

Rehabilitation Strategy

Bobs Farm Quarry

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3631 Nelson Bay Road

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1 INTRODUCTION

Integrated Environmental Management Australia (IEMA) has been engaged by Newcastle Sand to prepare a Rehabilitation Strategy for a new, standalone quarry located on Lot 254 DP 753204 located on Nelson Bay Road, Port Stephens, New South Wales (NSW). The proposed quarry will be developed and operated by Newcastle Sand.

The proposal is a State Significant Development Application and as such the Secretary's Environmental Assessment Requirements (SEARs) were issued by the NSW Department of Planning, Housing and Infrastructure on 18 December 2025 outlining assessment requirements for any Environmental Impact Statement (EIS).

1.1 Project Description

The Proponent seeks to develop the site for an extractive industry as a sand quarry. Consent is sought for annual extraction of 530,000tpa for 10 years, equating to a total life-of-quarry of approximately 4.4 million tonnes. It is anticipated the proposal will average sales of 10,000 to 12,000 tonnes per week.

The site has an area of approximately 40.9ha with the proposal seeking to use most of the subject site for extractive industry purposes with the exception of:

- A minimum 15m buffer between the site boundary and any areas of extraction.
- The existing right-of-carriage way including a 3m buffer in the north-east of the site and the area east of this right-of-carriageway.
- The existing electricity easement including a 3m buffer at the southern end of the site and the vegetated area to the south of this easement.

No dredging is proposed with only dry (surface) sand extraction being employed.

Preparation of the site and proposed sand quarry operations would broadly comprise:

- Construction of a new left-in left-out intersection.
- Establishment of processing and sales area including installation of onsite office (Atco structure), installation of screening and wash facilities, designation of stockpiling areas, associated ancillary structures, and use of the existing dwelling at the site for a manager's residence.
- Staged vegetation clearing and topsoil stripping in accordance with the approved staging plan with topsoil stored onsite to be used for future rehabilitation works.
- Dry extraction down to a maximum of 0.7m above the ground water table.
- Ongoing rehabilitation.

Day-to-day operations would require two (2) articulated haul trucks (Volvo A40G) loaded by a hydraulic excavator (Volvo EC350) to transport sand from the extraction area to the on-site processing facility being a full electric screen and wash plant. Equipment will include excavators, front-end loaders, haul trucks, conveyors and water carts. Operations will utilise modern, well-maintained equipment incorporating advanced noise attenuation and water saving measures as well as fuel efficiency technology to reduce operational impacts on the surrounding environment.

The site benefits from a Water Access Licence (WAL5960) for 40ML per annum which is proposed to be used for sand washing purposes. Approximately 85% of extracted sand will be washed requiring a total of approximately 32ML per annum which is within the current Water Access Licence.

All essential services are available, or able to be made available, at the site including electricity, water tanks for potable water, pump-out system for sewage management, stormwater drainage and suitable vehicular access.

Sales would be by haulage truck at a maximum of ten (10) loaded trucks per hour equating to a maximum of 120 loaded trucks per day but with an average of 46 loaded trucks per day. All transport trucks would travel east along Nelson Bay Road and complete a U-turn at the Port Stephens Drive roundabout. Haulage trucks will be prohibited from using Marsh Road.

The site will be accessed by way of a new left-in left-out intersection onto Nelson Bay Road. The existing access to the site at the electricity easement is proposed to be retained for light vehicle access for the quarry as well as for access to the manager's residence.

Progressive rehabilitation of exhausted areas will take place in accordance with the approved rehabilitation plan. The proposed post-quarry use of the site is to return the site to its current condition, being the same ratio of vegetated land and land used for the purpose of extensive agriculture. The proposed final land use is intended to achieve a land use outcome consistent with the existing rural landscape character, comprising a combination of native vegetation and managed grassland areas.

1.2 Project Background

The proposed sand quarry is located on Lot 254 DP 753204 within the Stockton Bight dune system. The site is currently used for mixed rural purposes, including orchard farming, and contains patches of native vegetation. Surrounding land uses include rural residential properties, Worimi National Park to the south, and Bobs Farm Public School to the northeast. Nelson Bay Road is located adjacent to the site and provides a key regional transport corridor connecting the area to Port Stephens, Newcastle and Greater Sydney.

