



Thursday, 6 February 2025

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**SUBJECT: SSD-6125 – CABBAGE TREE ROAD SAND QUARRY – WESTERN EXTENSION –
MODIFICATION REPORT NO.4 (MR4)**

Dear James,

Wedgetail Project Consulting Pty Ltd have been engaged by Williamtown Sand Syndicate Pty Ltd (WSS), to prepare a Modification Report to support an application to modify the Development Consent for the Cabbage Tree Road Sand Quarry (SSD-6125). WSS are the applicant and the owners of the quarry operator Newcastle Sand.

The attached modification report describes the proposed amendment, the potential impacts and any management measures to ensure the quarry activities result in minimal environmental impacts. It also includes a legislative assessment and justification for the proposed change. The report demonstrates that the development (as modified) would remain largely consistent with the original approved development.

The modification application is made pursuant to the provision of Section 4.55(2) of the *Environmental Planning & Assessment Act 1979*. The report is prepared in accordance with the State Significant Development Guidelines (NSW Government, 2022).

Yours Sincerely

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MODIFICATION REPORT NO.4

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1. Introduction

1.1 Applicant Details

The Applicant is Williamtown Sand Syndicate Pty Ltd (ABN 56 606 820 875).

1.2 Background

Wedgetail Project Consulting have been engaged by Williamtown Sand Syndicate Pty Ltd (WSS) to prepare a Modification Report in support of a Section 4.55(2) modification application to modify the Development Consent for the Cabbage Tree Road Sand Quarry (SSD-6125). WSS are the owners of the quarry operator Newcastle Sand.

Cabbage Tree Road Sand Quarry is an existing sand quarry located off Cabbage Tree Road at Williamtown in the Port Stephens LGA. The quarry site is located approximately 12.5 kilometres north of the Newcastle and 3 kilometres south-west of Newcastle Airport. The quarry has an annual extraction limit of 530,000 tonnes within an existing disturbance area of 42.3 ha of a property size of 176.2 ha, extending over four lots; Lot 1 DP 224587, Lot 121 DP 556403, Lot 11 DP 629503 and Lot 1012 DP 814078. The quarry currently employs eleven people, plus contractors and consultants involved in day-to-day operations.

The Cabbage Tree Road Sand Quarry was approved under SSD_6125 on 9 May 2018. The quarry commenced construction in August 2019, after more than nine months of construction, largely owing to delays in the construction of the intersection with Cabbage Tree Road, the quarry commenced operations in May 2020.

During the construction phase, Newcastle Sand were approached by Sibelco and Owens Illinois (OI) regarding the supply of specific sand for glass manufacturing. Sibelco (now owned by Holcim) process and provide glass making quality sand to OI for glass manufacture, however with existing reserves nearing exhaustion, a request for 5000 tonnes of sand was made to evaluate the suitability of a new sand resource. Modification 1 was requested to facilitate the trial, as the formal intersection with the quarry had not been completed. Modification 1 was granted on 26 March 2020. The trial was completed in late March / early April. The sand supply was deemed to be suitable for glass manufacture. Modification 2 was approved in March 2021 to permit the inclusion of a sand washing plant onsite.

Modification 3 was lodged in December 2022 and provided for amendments to the resource boundary and corresponding amendments to the approved Biodiversity Offset Strategy and associated conditions. The modification also sought approval to import Virgin Excavated Natural Material (VENM) sand and minor amendments to approved working methods (including the increased use of excavators and dump trucks in the extractions process and of a diesel generator). Minor amendments to the Statement of Commitments were also sought.

On 27th November 2024, MOD3 was formally withdrawn, with elements of Mod3 incorporated into Mod4, excepting the eastern extension aspects of Sectors 7 and 10.

1.3 The Proposal

MOD4, shown by **Figure 4-1** includes the following seven key components:

1. An additional 7.1 ha extraction area on adjacent land to the west in Lot 9 DP239608 (Western Extension).
2. A net reduction in the extent of the impact area within the land holding originally assessed under SSD-6125. This involves both the expansion of some areas and relinquishment of other areas, with a net increase in area proposed for the Biodiversity Stewardship Area. The areas of expansion are less than 20m beyond the edge of the existing approved impact areas. Refer to the disturbance expansion areas (D1-D6) and proposed increased offset areas (OF1-OF7).
3. Amendment to Condition 34 and Appendix 6 in SSD-6125 relating to the Biodiversity Offset Strategy that reflects the change in boundary of the proposed onsite Stewardship Site and requirement to retire additional credits to offset the impacts of the Western Extension.
4. Amendment to the Statement of Commitments to reduce duplication with Conditions of Consent (CoC) and enable management plans to adapt to changing conditions on the site.
5. Permit the import of up to 6,000 tonnes per annum of Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing.
6. Clarify methodologies used for sand extraction and rehabilitation.
7. Amend condition relating to the Radiation Survey in Schedule 3, Condition 46.

The components 2-6 above were first proposed within Modification 3, which was subsequently withdrawn. As such these components have included consultation with Community and government agencies and have been updated where feasible to reflect suggested amendments during that process.

The modification is expected to result in the recovery of an additional 533,000 tonnes of resource.

At the approved maximum annual extraction rate, the proposed modification would result in an additional 12 months of quarry operations. It is noted that the quarry is permitted to operate for up to 15 years from May 2018, however, existing approved resources are expected to be exhausted within the next 3-5 years. The proposed modification thus does not require an extension of the approved quarry lifespan.

The proposed modification is described in further detail in **Section 4** of this report.

A modification report is required in support of the modification application, in accordance with Section 4.55(2) of the EP&A Act. The appropriate determining authority is the Department of Planning, Housing and Infrastructure (DPHI). This report has been prepared in accordance with the *State Significant Development Guidelines* (NSW Government, 2022), with particular regard to Appendix E – Preparing a Modification Report. The report includes an assessment of the similarity of the nature and characteristics of the proposal relative to the existing approved development as well as the potential environmental impacts of the proposed modification.

1.4 Project Need

The proposed modification is driven by an ongoing high demand for construction materials throughout NSW. Available resources to meet this demand are limited, as there are no currently operating sources of fully graded, premium quality, construction sand in the Sydney Metropolitan area. The Stockton Bright Area comprises a significant construction sand reserve for the Sydney area as well as the Hunter Region.

Sand material available within the proposed extension areas are suitable for the construction industry and would be used for the production of concrete products, cement and asphalt paving. The material available is thus in high demand and the quarry infrastructure on the existing site in conjunction to its proximity to the Pacific Highway makes the site particularly suitable for the production of material.

Approval of the modification would allow the recovery of NSW's sand resources to be maximised, resulting in the provision of an additional 533,000 tonnes of high-quality sand, helping to meet demand throughout the Sydney and Hunter regions and assisting those industries and associated downstream consumers (e.g. homeowners and road building). The modification would also enable the extension of the quarry's beneficial economic impacts to local residents including employees, contractors and customers.

In addition, the proposed modification would:

- Improve access to resource areas providing practical access for operations with reduced potential for impact on the adjacent offset areas.
- Adjust operational methodology (for clarity) to ensure quarrying activities can be undertaken in the best practical and efficient manner, with consideration of keeping environmental impacts and financial burden to a minimum.
- Reduce the number of processing sites from eight to two as the introduction of the wash plant and water recovery systems required to minimise water use has resulted in increased establishment costs for the processing areas.
- Enable the import of VENM sand (up to 6,000 tonnes) generated from construction sites in the quarry locality, providing for the beneficial reuse of a valuable commodity that would otherwise be disposed of as general fill.

1.5 Analysis of Alternatives

The applicant wishes to capitalise on the demand for sand materials within the region as a result of ongoing regional demand for sand materials.

The resource boundary amendment was tailored with the aim of mitigating potential impacts of the boundary modification upon the environment. The main alternative considered entailed the eastern expansion of the resource boundary of Sectors 7 and 10. However, this option was withdrawn due to concerns regarding the potential impacts on habitat areas and connectivity features throughout the site. The boundary of extension areas was also constrained by the location of the resource thickness above the water table (with permissible depth of extraction restricting the proposal to higher areas of the site).

In terms of extraction methods, extensive consideration was given to alternatives prior to the issue of the development approval. The initial EIS proposed the use of a bulldozer to push stockpiles of sand, with noise-related restrictions in place, and use of a front-end loader or excavator to load stockpiles onto trucks for transport off-site or to the processing plant. After further consideration, proposed extraction methods were amended to the use of front-end loaders and electrical conveyors to extract and transport sand to the processing plant, with excavators used for redundancy in the event of conveyor failure and for certain sectors. This was the preferred method based on available information prior to the quarry establishment. During the development of the quarry however, the nature of the resource quality was observed to be highly variable and requiring more extensive processing. The use of an excavator allows more selective extraction and reduces processing relative to a front-end loader and is quieter than a bulldozer while dump

trucks are more efficient than conveyors for stockpiling variable resources. As such, the proposed extraction method (excavator and dump truck) is considered the most feasible alternative available to efficiently recover the resource.

There are no meaningful alternatives to the remainder of the proposed modifications other than not carrying out the modification (discussed below).

1.6 Consequences of Not Carrying Out the Modification

The consequences of not carrying out the seven key components of MOD₄ would include the following:

- Underutilisation of sand resources: without the extension of the resource boundary, sand resources available onsite would remain under-utilised, resulting in the need to identify, assess and approve additional quality sand resources from other sites.
- Increased product prices and market deficit: a reduction in the availability of sand resources would likely create a market shortfall, potentially causing the price of construction materials, including those used in glassmaking, to rise. These increased costs would ultimately be passed on to consumers, adversely impacting local development projects.
- Missed opportunities for sustainable resource use: if the importation of VENM sand is not approved, clean sand from local construction projects would continue to be disposed of as general fill instead of being processed for higher-value applications like concrete production. This would result in missed opportunities for more sustainable resource use and contribute to poorer environmental outcomes, contrary to the objectives of ecologically sustainable development under Section 1.3(b) of the EP&A Act.
- Reduced operational efficiency: without approval for changes to sand extraction and operational methods, the quarry would continue operating inefficiently. This includes poorer sorting of variable sand resources onsite leading to higher operational costs and reduced productivity. The overall financial burden on the quarry operator would increase.
- Health and safety risks: failure to approve Mod₄ would also exacerbate health and safety risks for quarry employees, such as front-end loaders in challenging terrain, such as soft sand with low tire pressures and large buckets, narrow haulage corridors complicating traffic management. This would increase the difficulty and potential hazards of operating machinery under these conditions. In addition, there would be added operational complexities related to the installation of high voltage lines onsite if mains electricity installation is to proceed.
- Burden on management plans: the lack of flexibility to update management plans, to adjust to evolving site conditions, would impede the quarry's ability to operate efficiently and meet operational needs.
- Unnecessary radiation surveys: If the proposed amendment to Schedule 3, Condition 46 is not carried out, it would lead to unnecessary radiation surveys in areas with no risk of monazite concentrate burial, wasting time, resources, and increasing operational costs. Delaying surveys until after vegetation clearing may also cause disruptions, potentially disturbing any monazite concentrates present, and creating safety and environmental risks. This inefficiency could lead to project delays, higher costs, and non-compliance with safety best practices.

2. Strategic Context

Demand for heavy construction materials in NSW is at an all-time high and it is predicted to persist due to a buoyant building and construction market, stimulated by population growth and infrastructure investment. The population of NSW is set to grow by 28 per cent to almost 10 million people by 2036 with roughly 65 per cent of the population residing in the Greater Sydney region. Similarly, the Lower Hunter Regional Strategy: 2006 to 2031 estimates a population increase of 160,000 people in the Lower Hunter by 2031. In addition, the NSW Government is investing heavily in infrastructure to support a growing NSW.

The Port Stephens area is an important supplier of construction sand to local, Hunter region and Sydney markets, supporting the rapid growth and development of the region through the supply of high-quality sand resources used in the construction and concrete manufacturing industry. Supply of this material also assists in achieving the aims and objectives of various strategic and regional planning policies in relation to infrastructure and housing supply objectives.

The growing demand for construction materials in NSW requires a sustained supply of building materials to assure that projects are able to be constructed, and infrastructure is able to be delivered. Without continued supply there is potential for the construction industry to stall among concrete product shortages. The proposed modification is thus critical to ensuring supply and demand are met.

The existing quarry site is ideally located to cater for the demand for quarry products, given its strategic location in close proximity to the Pacific Motorway and the city of Newcastle, and the existing infrastructure and established systems and customers.

The Cabbage Tree Road Sand Quarry is located on the Tomago Sandbeds aquifer, near the southern boundary of this landscape unit, and predominantly within the Tomago Sandbeds Special Area, a gazetted drinking water catchment area under the Hunter Water Act 1991. Portions of the Williamstown area are contaminated by PFAS resulting from firefighting foam chemicals (PFOS and PFOA) used at the RAAF Base. The EPA has provided a map of Primary, Secondary and Broader Management Zones around the RAAF Base. The western lot of the original quarry approval is located within the EPA's "Broader Management Zone", the lowest risk zone, the proposed Western Extension is not within the Broader Management Zone. The Broader Management Zone identifies that PFAS could be detected within this zone "now or in the future". Monitoring of PFAS has not identified any sustained sources of PFAS from within the existing extraction area. Sporadic low-level detections have occurred in the wash plant, expected to be associated with plastics or coatings on equipment. Detections have occurred on the perimeter of the subject land where existing Defence modelling had confirmed presence. The proposed extension areas are not located within any of the EPA's Management Zones.

3. Consultation Carried out to Date

Community Consultative Committee

Modification 4 was first discussed with the Community Consultative Committee in June 2024, with updates provided at each subsequent meeting on the status of the application.

Neighbouring Landowners

Stakeholder engagement has been undertaken with seven of the closest neighbouring landowners to inform them of the project design and development and to identify perceived issues and impacts. **Table 3-1** provides details of the neighbouring residents consulted to date.

Given that these residents are situated in relatively close proximity to the proposed extension footprint and may be subject to potential adverse impacts such as noise, agreements have been made with these landowners for potential compensation. These landowners supported the proposed modification with no issues identified.

Table 3-1: Consultation details – neighbouring residents

Map Reference (Sensitive Receptor No – Figure 3-3)	Address	Consultation Date
14	14 Barrie Close, Williamtown	28th March 2024
16	19 Barrie Close, Williamtown	28th March 2024
22	478 Cabbage Tree Road, Williamtown	28th March 2024
24	464 Cabbage Tree Road, Williamtown	28th March 2024
25	458 Cabbage Tree Road, Williamtown	10th April 2024
26	452 Cabbage Tree Road, Williamtown	28th March 2024
27	444 Cabbage Tree Road, Williamtown	28th March 2024

Aboriginal Stakeholder Consultation

Aboriginal stakeholder consultation was undertaken by Archaeological Risk Assessment Services (ARAS) during the preparation of the Aboriginal Cultural Heritage Assessment Report (ACHAR) for MOD4, in accordance with the Consultation Requirements (DECCW 2010b). A summary of the consultation process is provided below, the ACHAR is presented in **Appendix 5**.

Consultation for the ACHAR included the following:

- Eight organisations were contacted via registered mail on 6th May 202 requesting the details of Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the local area.
- On 10th May 2024 an advertisement was placed in the Port Stephens Examiner inviting the participation of Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the local area.

- On 14th May 2024, letters were sent via email to all Aboriginal persons or organisations identified through advertisement or through responses from organisations contacted. The letters provided details about the location and nature of the proposal, as well as an invitation to register as an Aboriginal stakeholder.
- As a result of the above process, 11 groups and individuals registered their interest.
- A project scoping meeting with registered Aboriginal Parties was held on the 31st of July 2024 at Fern Bay.
- A site walkover was conducted with four RAPs who responded to the July project scoping meeting on the 17th of April 2024 to review the assessment area and discuss the proposed archaeological and cultural heritage survey methodology.
- On 5th of November 2024, the project RAPs were sent the draft ACHAR with a 28-day review period. Out of the 11 registered groups, 4 responded with comments on the reports. Two RAP responses supported the recommendations outlined in the ACHAR. Two RAP responses supported the recommendations outlined in the ACHAR. No other responses were received from any other RAP.

3.1.1 Mod 3 Consultation

Of the seven key aspects of Mod 4, five of these were similar to modifications proposed within Mod 3, that was subsequently withdrawn. The core difference between the two modification is Modification 3 proposed extensions to the east, while Modification 4 proposes a Western Extension.

Modification 3 was withdrawn after the Response to Submissions phase, as such it had been through the following consultation elements:

- Multiple discussions during Community Consultative Committee meetings.
- Discussions with the DPHI and BCD.
- Public exhibition.
- Consultation with Registered Aboriginal Parties.
- 14 agency and public submissions, including:
 - 7 agency submissions.
 - 2 Council submissions.
 - 2 Community and Interest Groups
 - 3 from members of the public, including one joint submission from 5 members of the public.

The common elements between Mod 3 and Mod 4 are shown below, with a comment on variations between the modifications:

1. *MOD4: A net reduction in the extent of the impact area within the land holding originally assessed under SSD-6125. This involves both the expansion of some areas and relinquishment of other areas, with a net increase in area proposed for the Biodiversity Stewardship Area. The areas of expansion are less than 20m beyond the edge of the existing approved impact areas. Refer to the disturbance expansion areas (D1-D6) and proposed increased offset areas (OF1-OF7).*

The key difference in this component is Mod 3 proposed to extend fingers of extraction to the east in the Northern and Southern Resource Areas and relinquish more corridors within these fingers to help offset the increased length of disturbance. The final design had determined it was practically feasible to reduce the extent of disturbance and extract additional resource, similar to the current proposal. With the withdrawal of Mod 3 these extensions to the east have been removed and several avoidance areas have been reinstated within the disturbance area.

2. *Amendment to Condition 34 and Appendix 6 in SSD-6125 relating to the Biodiversity Offset Strategy that reflects the change in boundary of the proposed onsite Stewardship Site and requirement to retire additional credits to offset the impacts of the Western Extension.*

Mod 3 required similar changes to the existing Biodiversity Offset Strategy, however with the removal of the eastern extensions, the changes proposed by Mod 4 to the existing extraction area (i.e. 20m from edge of existing disturbance) are considered to result in substantially lower biodiversity concerns.

