significance indicated that the Project area is not known to contain den or breeding sites for the species, and clearing of the area is not considered

likely to disrupt the breeding cycle of a population of the species. The species has a relatively large home range, and due to the presence of larger areas of suitable habitats surrounding the Project area, it was considered that the Project would not affect habitat critical to the survival of the species at a local or regional scale. Further, it was considered that the loss of habitat connectivity and foraging habitat associated with the Project is not likely to significantly interfere with the recovery of the species. Any residual impacts to the Swift Parrot would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below).

The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *Yellow-bellied Glider (south-eastern)*

Yellow-bellied Glider was not recorded during surveys or within 10 km of the Project area. The Project would clear 68.02 ha of potential foraging habitat for this species. The assessment of significance confirmed that the Project area does not contain an 'important population' for this species and would therefore not lead to a long-term decrease in the size, fragment or reduce the area of occupancy of an 'important population'. Further, it was considered that the Project area does not contain occupied habitat for the Yellow-bellied Glider as defined by the Approved Conservation Advice for the species. Any residual impacts to the Yellow-bellied Glider would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below).

On this basis, and the fact that the species has a large home range, the Revised BDAR concluded that it is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *New Holland Mouse*

New Holland Mouse was not recorded during surveys of the Project area, however numerous sightings of this species have been recorded in the region. The Project would clear 68.02 ha of potential habitat for this species. The assessment of significance noted that the species is not predicted to occur in any of the PCTs present in the Project area, and considered that individuals which may occur would be not likely to form an 'important population'. Therefore, the Project is not considered likely to reduce the area of occupancy of any 'important populations' of the New Holland Mouse, or affect the survival of the species in the immediate locality or the region due to the presence of extensive areas of suitable and known habitat in adjacent areas. Any residual impacts to the New Holland Mouse would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below). The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *South-eastern Glossy Black Cockatoo*



The South-eastern Glossy Black Cockatoo was indirectly observed within the Project area during surveys (noting the presence of crushed cones of sheoaks), however no observations of nesting individuals were recorded. The Project would remove approximately 68.02 ha of native vegetation which is interspersed with areas of suitable foraging trees for this species. As no signs of breeding were observed during targeted surveys, the assessment of significance considered that the Project does not contain an important population of the Glossy Black-Cockatoo, therefore the Project would not lead to a long-term decrease in the size or occupancy of an 'important population' of this species. It was also determined that the Project area does not contain habitat critical to the survival of this species. Any residual impacts to the Glossy Black Cockatoo would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below). The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *Large-eared Pied Bat*

Large-eared Bat was not recorded during surveys of the Project area, however has been previously recorded in adjacent habitats. The Project would clear 68.02 ha of suitable foraging habitat for this species. The assessment of significance considered that an 'important population' of the Large-eared Pied Bat does not inhabit the Project area and is not likely to be impacted to the extent that a long-term decrease would occur. Given the high mobility of Large-eared Pied Bats, it was also considered that the Project is not likely to fragment a population of the species. Surveys of the Balickera Tunnel did not identify any use by Large-eared Pied Bats within the tunnel, therefore the Project was not considered likely to disrupt the breeding cycle of an important population of this species. The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

#### *White-throated Needletail*

The White-throated Needletail was not recorded during surveys of the Project area, however numerous sightings of this species have been recorded in the locality. The Project would remove 68.02 ha of woodland and forest habitat which may be used for time to time for opportunistic roosting. The assessment of significance noted that the White-throated Needletail is a nomadic species which breeds in the northern hemisphere so no breeding habitat would be impacted by the Project. The Project area is not considered likely to contain an 'important population' of the species. Given the relatively small area of habitat that would be removed as part of the Project and the substantial areas of suitable remnant vegetation in nearby areas, the habitat within the Project area was not considered likely to be depended upon by the species. Any residual impacts to the White-throated Needletail would be offset through the retirement of ecosystem credits required for PCTs associated with the Project (see below). The Revised BDAR concluded that this species is not likely to be significantly impacted by the Project. The Department agrees with this assessment.