1.3 Purpose of this Rehabilitation Strategy

This Rehabilitation Strategy has been prepared in accordance with the SEARs (SSD-99860959), which require the preparation of a rehabilitation and closure strategy having regard to the principles of the Strategic Framework for Mine Closure, including a detailed description of rehabilitation measures, rehabilitation objectives, methodology, monitoring programs, performance standards and completion criteria, justification of the final landform, nomination of final land use, integration with relevant offset strategies, and demonstration that sufficient resources are available to implement rehabilitation and support ongoing site management following closure.

To address the rehabilitation requirements of Point 15 (Rehabilitation) outlined in **Table 1**, this assessment has considered the received SEAR's regarding rehabilitation strategy through the following sections:

- Rehabilitation objectives and methodology.
- Final landform design.
- Final land use.
- Completion criteria.
- Monitoring and maintenance requirements.

Figure 1 illustrates the locality of the site and **Figure 2** illustrates the indicative site layout.

1.4 Planning Secretary's Environmental Assessment Requirements

This Rehabilitation Strategy has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Housing and Infrastructure (**Table 1**).

Table 1: Relevant Rehabilitation SEAR's

Relevant SEARs	Where addressed / Comment
<i>The proposed rehabilitation strategy for the site having regard to the key principles in the Strategic Framework for Mine Closure, including:</i>	
a detailed description of the proposed rehabilitation measures that would be undertaken throughout the development and during quarry closure;	Section 4
rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria;	Section 4 Section 5
justification for the nominated final landform;	Section 4.2
nominated final land use, having regard to any relevant strategic land use planning or resource management plans or policies;	Section 4.1
the potential for integrating this strategy with any other rehabilitation and/or offset strategies in the region; and	The Project is not aware of any other projects with the potential for the rehabilitation strategy to integrate with any other rehabilitation and/or offset strategy.
a detailed description of the measures that would be put into place to ensure sufficient resources are available to implement the proposed rehabilitation measures, and the ongoing management of the site following the cessation of quarrying.	Section 6