3. *Amendment to the Statement of Commitments to reduce duplication with Conditions of Consent (CoC) and enable management plans to adapt to changing conditions on the site.*

No appreciable change from what was proposed in Mod 3 is suggested in Mod 4.

4. *Permit the import of up to 6,000 tonnes per annum of Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing.*

This remains consistent with what was proposed in Mod 3, although now including recommendations from HWC and the EPA in the current proposal.

5. *Clarify methodologies used for sand extraction and rehabilitation.*

No appreciable changes from those proposed in Mod 3 are proposed for Mod 4.

3.1.2 Other consultation with relevant agencies and key stakeholders

Evidence of written consultation with CST, HWC, PSC and RAPs is provided in **Appendix 3**.

4. Proposed Modifications

4.1 Overview

The key details of the existing quarry operations and the changes associated with the proposed MOD4 are shown within **Table 4-1** below and discussed further below.

Table 4-1: Key aspects of the existing development and proposed modification

Aspect	Existing Quarry	Proposed MOD 4
Location	398 Cabbage Tree Road, Williamtown within the Port Stephens Local Government Area.	No change.
Property Titles	Lot 1012 DP 814078 Lot 11 DP 629503 Lot 121 DP 556403 Lot 1 DP 224587	Lot 1012 DP 814078 Lot 11 DP 629503 Lot 121 DP 556403 Lot 100 DP 1263921 (replaces Lot 1 DP 224587 created following the intersection creation) Lot 9 DP 239608 is the site of the Western Extension.
Landowner	Port Stephens Council	Lot 9 DP 239608 is privately owned and is proposed to be acquired by the Proponent. The remaining lots are owned by Port Stephens Council.
Applicant & Quarry Operator	Williamtown Sand Syndicate Pty Ltd	No change.
Area	The total Project Area is 42.3 ha.	The original approved quarry disturbance area has been reduced by 0.46 ha to 41.84 ha. The proposed Western Extension is an additional 7.1ha of disturbance. The net disturbance area for the modified quarry as a whole is 48.9 ha, representing a 15.7% increase in area, corresponding to a similar increase in total extraction tonnage.
Project Life	Quarry operations may be carried out onsite until 31 December 2033	No change.
Extraction Rate (as Product Haulage)	Maximum of 530,000 tonnes per annum.	No change.
Hours	Quarrying Operations: 7:00 am to 5:00 pm Monday to Friday. 7:00 am to 4:00 pm Saturday	No change.

Aspect	Existing Quarry	Proposed MOD 4
	<p>Loading and dispatch of laden trucks: 6:00 am to 6:00 pm Monday to Friday. 7:00 am to 4:00 pm Saturday</p> <p>Maintenance: Maintenance activities may be undertaken at any time provided they are not audible at any privately owned residence.</p>	
<p>Transport Rate</p>	<p>The approved rates as specified in the consent are:</p> <ul style="list-style-type: none"> • Monday to Friday (up to 116 trucks per day) <ul style="list-style-type: none"> ▪ 6 laden trucks between 6 am and 7am. ▪ 10 laden trucks between 7am and 6pm. • Saturday (up to 90 laden trucks per day) <ul style="list-style-type: none"> ▪ 10 laden trucks per hour 7am to 4pm. 	<p>No change.</p>
<p>Resource</p>	<p>Recovery of 3.25 million tonnes within the approved resource boundary over the project lifetime.</p>	<p>Recovery of an estimated additional 533,000 tonnes over project's lifetime. Total estimated recovery of 3.78 million tonnes over the project life with approval of MOD4. Import, processing and re-sale of VENM sand sourced offsite.</p>
<p>Extraction Methods</p>	<p>Bulldozer and excavator to strip topsoil. Extraction predominantly using a front-end loader, with direct loading to portable electric conveyors which convey sand to the processing plant. Occasional use of excavators for extraction and loading of dump trucks for road transport to the processing plant.</p>	<p>No change in soil stripping. Excavators to extract material and load onto dump trucks, with dump trucks serving as the primary method for transferring sand to the processing plant, replacing the previous use of front-end loaders and conveyors (i.e. back-up extraction/transport method to become principal method).</p>
<p>Processing Methods</p>	<p>Electric screen to separate coarse organic matter. Dry separation – use of an air separator to separate the silts, clays and fine organic matter from the sands.</p>	<p>No change.</p>
<p>Amenities</p>	<p>Site Office: office, maintenance shed, weighbridge, fuel storage and bunded refuelling area, light vehicle parking, hardstand area and security fence. Mobile Plant: dry screening plant, 2 x radial stacker, yard conveyor, air separator, bagging plant, diesel generators. General: D9 dozer, 30 t excavator, 2 x front-end loaders, 2 x articulated trucks, grader, drum roller, water cart, site utility vehicles and off-road haulage trucks.</p>	<p>No change.</p>
<p>Biodiversity Offsets</p>	<p>On-site Biodiversity Offset Area of 131.12 ha under Biobanking Agreement.</p>	<p>Onsite offsets:</p> <ul style="list-style-type: none"> • Creation of a Stewardship Site (and the retirement of all credits created)

Aspect	Existing Quarry	Proposed MOD 4
	Off-site Biodiversity Offset Area to provide required Koala species credits.	<p>on suitable land within the residual area of the Subject Land to satisfaction of the Secretary and BCS.</p> <ul style="list-style-type: none"> The Stewardship Site would cover 131.47 ha subject to BCS agreement. Removal of Eastern Osprey credit obligation from on-site species credit species obligation in Condition 34 – as they cannot be generated under current methodology. With the increase in offset area no additional retirement of credits is proposed for the change in impact area within the original subject land. <p>Offsite offsets:</p> <ul style="list-style-type: none"> For the Western Extension, retirement of credits from an offsite location as per the Biodiversity Offset Scheme requirements as calculated in BDAR.
Environmental Management	The quarry operated in accordance with the Environmental Management Plan, Statement of Commitments and EPL 21264.	Minor changes to Statement of Commitments.
Rehabilitation and Final Landform	<p>Progressive rehabilitation of disturbed areas during operation.</p> <p>Site stabilisation, re-spreading topsoil, establishing a sustainable native ecosystem, and weed control.</p> <p>The site returned to a condition consistent with its existing characteristics.</p> <p>Final landform would involve a finished elevation of 4 to 5.5 m AHD with a minimum of 1 m above the highest predicted groundwater level.</p>	<p>Consistent with existing rehabilitation strategy.</p> <p>The land disturbed by the Western Extension would be reinstated to a more open grassland environment with scattered trees.</p>

4.2 The Western Extension

An additional 7.1ha extraction area on adjacent land to the west in Lot 9 DP239608 (Western Extension).

- The location and extent of each of the proposed boundary resource amendments is illustrated in with details provided in **Table 4-2**.

Site preparations for the proposed Western Extension remain consistent with existing practices including:

- Survey, pegging and suitable demarcation of the resource boundary.
- Demolition of any existing infrastructure to be undertaken in accordance with Australian Standards 2601-2001: The demolition of structures. In this case this applies to the existing dwelling and sheds.
- Removal and disposal/recycling of any waste present onsite at licensed waste/recycling facilities.
- Establishment of required mitigation measures such as erection of frog exclusion fencing.
- Vegetation clearance and topsoil stripping in stages, in line with existing site preparation methods in the existing quarry site.

The proposed Western Extension pit area would be accessed via haulage routes through the adjoining Sectors 9A / 9B and/or Sector 8 / D1, as shown in . The existing 20m buffer zone (D1) is in place in accordance with Condition 8, Schedule 2 of the Consent and would require amendment (refer to **Section 4.5**). Haulage through this section would reduce haulage distances by almost 3,300km over the 12 months of extraction.

Table 4-2: Western Extension resource summary

Proposed Change	Area of Change	Nature of Change	Justification for Change
Western Extension	7.1 ha	Extension of extraction area.	<p>The western extension covers an area of 7.1ha and would adjoin approved Sectors 8B and 9A / 9B. Extraction of this section of land will:</p> <ul style="list-style-type: none"> • Provide an additional 500,000 tonnes of sand. • The area to be impacted was previously cleared and dredged by RZM for mineral sands. • The site is partially vegetated, with vegetation varying in condition relative to past mining areas and associated rehabilitation. Vegetation consists of a mixture of woodland, heath and exotic grassland. • Existing infrastructure includes a residential dwelling and several sheds in the central section of the lot, with stored general waste along the access road. The site is accessible from the Cabbage Tree Road via a gravel access road.

4.3 Existing Resource Boundary Adjustment

A net reduction in the extent of the impact area within the land holding originally assessed under SSD-6125. This involves both the expansion of some areas and relinquishment of other areas, with a net increase in area proposed for the Biodiversity Stewardship Area. The areas of expansion are less than 20m beyond the edge of the existing approved impact areas. Refer to the disturbance expansion areas (D1-D6) and proposed increased offset areas (OF1-OF7). Areas D1 to D6 are expected to result in an additional 33,000 tonnes of available resource, while (OF1-OF7) cover an area of 1.12 ha containing approximately 12,000 tonnes that will retain habitat features and fauna corridors.

The location and extent of each of the proposed boundary resource amendments is illustrated in with details provided in **Table 4-3**.

Table 4-3: Key aspects of the approved resource boundary amendment

ID	Area of Change	Nature of Change	Justification for Change
Increased disturbance area / was approved offset area			
D1	0.13 ha	Extension of extraction area.	<p>This is an existing 20m wide buffer zone which adjoins approved Sector 8B and the proposed western extension. The buffer is in place in accordance with Condition 8, Schedule 2 of the Consent. Extraction of this section of land will:</p> <ul style="list-style-type: none"> • Provide additional 13,000 tonnes of sand. • Improve haulage from the Western Extension. • Reduce haulage distance by almost 3,200 km over the 12 months of extraction. • Focused largely on re-growth vegetation after disturbance by RZM operations in the late 1970s.
D2	0.42 ha	Extension of extraction area.	<p>This is a 10-20m wide strip of land adjoining an existing extraction area and haulage road. Extraction of this section of land will:</p> <ul style="list-style-type: none"> • Provide additional 20,000 tonnes of sand. • Reduce the height of the batter in final landform. • Removes revegetated stockpiles left from past mining activities. • Remove re-growth vegetation after disturbance by RZM operations in the late 1970s.
D3	0.05 ha	Widening of road	<p>This is a 2-8m wide section area adjoining either side of the existing access road between the Northern and Southern resource areas. Disturbance in this section will:</p> <ul style="list-style-type: none"> • Enable Newcastle Sand to address operational concerns by the quarry safety regulator to widen the access road. • Result in the disturbance of vegetation with moderate prior disturbance history.
D4	0.06 ha		
D5	0.04 ha	Improved access corridor	<p>This is a triangular section approximately 20 wide adjoining the Compound Area. Inclusion of this section will:</p> <ul style="list-style-type: none"> • Improve the ability to access Sector 9 A / 9B. • This section was disturbed prior to commencing quarrying, it includes a section of existing track road and a small section with immature rehabilitation.
D6	0.002 ha	Extraction for landform correction	<p>This is a 1-2m wide section area adjoining Sector 8. Extraction in this section will:</p> <ul style="list-style-type: none"> • Remove a very thin wedge of sand, less than 0.2m wide at its crest. • Correct an error in original resource mapping. • Recovers negligible additional sand. • Result in little or no vegetation removal, as it was the side slope of a steep dune with limited existing vegetation.
Total	0.702 ha	Increased disturbance area reducing extent for onsite offset area	

ID	Area of Change	Nature of Change	Justification for Change
Increased Offset Area / was approved disturbance area			
OF1	0.89 ha	Impact avoidance	<p>This section of land is contained within Sector 6 of the approved extraction area. Avoidance of this section will:</p> <ul style="list-style-type: none"> • Retain a considerable area of intact vegetation not previously disturbed by RZM sand mining. • Avoid impact to one (1) individual of Camfield's Stringybark. • The area contained an estimated 12,000 tonnes of sand. • Newcastle Sand determined other areas on the site to have better recovery options and propose to avoid impacts given the intact nature of the vegetation, in place of impacts on this area. • Increase the area of the onsite Biodiversity Offset Area.
OF2	0.06 ha	Impact avoidance	<p>This section contained in the northeast of the approved extraction area 6A / 6B was avoided given the intact nature of vegetation and large trees with a thinning quarry resource. Avoidance of this area will:</p> <ul style="list-style-type: none"> • Avoid impacts to an intact vegetation community. • Avoid impacts to eight (8) individuals of Camfield's Stringybark. • Increase the area of the onsite Biodiversity Offset Site.
OF3	0.05 ha	Impact avoidance	<p>Located either side of the access road at the southern edge of the Northern Resource area. These two areas were avoided as they were determined to contain limited volumes of sand with largely intact vegetation that could be included within the Biodiversity Offset Area.</p>
OF4	0.02 ha		
OF5	0.02 ha	Impact avoidance	<p>Located at the edge of Sector 8 B extraction area, avoidance of this area enables the retention of a hollow bearing tree.</p>
OF6	0.07 ha	Impact avoidance	<p>Located on the southern side of the site adjoining Sector 9A, this area comprises land previously within the extraction area or within a boundary buffer, includes largely regrowth vegetation with several larger trees. This section will increase the area of the onsite Biodiversity Offset Site.</p>
OF7	0.07 ha	Road Change	<p>This area will result in the increase to the onsite Biodiversity Offset Area. The area was previously identified for impacts associated with the intersection and access road, however changes in design to meet road authority requirements resulted in this area being avoided.</p>
Total	1.16 ha	Reduced disturbance area increasing extent available for the onsite offset area	
Summary			Change
Increased disturbance reducing extent of offset area			0.702 ha
Reduced disturbance increasing extent of offset area			1.16 ha
Change in onsite offset area			+0.458 ha, a 0.3% increase in onsite offset area
Western Extension			7.1 ha
Change in approved disturbance area of 42.3ha including extension			48.942 ha representing a 15.7% increase in total disturbance area including the Western Extension.

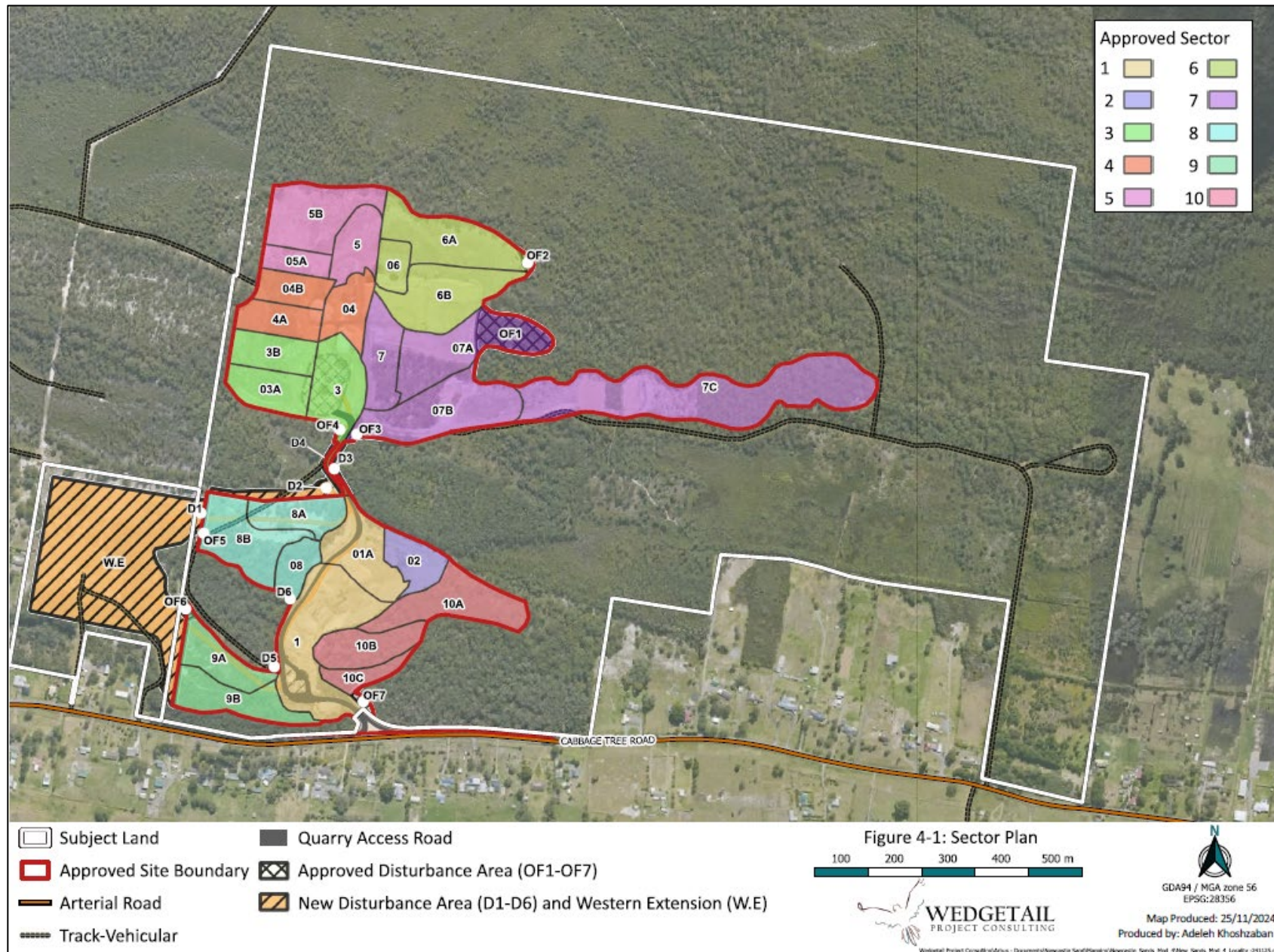


Figure 4-1: Sector Plan

4.4 Amendment to Biodiversity Offset Strategy

An amendment to Condition 34 and Appendix 6 in SSD-6125 relating to the Biodiversity Offset Strategy is required to reflect the change in boundary of the proposed onsite Stewardship Site and a requirement to retire additional credits to offset the impacts of the Western Extension. In addition, changes in legislation and methodology necessitate amendments to Condition 34. **Table 4-4** reflects the proposed changes and justification for suggested change in the offset strategy.

Table 4-4: The existing and proposed biodiversity offset strategy with justification summary, changes shown in red.