## ***Migratory Species***

The BDAR considered potential impacts from the Project on three migratory species, namely White-throated Needletail (see above), Black-faced Monarch and the Rufous Fantail. Assessments of significance concluded that the Project is not likely to significantly impact any of these species, primarily because the Project area does not contain important habitat areas for these species. BCS and the Department agree with these conclusions and consider that appropriate assessments for these species were conducted.

## **D2 – Demonstration of ‘Avoid, Mitigate, Offset’ for MNES**

### Avoidance and mitigation measures

The Department considers that ARDG has made adequate efforts to avoid impacts to biodiversity by minimising disturbance where practicable. Through refinement of the project design, ARDG has reduced the clearing of native vegetation by 11.01 ha (ie. 14%) when compared with the disturbance footprint presented in the EIS.

Other avoidance measures implemented by ARDG include:

- avoiding the north-western section of the Project area, which contains habitat which potentially facilitates wildlife movement to the west;
- avoiding impacts to PCT 1716 Prickly-leaved Paperbark forest on coastal lowlands of the Central Coast and Lower North Coast, which is considered to be a high-probability GDE and corresponds to the *Subtropical Eucalypt floodplain forest and woodland* listed under the EPBC Act; and
- aligning the site access to Italia Road with the existing access track, to minimise impacts to native vegetation and fauna habitat.

ARDG has also committed to mitigating impacts on biodiversity by:

- implementing a vegetation clearing protocol that requires pre-clearance surveys and supervision of vegetation clearing, staged clearing works, sequential and directional clearing towards areas of refuge, sectional dismantling of hollow-bearing trees, and cessation of clearing works when temperatures exceed 35 degree Celsius;
- engaging an ecologist to supervise felling of all hollow-bearing trees to manage hollow-dependant fauna;
- installing nest boxes within the Project area to compensative for hollows removed during tree clearing;

- scheduling vegetation clearing works for the most suitable time of year to minimise impacts during the breeding seasons of identified potential threatened species and other fauna;
- implementing a fauna relocation and injury management protocol;
- installing and maintaining temporary erosion and sediment controls during construction and permanent controls during operation;
- stabilising (landscaping and revegetation) all disturbed areas not required for the operation of the project, to reduce the potential for future erosion;
- workforce education and training;
- weed management; and
- fencing, access control and fauna exclusion.

The Department has recommended a condition requiring ARDG to prepare and implement a Biodiversity Management Plan that incorporates the mitigation measures outlined above, as well as other contemporary biodiversity management practices. BCS supports the Department's recommended conditions of consent regarding the mitigation and management of biodiversity impacts.

#### *Offsetting significant residual adverse impacts*

The Department's recommended conditions would require ARDG to implement a BOS to account for the residual impacts of the Project which cannot be addressed through the proposed avoidance, mitigation and management measures.

As described in Section 6.1.5 of the Department's Assessment Report, ARDG proposes to implement a staged BOS, including the retirement of biodiversity credits based on three key phases of vegetation removal. ARDG has indicated that the company is also committed to further investigating the retirement of biodiversity credits through the establishment of a Biodiversity Stewardship Site within the Wallaroo State Forest. ARDG indicated that where credits are not generated and retired within the Wallaroo State Forest they would be purchased from the market or a payment would be made to the Biodiversity Conservation Fund. The like-for-like credit rules would be followed for nationally listed entities which require credits. This is by retiring like-for-like credits, by funding conservation actions that are listed in the *Ancillary rules: Biodiversity conservation actions* (OEH 2017) that directly benefit the entity impacted.

The offset liabilities for impacts to MNES and the approach to offsetting for MNES are shown in **Table D1**. The Department and BCS accepts ARDG's proposed approach and has recommended conditions requiring the retirement of corresponding credit liabilities prior to each stage of vegetation clearing.