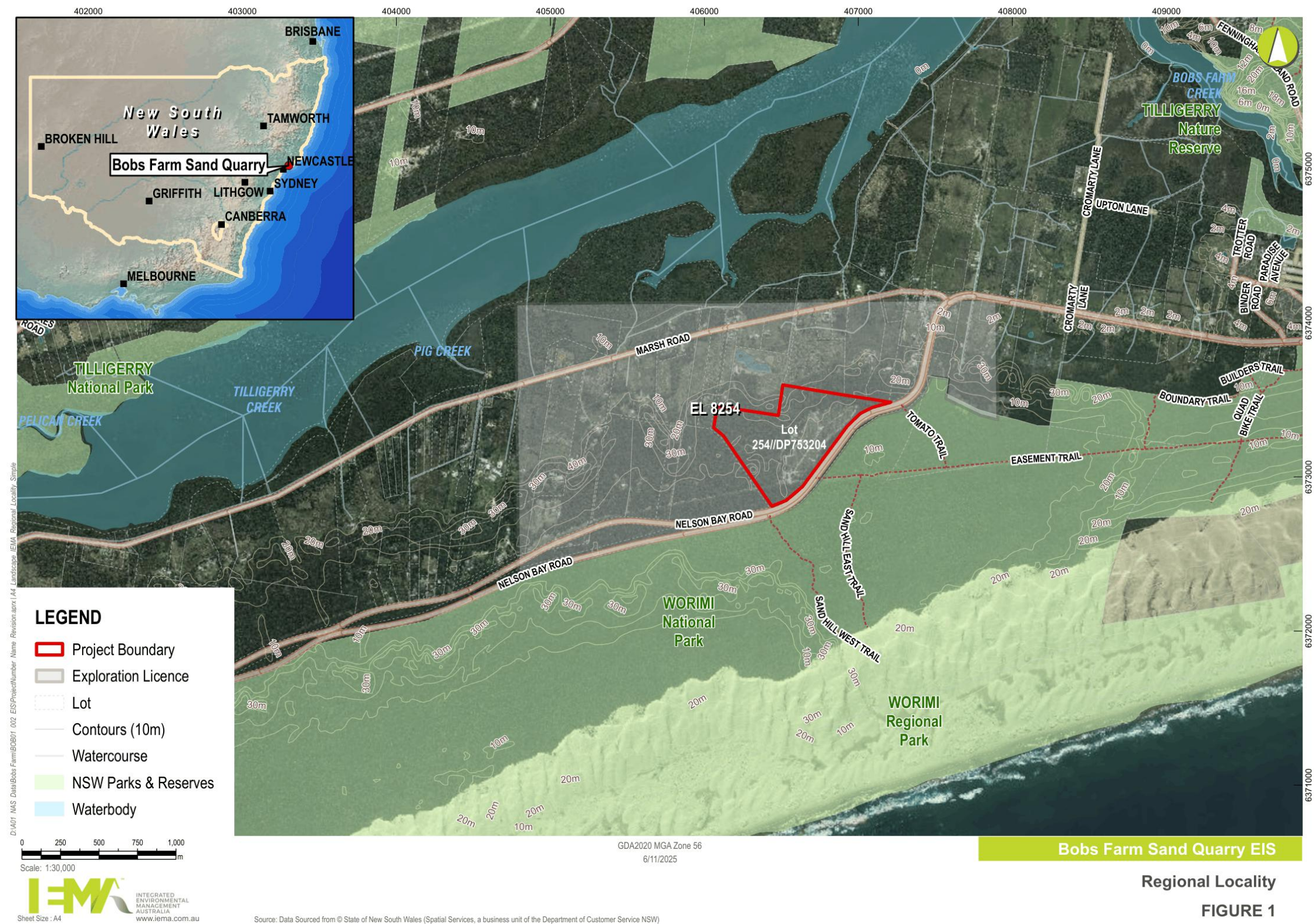


Figure 1: Regional Locality (IEMA, 2025)