Existing Biodiversity Offset Requirement		Proposed Biodiversity Offset under MOD 4		Justification for Change
<p>Condition 34</p> <p>The Applicant must implement the Biodiversity Offset Strategy as shown in Appendix 6 and described in the EIS, and acquire and retire biodiversity credits (within the meaning of the Biodiversity Conservation Act 2016) as set out in Tables 4 and 5 in accordance with the NSW Biodiversity Offsets Policy for Major Projects, to the satisfaction of the Secretary and BCD.</p> <p>The Applicant must identify the source of these biodiversity credits prior to commencing quarrying operations and retire these credits within 12 months of commencing quarrying operations, unless otherwise agreed with the Secretary.</p>		<p>Condition 34</p> <p>The Applicant must implement the Biodiversity Offset Strategy as shown in Appendix 6 and described in the EIS, and acquire and retire biodiversity credits (within the meaning of the Biodiversity Conservation Act 2016) as set out in Tables 4 and 5 in accordance with the NSW Biodiversity Offsets Policy for Major Projects, to the satisfaction of the Secretary and BCS. <i>[Note. the number and type of credits in Table 4 and Table 5 will vary from the numbers shown].</i></p> <p>The Applicant must identify the source of these biodiversity credits prior to commencing quarrying operations and retire these credits within 12 months of commencing quarrying operations, unless otherwise agreed with the Secretary.</p>		<p>To ensure the intent of the biodiversity offset strategy can be suitably achieved.</p> <p>Timing specified in this section has been moved to underlying tables.</p> <p>Appendix 6 will be updated to illustrate the revised boundary of the stewardship site including the relinquished areas, although this should include words to the effect of the boundary being “indicative” to enable changes necessary during the Stewardship establishment process with the BCS.</p>
Onsite Offsets				
Table 4: Biodiversity credits to be retired from the 131 ha offset area on the development site		Table 4: Biodiversity credits to be retired from at least 131 ha of the Subject Land.		Subject to agreement with the BCS, the area of the stewardship site will likely change.
Credit type	Number of Credits	Credit type	Number of Credits	<p>The intent of this condition is to provide for the long-term conservation of the residual Subject Land to the satisfaction of the Secretary and BCS. Practically the Condition requires no specific credit numbers to achieve the intent, as the numbers relate to the residual lands not the impacts.</p> <p>Importantly:</p> <ul style="list-style-type: none"> The ecosystem credit type should converted to a current credit type. The number of credits for ecosystem and species credits will be subject to final agreement with BCS, as the area and methodology for credit generation has changed since the original consent. It is important the number of credits is fluid to
Ecosystem Credits		Ecosystem Credits		
HU851	311	HU851 (TBC)	311 (TBC)	
HU860	273	HU860 (TBC)	273 (TBC)	
HU917	80	HU917 (TBC)	80 (TBC)	
HU938	388	HU938 (TBC)	388 (TBC)	
HU948	115	HU948 (TBC)	115 (TBC)	
HU865	22	HU865 (TBC)	22 (TBC)	
Total On-site Ecosystem Credits	1,189	Total On-site Ecosystem Credits	1,189 (TBC)	
Species Credits		Species Credits		
Camfield’s Stringybark (<i>Eucalyptus camfieldii</i>)	11,651	Camfield’s Stringybark (<i>Eucalyptus camfieldii</i>)	11,651 (TBC)	
Earp’s Gum (<i>Eucalyptus parramattensis</i> subsp. <i>Decadens</i>)	4,501	Earp’s Gum (<i>Eucalyptus parramattensis</i> subsp. <i>Decadens</i>)	4,501 (TBC)	
Small-flowered Grevillea (<i>Grevillia parviflora</i> <i>Parviflora</i>)	724	Small-flowered Grevillea (<i>Grevillia parviflora</i> <i>Parviflora</i>)	724 (TBC)	

Existing Biodiversity Offset Requirement		Proposed Biodiversity Offset under MOD 4		Justification for Change	
Eastern Osprey	717	Eastern Osprey	717	<p>allow for changes during establishment.</p> <ul style="list-style-type: none"> The Eastern Osprey credit requirement will be removed as a change in methodology means it can no longer be generated onsite. 	
Koala	744	Koala	744 (TBC)		
Wallum Froglet	606	Wallum Froglet	606 (TBC)		
Offsite Offsets					
Table 5: Biodiversity credits to be retired from off-site offset area		Table 5: Biodiversity credits to be retired consistent with the Biodiversity Conservation Act 2016		To reflect the change in legislation.	
Credit type	Number of Credits	Credit type	Number of Credits	Timing	<p>To reflect the additional credits required to offset the impacts of the Western Extension, and to include a timing element to reflect the original consent and proposed modification. Existing offsite credit requirements have been satisfied.</p>
Ecosystem Credits		Ecosystem Credits			
Preferably HU860, and including other ecosystem credits generated by the application of variation criterion (f) for mitigated net loss (Tier 3) under the Interim Policy	A minimum of 687 ecosystem credits. All the ecosystem credits concurrently available in securing 306 Koala species credits, up to 1,018 ecosystem credits	Preferably HU860, and including other ecosystem credits generated by the application of variation criterion (f) for mitigated net loss (Tier 3) under the Interim Policy	A minimum of 687 ecosystem credits. All the ecosystem credits concurrently available in securing 306 Koala species credits, up to 1,018 ecosystem credits	Within 12 months of commencement unless otherwise agreed with Secretary.	
Species Credits		Species Credits			
Koala	306				
		PCT 3544	TBC	Prior to commencement of Western Extension#	
		Species Credits			
		Koala	306	Within 12 months of commencement unless otherwise agreed with Secretary.	
		Koala	TBC	Prior to clearing of native vegetation in Western Extension#	
		Eucalyptus parramattensis subsp. decadens	TBC		
		Mahony's Toadlet	TBC		
		Diuris arenaria	TBC		
<p># Subject to agreement from the secretary, staged retirement of credits may be sought for these clearing activities.</p>					

4.5 Changes to the Conditions of Development Consent

The proposed modification, if approved, necessitates amendment to the following conditions of Consent:

- Inclusion of MR (Mod 4) within the definitions.
 - To include this modification document as definition.
- Schedule 2, Condition 2 Terms of Consent.
 - To include the Mod 4 modification document.
- Schedule 2, Condition 8 Terms of Consent.
 - To reflect the updated resource boundary (including elimination of 20m buffer requirement between Lot 100 DP1263921 and Lot 9 DP239608).
- Schedule 3, Condition 34 Biodiversity Offset Strategy.
 - To reflect the change in offsets.
- Figure 2 – Proposed site layout.
 - To reflect the updated resource boundary.
- Appendix 3 – Conceptual Rehabilitation Plan.
 - To reflect the updated resource boundary.
- Appendix 6 – Biodiversity Offset Strategy.
 - To reflect the updated resource boundary.

4.6 Changes to Statement of Commitments

A review of the Statement of Commitments has been completed to reduce duplication with the Conditions of Consent and improve the clarity of environmental management. Suggested changes to the Statement of Commitments are presented within **Appendix 4**.

The Conditions of Consent were developed with a significant overlap with the Statement of Commitments. In doing so, substantial duplication exists and amendments to operational practice within management plans to respond to changes in activities is not readily achievable despite the commitments being submitted at the time with the caveat “*These measures shall apply, unless superseded or made redundant by an approved management plan or the Conditions of Approval*”. To avoid confusion, it is considered prudent to amend the Commitments. It is likely that many of the commitments will remain in effect within the management plans given the need to ensure the development is conducted generally consistent with the EIS.

The amendments to the Statement of Commitments do not result in any appreciable change in environmental impacts as the majority are duplicated in effect by the Conditions and approved management plans.

4.7 Import of Virgin Excavated Natural Material (VENM)

The modification proposes to import Virgin Excavated Natural Material (VENM) sand to the Newcastle Sand quarry from local sand beds for on-site processing and subsequent re-sale.

The Tomago-Tomaree-Stockton Sandbeds covers an area of approximately 275km² along a coastal strip approximately 10km to 15km wide, extending from the Hunter estuary in the south to Port Stephens in the north and Raymond Terrace to the west. The sand beds occur on porous sandy soils lying over deep porous sands. Sand is frequently encountered during construction activities in this area. At present, any sand encountered during earthworks is disposed of as fill, including disposal at landfill.

The Proponent has identified the opportunity to receive and process this material on-site, turning it into a high-value sand product suitable for the manufacture of concrete. Provided the material imported is

certified, no additional licences are required for the import, processing and re-sale of VENM at the Newcastle Sand quarry owing to an EPA exemption applicable to VENM.

Where possible, trucks will enter and leave the site full to reduce movements to the greatest possible extent. Regardless, truck movements generated by the import of sand VENM (in combination with other truck movements) will remain consistent with approved haulage rates.

The approved haulage rates as specified in the consent are:

- Monday to Friday (up to 116 trucks per day)
 - 6 laden trucks between 6 am and 7am.
 - 10 laden trucks between 7am and 6pm.
- Saturday (up to 90 laden trucks per day)
 - 10 laden trucks per hour 7am to 4pm.

The consent permits up 670 laden trucks to leave the site on a weekly basis. At present, an average of 319 trucks per week leave the site when the quarry is operating at maximum annual extraction levels (530,000 tonnes).

The proposed import of VENM would not be of a scale that requires the amendment of hourly or daily traffic generation from the quarry and no changes are required to the approved haulage rates from the site.

4.7.1 VENM Classification, Certification and Controls

VENM is defined in the POEO Act 1997 as:

'natural material (such as clay, gravel, sand, soil or rock fines):

(a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and

(b) that does not contain any sulfidic ores or soils or any other waste

and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.'

Excavated material must meet all aspects of the POEO Act definition to be classified as VENM. VENM must be correctly classified by either generators, transporters and/or receivers and the EPA provides a template certificate to assist in the classification of VENM. Certified VENM can then be reused on or off the site of origin and is exempt from chemical testing and EPA Licencing requirements.

Without suitable controls, even the import of VENM material into the quarry site has the potential to result in adverse impacts such as the introduction of weeds or if the material is not correctly classified contamination.

To ensure that material imported to the site is correctly certified and to minimise any risks associated with the import of materials, WSS will implement the controls identified below:

- Limit to 6,000 tonnes per annum.
- Have no more than 1,000 tonnes of VENM sand onsite at any one time.

- Each VENM sand importation event will be pre-booked.
- A VENM certificate will be required prior to import with testing consistent with best practice and the potential risk at each site. VENM certification by an independent certifier, as per the EPA's recommendation during Mod 3.
- No material will be accepted (without chemical assessment) if it originates from:
 - Known PFAS zones in the locality (per EPA mapping).
 - Material containing acid sulfate soils or potential acid sulfate soils (per the Acid Sulfate Soil Risk maps).
 - Areas contaminated by building rubble.
- No topsoil material (i.e. the top 100mm of a site) will be accepted for import to minimise risk of importing weeds, organic materials or residual building contaminants such as asbestos sheeting.
- Silt and other residual organic material from processing of VENM will be disposed of off-site at a licensed facility rather than re-used onsite for rehabilitation purposes as suggested by HWC during Mod 3.
- Imported VENM material will be preferentially processed and transported off-site as soon as practical minimising stockpiling duration on-site and the potential for any associated indirect risks.

4.8 Sand Extraction and Operation Methods

Several minor amendments are requested as part of the proposed modification to the approved sand extraction and operational methods, as described below:

- Use of an excavator to recover sand and load it onto dump trucks for road transport to the processing plant throughout the site rather than in select sectors and as a back-up measure. At present, approved methods are primarily a front-end loader loading sand to electrically powered conveyors for conveyance to the processing plant. Use of excavators and dump trucks is currently only approved as a secondary process.
- The variable sand resource and changing market demands have also necessitated slight variations from the original sequencing proposed in the EIS to ensure the most efficient resource recovery can be achieved. While this varies from the envisaged sequence in the EIS, the approach remains consistent with the Approval in ensuring only the required areas are cleared at any one time and rehabilitation is sequential.
- Proposal to reduce the number of processing plant locations from eight to two, retaining the existing processing plant in Sector 3 for the remainder of the quarry life.
- With the introduction of the Wash Plant within Mod 2, the need to invest more in the establishment of well drained surfaces to maximise water recovery has resulted in the need to reduce the number of locations where processing would occur. It is now proposed to keep the processing plant in Sector 3 for the remaining duration of quarrying activities. Given the sand is ultimately hauled south from the site by road registered truck there is likely negligible change in the net haulage distance as the processing plant is positioned near the centre of the resource. In addition, the required resources for road construction and plant relocation are reduced.
- Reduce the extent of sealing works in the road leading to the northern resource area by 185 m. If approved, the section of the sealed road would extend to the northern boundary of the southern resource area.

- Proposed amendment to electricity power source for the project from mains electricity to electricity sourced from a diesel generator. It is noted that use of a diesel generator is currently approved for redundancy as required. The office and workshop remain powered by mains electricity.

No changes are proposed to extraction rates, annual haulage rates or operational hours.

4.9 Radiation Survey Condition Amendment

Schedule 3, Condition 46, states:

"The Applicant must ensure that an effective radiation survey is conducted by a suitably qualified and experienced expert, approved by the Secretary, for each area of the site following vegetation clearing and prior to commencing any other ground disturbing activities."

This condition was introduced on the basis of concerns about the potential burial of monazite concentrates within the resource extraction area by RZM during mineral sand mining. It is generally considered unlikely that these burials would have been located within active dredge areas, but rather in the dumps created in other low lying areas outside the present resource area. On this basis, it would be appropriate for Schedule 3, Condition 46 to be amended to reflect a condition to the effect of the following:

"The Applicant must ensure that a suitable radiation risk assessment from monazite concentrates is conducted for each area of the site disturbed by historical mineral sand mining."

Amendment of the condition in this manner would ensure that surveys are not conducted over areas of the site where there is no risk from the monazite concentrates given the lack of past disturbance, and that surveys should they be deemed necessary are conducted at the most practical time. The radiation survey expert prefers surveys prior to clearing activities to ensure monazite is not disturbed (if it was present) by clearing activities.

4.10 Changes to the Conditions of Development Consent

The proposed modification, if approved, indicatively necessitates amendment to the following conditions of Consent:

- Inclusion of MR (MOD 4) within the definitions.
 - To include this modification document as definition.
- Schedule 2, Condition 2 Terms of Consent.
 - To include the Mod 4 modification document.
- Schedule 3, Condition 34 Biodiversity Offset Strategy.
 - To reflect the change in legislation and offsets.
- Amend Schedule 3, Condition 46 to be deleted or replaced by condition allowing a radiation risk assessment for each area disturbed by past RZM Mining activities.
- Figure 2 – Proposed site layout.
 - To reflect the updated resource boundary.
 - Change in the processing locations.
- Appendix 2 – Statement of Commitments.
 - With updated commitments included in the attached **Appendix 4**.
- Appendix 3 – Conceptual Rehabilitation Plan.
 - To reflect the updated resource boundary.
- Appendix 6 – Biodiversity Offset Strategy.
 - To reflect the updated resource boundary.

- Addition of a new clause in Schedule 2 to enable the import and processing of VENM sand onto the site for processing and resale.

5. Statutory Context

5.1 Overview

The key relevant statutory requirements for the proposed modification are addressed below. Statutory compliance tables for the modified project are included in **Appendix 2**.

5.2 EP&A Act 1979

5.2.1 Consideration of Section 4.55(2) of EP&A Act 1979

Table 5-1 addresses the provisions which the consent authority must have regard to when considering a modification of development consent, pursuant to Section 4.55(2) of the EP&A Act.

Table 5-1: Section 4.55(2) Assessment

Provision	Assessment Considerations
4.55 (2) Other modifications – A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:	
<i>(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all),</i>	Refer Section 5.2.25.2.2 .
<i>(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent,</i>	Consultation will be carried out by DPHI as required.
<i>(c) it has notified the application in accordance with: the regulations, if the regulations so require, or a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent,</i>	The application will be notified by DPHI as required.
<i>(d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.</i>	Submissions will be considered as required in discussion with DPHI. The applicant welcomes the opportunity to address any matters of public concern raised in submissions.

5.2.2 'Substantially The Same'

Pursuant to s4.55(2)(a) of the EP&A Act, the consent authority must be satisfied that the proposed modification will result in a development that is substantially the same as the original development. This

requires both a quantitative and qualitative analysis of the development before and after the modification, provided below.

Quantitative Differences

The modification would result in a net increase to the development disturbance area of 6.6 ha, equivalent to 15.7% of the existing approved project area. Additional biodiversity offsets will be retired as required to offset additional biodiversity impacts associated with the additional disturbance. An onsite biodiversity stewardship site (within land leased by the Applicant as per original approval) would be created adjacent to the quarry and retirement of the required credits.

It is sought to permit the import of VENM sand for on-site processing, it is unlikely to result in any change in the current haulage rates as sand will be back hauled (i.e. full truck enters and leaves the quarry) and current haulage rates remain well below approved levels and no change is sought to the approved hourly or daily haulage rates. The import of VENM sand has the potential to result in the quarry operating over a slightly longer period of time, but consistent with the approved quarry duration.

The extraction and processing of additional sand resources will result in a minor increase in water usage and greenhouse emissions, with an increase in Scope 1 emissions over the lifetime of the project.

Noise and dust emissions predicted to be generated by the modified proposal are consistent with the existing approval, with impacted receivers subject to negotiated agreements (i.e. R14 and R28 – the owner of Lot 9).

No modification is required to; the approved project duration, extraction rates, hours of operation of the quarry, site access arrangements, truck sizes or haulage rates for the quarry product. However, the modification proposes additional haulage routes to access the proposed western extension. The proposed haulage route through Section D1 would reduce haulage distances by almost 3,300km over the 12 months of extraction.

Existing infrastructure, equipment and plant machinery would continue to be used as part of the modification. Processing areas would be reduced from eight to two due to the increased cost of the wash plant and water recovery systems approved in MOD2, reducing associated environmental impacts.

Qualitative Differences

The property already supports an approved, operating sand quarry. WSS has carried out quarry operations on this site for over 4-years. The quarry operations have had minor environmental impacts on the surrounding residential amenity to date. The environmental impact of the development has been addressed throughout the operating period mainly through a series of management plans which have resulted in improvements to the operation and avoidance of unacceptable impacts such as excessive noise and dust emissions and traffic impacts on local roads. The modification entails minor amendments to the Statement of Commitments, principally to reduce duplication with conditions of consent.