**Table D1 | Biodiversity Offsetting for MNES**

EPBC Act-listed Community / Species	Associated PCTs	Area of Impact (ha)	Offsetting Approach	Credits Required
<b>Ecological Community</b>				
Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East QLD	762, 1618	1.21	Ecosystem credits for associated PCTs	47
<b>Threatened Species</b>				
Koala ( <i>Phascolarctos cinereus</i> )	762, 1590, 1618, 1619	68.02	Like-for-like species credits	2,519
Grey-headed Flying-fox ( <i>Pteropus poliocephalus</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
Swift Parrot ( <i>Lathamus discolor</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
Spotted-tailed Quoll ( <i>Dasyurus maculatus</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
Yellow-bellied Glider (south-eastern) ( <i>Petaurus australis australis</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
New Holland Mouse ( <i>Pseudomys novaehollandiae</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
South-eastern Glossy Black Cockatoo ( <i>Calyptorhynchus lathami lathami</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*
White-throated Needletail ( <i>Hirundapus caudacutus</i> )	762, 1590, 1618, 1619	68.02	Ecosystem credits for associated PCTs	1902*

\* includes total ecosystem credit requirement for the Project.

### D3 – Requirements for Decisions About Threatened Species and Endangered Ecological Communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of either Section 18 or Section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, or Commonwealth Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved Conservation Advice.

#### *Australia's international obligations*

Australia's obligations under the Convention on Biological Diversity (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (as has been undertaken for this proposal) to avoid and minimise adverse impacts on biological diversity. The Department's recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the Convention on Conservation of Nature in the South Pacific (the Apia Convention) include encouraging the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approval is not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approval is not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

### *Recovery Plans and Approved Conservation Advices*

The Department has undertaken a detailed and comprehensive assessment of the potential impacts of the Project on listed threatened species and communities under the BC Act and the EPBC Act. The Department has taken into consideration approved Commonwealth Conservation Advices and Recovery Plans for the species and communities which may be impacted by the Project, including:

- National Recovery Plan and Approved Conservation Advice for the Koala *Phascolarctos cinereus*;
- National Recovery Plan for the Grey-headed Flying-fox (*Pteropus poliocephalus*);
- National Recovery Plan and Approved Conservation Advice for the Large-eared Pied Bat (*Chalinolobus dwyeri*);
- National Recovery Plan and Approved Conservation Advice for the Yellow-bellied Glider (*Petaurus australis australis*);
- National Recovery Plan and Approved Conservation Advice for the Spotted-tailed Quoll (*Dasyurus maculatus maculatus*);
- National Recovery Plan and Approved Conservation Advice for the Swift Parrot (*Lathamas discolor*);
- National Recovery Plan for the New Holland mouse (*Pookila*);
- Approved Conservation Advice on the White-throated Needletail (*Hirundapus caudacutus*);
- Approved Conservation Advice for the South-eastern Glossy Black Cockatoo (*Calyptorhynchus lathami lathami*);
- Approved Conservation Advice for the *Central Hunter Valley eucalypt forest and woodland ecological community*;
- Approved Conservation Advice for *the Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland*
- Approved Conservation Advice for the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions*.

As discussed above, the Project is not predicted to significantly impact any of these threatened species and communities, with the exception of the Koala, Grey-headed Flying-fox and the Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld EEC. The Department has recommended that mitigation and recovery measures are implemented via a Biodiversity Management Plan. Management actions in the Biodiversity Management Plan would need to align with those set out in relevant conservation advice for the EPBC-listed species impacted by the Project.



Additionally, ARDG would be required to retire species and ecosystem credits to offset the loss of habitat for MNES, which would result in funding conservation actions for these species and communities. On this basis, the Department considers the Project would not be inconsistent with the Approved Conservation Advice and Recovery Plans for the relevant MNES.

### Threat Abatement Plans

Several Commonwealth Threatened Abatement Plans are relevant to the Project and have been considered in this assessment. These include the ‘Threat abatement plan for feral cats’ (DoE, 2015) and the ‘Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomic*’ (DoE, 2018). Feral cats may be harmful to the New Holland Mouse and dieback caused by the *Phytophthora cinnamomic* pathogen may also affect this species. Actions for mitigating impacts to this and other EPBC Act-listed species, including any requirements for monitoring and managing cats and minimising the spread of weed species, would be documented in the Biodiversity Management Plan for the Project. There are also opportunities to implement management actions in accordance with several other Threat Abatement Plans at the Project site. These actions include monitoring and management of other feral animals which have potential to degrade habitat for the affected species. These actions would also be documented within the Biodiversity Management Plan for the Project.