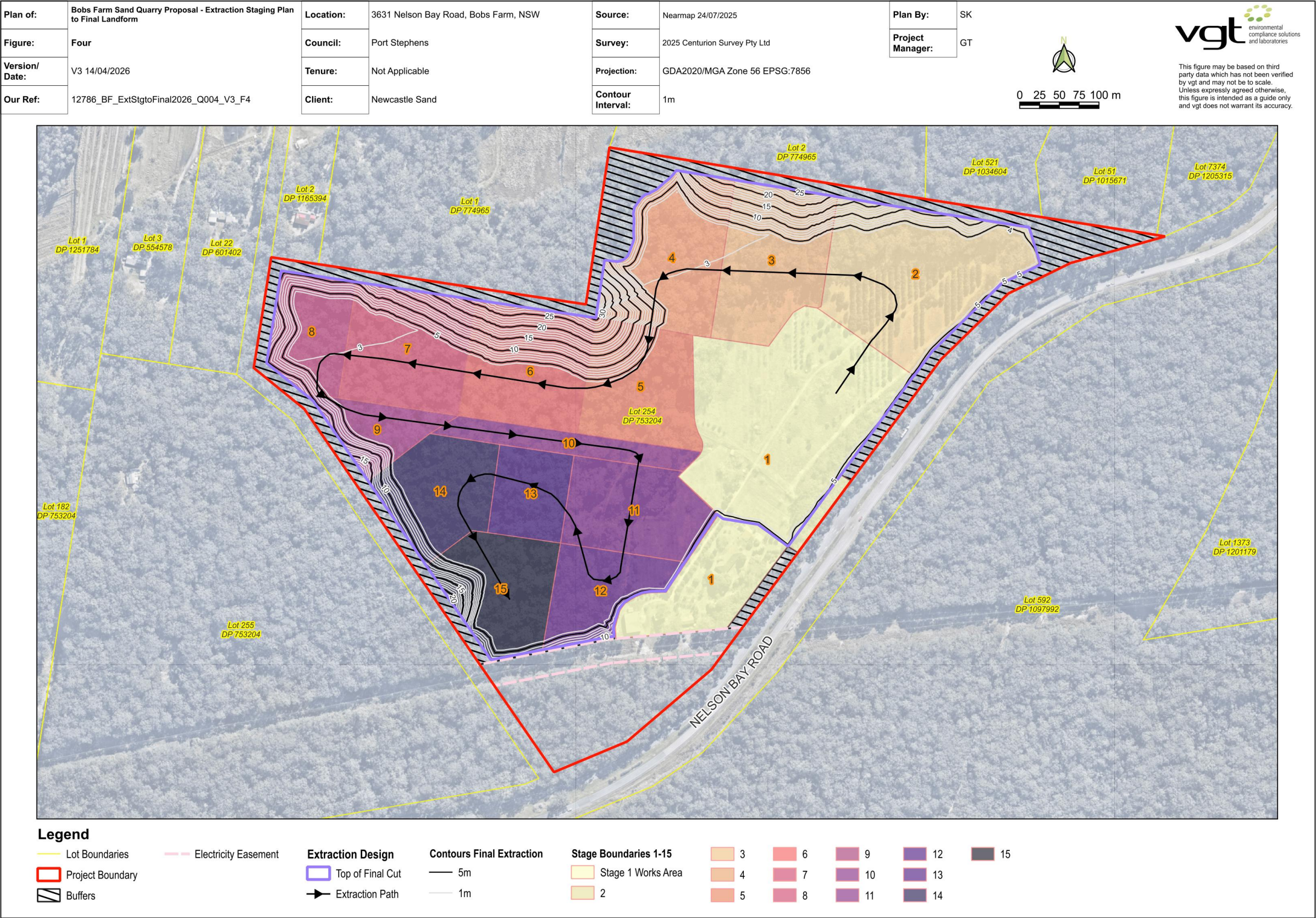


Figure 2: Indicative Site Layout (VGT, 2026)



2 LEGISLATIVE & REGULATORY FRAMEWORK

2.1 Environment Planning and Assessment Act 1979

The Environment Planning and Assessment Act 1979 (EP&A) Act along with the Environmental Planning and Assessment Regulation 2021 provide the framework for environmental impact assessment in New South Wales. The Project is classified as State Significant Development (SSD) under the provisions of Schedule 1, Section 7- Extractive Industries of State Environmental Planning Policy (Planning Systems) 2021.

This Rehabilitation Strategy forms part of the project's EIS and presents a preliminary approach to rehabilitation and closure for consideration as part of the determining authority's merit assessment. Approval under the EP&A would trigger the inclusion of conditions of consent within a Development Consent related to rehabilitation.

2.2 Protection of the Environment Operations Act

The Protection of the Environment Operations Act 1997 (POEO Act) establishes NSW's environmental regulatory framework. The POEO includes licensing requirements for certain activities as a means to minimise the localised, cumulative, and acute impacts of pollution in NSW. The objectives of the POEO Act that relate to decommissioning and rehabilitation include protecting, restoring, and enhancing the environment, to reduce risks to human health and prevent degradation of the environment.

2.3 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) provides the framework for the protection of threatened species, populations and ecological communities in NSW. Vegetation communities present within the project site include coastal forest vegetation typical of the Tilligerry Peninsula, including groundwater dependent ecosystems (GDE's). Biodiversity impacts associated with the development are assessed separately within the EIS biodiversity assessment (Wedgetail, 2026). The rehabilitation strategy outlined in **Section 4** supports the restoration of native vegetation communities across the site following quarrying activities and contributes to maintaining biodiversity values within the broader landscape.

2.4 Relevant Planning Instruments

The State Environmental Planning Policy (Resources and Energy) 2021

The SEPP (2021) provides the planning framework for the assessment and development of extractive industries in New South Wales. This policy aims to facilitate the sustainable development of mineral and extractive resources while ensuring appropriate environmental management and land use compatibility.

Hunter Regional Plan 2041

The Hunter Regional Plan 2041 is a 20-year land use plan prepared under the EP&A, which sets the strategic land use framework for continued economic growth and diversification for Cessnock, Dungog, Lake Macquarie, Maitland, MidCoast, Muswellbrook, Newcastle, Port Stephens, Singleton, and Upper Hunter.

Port Stephens Local Environmental Plan 2013

The site is also subject to the Port Stephens Local Environmental Plan (LEP), which establishes zoning and land use controls within the Port Stephens local government area. The zoning applicable to the site permits extractive industries with development consent.

2.5 Relevant Guidelines

This rehabilitation strategy has been prepared consistent with the principles in the relevant guidelines, as described in the SEAR's, to include:

- Strategic Framework for Mine Closure (Australian and New Zealand Minerals and Energy Council).
- Mine Rehabilitation Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth).
- Mine Closure and Completion Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth).

3 EXISTING ENVIRONMENT

3.1 Soils

Land and Resource Assessment (VGT, 2026).

The Project site is characterised by deep aeolian sands associated with coastal dune systems of the Tomago Coastal Plain. Soils are predominantly siliceous sands and weakly developed Podzols, comprising loose, non-cohesive, highly permeable and strongly acidic profiles with very low fertility and limited water-holding capacity. These soils are inherently fragile and highly susceptible to wind erosion where vegetation cover is removed, particularly across elevated dune landforms. Localised constraints could include seasonal waterlogging, salinity and potential acid sulphate soils at depth, however, these are generally below the proposed extraction depth and are not expected to be significantly disturbed. Overall, the soil profile reflects typical coastal sandplain conditions and presents manageable constraints for extractive industry with appropriate handling and rehabilitation measures.