The proposed modification will extend the southern extraction area by approximately 290m to the west and 20m to the north, reducing the existing buffers between the existing quarry and sensitive receptors to the west. To ensure that activities associated with the Modification have a minimal effect on the surrounding environment and at residential receptor locations, all reasonable and practicable noise and dust mitigation measures will continue to be utilised as per the sites management plans.

Minor amendments to the quarrying methods are proposed due to impracticalities associated with the original proposed methods, identified during the quarry operation. The use of a bulldozer for sand extraction is replaced by excavator, with beneficial impacts to noise. An excavator will be used to recover sand resources, rather than only in clearing. An excavator and dump truck will be used as the principal method of loading and transport in Sectors other than 3, 7 and 8, rather than loaders and conveyors.

No change is proposed in terms of the processing method of sand resources on-site, however materials processed on-site would include imported resources in addition to materials sourced on-site. The processing plant would also use a diesel generator as the main source of power rather than power installation throughout the site.

No fundamental change is proposed in terms of rehabilitation strategy or process in the final worked quarry areas including the proposed extension areas. The proposal will not result in a significant change to the rehabilitation burden.

Conclusion

Based on the above considerations, the proposed section 4.55(2) modification does not radically transform the approved Development Consent SSD-6125. It remains a sand quarry with the same hours of operation, quarrying methods and extraction and haulage rates. Quarrying methods will also broadly remain the same. The proposed modification mainly relates to the extension of the resource boundary, with minor changes to sand extraction and operation methods proposed to increase operational efficiency, economic recovery and minimise environmental impacts. The proposed modification will have only minor additional impacts which can be addressed by mitigation measures currently employed by the quarry, however the relevant management plans will be updated to reflect the updated resource boundary and to address changes made to the conditions of consent if the modification is approved.

The character of the development therefore remains the same and the proposed modification does not represent a significant departure from the current approved development, resulting in a development that is closely related to the existing approval. A modification application pursuant to s4.55(2) of the EP&A Act is therefore considered justifiable and appropriate.

5.3 State Environmental Planning Policy (Resources and Energy) 2021

The *State Environmental Planning Policy (Resources and Energy) 2021* (Resources and Energy SEPP) provides the framework to facilitate the orderly and economic use and development of land for the purpose of promoting the extraction of natural resources for the social and economic welfare of the state.

The Resources and Energy SEPP includes the following clauses of relevance to the proposed modification:

- **Clause 2.17:** Requirement for the Consent Authority to consider the compatibility of the quarry with surrounding land use.
 - *The proposed modification will not result in changes to impacts already approved on adjoining land uses.*
- **Clause 2.20:** Requirement for the consent authority to consider the potential impacts on water, threatened species and biodiversity and greenhouse gas emissions.
 - *No significant impact to water.*

- *Impacts to biodiversity will be addressed, including avoidance and include measures to reduce impacts during quarrying.*
- *Minor increase in greenhouse gas emissions.*
- **Clause 2.21:** Requirement for the consent authority to consider matters relating to resource recovery, efficiency and minimising waste.
 - *The proposed modification will result in an improvement to existing resource recovery through accessing adjacent reserves currently in high demand.*
 - *The extraction of additional sand resources from the site will result in greater efficiency and reduced environmental impact relative to a new development, having regard to extensive mitigation measures and environmental safeguards already in place at the existing quarry site.*
- **Clause 2.22:** Requirement for the consent authority consider measures relating to transport of materials on public roads, including the provision of the development application to the roads authority (Council and/or TfNSW).
 - *The proposed modification will not result in any change to the approved traffic levels per hour. The proposed extension does not entail an increase in traffic volume.*
- **Clause 2.23:** Requirement for the consent authority consider conditions relating to rehabilitation of the quarry.
 - *Conditions of Consent include provisions aimed at ensuring the rehabilitation of the land.*
 - *The modification will not adversely impact the approved sequential nature of the rehabilitation proposed for the quarry. If the modification is approved, the rehabilitation plan for the quarry would be amended to include the extension areas.*

6. Assessment of Impacts

An environmental risk assessment was undertaken to consider the likelihood and consequences of certain environmental aspects. The risk assessment is presented in **Table 6-2** and was undertaken with input from Wedgetail Project Consulting and Williamstown Sand Syndicate Pty Ltd.

The assessment outlines the potential environmental, social or project risks, the risk assessment without controls and the design controls incorporated into the design and the additional controls required for construction and operations. A residual risk assessment is then completed on the proposed modification with the implementation of the design and likely construction and operational controls. The risk assessment is based on the matrix shown within **Table 6-1**.

Table 6-1: Risk assessment matrix for Table 6-2 risk screening

Risk Level		Scale of Impact		
		A. Small localised environmental impact onsite, no exceedance of health or amenity criteria	B. Moderate impact to local environment OR low level exceedances of health or amenity criteria <i>Moderate cost implications to operations (Ops)</i>	C. Major impacts, significant adverse impacts to health and safety of community or significant offsite environmental impacts. <i>Significant cost implications to operations (Ops)</i>
Frequency	1. Unlikely to occur, may occur once during project	1A. Negligible	1B. Low	1C. Medium
	2. Could occur, may occur once per year	2A. Low	2B. Medium / Medium Ops	2C. High / High Ops
	3. Likely to occur, occurs more than 5 times every year	3A. Medium	3B. High	3C. Very High
Neutral Outcome				
Proposed modification will result in no discernible change in environmental or social impacts				
Beneficial Outcome				
Proposed modification will result in a reduction in environmental or social impacts				

Table 6-2: Environmental risk assessment of proposed modification

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
Air Quality	The change in resource area is likely to have negligible impact on the extent of dust generation. The air quality assessment completed and included in Appendix 6 determined there is no significant change in air emissions as a result of the proposed modification.	3A. Medium	Low travel speeds to keep wheel generated dust at a minimum.	<ul style="list-style-type: none"> Static and/or mobile dust suppression. Continued implementation of the AQMP. 	2A. Low	Revised air quality assessment is included as Appendix 3 . A summary of the assessment is provided in Section 6.1 .
Greenhouse Gas Emissions	<p>The modification would result in:</p> <ul style="list-style-type: none"> Higher diesel consumption (i.e. Scope 1 emissions) due to the change from mains power and conveyors to a diesel generator and trucks. Lower electricity consumption (i.e. Scope 2 emissions) due to the lower reliance on electricity as an energy supply source. <p>Diesel and electricity consumption predicted in the response to submissions as part of the original application are outlined below:</p> <ul style="list-style-type: none"> Annual diesel consumption of less than 100,000 L. Onsite electricity usage of 189,000 kWh. <p>Data provided by the Applicant identifies the following usage levels in 2022 (these levels are consistent with the proposed MOD4):</p> <ul style="list-style-type: none"> Annual diesel consumption of 252,367 L. Onsite electricity usage of 11,617 kWh. <p>Greenhouse gas emissions for both scenarios were calculated using the Clean Energy Regulator's</p>	3A Medium	Nil.	Maintain Commitments to optimise efficiencies where possible.	3A Medium	Nil.

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
	<p>National Greenhouse and Energy Reporting Tool 2022-2023. Results are outlined below:</p> <ul style="list-style-type: none"> • Approved Scope 1 emissions of 271t CO₂-e and Scope 2 emissions of 138 CO₂-e (total 409t CO₂-e). • Proposed Scope 1 emissions of 684t CO₂-e and Scope 2 emissions of 8 CO₂-e (total 692t CO₂-e). <p>These calculations do not take into account any efficiencies gained in reduced processing effort or the additional construction related emissions that would have otherwise occurred in the installation of mains power or multiple processing sites.</p>					
Noise	<p>An acoustic assessment was conducted to determine the potential noise impact from the proposed modification. The assessment has found that the noise trigger level would not be exceeded at the closet residential receiver (R14) to the proposed Western Extension, subject to construction of an acoustic barrier or mound between excavation works and the eastern boundary of R14. All other receivers are at greater distance and at lower elevation than R14 so significantly lower noise levels would be experienced at these residences. In addition, overall noise emissions, though historically inaudible off-site, would be lower due to the use of an excavator rather than a dozer for extraction.</p>	2A. Low	<ul style="list-style-type: none"> • Construction of an acoustic barrier or mound between excavation works and the eastern boundary of R14, subject to agreement with R14. • Selection of equipment with lower sound output. 	<p>Maintain existing noise controls under the Noise Management Plan (NMP).</p>	2A. Low	<p>Noise Impact Assessment included in Appendix 7. A summary of the assessment is provided in Section 6.26.2.</p>
Water Demand	<p>There is not expected to be an increase in the rate of the estimated water usage onsite above that approved in the EIS. As water is drawn from the</p>	Neutral	Nil.	Continued implementation of	Neutral	Nil required.

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
	potable water, there is no additional risk to groundwater.			the Water Management Plan.		
Groundwater and Surface Water	The proposed quarry floor remains unaffected despite the lateral change in extraction area. Storage of flocculants and coagulants, re-fuelling of machinery and parking of tracked equipment within a bunded hard stand at the Wash Plant within the Tomago Sandbeds area will not create an appreciable risk of water contamination, given the near impervious nature of the hardstand surface and existing control measures onsite.	2A. Low	<ul style="list-style-type: none"> Floor levels and extraction extent included in design. 	As above for water demand.	1A. Negligible	Assessment of potential impacts to groundwater quality provided in Section 6.6 6.6. Correspondence with Hunter Water Corporation provided in Appendix 3.
Natural Resource Use	The proposed modification seeks to maximise the beneficial use of the available sand resource by utilising existing infrastructure to extract nearby sand resources.	Beneficial	Nil required.	Nil required.	Beneficial	Nil
Waste Management	No change in day to day quarry-related waste disposal. Increase in waste generation during demolition phase within the Western Extension. Fines generated from imported VENM sand will be sold as product to local landscaping supplier.	2A. Low	Demolition to be completed in accordance with AS 2601 Limitation of VENM import avoids legislative matters relating to waste.	Demolition to be completed in accordance with AS 2601, recycle where feasible.	1A Negligible	Nil.
Rehabilitation	The proposed amendment will not change the rehabilitation strategy or process, nor will the extension of the extraction area result in any significant change in the rehabilitation burden. The rehabilitation bond is based on a three year period, and is re-evaluated at the end of each 3 year period.	1A Negligible	Rehabilitation consistent with existing approved management plan.	As per existing BRMP.	1A Negligible	Nil.

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
Economic	<p>The proposed amendment will provide a minor increase in quarry longevity and duration of employment for quarry employees and contractors.</p> <p>The extraction of sand suitable for concrete will help meet demand throughout the Sydney and Hunter regions that will assist those industries and the associated downstream consumers (e.g. home owners and road building).</p> <p>Increased sand extraction will also provide continuing lease or royalty payments for the Port Stephens Council.</p>	Beneficial	Delineation of the sand resource based on the economic value of the sand and associated environmental costs (e.g. habitat and offsets).	Nil required.	Beneficial	Nil Required.
Social	<p>The proposed operational and administrative changes are unlikely to have any appreciable social impact.</p> <p>The proposed extension to the quarrying areas will have the following potential social affects:</p> <ul style="list-style-type: none"> • Negative: Increased quarrying duration and associated quarry related affects (e.g. traffic and air quality) on the neighbouring residents, however, this will remain consistent with the approval. • Positive: Increased quarrying duration will provide additional payments for neighbouring properties that have an agreement with Newcastle Sand. • Positive: Improved supply of sand for concrete will help maintain or lower the price of consumer related products (e.g. concrete). 	Neutral - Beneficial	Nil required.	Continued implementation of the management plans aimed at reducing noise, dust and traffic impacts on local residents.	Neutral - Beneficial	Nil required

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
	<ul style="list-style-type: none"> Positive: Continued operations will provide increased duration of employment. Positive: The most disruptive phase of most developments to the community is during the construction phase, additional operation of the existing quarry will reduce the need for new quarries and associated construction effects. 					
Aboriginal Heritage	<p>A survey was completed across the existing quarry project area as part of the original EIS and did not identify any known heritage sites within the expansion areas proposed to boundary of the existing approved quarry area.</p> <p>The areas surveyed covered the proposed expansion and relinquishment areas for this modification, however, did not include the proposed Western Extension.</p> <p>An additional survey was undertaken for the proposed Western Extension and identified two Aboriginal archaeological sites.</p>	2B. Medium	<p>Identified Aboriginal objects, comprising open sites 38-4-2337 and 38-4-2338, are planned for community collection (subject to MOD4 approval) and will be reburied prior to the commencement of the proposed development within the proposed Western Keeping Place, as agreed by the project RAPs. The Western Keeping Place is located to the east of MOD 4 extension areas on Port Stephens Shire Council land that will not be impacted by future</p>	<p>Update to the Heritage Management Plan and continued communication with the Registered Aboriginal Stakeholders.</p>	2A. Low	<p>See attached recently completed assessment and previous assessment in Appendix 5. Summary of potential impacts provided in Section 6.5.</p>

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
			development or land-use and is planned for inclusion in the Biodiversity Stewardship Site.			
Non-Aboriginal Heritage	No known or suspected items of non-Aboriginal heritage will be affected by the proposed extension of the resource or amendment to operational and administrative conditions.	Neutral	Nil required.	Nil required.	Neutral	Nil required
Biodiversity	The proposed increase in resource area will result in a net increase in clearing of native vegetation. Direct impacts entail the removal of 5.29 ha of native vegetation. Potential indirect impacts include accidental incursion during clearing, increased weed invasion due to edge effects, potential impacts on connectivity and increase dust and noise and vibration during clearing works.	3A. Medium	<ul style="list-style-type: none"> Retirement of biodiversity offset credits. Avoidance of areas of greater biodiversity value such as remnant vegetation that is connected to the proposed on-site offset area. Avoidance of significant habitat features. Retention of additional corridors in approved disturbance area. 	<p>Implementation of the approved Biodiversity and Rehabilitation Management Plan.</p> <p>Planting of tubestock for the threatened Earps Gum to replace those removed.</p>	2A. Low	Biodiversity Development Assessment Report is included as Appendix 8 . Summary of potential impacts provided in Section 6.3 .

Aspect	Environmental / Social / Project Risk	Risk Level (no controls)	Design Control included in Modification	Operational Controls	Risk Level (with controls)	Additional Assessment Completed
Traffic	The proposed amendments will not result in a change to the hourly or daily traffic generation from the quarry. Existing haulage rates are sufficient to theoretically haul over 1,000,000 tonnes per year.	1A Negligible	Traffic management consistent with existing approved management plan.	As per existing traffic management plan.	1A Negligible	Assessment provided in Section 6.4.

6.1 Air Quality

Todoroski Air Sciences (TAS) were engaged to prepare an Air Quality Impact Assessment (AQIA) to assess the proposed modification of the quarry. A summary of the assessment is provided below, and the report is provided in full in **Appendix 6**.

It is also noted that the quarry operates a real-time air quality network and management plan that enables real-time responses to increasing dust levels and the quarry has not exceeded any of its air quality criteria to date.

6.1.1 Impact Assessment

The assessment considers a single scenario to represent the Modification. The modelled activities were chosen to represent potential worst-case dust impacts (i.e. highest dust generating activities and locations) in regard to the quantity of material extracted and handled in each period, the location of the activity (i.e. the proposed extension area) and the potential to generate dust at the receptor locations.

The significant dust generating activities associated with operation of the Modification are identified as the loading/unloading of material, vehicles travelling on-site and off-site, screening process, and windblown dust from exposed areas and stockpiles. The vehicle and plant equipment also have the potential to generate particulate emissions from the diesel exhaust.

The annual average scenario selected for assessment represents an expected operation scenario with quarrying mainly occurring in the proposed Western Extension (up to 80% of total production) and other quarrying occurring in Sector 7 (20% of total production). For the peak daily emissions scenario, it was assumed that all the quarrying activity was occurring in the Western Extension.

Dust emission estimates for the operation of the Modification have been calculated by analysing the various types of dust generating activities taking place and utilising suitable emissions sourced from both locally developed and United States Environmental Protection Agency (US EPA) developed documentation.

An average and a peak scenario have been assessed for the operation of the Modification.

The annual average scenario is based on the approved annual tonnage of 530,000tpa of material produced at the site and used to assess annual average dust impacts.

The peak daily scenario is based on a maximum daily production rate assumed to apply every day of the modelling period (i.e. 365 days).

6.1.2 Results

The predicted incremental results (Modification in isolation) show that no incremental impacts would arise at the assessed receptor locations due to the Modification. The predicted cumulative results (the Modification combined with the estimated ambient background levels) indicate that the assessed receptors are predicted to experience levels below the relevant criteria for each of the assessed dust metrics - PM₁₀, PM_{2.5}, TSP and dust deposition.

With regards to the VLAMP mitigation and acquisition criteria, the results show the highest maximum predicted level at the assessed privately-owned receptors would be below the applicable criteria.

The cumulative annual average deposited dust levels were found to have the greatest extent of any of the other dust metrics relevant to the application of acquisition upon request rights on vacant land in accordance with the VLAMP. However, the predicted cumulative annual average dust deposition levels would not extend over more than 25% of any privately-owned land parcels as a result of the Modification, and as such the Modification would not exceed this criterion.

The respirable crystalline silica (RCS) results show that the PM_{2.5} levels experienced at the most affected receptor would be well below the interim criterion for 24 hour and annual average and as such there would be no potential for impacts from RCS.

6.1.3 Potential Impacts

The Modification has the potential to generate dust emissions. To ensure that activities associated with the Modification have a minimal effect on the surrounding environment and at residential receptor locations, it is recommended that all reasonable and practicable dust mitigation measures be utilised.

The site currently employs a number of air quality control measures such as regularly watering the spine road through the Northern Resource Area with road side static sprays or water carts to minimise dust generation. These are included within the site's Air Quality Management Plan. It is recommended that existing air quality control measures continue to be applied as they appear to be effective based on the available air quality monitoring data reviewed.

6.2 Noise

Spectrum Acoustics (Spectrum) were engaged to prepare a Noise Impact Assessment (NIA) for the proposed modification of the quarry footprint (MOD 4). A summary of the assessment is provided below, and the report is provided in full in **Appendix 7**.