### D4 – Additional EPBC Act considerations

**Table D2** contains a range of further mandatory considerations to be taken into account and factors to have regard to under the provisions of the EPBC Act.

**Table D2 | Additional Consideration for the Commonwealth Minister under the EPBC Act**

EPBC Act- section	Matters for Consideration	Conclusion
<i>Mandatory considerations</i>		
136(1)(b)	Social and economic matters are discussed in <b>Section 6.6</b> and <b>Section 7</b> .	The Department considers that the proposed development would result in a range of benefits for the regional economy and would allow for the continued supply of hard rock material for construction of housing and infrastructure within nearby regions.

### Factors to be taken into account

EPBC Act- section	Matters for Consideration	Conclusion
136(2)(a)	<p>Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in:</p> <ul style="list-style-type: none"> <li>• long and short-term economic, environmental, social and equity considerations relevant to this decision;</li> <li>• conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the Project;</li> <li>• conditions requiring the Project to be operated in a sustainable way that protects the environment for future generations and conserves MNES;</li> <li>• advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for this Project; and</li> <li>• mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the applicant to mitigate the environmental impacts of the Project.</li> </ul>	<p>The Department considers that, subject to the recommended conditions of consent, the Project could be undertaken in a manner that is consistent with the principles of ESD.</p>
136(2)(c)	<p>Other information on the relevant impacts of the action</p>	<p>The Department considers that all information relevant to the impacts of the Project has been taken into account</p>

***Factors to be have regard to***

176(5)	<p>Bioregional plans</p>	<p>The Project is located in the NSW North Coast IBRA Bioregion and within the Upper Hunter and Karuah Manning IBRA Subregions. The Project would result in the clearing of some vegetation in these bioregions; however, it would involve an offset that would contribute to funding and in-perpetuity managed conservation areas in the bioregions. The Project is unlikely to significantly impact the water resources in these bioregions.</p>
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***Consideration on deciding conditions***

EPBC Act- section	Matters for Consideration	Conclusion
134(4)	<p>Must consider:</p> <ul style="list-style-type: none"> <li>information provided by the person proposing to undertake the action or by the designated applicant of the action; and</li> <li>desirability of ensuring as far as practicable that the condition is a cost- effective means for the Commonwealth and the person taking the action to achieve the object of the condition.</li> </ul>	<p>Documents provided by ARDG are provided at <b>Appendices B1, B3, B4 and B5</b>.</p> <p>The Department considers that the recommended conditions of consent in <b>Appendix E</b> are a practicable and cost-effective means to achieve their purposes</p> <p>These conditions have been prepared following careful considerations of all material provided by Ironstone and following consultation with relevant government agencies.</p>

## D5– Conclusions on controlling provisions

### *Threatened species and communities (sections 18 and 18A of the EPBC Act)*

The assessment identifies that the Project has the potential to result in significant impacts to the Koala, Grey-headed Flying-fox and the Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Qld EEC. The Department considers that the impacts of the proposed action on these MNES would be acceptable, subject to the avoidance, mitigation, offsetting and management measures described in ARDG’s environmental assessment documents and the requirements of the Department’s recommended conditions of consent (see **Appendix E**).

## D6–Other protected matters

DCCEEW has determined that other matters regulated under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage places, National Heritage places, migratory species, the Commonwealth marine environment, Commonwealth land, Commonwealth actions, nuclear actions, the Great Barrier Reef Marine Park and Commonwealth Heritage places located overseas.

## D7–Conclusions

The Department considers that the recommended conditions would provide suitable protection for all MNES listed under the EPBC Act that may be significantly impacted by the Project. The Department notes that, if approved by the Commission, the Project would be referred by the Department to the Commonwealth Minister for the Environment and Water for determination under the EPBC Act.

## Appendix E – Recommended instrument of consent

Refer to the second 'Recommendation' tab on the Department's website at:

<https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>

## Appendix F – Additional information

Refer to the 'Additional Information' tab on the Department's website at:

<https://www.planningportal.nsw.gov.au/major-projects/projects/stone-ridge-quarry-project>