The site is located within a coastal dune system where potential acid sulphate soils (PASS) is possible to occur at depth in low-lying or groundwater-influenced areas. However, as the proposed extraction is undertaken above the groundwater table, the risk of disturbing PASS and generating acid sulphate soils is considered low. With appropriate management measures to avoid excavation below the water table, no significant acid sulphate soil impacts are anticipated.

3.2 Land Capability

Land and Resource Assessment (VGT, 2026).

Land and Soil Capability (LSC) assessment indicates that the site is currently classified as Class 7 (very severe limitations), primarily due to steep dune slopes, high wind erosion risk and the low fertility, non-cohesive nature of the sandy soils. These characteristics limit the land's suitability for intensive agricultural or high impact uses. Following rehabilitation, the final landform is predicted to improve to Class 6 (severe limitations) as a result of reduced slope gradients and stabilisation of disturbed areas. Class 6 land is suitable for low impact uses such as grazing, forestry and nature conservation, provided appropriate management measures are implemented. Accordingly, while the site has inherent limitations, these do not preclude the proposed development and can be effectively managed to achieve a stable post-quarry land use consistent with the surrounding landscape.

3.3 Land Use

The study area is approximately 40.9 hectares in size and is located to the north of Nelson Bay Road within the Bobs Farm locality. Land uses within the project site consist of a combination of native forest vegetation, previously cleared agricultural land and rural residential infrastructure. The central portion of the site contains cleared land that has historically been used for farming, together with two residences and associated structures. Native vegetation occupies the majority of the site, particularly across the dune ridges and less disturbed portions of the landscape. A cleared electrical easement also occurs within the south-western portion of the site and is maintained as a low vegetation corridor.

3.4 Surface Water and Groundwater

Surface Water Assessment (VGT, 2026).

The site is located within an elevated coastal sand dune system and is characterised by a lack of defined surface water features. No permanent or ephemeral watercourses, drainage lines, or waterbodies are present within the site, and it does not receive significant overland flow from surrounding areas. Site drainage is generally diffuse, with localised runoff draining toward surrounding low-lying areas, including Tilligerry Creek to the north-west, located approximately 1 km from the site.

Surface water processes are dominated by the high permeability of the sandy soils, which promote rapid infiltration of rainfall and limit the generation of surface runoff. Rainfall is not retained on the surface and quickly infiltrates to recharge the underlying groundwater system, resulting in minimal potential for surface water ponding or flow concentration under typical conditions.

Groundwater (Tattersall Lander, 2018; Martens, 2026).

The site is underlain by a highly permeable, unconfined coastal sand aquifer within unconsolidated dune systems, characterised by moderate to high hydraulic conductivity and strong hydraulic connectivity. Groundwater flow is controlled by regional topography toward Tilligerry Creek and the coastal system, with recharge occurring predominantly via direct rainfall infiltration, consistent with the conceptual groundwater model required under the SEARs.

Groundwater levels are shallow and responsive to climatic variability and is therefore characterised by a free-draining, infiltration-dominated hydrological regime, where groundwater represents the primary control on site hydrology. Hydrogeological assessment undertaken in accordance with the SEARs, including consideration of the NSW Aquifer Interference Policy and Australian Groundwater Modelling Guidelines, demonstrates that predicted impacts to groundwater levels, quality and flow are negligible and largely confined to the disturbance footprint. No adverse impacts to groundwater dependent ecosystems, aquifers, or surrounding water users are anticipated. Extraction will occur above the groundwater table, avoiding direct aquifer interference and ensuring consistency with the minimal impact considerations of the NSW Aquifer Interference Policy for a highly productive coastal sands groundwater source.

These findings inform the rehabilitation strategy (**Section 4**), which has been developed to meet SEARs requirements by maintaining groundwater recharge processes, avoiding adverse changes to groundwater levels and flow paths, long-term stability and function of the groundwater system through appropriate landform design and soil management.

3.5 Vegetation Communities

Ecological investigations undertaken for the site identified vegetation communities associated with the coastal dune landscape. Vegetation within the project site has been classified in accordance with the Biodiversity Development Assessment Report (Wedgetail, 2026) and the current NSW Plant Community Type (PCT) classification system. The majority of the site is vegetated with native woodland on coastal sands, with lower-lying areas and previously disturbed land supporting modified vegetation types.

PCT's

The PCT outlined in the BDAR (Wedgetail, 2026) is represented by updated coastal sand woodland communities, primarily PCT 3544 (Coastal Sands Apple–Blackbutt Forest), with strong floristic relationships to PCT 3555 and PCT 3549, consistent with vegetation mapping for the Port Stephens LGA.