6.2.1 Impact Assessment

Existing Noise Criteria

The existing noise assessment criteria are detailed in Condition L3.1 of Development Consent (SSD-6125). Noise criteria for all residences listed in EPL21264 are as shown below in **Table 6-3**. The noise criteria include the requirement that noise levels at day shoulder must not exceed **45 dB(A) L1 (1 min)** (sleep disturbance criterion) at any residence.

Table 6-3: Existing SSD 6125 and EPL 21264 noise criteria dB(A)

Metric	Day LAeq (15 min)	Shoulder LAeq (15 min)	Shoulder LAeq (1 min)
Any residential receiver on privately owned land	43	39	45
The criteria do not apply if the Applicant has an agreement with relevant landowner/s to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.			

Importantly it is worth noting that the 43 dB(A) used within the development consent, reflected the modelled worst case noise emissions for R28, the project specific noise criteria for the Project developed by Spectrum Acoustics, based on 'background +5dB' was 46 dB(A).

Approved Operating Hours

Quarry operations will continue to occur during the following hours:

- All quarry activities:
 - 7 am to 6 pm Monday to Friday.
 - 7 am to 4 pm on Saturdays.
- Transportation and loading of sand only:
 - 5 am to 6 pm Monday to Friday.
 - 7 am to 4 pm on Saturdays.
- No work on Sundays or public holidays with an exception for repair and maintenance of plant and equipment that may occur during these times.

Employees (in light vehicles) will arrive at the quarry approximately 15 minutes before opening (i.e. 5:45 am) to open quarry gates, by 6 am, and will leave approximately 30 minutes after quarry close (i.e. to 6:30 pm).

Ambient Noise Logging

Background noise logging was conducted from 12-19 December 2023 at 442 Cabbage Tree Road, historically referred to as R28, using an ARL Ngara environmental noise logger. This property comprises the proposed wester extension, which would result in mining noise encroaching closer to residences at the eastern end of Barrie Close.

The logger location and potentially most impacted receiver R14 at 24 Barrie Close are shown in **Figure 6-1**. Ambient noise monitoring results for the daytime and morning shoulder (MS) period 5am-7am are summarised in **Table 6-4**.



Figure 6-1: Noise logger location

Table 6-4: Noise logger results

Metric	LAeq (day)	LAeq (MS)	LA90 (day)	LA90 (MS)
LAeq	54	49	--	--
L90 (RBL)	--	--	42	37

Equipment Noise Monitoring

on 12 January 2024, Spectrum conducted on-site noise measurements of a Volvo EC3500 in the operation of excavating material and loading a haul truck at three different distances. This extraction method via excavator is proposed to replace the use of a dozer and result in lower noise emissions with no identifiable track noise. Noise levels were measured during two-minute fill cycles, which occurred for about half of a 15-minute period, with minimal noise between cycles.

Machinery noise was primarily below 800Hz, with higher frequencies dominated by wind and birds. The results as shown in are therefore conservative in that they do not include the rest periods, to account for the possibility that the excavator could be filling multiple trucks or otherwise handling material in between filling the truck(s).

Table 6-5: Summary of measured operational noise levels, dB(A),Leq

Distance	Shielding	Measured Level
25m	No. Direct line of sight to excavator and truck	61.8 dB(A)
45m	Direct line of sight to excavator and truck partially obscured	49.1 dB(A)
55m	Yes. Measurement taken behind 2m high sand bund	43.5 dB(A)

The results show the relatively quiet nature of the machinery and the absence of significant noise from handling sand rather than harder materials such as rock or coal.

Historic Noise Monitoring Results

Quarterly attended noise monitoring was undertaken by Spectrum from June 2020 to December 2024 at receiver 42 as shown in **Figure 6-2**. The operations have never been audible during these monitoring events.

As part of the proposed modification, trucks would replace the conveyor system for transporting material from the extraction site to the processing area. A Moxy MY31 articulated truck is relatively quiet, having previously been measured by Spectrum at less than 100 dB(A),Lw at other sites. This is comparable to the sound power level of a conveyor belt drive. With the trucks always operating at below ground level on the pit floor, always moving away from residences relative to the extraction site and having never heard or measured noise from the site during compliance monitoring with the trucks in operation, it is expected that haulage noise will continue to be inaudible off-site.

It is recommended however that the noise monitoring be undertaken at R14 (or the nearest residence without a negotiated agreement) should the modification be approved.

6.2.2 Noise Trigger Levels

Since the logger was placed immediately adjacent to the receiver that would potentially be the most noise impacted by the proposed modification, it is appropriate to determine specific noise trigger levels for this receiver.

Under Section 2.3 of the NPfl, the daytime intrusiveness trigger level at R14 is "background + 5 dB". The project amenity trigger levels under Section 2.4 (Table 2.2) of the NPfl are 50 dB(A), $L_{eq(day)}$ and 40 dB(A), $L_{eq(night)}$, which is applicable to the morning shoulder period.

After adjusting the period amenity noise level to a 15-minute value as described in S2.2 and S2.4 of the NPfl, the project noise trigger levels for receiver R14 are 47 dB(A), $L_{eq(day)}$ and 42 dB(A), $L_{eq(night)}$. However, it should be noted 43dB(A) was selected by the Consent Authority as the noise criteria while 46 dB(A) at that time was considered the Project Specific Noise Level within the Environmental Impact Statement.

6.2.3 Potential Impacts

Based on direct measurement of equipment, the measured level at 55m behind a 2m sand bund was 43.5 dB(A), this is below the suggested NPfl daytime trigger level of 47 dB(A), or effectively an inaudible difference (i.e. less than 2dB) as the Consent and EPL Noise Criteria of 43 dB(A).

The level was 2 dB greater than the trigger level at 45m with no barrier to noise from the excavator. Compliance with the trigger level would be achieved by a barrier or bund that intercepts the line of sight from the excavator to a point 1.5m above the ground at the R14 property boundary. It is understood that for the vast majority of the time, material excavation would occur at distances >45m from the property boundary and would advance from east to west, approaching R14, with a significant natural elevation difference acting as a noise bund.

These results suggest that the NPfl trigger level could be achieved at all times during the proposed extraction with a purposely constructed noise bund, or with a 2-3m sand bund placed along the property boundary when activities are at natural ground level at the nearest point to R14 (refer to **Figure 6-2**). The placement of the barrier would be in consultation with R14.

Residential receivers nearest to the proposed modification is shown in **Figure 6-2**. As shown there are two dwellings less than 90m across the whole quarry, R14 and R27, both of which are at or less than 55m from the extraction area. With consideration to the existing noise criteria (43 dB(A), $L_{eq(day)}$) only R14 and R27 have potential for exceedance of the Development Consent criteria and both of these properties have an existing agreement with Newcastle Sand in relation to the proposed extraction from the Western Extension.

All receivers are at a greater distance from the proposed pit edge than R14 and outside the 55m setback at which compliance with the suggested revised noise trigger level would be achieved without a barrier.

Importantly for noise reduction, all other receivers (aside from R14) are lower than the pit crest by 6-7m. The pit edge therefore constitutes a substantial noise barrier to these receivers and levels well below the trigger level would result.

Overall noise emissions, though historically inaudible off-site, would be lower due to the use of an excavator rather than a dozer for extraction.

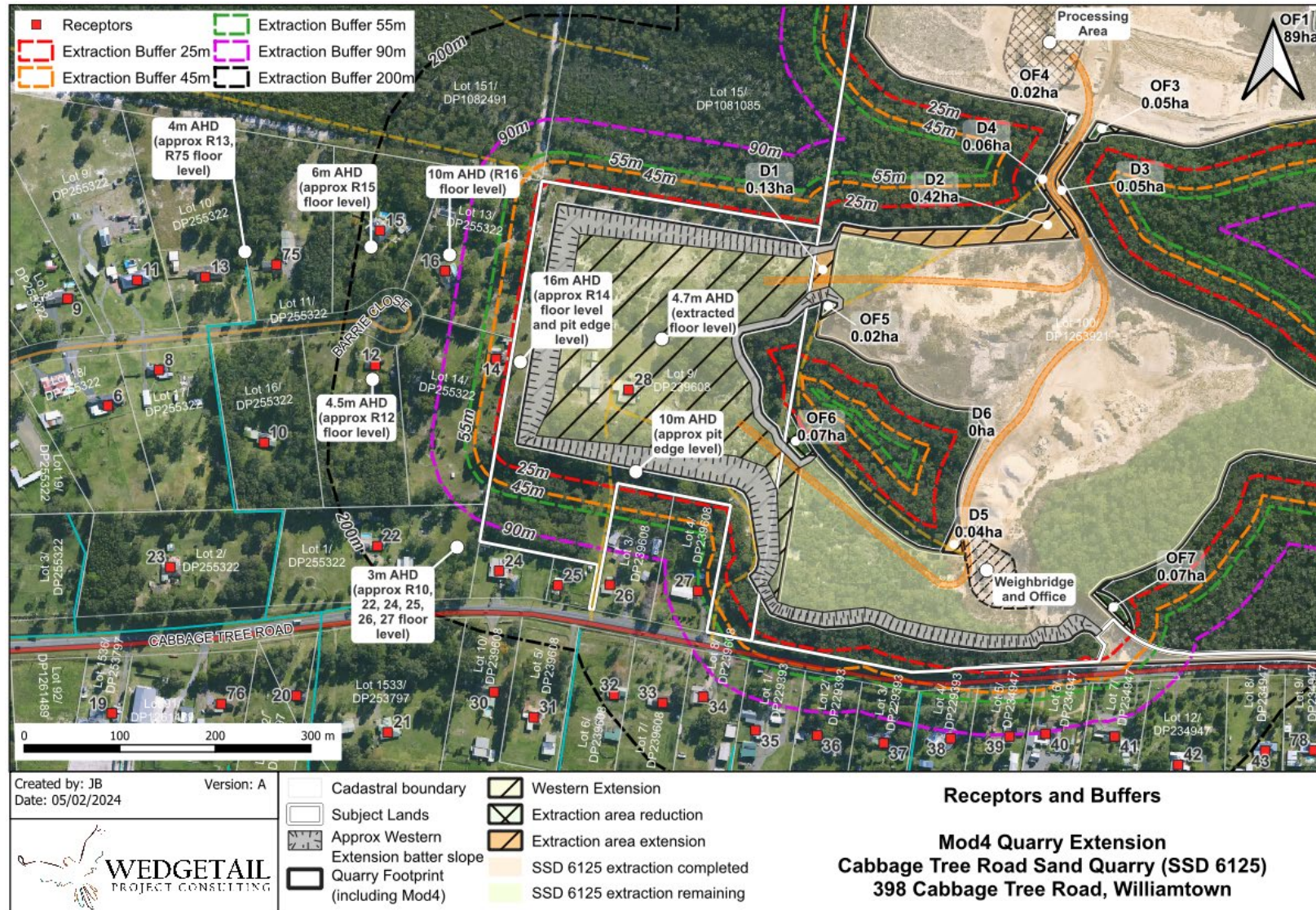


Figure 6-2: Residential receivers nearest to the proposed modification

6.3 Biodiversity

A Biodiversity Development Assessment Report (BDAR) has been prepared by Wedgetail Project Consulting for the proposed modification. The BDAR assessed the biodiversity values of the site and the impacts of the proposed extensions on biodiversity values in accordance with the BAM. The BDAR sets out the measures proposed to be undertaken to avoid and minimise impacts on biodiversity. It also details the number and class of biodiversity credits that are required to be retired to offset residual impacts. The BDAR is included in full in and a brief summary of key biodiversity impacts is provided below.

6.3.1 Impact Assessment

A total of 5.28 ha of native vegetation was mapped within the proposed disturbance area for MOD4 consisting of various conditions levels of PCT 3544: Coastal Sands Apple-Blackbutt Forest. The majority of the disturbance area was cleared during the late 1970s by mineral sand mining, with the majority of remnant vegetation has been avoided as shown by **Figure 6-3** below.

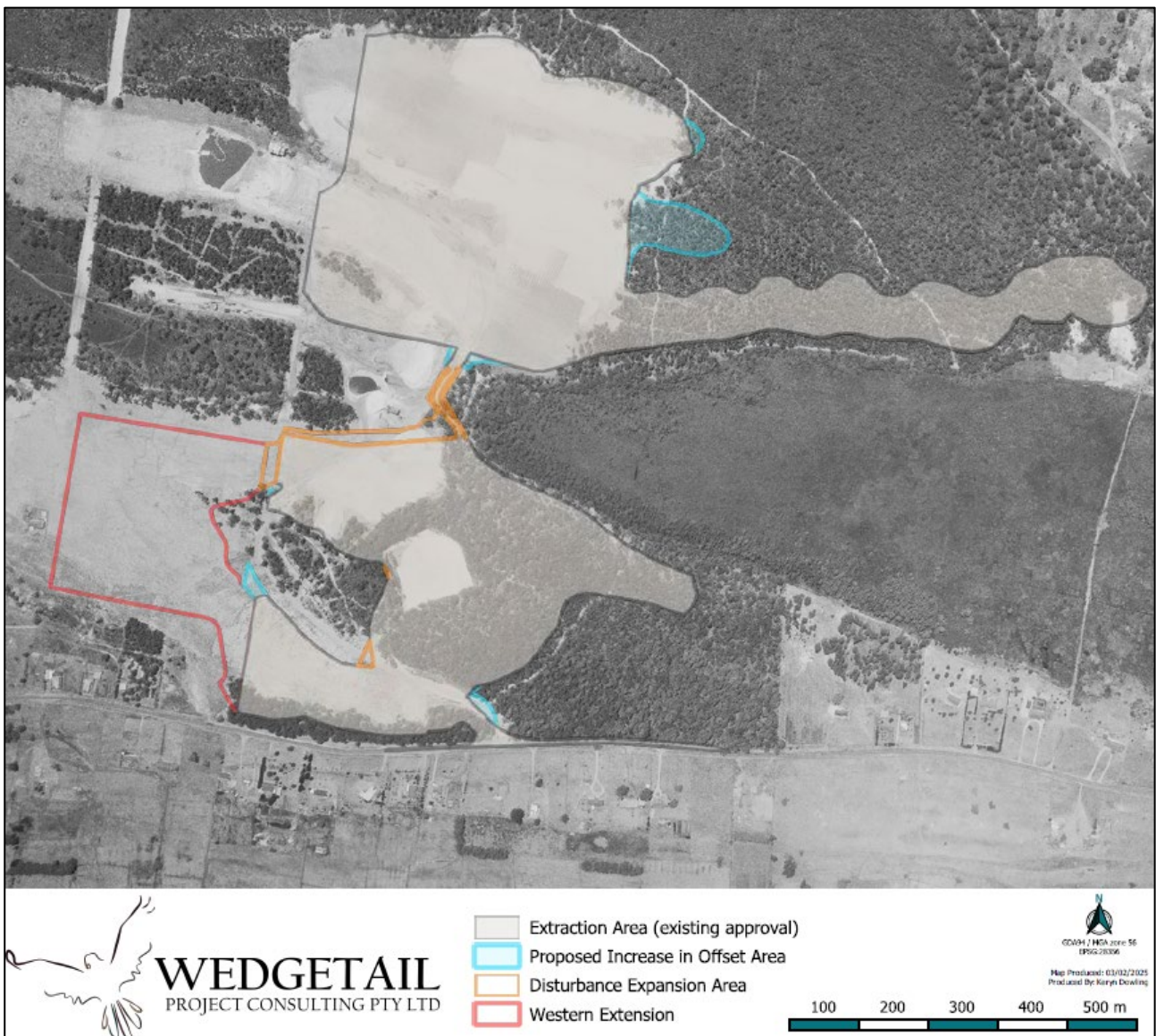


Figure 6-3: Modification 4 relative to impacts from RZM Mineral Sand Mining as shown on 1979 aerial (from Figure 5 of the BDAR)

No threatened ecological communities (TECs) were identified within the Development Site.

Two threatened flora species, *Eucalyptus parramattensis subsp. decadens* (Earp's Gum) and *Diuris arenaria* (Sand Doubletail) were identified.

Three threatened fauna species were recorded during targeted surveys, including:

- *Petaurus norfolcensis* (Squirrel Glider)
- *Crinia tinnula* (Wallum Froglet)
- *Uperoleia mahonyi* (Mahony's Toadlet)

One threatened fauna species, Koala (*Phascolarctos cinereus*) was assumed present given available habitat.

6.3.2 Assessment of Impacts

The proposed development was designed to avoid and minimise biodiversity impacts, preserving areas of greater biodiversity value, where possible. However, the natural occurrence of the sand resource limits feasible alternatives and as such vegetation clearance is unavoidable.

Western Extension

Within the Western Extension the following impacts to biodiversity were determined:

- Clearing of 4.62 ha of Coastal Sand Apple-Blackbutt Forest (PCT3544) comprising:
 - o 2.35 ha of Koala habitat.
 - o 3.93 ha of Squirrel glider habitat.
 - o 0.13 ha of Wallum Froglet habitat.
 - o 4.62 ha of Mahony's Toadlet habitat.
- Removal of 29 individuals of *Eucalyptus parramattensis subsp. Decadens*, planted as part of the RZM mineral sand mining activity.
- Removal of one individual of Sand Doubletail Orchid, from an estimated 4.62 ha of suitable habitat.
- Removal of one hollow bearing tree, containing one small hollow.

Amendment to Resource Boundaries

With the proposed extension of resource areas by approximately 0.702ha, and relinquishment of approximately 1.16ha (i.e. 0.46 ha less impact than approved). This will overall lead to a net gain, positive impact, not just spatially but in the biodiversity values. These biodiversity values are described below:

- Within the areas proposed for amendment (extension to resource boundaries less than 20m from existing edge) the following impacts were determined:
 - o Clearing of 0.67 ha of Coastal Sand Apple-Blackbutt Forest (PCT3544), comprising:
 - 0.47 in moderate condition, 0.03 ha in shrubby condition and 0.17 ha in managed condition.
 - 0.47 ha of koala habitat.
 - 0.67 ha of Sand Doubletail Orchid habitat.