Managed Grassland Area

- Cleared and modified land, historically used for agricultural purposes including an olive grove.
- Grassland and pasture representing cleared areas of the native woodland community.

3.6 Flora and Fauna

Ecological investigations undertaken for the site identified a range of native flora and fauna species associated with the coastal forest habitats present within the study area. No threatened flora species were recorded within the study area during field surveys. However, several threatened orchid species such as *Diuris arenaria* and *Diuris praecox* have previously been recorded in the broader locality and could occur within suitable habitat in the region. A range of common native fauna species were also recorded during surveys including reptiles, birds and mammals typical of coastal forest environments. Overall, the site supports vegetation and habitat values

typical of the coastal sand dune forests of the Tilligerry Peninsula, while also containing areas of historical disturbance associated with agricultural land use.

4 REHABILITATION STRATEGY

4.1 Final Land Use

The final land use for the site would comprise a combination of rehabilitated native vegetation and managed grassland areas. Native vegetation areas would be restored to reflect the surrounding ecological communities and provide long-term environmental and landscape integration. Managed grassland areas would be established in previously disturbed areas to provide a stable landform and enable flexibility for permissible land uses consistent with zoning. The final landform would be safe, stable and suitable for its intended post-quarry use, requiring minimal ongoing management.

Possible uses in the RU2 Rural Landscape zone align with surrounding land uses, which include rural residential development, agricultural activities and areas of remnant native vegetation. The final land use is intended to reflect the existing balance of vegetated and non-vegetated (grassland/agricultural) areas across the site, while indicative rehabilitation domains are shown in **Figure 3**, the final extent and configuration of native vegetation and managed grassland areas may be refined during detailed design and implementation to account for operational requirements, landform outcomes and ecological considerations.

Any such refinements would not alter the overall intent to return the site to a comparable ratio of vegetated and non-vegetated land uses but may include minor adjustments to boundaries (e.g. straightening or smoothing) to achieve a practical and stable rehabilitation outcome.

4.2 Rehabilitation Methodology

Progressive rehabilitation will be undertaken throughout the life of the project to minimise the extent of disturbance at any one time and to enable the timely stabilisation and restoration of disturbed areas. This approach is consistent with best practice for extractive industry operations and aligns with the principles applied at comparable coastal sand quarry operations, including the Newcastle Sand's current quarry at Williamtown.

4.2.1 Progressive Rehabilitation and Definition of Rehabilitation Phases

Extraction and rehabilitation will be undertaken in a staged manner, with the site divided into discrete extraction areas. Rehabilitation will commence in each stage as soon as practicable following the completion of extraction activities within that area.

This staged approach will:

- Limit the total area of exposed sand at any one time.
- Reduce risks associated with wind erosion, dust generation and sediment transport.
- Allow for the progressive establishment of vegetation across the site.

At any given time, only a portion of the site will be actively disturbed, with previously quarried areas undergoing rehabilitation. The following section outlines the different rehabilitation phases.

Active Quarrying

Activities undertaken as part of active quarrying that are associated with rehabilitation include topsoil management, flora and fauna management, waste management, potential acid sulphate soils management.

Decommissioning

Decommissioning and removal of temporary infrastructure.

Landform Establishment

The process of landform shaping to be consistent with the final landform. Shaping occurs prior to topsoil application and seeding.

Growth Medium Development

Establishing and enhancing physical structure, chemical properties and biological properties of a soil stratum for plant growth. This includes placing and spreading soil and applying ameliorants.

Ecosystem and Land use Establishment

Seeding and tubestock planting if required. Incorporates management actions such as weed and feral pest control to achieve species establishment and growth to juvenile communities and habitat augmentation.

4.2.2 Active Quarrying

Topsoil and Vegetation Management During Progression

Topsoil and cleared vegetation will be managed to maximise reuse in rehabilitation, consistent with the Newcastle Sand methodology of direct transfer wherever practicable, specifically:

- Topsoil will be stripped ahead of extraction and either directly placed onto completed areas or stockpiled for later use.
- Vegetation cleared from extraction areas will be reused (e.g. brush matting) to support revegetation and stabilisation.
- Handling of soils will minimise degradation of soil structure and biological function.
- Topsoil storage will be kept to a manageable height (approximately 2m in height) to minimise compaction and anaerobic conditions.
- Stabilised where required to prevent erosion or loss.
- Managed to minimise the decline in seed viability and soil health over time (ensuring use in progressive rehabilitation).