- One *Eucalyptus parramattensis subsp. decadens* individual occurs within this area, planted in the 1980s, located at the edge of the disturbance area, and while practically it will be avoided, it has been conservatively noted as impacted given its proximity to potential impact.
 - Removal of one hollow bearing tree with one with a large hollow at the base of a tree.
- Within the areas proposed to be relinquished from the existing approved impact areas the following biodiversity values will be retained (noting these areas were approved for impact):
 - A total of 1.17 ha of Coastal Sand Apple-Blackbutt Forest (PCT 3544) in moderate-good condition is being added into the offset area. The majority of this area is comprised of remnant vegetation that was not historically cleared, and has all strata layers intact - canopy, midstory and ground layers.
 - Threatened flora species, including nine (9) *Eucalyptus camfieldii* individuals.
 - These areas also contain mature trees and hollow-bearing trees that provide suitable habitat for threatened fauna species that have previously been found on-site or/are predicted to use the site.
 - Koala habitat (1.13 ha) considered supplementary koala habitat and its buffers as well as preferred koala habitat.
 - Approximately 15 Hollow-bearing trees and dead stags that provide suitable habitat (6 small, 6 medium and 7 large hollows) for Squirrel Glider, Eastern Bentwing-bat, Eastern Freetail-Bat and Little Bentwing.
 - All of this vegetation provides suitable habitat for Rufous Fantail and foraging habitat for Greyheaded Flying Fox.
 - A small amount of this area (0.23 ha) occurs within habitat buffer areas for Wallum Froglet (*Crinia tinnula*), and all of these areas (1.17 ha) provide suitable habitat for Mahony's Toadlet (*Uperolia mahonii*).

Potential direct and indirect impacts

The following direct and indirect impacts may occur as a result of Modification 4.

- Impacts to surface water runoff from sediment or contamination if inadequate controls are implemented.
- Transfer of weed and pathogens.
- Noise, vibration and air pollution to adjacent sensitive habitats.
- Accidental incursions during clearing.
- Increased weed invasion due to edge effects.
- Short term connectivity will be reduced during quarrying activity, but will be reestablished post quarrying.

Diuris arenaria (Sand Doubletail)

One individual plant, the *Diuris arenaria* (Sand Doubletail), was recorded within the proposed disturbance footprint during targeted flora surveys and will be impacted by the development. The species is identified as a Serious and Irreversible Impact (SAIL) entity according to the 'Guidance to assist a decision-maker to determine a serious and irreversible impact' (DPIE 2019). The survival of the species is threatened due to its small population size, along with disturbance, habitat loss, weeds, fire and land management practices. As

a result, additional surveys were undertaken across the Project Area, however no other individuals were located.

In addition, a total of 5.28 ha of suitable habitat (4.62 ha in Western Extension, 0.67 ha in approved resource boundary changes) for the *Diuris arenaria* species will be impacted by the proposed development. However, the surrounding area also provides suitable habitat including within the on-site offset area, which covers approximately 131.47 ha, and includes 39 ha of suitable habitat for the species. The on-site offset area is also connected to the Tilligerry State Conservation Area. Furthermore, the area will be rehabilitated post extraction, and topsoil utilised immediately within the areas currently in process of being rehabilitated.

6.3.3 Biodiversity Offsets

As outlined above, for the change in existing approved resource boundaries, the net increase in area proposed for onsite offset and the higher biodiversity value of the areas relinquished from quarrying disturbance (compared to areas to be impacted) is considered to provide adequate biodiversity offsets for these changes. For the Western Extension it is proposed retire biodiversity credits to ensure a net benefit to biodiversity outcomes.

Ecosystem and species credits requirements to offset the residual impacts of the Western Extension are summarised below:

- 81 Ecosystem Credits for impacts to PCT 3544.
- 58 species credits for *Eucalyptus parramattensis subsp. Decadens*.
- 85 species credits for *Phascolarctos cinereus* (Koala).
- 101 species credits for *Petaurus norfolcensis* (Squirrel Glider).
- 4 species credits *Crinia tinnula* (Wallum Froglet).
- 107 species credits for *Uperoleia mahonyi* (Mahony's toadlet).
- 161 species credits for *Diuris arenaria* (Sand Doubletail).

It is proposed to retire these credits in accordance with the BOS, through either purchasing the required credits from the market, or payment in the Biodiversity Conservation Fund (BCF).

6.3.4 Management and Mitigation

Management of impacts to biodiversity will be addressed through the amendment of the existing Biodiversity and Rehabilitation Management Plan.

In addition management consistent with existing process, and securing of offsets under the BOS, Newcastle Sand will plant a further 30 individuals of *Eucalyptus parramattensis subsp. Decadens* within the rehabilitation area of quarry.

6.4 Traffic & Access

6.4.1 Access

The proposal does not require any upgrades to the existing road network or quarry intersection. The quarry construction works entailed the upgrade of the site access to a left in/left out arrangement including

deceleration and acceleration lanes to allow for trucks to safely enter and leave the site, with concurrence obtained from TfNSW for the quarry intersection design. The quarry entrance road is sealed from the intersection to the site office. The proposed modification does not require any additional road upgrades.

6.4.2 Impact Assessment

As part of the EIS for the original proposal, a traffic impact assessment was carried out in 2015 by Intersect Traffic. The assessment was based on an annual average of 63 trucks or 126 truck movements per day, associated with a maximum annual extraction rate of 600,000 tonnes proposed at the time. The peak hourly traffic volume assessed was 6 trucks (12 truck movements) between 5AM-7AM and 10 trucks between 7AM-6PM. No adverse traffic-related impacts were predicted as a result of these traffic levels.

The traffic generated by the quarry was determined to represent less than 3% of existing traffic volumes on the local road network. A SIDRA intersection modelling program was used to model the impacts of the quarry traffic on the main intersection to be impacted by the quarry, the Cabbage Tree Road/Nelson Bay Road roundabout. Modelling identified that the roundabout would continue to operate satisfactorily with the additional traffic generated by the quarry. The average delay, levels of service and queue lengths for all movements remained well within the thresholds determined by the RMS.

On advice of the NSW RMS following initial assessment of the quarry, WSS commissioned GHD to undertake further Paramics microsimulation modelling of the road network from the sand quarry access to the Cabbage Tree Road/Nelson Bay Road roundabout to assess the impacts of the quarry on the local road network.

The microsimulation model covered the morning peak period (6:30AM-8:30 AM) and the evening peak period (2:30PM-4:30 PM). The model assessed 10 heavy vehicles entering the site in both peak periods, 10 vehicles exiting the site in the AM peak hour and 16 vehicles in the PM peak hour.

The modelling results indicated that:

- The quarry access would be operating at a level of service A with average delays of 2 seconds and 4 seconds for vehicles entering and exiting the site, respectively.
- The Nelson Bay Road / Cabbage Tree Road roundabout would continue to operate with a level of service A with only a minor increase, from existing levels in delay of between 1- and 2-seconds average per vehicle. Similarly the effect on queuing was considered minimal.
- With the development of the quarry the average speeds on the study area network in the AM and PM peak reduced from 71.2km/h and 72.6km/h to 68.7km/h and 72.2km/h respectively, corresponding to an overall speed reduction of only 2% in the road network.

The report concluded that provision of a new access onto Cabbage Tree Road would not adversely impact on the road network in the vicinity of the quarry as both the quarry access and the Nelson Bay Road / Cabbage Tree Road roundabout would operate at Level of Service A with the development in place.

This result was deemed consistent with the relatively low vehicle volumes in the study area, the low traffic volumes generated by the quarry and the generally good level of performance experienced at the Nelson Bay Road / Cabbage Tree Road roundabout.

6.4.3 Potential Impacts

The consent specifies maximum hourly averages of 6 laden trucks per hour between 6AM-7AM and 10 laden trucks per hour between 7AM-7PM from Monday to Friday, and 10 laden trucks per hour between 7AM to 4PM on Saturdays. These peak hourly traffic volumes were assessed in micro-simulation modelling with no adverse impacts identified.

The extraction of an additional 500,000 tonnes from extension areas would result in additional truck movements over the quarry life, however there is no change proposed to the hourly or daily traffic numbers.

The quarry has been operational since 2019 and during this time the key issues raised in complaints regarding quarry traffic have related to early arrivals, uncovered loads or sand on the acceleration lane. While these issues need on-going management, the proposed modification would not change the nature of existing complaints.

The proposal does not require any amendment to the hourly or daily haulage, the impacts associated with the proposed modification are therefore negligible.

6.5 Aboriginal Heritage

Archaeological Risk Assessment Services (ARAS) were engaged to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) to assess the proposed quarry extension areas for Mod 4. A summary of the assessment is provided below and the report is provided in full in **Appendix 5**.

6.5.1 Impact Assessment

The assessment identified two newly recorded Aboriginal archaeological sites (isolated artefacts) AHIMS ID 38-4-2338 and 38-4-2337, within the proposed Western Extension area. The sites consisted of two Aboriginal objects (stone artefacts) and were concentrated along the north western portion of the Western Extension area on slightly elevated sandy rises. Both open sites; Site 1 AHIMS 38-4-2338 and Site 2 38-4-2337 were assessed to be of low archaeological significance.

The assessment revealed that Sites 38-4-2337 and 38-4-2338 have been subject to high to moderate levels of disturbance associated with historic land-use between the 1960s and late 1970s including geomorphic processes (i.e. bioturbation), land clearing for grazing purposes and rutile sand mining impacts. Much of MOD₄ extension areas were subject to intense sand mining activities involving the dredging for mineral sands (i.e. clearing of vegetation, stripping of topsoils, processing of all sand down to perhaps -5 m AHD). This significant surface disturbance has meant any intact archaeological resource would have been destroyed because of these intense historic land-use activities.

6.5.2 Potential Impacts

The proposed Western Extension will impact two newly registered Aboriginal sites, AHIMS 38-4-2338 and AHIMS 38-4-2337. It is recommended that the identified Aboriginal objects, comprising open sites 38-4-2337 and 38-4-2338, are collected (subject to MOD₄ approval) and reburied within the proposed Western Keeping Place, as agreed by the project RAPs. The Western Keeping Place is located to the east of MOD 4 extension areas on Port Stephens Shire Council land that will not be impacted by future development or land-use and is planned for inclusion within a Biodiversity Stewardship Site.

6.6 Groundwater

6.6.1 Impact Assessment

The initial EIS included a detailed assessment of the potential impacts of the proposal on groundwater resources. Assessment of the proposal found that it would not result in a significant alteration of surface drainage, disturb the underlying sandy aquifer or have a significant impact on groundwater levels or groundwater quality.

As part of the consultation process, Hunter Water Corporation raised concerns about the potential impact of development in the Tomago Sandbeds Special Area on water quality due to potential contamination. To mitigate potential groundwater contamination risks, WSS initially committed to powering all processing plant electrically via a connection to the mains, with diesel generators to only be used in the case of a power outage. They also committed to the use of feed electrical conveyors rather than dump trucks to transport sand to reduce fuel consumption. As described earlier in this report, these commitments have proved impractical due to cost, efficiency and safety issues. The use of machinery within the sand beds as proposed is consistent with surrounding land use activities and has adequate controls in place to address changes in risk.

Aspects of the proposed modification that may result in potential impacts to the Tomago Sand Beds are:

- Reliance on a diesel generator as the sole power supply for the processing plant (with the bunded tank removed each day) on an ongoing basis rather than high voltage power with a diesel generator as backup.
- The increased use of an excavator in the sand beds relative to the original application.
- The overnight storage of flocculants and coagulants within a bunded storage.
- The overnight parking of tracked equipment on the bunded hardstand within the Tomago Sand Beds Special Area.

Given the relatively short duration of the quarry, and the need to have a backup system available in any case, use of a generator as proposed is considered adequate and presents negligible risk.

WSS commissioned ASCT to undertake a permeability assessment of the floor material of the proposed hardstand area (located at the wash plant) on which plant will be parked and re-fuelled with associated spill kits. An impervious surface is typically considered to be any surface with a permeability of $1 \times 10^{-9} \text{m/s}$ or lower and the assessment identified that the material has a permeability of $4 \times 10^{-9} \text{m/s}$ and is thus considered "near impervious". By way of example, if water (or a contaminant, such as diesel) was constantly sitting on a 125mm thick layer of this surface, it would take approximately 1 year to seep through this layer. Providing daily inspections of plant are maintained there is limited risk of diesel entering the sand beds in the event of leaks or spills. It should also be noted that no diesel is stored within the sand beds, as such the risk is further reduced.

Minimum Extraction Levels

Groundwater Exploration Services (GES) was engaged by WSS to provide the Minimum Extraction Levels (MEL) for the proposed Western Extension and provide recommendations on controls to mitigate potential impacts of the proposed Modification. A summary of the assessment is provided below, and the report is provided in full in **Appendix 9**.

The elevation of the quarry floor is determined by being greater than 0.7 m above the maximum predicted groundwater levels, during operation, and rehabilitated to 1.0 m above this groundwater level after extraction.

The estimated maximum groundwater levels previously presented by Watershed (2019) provided a logical and still relevant basis for estimation of potential high groundwater levels based on four decades of sub regional observation data.

The proposed Western Extension extends up to 300m to the west of the currently approved Southern Resource Area of the Project in parallel with the modelled groundwater contours as shown in **Figure 6-3**. The proposed minimum extraction level is calculated using the same methodology as the currently approved quarry area.

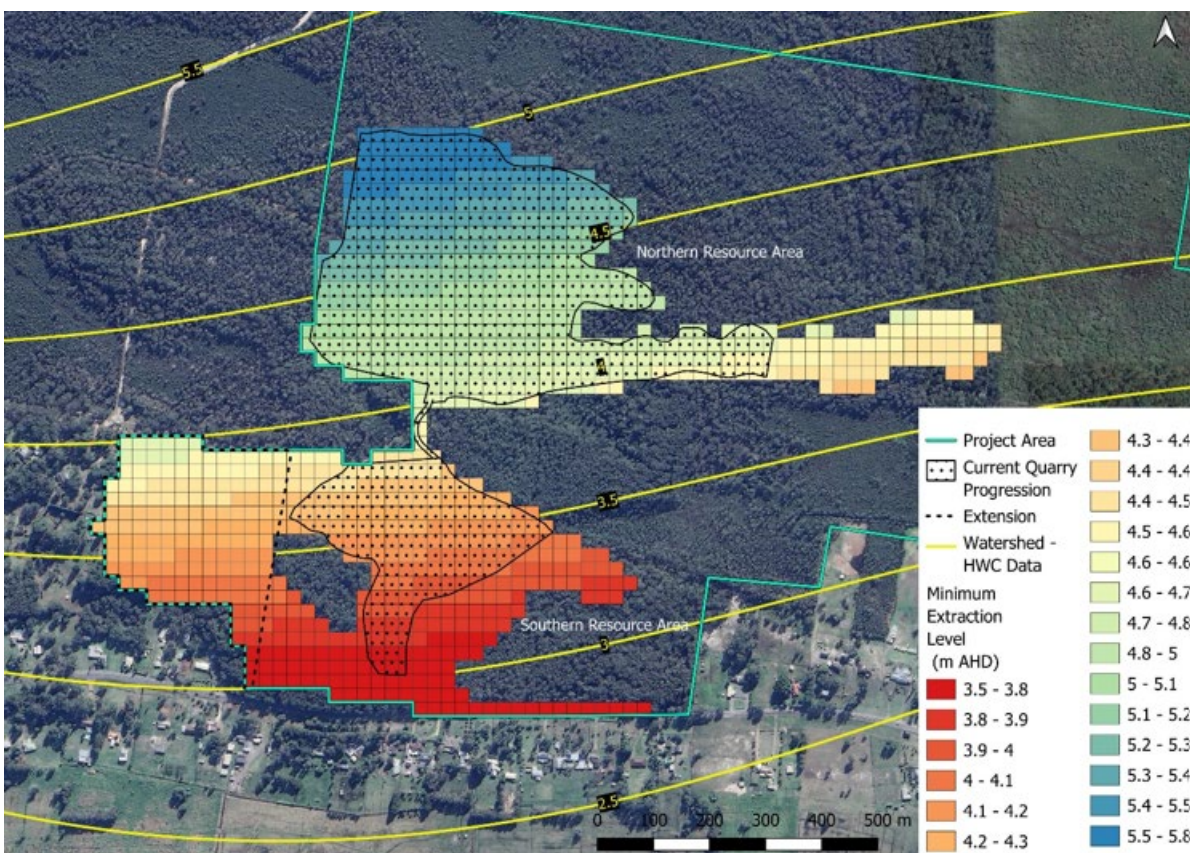


Figure 6-4: Minimum extraction level

Existing Observations / MEL Performance

The MEL was developed on a combination of modelled groundwater levels which were further adapted using additional HWC groundwater level records. This regimen has generally performed as intended with minor short-term exceedances occurring during climate / rainfall extremes.

Monitoring to date under the existing monitoring practices has shown that the highest variation from model predictions has been associated with groundwater in the northwest of the extraction area. Specifically, at the northern edge of Project area and outside limits of the Northern Resource Area (BH11). Typically, where the surface flow path is longer, i.e. higher up in the catchment area, where there is less relief from the extraction area to the surrounding lands.

This has resulted in elevated groundwater levels when surface water ponding has occurred outside the extraction area, and that ponded water has taken time to drain. This occurred in late 2022 following three years of high above average rainfall including 2020 rainfall totals were at 80th percentile, 2021 at 95th percentile and 2022 at 90th percentile of historical rainfall from Williamstown RAAF Base BoM data.

The extension area is a dune formation previously mined by RZM with considerable relief to the south, east and west of the extraction area, with the centre of the resource area at 14m AHD, with the landform elevation reducing to less than 4m AHD within 100m of the resource boundary. Within the Southern Resource Area, the MEL has performed as intended.

Monitoring Groundwater Levels

The proposed Western Extension will require monitoring to provide assurance that the MEL management plan is effectively administering the excavation levels. To provide effective monitoring to the proposed Western Extension and replacement for bores removed in the current operational environment, it is recommended that three additional groundwater monitoring bores are included: BH_A, BH_B and BH_C. Proposed locations and remaining bores are shown in **Figure 6-4**. These proposed locations may be adjusted as necessary to suit on ground conditions, but should generally reflect this configuration.