This approach reduces reliance on stockpiled materials and supports more rapid and successful vegetation establishment. Where direct placement is not feasible, topsoil will be stockpiled for later reuse in rehabilitation (See **Section 4.2.5**).

Soil management, including testing, mixing and treatment of any unsuitable or contaminated materials (e.g. isolated asbestos fragments), will be undertaken in accordance with the Soil Management Plan (Martens, 2026) to ensure suitability for the intended post-mining land use.

The use of site-derived topsoil is prioritised to ensure compatibility with the surrounding environment and to support the re-establishment of native vegetation communities. Where topsoil availability is limited, supplementary measures (such as organic matter incorporation or soil amelioration) may be implemented, and will be in accordance with ecological advice and site suitability.

4.2.3 Decommissioning

Consistent with best practice and lessons learned from previous operations, temporary infrastructure will be progressively decommissioned once no longer required. Approved retained infrastructure intended to remain as part of the final land use will remain.

These areas will be:

- Ripped or otherwise prepared to relieve compaction.
- Covered with topsoil.

- Incorporated into the surrounding rehabilitation areas.

This ensures that infrastructure does not constrain long-term rehabilitation outcomes.

4.2.4 Landform Establishment

Following extraction within each stage, the landform will be progressively shaped to achieve the approved final design, including:

- Formation of stable batters and surfaces.
- Grading to ensure appropriate drainage and avoid ponding.
- Maintenance of the required buffer to groundwater.

Landform establishment will occur as soon as practicable following extraction to enable timely placement of topsoil and commencement of revegetation.

Following completion of extraction within each stage, the disturbed area will be reshaped to achieve the approved final landform. Final landform slopes will be designed to ensure long-term stability and to integrate with surrounding topography:

- The final landform has been designed to provide a stable, safe and non-polluting outcome that integrates with the surrounding landform and land uses within the Bobs Farm locality.
- The design reflects site-specific physical conditions, rehabilitation objectives, and long-term land stability requirements.
- The final excavation depth will remain above the regional groundwater table, maintaining a minimum separation of 1 metre from the highest predicted groundwater level at relevant areas of the site. No permanent water bodies are proposed as part of the final landform. This approach minimises the potential for groundwater interaction and ensures the landform remains free draining.
- Following completion of extraction within each stage, disturbed areas will be progressively reshaped to reflect natural dune morphology. The landform will incorporate gently sloping profiles and stable batters.

The final landform has been designed to achieve long-term geotechnical stability, minimise erosion risk, maintain separation to groundwater, and integrate with the surrounding dune system.

4.2.5 Growth Medium Development

Soil Placement

Following extraction and landform shaping, topsoil (or suitable growth medium) will be redistributed across rehabilitation areas to create a substrate capable of supporting vegetation establishment.

Soil placement will:

- Achieve adequate coverage across all rehabilitation areas.
- Avoid excessive compaction through appropriate placement techniques.
- Be consistent with final landform design to support drainage and stability.
- Provide a suitable medium for both native vegetation and grassland establishment, depending on the designated final land use.

Nutrient Management and Soil Limitations

Coastal sand substrates are typically low in nutrients and have limited water-holding capacity, which can constrain vegetation establishment. Previous rehabilitation experience at comparable sites has identified that:

- Areas consisting of “pure sand” are subject to nutrient deficiencies.
- Imported or non-endemic materials can adversely affect soil chemistry and ecological outcomes.

Accordingly, the rehabilitation strategy prioritises:

- The use of site-derived materials.
- Minimisation of foreign or imported soils.
- Targeted soil amelioration only where required to support vegetation establishment.

Soil management practices will be adapted as required through an adaptive management framework, informed by monitoring results and rehabilitation performance.

Erosion and Surface Stability

Soil management will be integrated with erosion control measures to ensure long-term landform stability. This includes:

- Rapid establishment of groundcover following topsoil placement.
- Minimisation of exposed soil surfaces.
- Implementation of measures to prevent wind erosion and sand migration, particularly in elevated or exposed areas.

Groundcover (including grasses and/or native vegetation) will be established as soon as practicable following soil placement to stabilise the surface and reduce erosion risk (See **Section 4.2.6**).