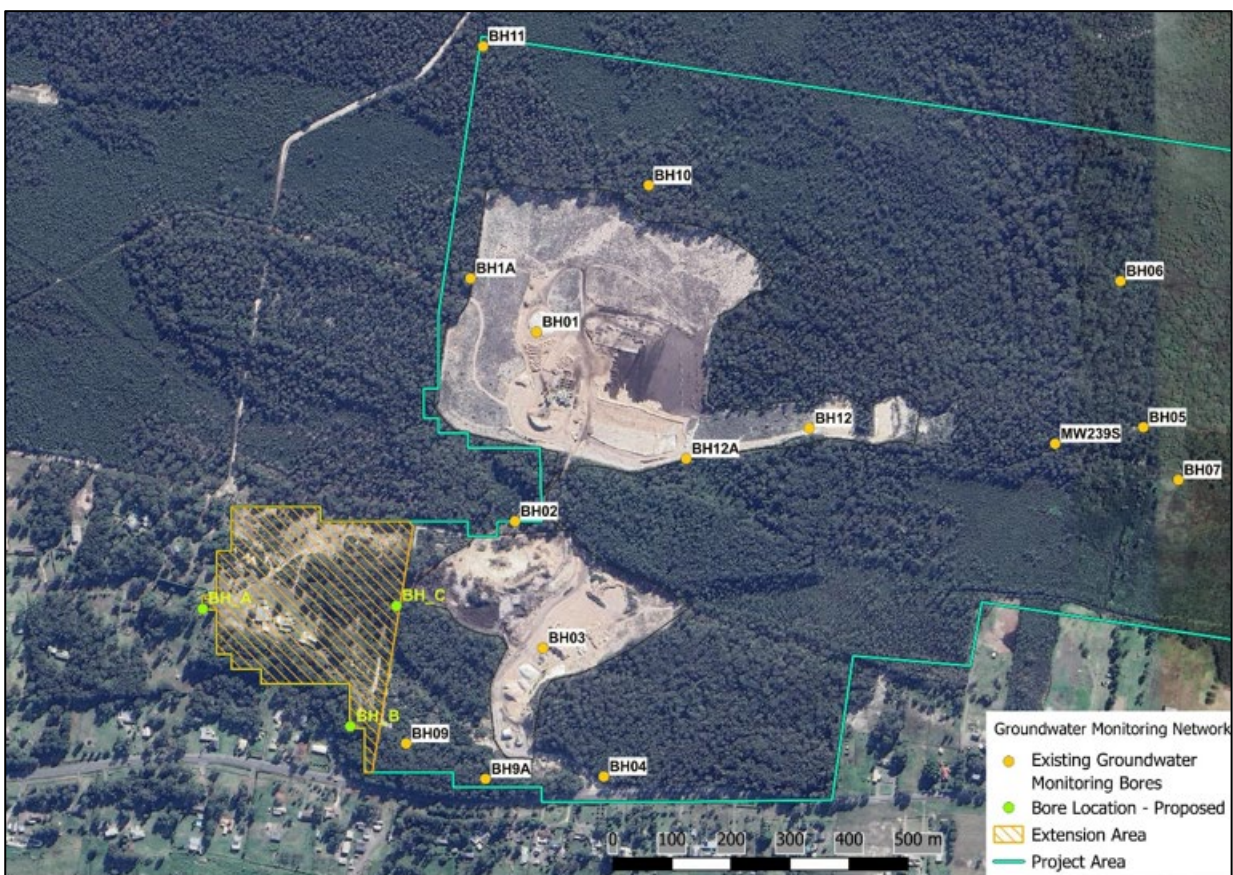


Figure 6-5: Proposed adjusted Groundwater Monitoring Network

6.6.2 Potential Impacts

A range of controls are currently applied onsite and will largely remain consistent with the existing approval to mitigate any potential adverse impacts to groundwater, in particular:

- Storage of flocculant and coagulants used in the wash plant are in bunded container on a hard stand within a closed water capture system. The purpose of these chemicals is to bind to sediments to improve water clarity. As such, there is little to no risk of offsite migration. The coagulant biodegrades over a period of approximately 28 days.
- Water management plan implemented onsite with spill control provisions.
- Decoupling of diesel tank used to power the wash plant and overnight storage of the diesel tank in the workshop compound (outside the Tomago Sand Beds area).
- Proposed to refuel tracked equipment on the near impervious hardstand with effective bunding capable of holding both the tracked equipment and the fuel truck. Noting use of alternate bunding arrangements are feasible, but either easily damaged or impractical.
- Retention of the existing excavation limits set at 0.7m above maximum predicted groundwater with final landform at 1m above maximum predicted groundwater levels.
- Haulage rates of sand remain as previously approved.
- Operational hours remain as approved.
- Processing methods remain as approved, with potable town water used in the washing process.
- All existing management plans are proposed to be updated to reflect the change in the extraction area but will remain otherwise consistent.

6.7 Visual Amenity

The proposed Western Extension will result in the removal of vegetation, relatively short term extraction activities (i.e approx. 12 months) and a long term change in the landform. Visually the proposed Western Extension, though largely screened from all surrounding lands will result in the following changes to visual amenity:

- The outlook from the dwelling on R14 will change (the dwelling is within 5m of the property boundary), consisting of extraction activities in the short term and potentially improvements in the amenity in the long term with an increased view shed as the landform will fall away from the dwelling. Once rehabilitated (grass and scattered trees) it will be generally consistent with the existing outlook, albeit decreasing in elevation.
- The outlook from dwelling R16, is unlikely to change given the pit edge is approximately 6m above the dwelling and the vegetation to be removed is largely shrubby and the 20m buffer to the boundary will remain vegetated.
- Visually from properties and travelling public along Cabbage Tree Road there is potential for a change in the viewshed associated with a reduction in the height of the vegetation meeting the skyline, however, give this occurs between 50 and 170 m from Cabbage Tree Road, the change is likely to be relatively minor. Actual extraction activities are fully screened due to the nature of the topography.
- The existing approval provides for the removal of sand and vegetation in closer proximity to Cabbage Tree Road, with a conditional restriction that ensures a minimum of 20m of vegetation remains between Cabbage Tree Road and the extraction area. Given the proposed extension is substantially further setback its impacts on visual amenity are less than already approved, and cumulatively represent a negligible change.

Given the limited extent of change in visual amenity no mitigation measures are considered necessary. Newcastle Sands agreement with R14 provides for suitable arrangements to address the relatively short term changes to visual amenity.

7. Mitigation Measures

A suite of mitigation measures is currently implemented by quarry management to avoid, minimise and mitigate any potential environmental impacts of the quarry operation. These measures have been developed and approved as part of the existing Development Consent that sets the standards for the management of the quarry activities, these include:

- The conditions of SSD-6125 (as amended).
- Environmental Protection Licence (EPL) 21264.
- The raft of environmental management plans for the site including the Air Quality Management Plan, Biodiversity and Rehabilitation Management Plan, Noise Management Plan, Traffic Management Plan and Water Management Plan.
- Statement of Commitments.

Assessment of potential environmental impacts has determined that the proposed modification will have only minor additional impacts, that are consistent with the existing quarrying activities of which can be addressed by mitigation measures currently employed by the quarry.

To ensure mitigation measures are implemented appropriately for the proposed extension areas, all management plans will be reviewed and updated as necessary to incorporate the changes as a result of this modification. An application will also be made to amend the EPL as required.

8. Justification

In their response to a pre-lodgement consultation regarding the proposed modification, the DPHI requested that the modification report should include adequate justification for each of the proposed changes to the consent. This is provided in **Section 8.1** to **Section 8.4** below.

8.1 Western Extension

The proposed Western Extension, covering an area of approximately 7.1 ha, would result in an additional 500,000 tonnes of sand being extracted from the quarry utilising existing infrastructure. The Western Extension would result in the clearing of vegetation which varies in condition relative to past mining activities and associated rehabilitation. In addition, existing infrastructure including a residential dwelling and several sheds would be removed prior to sand extraction.

The proposed Western Extension will provide economic benefits, providing more longevity for the quarry and an increased duration of employment for quarry employees and contractors. The availability of additional sand resource suitable for concrete will help meet demand throughout the Sydney and Hunter regions that will assist those industries and the associated downstream consumers (e.g. home owners and road building).

The increased sand extraction will also provide some additional royalties for the Port Stephens Council for extraction of any additional sand within its land, and an extension in lease payments associated with the extended duration of quarry processing. Additional royalties to Council provide funding for use in local infrastructure and services for the local community.

On balance therefore, the minimal environmental impacts associated with the proposed extension to the resource boundary are considered justified.

8.2 Existing resource boundary adjustment

The proposed change to the existing resource boundary would result in a net reduction in the extent of the impact area within the land holding originally assessed under SSD-6125. The original approved quarry disturbance area would be reduced by 0.46 ha to 41.84 ha, resulting in a net increase in lands available for the onsite offset area.

The boundary adjustment would involve both the expansion of some areas and relinquishment of other areas, with a net increase in area proposed for the Biodiversity Stewardship Area (approximately 131.47 ha).

The expansion of some areas would provide for a minor increase in additional sand, improvement in final landform and improved access. Relinquishment of other areas of approved sand resources (approximately 1.16 ha) would retain habitat features and fauna corridors.

On balance therefore, the negligible environmental impacts associated with the existing resource boundary adjustment are justified.

8.3 Import of Virgin Excavated Natural Material

The import of VENM sand into the site will be carried out within the current limits imposed by the existing consent, including approved operational hours, haulage movements and production rates. Strict adherence

to VENM classification procedures and implementation of additional environmental controls over and above EPA requirements (such as avoidance of topsoil to minimise the risk of weed import) will minimise potential adverse environmental impacts, such that no additional environmental impacts are predicted relative to those already approved.

To ensure that material imported to the site is correctly certified and to minimise any risks associated with the import of materials, WSS will implement the controls as identified in **Section 4.7 4.7.1**.

The diversion of fill from waste facilities to the Newcastle Sand quarry for processing to a sand product suitable for the supply of concrete production is a positive contribution to the development's compliance with objective 1.3(b) of the EP& A Act "To facilitate ecologically sustainable development (ESD) by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment". These benefits extend beyond Newcastle Sand, with the re-use, rather than disposal, of clean fill resulting in improved environmental and sustainability outcomes for the local construction industry.

Processing of VENM sand will also assist in meeting an unprecedented demand for sand resources in the construction sector, both at the local and the regional level. While quantities of imported VENM sand are expected to be relatively low (6,000 tpa), the additional material will help to meet the needs of concrete manufacturers in local and regional markets, helping satisfy the substantial market demand for concrete sand. The additional processed sand will also provide economic benefits to the applicant, quarry clients, associated downstream consumers and Port Stephens Council (similar to those discussed in **Section 8.1 1.1**).

On consideration of the negligible adverse impacts of this proposed modification relative to the economic and environmental sustainability benefits associated with the transformation of products destined as waste, this modification is considered to be justified.

8.4 Amendment to Biodiversity Offset Strategy

Consultation with local and state-level authorities has been carried out to inform the proposed amendment to the biodiversity offset strategy for the development.

The Cabbage Tree Road Sand Quarry was originally assessed as a Major Project under Part 3A of the *Threatened Species Conservation Act 1995* (TSC Act) and was approved on 9 May 2018. Due to changes in the Biodiversity Legislation, assessment process and offsetting mechanisms, wording in Condition 34 of the consent is no longer fully applicable to the development.

A description of the proposed amendments to the offset strategy is detailed within **Section 4.40**.

The removal of Eastern Osprey as a species credit offset requirement in the consent is considered justified on the following grounds:

- Initial surveys carried out on-site in 2011 (Ecological Constraints Assessment, RPS 2011) identified a roosting Eastern Osprey individual with no occupied nest observed onsite. No additional evidence of the species was detected during subsequent surveys in 2015.
- Since the quarry was approved in 2018, the Biodiversity Assessment Methodology (BAM) has changed the way in which habitat for the Eastern Osprey is assessed. Under the BAM, the presence

of a confirmed nest tree is required to generate credits for this species. It is thus proposed to remove the Eastern Osprey credit obligation for this species on the on-site offset.

- The removal of the Eastern Osprey credit obligation does not entail a change in the like-for-like offsetting of impacts on the species. During the impact assessment both the Development Site and the On-site Offset were assessed as roosting habitat and potential nesting habitat for the species. As the On-site Offset will be secured under a BSA and all credits generated within the BSA will be retired, the protection and enhancement of the On-site Offset Area will ensure the protection of the Roosting and potential nesting habitat for the species.

The proposed amendment to the biodiversity offset strategy as it is outlined in Condition 34 of the consent (described in **Section 4.40**) is a necessity, owing to legislative changes, and the proposed amendment strategy has been developed based on available evidence in consultation with relevant agencies. Given that the intent of the initial wording of Condition 34 is met by the proposed amendment, this modification is considered to be justified.

8.5 Sand Extraction and Operation Methods

Justification is provided below for each of the proposed amendments to approved sand extraction and operational methods.

8.5.1 Increased use of excavators and dump trucks

Justification for the increased use of excavators and dump trucks rather than dozers and conveyors has been given throughout this report. In summary, the use of an excavator and dump truck are determined to be the safest and most efficient alternate method for sand extraction and transport within the site due to the high variability in resource quality, efficiency improvements, noise and safety considerations.

8.5.2 Reduced processing plant locations

The proposed reduction in processing plant locations is considered justified by the increased financial investment associated with the introduction of the Wash Plant within Mod 2, as the establishment of well drained surfaces are required to maximise water recovery. Given the sand is ultimately hauled south from the site by road registered truck there is likely negligible change in the net haulage distance as the processing plant is positioned near the centre of the resource. In addition, the required resources for road construction and plant relocation are also reduced.

8.5.3 Reduced extent of sealing works

The road through to the northern resource area was committed to be sealed, however sealing this road restricts efficient movement of machinery without damaging pavement. Reducing the extent of sealing by 185m will maximise efficiency of machinery with negligible adverse impacts. With onsite speed limits of 20km/h for all vehicles, wheel generated dust rarely occurs. Further with the current limited gravel resource availability it is considered a prudent measure given this pavement will only be used for a further five years. There will be adequate sealed road before vehicles will merge with Cabbage Tree Road, and existing mechanisms provide for reduced tracking of sand onto Cabbage Tree Road and cleanup of sand should it be tracked onto the road.

8.5.4 Electricity source

During construction, it was determined that the costs of installation and feasibility of using mains power for the project were not financially viable at the time given the relatively short duration of the project. The proposal to source electricity from a diesel generator instead is consistent with the approved redundancy measures proposed in the EIS.

Table 9 below has been developed in consultation with processing plant contractors to analyse the key options available to the sand quarry operation for electrical power. Power is required for the office and workshop area for lighting and air conditioning (currently sourced from mains power), and to power the processing plant. A 400 KVA generator is currently used to supply power to the plant.

As shown, connection of the equipment to high voltage reticulated supplies will result in an approximate 3% reduction in operating costs compared to a diesel generator, however this comes at a significantly higher capital cost. Environmentally, the installation of reticulated high voltage power will result in higher impacts to clearing and potentially groundwater interference, and increase WHS risks onsite. The key environmental risk associated with the adopted option (generator adjacent to wash plant), is risks of diesel spill, of which there are adequate controls available to what would be a localised impact in the event of a significant failure. Greenhouse gas emissions between each proposal vary, with overhead reticulated power producing the least overall emissions, despite producing higher Scope 2 and Scope 3 emissions than the adopted power supply option.

Overall, the approved redundancy power supply currently in operation is considered the most reasonable, achievable and economically feasible option with limited additional or lower environmental impacts.

Table 8-1: Processing plant, power source options assessment

Option	Option Description	Pros	Cons	Estimated Capital Cost	Estimated Annual Running Cost
1	<p>ADOPTED / CURRENT OPTION</p> <p>Previously approved redundancy measure.</p> <p>Diesel generator located at the processing plant, comprising:</p> <ul style="list-style-type: none"> • 400 KVA generator. • Generator has bunded internal tank and bunded external tank that can be removed from drinking water catchment. • Fuel drawn to generator by suction, not pressure, through a double skinned 3250 psi hose. Hose failure would result in negligible spill. • Provides 400V AC, 500amp 3 phase low voltage supply through 12mtrs of 150mm2 + Earth single set of mains cable. 	<ul style="list-style-type: none"> • Lower capital cost. • Primary potential source of contamination removed daily. • Diesel deliveries already required to power other equipment. • Reduced Scope 2 and 3 emissions. 	<ul style="list-style-type: none"> • High diesel burn. • Coupling and uncoupling has low potential for spill. • Not within fenced compound, but negligible spill risk from generator alone with fuel cell decoupled. • Higher Scope 1 emissions. 	Base Case, required for backup no additional cost.	<p>Uses 15-18L per hour.</p> <p>Diesel Price average of \$1.80/L</p> <p>\$32.40/hour</p> <p>Assume 2,500hrs per year.</p> <p>\$81,000/annum</p>
2	<p>High voltage mains power from Cabbage Tree Road through to the Processing Plant in Sector 3. This option requires:</p> <ul style="list-style-type: none"> • High voltage cabling run approx. 860mtrs from the street, to the Washplant generator location (cable selection required by HV specialist). • A high / low voltage transformer and metering Kiosk to replace the generator. • One set of 70mm2 + Earth mains cables run approx. 630mtrs from the Kiosk to the Office/Workshop distribution board (ie; 4 x 	<ul style="list-style-type: none"> • No diesel consumption to supply power. • Reduced operating costs. • Reduced risks of vandalism. • Reduced Scope 1 site emissions. • Lower overall GHG emissions. 	<ul style="list-style-type: none"> • High capital cost. • WHS requirements increased. • Overhead power poles would require greater clearing easement. • Risk of impact to cabling increased whether underground or overhead. • Burial of cable adds risk of interception of groundwater. • 400 KVA Diesel generator still required for backup in event 	Estimated \$1.75 to \$2.25 million dollars in addition to existing expenditure for backup system	<p>150 kW for 2500hrs per year.</p> <p>Nominal cost of \$0.21/kwh</p> <p>\$78,750 per annum</p>

Option	Option Description	Pros	Cons	Estimated Capital Cost	Estimated Annual Running Cost
	<p>70mm² cables + 1 x 25mm² earth conductor).</p> <ul style="list-style-type: none"> Trenching and concrete capping over both of the above underground cable runs. Note; segregation will be required between high & low voltage cables, which due to water table height may require two separate trenches? Connection of the existing 150mm² Washplant mains to the Kiosk. 		<ul style="list-style-type: none"> of equipment failure or power outage. Higher Scope 2 (power usage) and Scope 3 emissions (construction and installation of plant). 		
3	<p>High voltage mains power from Cabbage Tree Road through to the Office Area then cabling to Sector 3. This option requires:</p> <ul style="list-style-type: none"> High voltage cabling run approx. 230mtrs from the street to the office/workshop area (cable selection required by HV specialist) A high / low voltage transformer and metering Kiosk in the compound area. A replacement low voltage supply from the Kiosk to the office/workshop Three sets of 400mm² + Earth mains cables in parallel run approx. 630mtrs from the Kiosk to the Washplant distribution board (ie; 12 x 400mm² cables + 2 x 120mm² earth conductors) Trenching and concrete capping over both the above cable runs. 	<ul style="list-style-type: none"> No diesel consumption to supply power. Reduced operating costs. Reduced Scope 1 site emissions. Lower overall GHG emissions. 	<ul style="list-style-type: none"> High capital cost. Overhead power poles would require greater clearing easement. High cable costs. WHS risk requirements increased. Risk of impact to cabling increased. If at surface, risk of theft of for cable. Burial of cable adds risk of interception of groundwater. 400 KVA Diesel generator still required for backup in event of equipment failure or power outage. Higher Scope 2 (power usage) and Scope 3 emissions (construction and installation of plant) 	<p>Estimated cost \$2.0 to \$2.5 million in addition to existing expenditure for backup system</p>	<p>150 kW for 2500hrs per year.</p> <p>Nominal cost of \$0.21/kwh</p> <p>\$78,750 per annum</p>

Option	Option Description	Pros	Cons	Estimated Capital Cost	Estimated Annual Running Cost
4	<p>Oversized diesel generator at the Office Area outside the Hunter Water Special Area and trailing cable or similar through to Processing Plant at Sector 3. This option requires:</p> <ul style="list-style-type: none"> • Generator of 400 or 530 kVA capacity (400kVA required to run under higher load). • Three sets of 400mm² + Earth mains cables in parallel run approx. 630mtrs from the Generator to the Washplant distribution board (ie; 12 x 400mm² cables + 2 x 120mm² earth conductors) • Trenching and concrete capping over the above cable runs. 	<ul style="list-style-type: none"> • Diesel generator not in Sand Beds. • No need to decouple fuel tank. • Generator within fenced compound. 	<ul style="list-style-type: none"> • Higher diesel burn to account for energy loss. • High cable costs. • WHS risk requirements increased. • Risk of impact to cabling increased. • If at surface, risk of theft of for cable. • Typical mine specification for surface trailing cable would require a bunded corridor clear of roads and other hazards – this is not readily feasible in current footprint. • Burial of cable adds risk of interception of groundwater. • Additional noise source closer to receptors. 	<p>Estimated at \$500,000 depending on availability of cable and cable burial depth.</p>	<p>Uses 20-25L per hour. Diesel Price average of \$1.80/L \$45/hour Assume 2,500hrs per year. \$112,500/annum</p>

8.6 Changes to Statement of Commitments

The amendments to the Statement of Commitments do not result in any appreciable change in environmental impacts as the majority are duplicated in effect by the Conditions and approved management plans.

The proposed amendments to the Statement of Commitments are considered beneficial to overall quarry management, clarifying and simplifying the controls applying to the development. This proposed amendment will also provide for easier amendments to operational practices in response to changing techniques and conditions through the management plan approval process.

8.7 Radiation Survey Condition Amendment

The amendments to the radiation survey condition (Schedule 3, Condition 46) ensures radiation surveys focus on areas previously disturbed by historical mineral sand mining, avoiding unnecessary assessments in low-risk locations. This targeted approach improves resource efficiency, reduces costs, and enhances the accuracy of identifying potential risks. Allowing surveys at the most practical stage, such as before vegetation clearing, aligns with expert recommendations and minimises environmental disturbance. The amendment maintains regulatory compliance while optimising safety and operational efficiency.

9. Conclusion

This report supports an application under Section 4.55 (2) of the EP&A Act for a modification to Development Consent SSD-6125 for the Newcastle Sand quarry at Cabbage Tree Road, granted by the NSW Independent Planning Commission in 2018.

It is sought to extend the approved resource boundary to enable access to an additional 533,000 tonnes of quality sand resources and would help to supply the existing shortfall in quarry products in local and regional markets. In addition, the modification seeks:

- Amendment to the Statement of Commitments to reduce duplication with Conditions of Consent (CoC) and enable management plans to adapt to changing conditions on the site.
- Amendment to the conditions relating to the approved BOS and associated conditions that reflect the change in the resource boundary and meet the current expectations of the Biodiversity Conservation Trust (BCT).
- Import Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing, and
- Clarification of the working method for sand extraction including:
 - Use of an excavator to recover sand resources, rather than just in clearing.
 - Increased use of a dump truck and excavator in sectors other than Sector 3, 7 and 8, in preference of only loader and conveyors.
 - Increased use of a diesel generator.
 - Change in the processing arrangement, reducing the number of locations that the processing plant is installed to two locations rather than eight locations as approved.
 - Clarification in extraction sequencing to ensure the operations can adapt to market demands.

The report provides an assessment and description of the proposed modifications. The assessment has found the impacts of the proposed changes are relatively minor with a 15.7% increase in disturbance area that can be readily offset through the Biodiversity Offsets Scheme (either through the retirement of credits or payment into the Biodiversity Conservation Fund). Other adjustments to the approved footprint reduce impacts and retain habitat features and fauna corridors.

Overall, the proposed modification does not radically alter the nature or extent of the proposed development, with no changes sought to extraction or haulage rates or operational hours. Quarrying, processing and haulage methods remain relatively the same.

The application of Section 4.55(2) is considered justified in that the development for which modifications are sought is substantially the same development for which the consent was originally granted, and the proposed modification is predicted to result in significant additional environmental impacts.

APPENDIX 1: REVISED PROJECT DESCRIPTION

The Cabbage Tree Road Sand Quarry was approved under SSD_6125 on 9 May 2018. This consent permits the construction and operation of a quarry to extract sand at an annual rate of up to 530,000 tonnes, until 2033. The quarry commenced construction in August 2019 and operations in May 2020.

Two modifications have been approved since the quarry was approved:

- Modification 1 was granted on 26 March 2020 to transport a 5,000-tonne bulk sample of sand offsite (prior to the approved commencement of quarrying operations) in order to test its suitability for the local glass-making industry. The trial was completed in late March / early April. The sand supply was deemed to be suitable for glass manufacture.
- Modification 2 was approved in March 2021 to permit the inclusion of a sand washing plant onsite.

An application for a third modification (MOD3) was submitted in December 2022. The MOD3 application was assessed, and a response to submissions from the public and agencies was lodged with the Department on April 10, 2024. The proposal involved the following amendments:

- Amendment of the boundary of the approved resource area resulting in a net increase in disturbance area of approximately 17%.
- Amendment to the conditions relating to the approved BOS and associated conditions that reflect the change in the resource boundary and meet the current expectations of the Biodiversity Conservation Trust (BCT).
- Import of Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing.
- Clarification of the working method for sand extraction including:
 - Using excavators to extract material and load it onto dump trucks, with dump trucks serving as the primary method for transferring sand to the processing plant, replacing the previous use of front-end loaders and conveyors.
 - Increased use of a diesel generator to generate electrical power for sand processing equipment in lieu of high voltage power installation throughout the site.
 - Change in the processing arrangement, reducing the number of locations that the processing plant is installed to two locations rather eight locations as approved.
 - Clarify extraction sequencing to ensure the operations can adapt to market demands.
 - Include alternatives for timber management onsite, such as the use of a mulcher or similar, to improve utilisation of timber in the rehabilitation.
- Amendment to the Statement of Commitments to reduce duplication with Conditions of Consent (CoC) and enable management plans to adapt to changing conditions on the site.

In November 2024, MOD3 was formally withdrawn due to BCS concerns with regards to the eastern resource boundary extensions.

The proposed MOD4 includes the following amendments, essentially exchanging the Eastern Extensions proposed under Mod 3 with the Western Extension. An overview of the key elements is provided below:

1. An additional 7.1 ha extraction area on adjacent land to the west in Lot 9 DP239608 (Western Extension).
2. A net reduction in the extent of the impact area within the land holding originally assessed under SSD-6125. This involves both the expansion of some areas and relinquishment of other areas, with a net increase in area proposed for the Biodiversity Stewardship Area. The areas of expansion are less than 20m beyond the edge of the existing approved impact areas. Refer to the disturbance expansion areas (D1-D6) and proposed increased offset areas (OF1-OF7).
3. Amendment to Condition 34 and Appendix 6 in SSD-6125 relating to the Biodiversity Offset Strategy that reflects the change in boundary of the proposed onsite Stewardship Site and requirement to retire additional credits to offset the impacts of the Western Extension.
4. Amendment to the Statement of Commitments to reduce duplication with Conditions of Consent (CoC) and enable management plans to adapt to changing conditions on the site.
5. Permit the import of up to 6,000 tonnes per annum of Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing.
6. Clarify methodologies used for sand extraction and rehabilitation, including:
 - a. Using excavators to extract material and load it onto dump trucks, with dump trucks serving as the primary method for transferring sand to the processing plant, replacing the previous use of front-end loaders and conveyors.
 - b. Increased use of a diesel generator to generate electrical power for sand processing equipment in lieu of high voltage power installation throughout the site.
 - c. Change in the processing arrangement, reducing the number of locations that the processing plant is installed to two locations rather eight locations as approved.
 - d. Clarify extraction sequencing to ensure the operations can adapt to market demands.

At the approved maximum annual extraction rate, the proposed modification would result in an additional year of quarry operations. It is noted that the quarry is permitted to operate for up to 15 years from May 2018, however, existing approved resources are expected to be exhausted within the next 3-5 years. The proposed modification thus does not require an extension of the approved quarry lifespan.

If MOD 4 is approved, the Cabbage Tree Sand Quarry would involve the following key elements:

- Extraction and processing of an estimated additional 533,000 tonnes per annum over a Project life of up to 2033, including:
 - o Vegetation clearance.
 - o Extraction of sand resources primarily using excavators.
 - o Loading of excavated materials onto dump trucks for transport to the processing plant.
 - o Processing the sand using a wash plant located in Sector 3, powered by a diesel generator.
 - o Loading of product trucks and management of sand using a front-end loader.
 - o Import of up to 6,000 tonnes Virgin Excavated Natural Material (VENM) sand with provenance from construction sites within local sand beds for on-site processing.

- Sale and transport of sand products from the site.
- Infrastructure including:
 - Intersection on Cabbage Tree Road consisting of left-turn-in deceleration lane and left-turn-out acceleration lane.
 - A sealed access road to an office and workshop compound.
 - An office and workshop compound comprising offices, toilets (with waste pump out), workshop, weighbridge, fully bunded refuelling area, and staff/visitor car park.
 - The compound area will be connected to the water mains networks and will be powered by mains electricity.
 - A processing plant with associated hard stand and water containment infrastructure, this area is connected to mains water and power supplied by diesel generator.
- Progressive rehabilitation of the extraction area where:
 - Land owned by Council is returned to a native ecosystem consistent with the existing community, with the access road, intersection and office and workshop area remaining with a suitable asset protection zone.
 - Land associated with Western Extension will be returned to open grassland with scattered trees.
- The provision of a comprehensive Biodiversity Offset Strategy comprising the following core elements:
 - An onsite Biodiversity Stewardship Site within lands owned by Port Stephens Council and retirement of biodiversity credits for impacts associated with the original impact area as amended by minor changes in the boundary proposed by Mod4.
 - Purchase of biodiversity credits under the Biodiversity Offsets Scheme for all impacts associated with the Western Extension proposed under Mod4.

APPENDIX 2: STATUTORY COMPLIANCE TABLE

Table 9-1: Environmental Planning & Assessment Act 1979

Clause	Provision	Proposed	Complies
Section 1.3	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.	The proposed modification provides for the extraction of additional natural resources with minimal additional environmental impacts. The site is currently operated in accordance with environmental management plans which detail the measures required to avoid, minimise and ameliorate impacts, ensuring the proper management of natural and other resources. The modification will not change site environmental management. The quarry employs 10 personnel and provides direct and indirect economic benefits to local and regional communities.	Yes
	To facilitate ecologically sustainable development (ESD) by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	The quarry's compliance with ESD principles was demonstrated in the EIS. The proposed modification does not compromise the quarry's alignment with these principles.	Yes
	To promote the orderly and economic use and development of land.	The existing quarry and the Lot proposed for the quarry extension are all zoned RU2 – Rural Landscape, where extractive industries are permitted with consent. The site was positioned with regard to distance to sensitive receptors and access to key infrastructure. The modification will mostly retain the benefits from the original site selection, with a reduction in buffers from sensitive receptors to the west.	Yes

Clause	Provision	Proposed	Complies
	To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	<p>The proposed modification will result in an increase in biodiversity impacts through additional clearing associated with the Western Extension. The Western Extension would result in the clearing of vegetation which varies in condition relative to past mining activities and associated rehabilitation.</p> <p>The proposed change to the existing resource boundary would result in a net reduction in the extent of the impact area and biodiversity impacts within the land holding originally assessed under SSD-6125.</p> <p>Additional biodiversity offsets will be retired to ensure a net benefit to biodiversity outcomes.</p>	Yes
Section 4.15	The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	The likely impacts of the development including the environmental impacts on the natural and built environments, and social and economic impacts on the locality are assessed within Section 6 of the Modification Report.	Yes
	The suitability of the site for the development	The suitability of the site for use as a quarry was assessed in the EIS for the original proposal. The proposed modification extends into an adjoining lot to the west within the same land zone. Assessments conducted as part of the proposed modification have demonstrated that the western extension is suitable for development, with potential impacts on the environment and sensitive receptors assessed to ensure compliance with relevant standards. The overall site's suitability is well established, as it contains a lawfully operating quarry.	Yes
	Any submissions made.	Submissions will be considered following the exhibition of the application.	Yes

Clause	Provision	Proposed	Complies
	The public interest	Minor adverse social, economic or environmental impacts will be mitigated via the existing mitigation measures implemented onsite and the proposed mitigation measures in this application. The modification will help address the shortfall in quarried sand resources in the region. The benefits outweigh any adverse impacts, and the proposal is considered to be in the public interest.	Yes
Section 4.4 ¹	Integrated Development	Refer Table 9-4 .	Yes
Section 4.55 (2)	The modified development is substantially the same as the original approved development. Notifications required. Submissions made.	Addressed in Section 5.2 of this report.	Yes

Table 9-2: Port Stephens Local Environmental Plan 2013

Clause	Provision	Proposed	Complies
Land Use Zoning – RU2	Permitted with consent: Extractive Industries	The proposed modifications do not have any effect on the ongoing compliance of the approved development with the relevant objectives for the RU2 zone.	Yes
	Objectives of the zone: <ul style="list-style-type: none"> To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. To maintain the rural landscape character of the land. To provide for a range of compatible land uses, including extensive agriculture. To facilitate a variety of tourist and visitor-orientated land uses that complement and promote a stronger rural sector appropriate for the area. 	The proposed use is consistent with zone.	Yes
7.1	Acid Sulfate Soils	Geotechnical assessment in the EIS indicated that acid sulfate soil is unlikely to exist at elevations proposed to be extracted. No risk of disturbance.	Yes

Clause	Provision	Proposed	Complies
7.2	Earthworks	The modified resource boundary will be remediated in accordance with the rehabilitation management plan for the site.	Yes
7.8	Drinking Water catchment	Refer Section 6.6 of this report.	Yes
7.9	Wetlands	The modification does not result in additional impacts on wetlands.	Yes

Table 9-3: State Environmental Planning Policies

Legislation	Relevance	Complies
State Environmental Planning Policy (Planning Systems) 2021	Not Relevant	N/A
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Review provided in BDAR (refer Appendix 8)	Yes
State Environmental Planning Policy (Resilience and Hazards) 2021	Not Relevant	N/A
State Environmental Planning Policy (Transport and Infrastructure) 2021	Not Relevant	N/A
State Environmental Planning Policy (Industry and Employment) 2021	Not Relevant	N/A
State Environmental Planning Policy (Resources and Energy) 2021	Review provided in Section 5.3 of this report.	Yes
State Environmental Planning Policy (Primary Production) 2021	Not Relevant	N/A
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021	Not Relevant	N/A
State Environmental Planning Policy (Precincts – Central River City) 2021	Not Relevant	N/A
State Environmental Planning Policy (Precincts – Western Parkland City) 2021	Not Relevant	N/A
State Environmental Planning Policy (Precincts – Regional) 2021	Not Relevant	N/A

Table 9-4: Additional Legislation Required to be Considered (per Section 4.41 of EP&A Act)

Legislation	Comment	Complies
Fisheries Management Act 1994	Not Relevant	N/A
Coal Mine Subsidence Compensation Act 2017	Not Relevant	N/A
Mining Act 1992	Not Relevant	N/A
Petroleum (Onshore Act) 1991	Not Relevant	N/A
Protection of the Environment Operations Act 1997 (POEO Act)	The site is currently operated under EPL 21264 issued under the POEO Act. If the modification is approved, an application for a licence variation will be lodged following Project Approval.	Yes
Roads Act 1993	A Section 138 permit under the Roads Act was issued for the upgrade of the intersection onto the Cabbage Tree Road. The modification does not require any additional permits under this Act.	Yes
Pipelines Act 1967	Not Relevant	N/A

Table 9-5: Commonwealth Legislation

Legislation	Comment	Complies
<p>Environmental Protection Biodiversity Conservation Act 1999 (EPBC Act)</p>	<p>The development extent as approved under EPBC approval 2016/7852 requires consultation, given the change in extent, however the change results in reduction in approved impacts to Matters of National Environmental Significance.</p> <p>The Western Extension results in the removal of threatened species (<i>E. parramattensis decadens</i>) planted during sand mining rehabilitation and also removes a small area of koala habitat, these impacts are not considered likely to result in significant impacts to Matters of National Environmental Significance.</p>	<p>N/A</p>

APPENDIX 3: EVIDENCE OF CONSULTATION

APPENDIX 4: UPDATED STATEMENT OF COMMITMENTS

APPENDIX 5: ABORIGINAL HERITAGE IMPACT ASSESSMENT

APPENDIX 6: AIR QUALITY IMPACT ASSESSMENT

APPENDIX 7: NOISE IMPACT ASSESSMENT

APPENDIX 8: BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

APPENDIX 9: GROUNDWATER IMPACT ASSESSMENT