4.2.6 Ecosystem Land Use and Establishment

Progressive rehabilitation will be undertaken in accordance with the designated final land use, comprising two primary rehabilitation domains outlined in **Table 2**. Revegetation will commence as soon as practicable following topsoil placement. Methods will include:

- Direct seeding
- Planting of propagated native species
- Brush matting and/or grass seeding (native and/or non-native, subject to ecological advice)

Rapid establishment of groundcover is critical to stabilise soils and reduce erosion risks, particularly in exposed coastal sand environments. Revegetation will focus on establishing a combination of managed grassland areas and native woodland communities. Vegetation establishment will involve a combination of natural regeneration, direct seeding and planting of propagated tubestock using locally sourced species where available.

Re-establishment of native woodland will focus on coastal sand woodland communities consistent with the surrounding dune landscape. These communities are represented by PCT 3544 with affinities to PCT 3555 and PCT 3549, consistent with the vegetation communities described in the BDAR (Wedgetail, 2026) and outlined in **Table 2**. Rehabilitation will aim to re-establish vegetation structure and species composition characteristic of these communities, appropriate to site conditions and long-term land use objectives.

Table 2: Proposed Domains and Revegetation

Domain	Proposed Revegetation	Area of Revegetation on Site
Domain 1 Native Ecosystem (Woodland Area) PCT 3555 PCT 3549 PCT 3544 <i>(formerly mapped as HU860/PCT 1646)</i>	Coastal sand woodland communities consistent with PCT 3544 (Coastal Sands Apple–Blackbutt Forest), with affinities to PCT 3555 and PCT 3549, using native species representative of the surrounding ecological communities and consistent with the BDAR (Wedgetail, 2026).	- Located predominantly around the perimeter and within areas intended to integrate with surrounding vegetation communities. - Rehabilitated using native species consistent with local ecological communities. - Designed to achieve long-term ecological function and landscape integration.
Domain 2 Managed Grassland Area	Proposed mix of both native and exotic grasses	- Located within previously disturbed or central areas of the site. - Established to provide rapid groundcover and long-term stability. - Designed to support the intended post-mining land use and allow flexibility for future permissible uses. - The extent and location of each domain will be defined in the final rehabilitation plan and informed by ecological assessments.
Domain 3 Infrastructure Areas	Infrastructure Areas	No revegetation proposed for a limited area of hardstand and parking infrastructure which may be retained to support ongoing access, property management and maintenance activities associated with the post-quarry land use. Retention of these areas would also minimise unnecessary ground disturbance associated with removal and re-rehabilitation of stable infrastructure areas.

4.2.6.1 Native Ecosystem (Woodland)

- Revegetation will utilise species of local provenance and aim to re-establish a representative canopy, mid storey and groundcover, including stabilising species suitable to sandy substrate.
- Rehabilitation will prioritise groundcover establishment to reduce wind erosion risk. Direct seeding and tube stock planting will be used as appropriate.
- Weed control will be undertaken during establishment phases.

Woodland rehabilitation will be generally consistent with Domain 1, as outlined in **Section 4.2.6**. Species composition is indicative of coastal sand woodland communities described in the BDAR (Wedgetail, 2026) and may vary across rehabilitation areas. The proposed representative coastal sand woodland community is outlined in **Table 3**.

Table 3: Representative Coastal Sand Woodland Community (PCT 3555 / PCT 3549 / PCT 3544)
(formerly mapped as HU860 / PCT 1646)

PCT 3555 / PCT 3549 / PCT 3544	
Strata	Indicative Species (representative of coastal sand woodland communities)
Canopy	<i>Eucalyptus pilularis</i> (Blackbutt) <i>Angophora costata</i> (Smooth-barked Apple) <i>Banksia serrata</i> (Old Man Banksia) <i>Banksia aemula</i> <i>Leptospermum</i> spp. <i>Monotoca elliptica</i>
Shrub layer	<i>Monotoca elliptica</i> <i>Leptospermum polygalifolium</i> <i>Xanthorrhoea</i> spp. (grass trees)
Ground layer	Native grasses and herbs adapted to sandy soils Typically patchy due to low nutrients and dry conditions

4.2.6.2 Managed Grassland Area

Grassland areas are proposed within previously disturbed parts of the site where they provide a stable and appropriate post-mining land use consistent with existing land use and do not result in a reduction in ecological value relative to the pre-disturbance condition, as described in the Biodiversity Development Assessment Report (BDAR) (Wedgetail, 2026).

Managed grassland areas are located within the previously disturbed central portion of the site, historically used for agricultural purposes (including olive/orchard farming), and will be rehabilitated to provide a stable and low-maintenance landform suitable for ongoing rural land use.

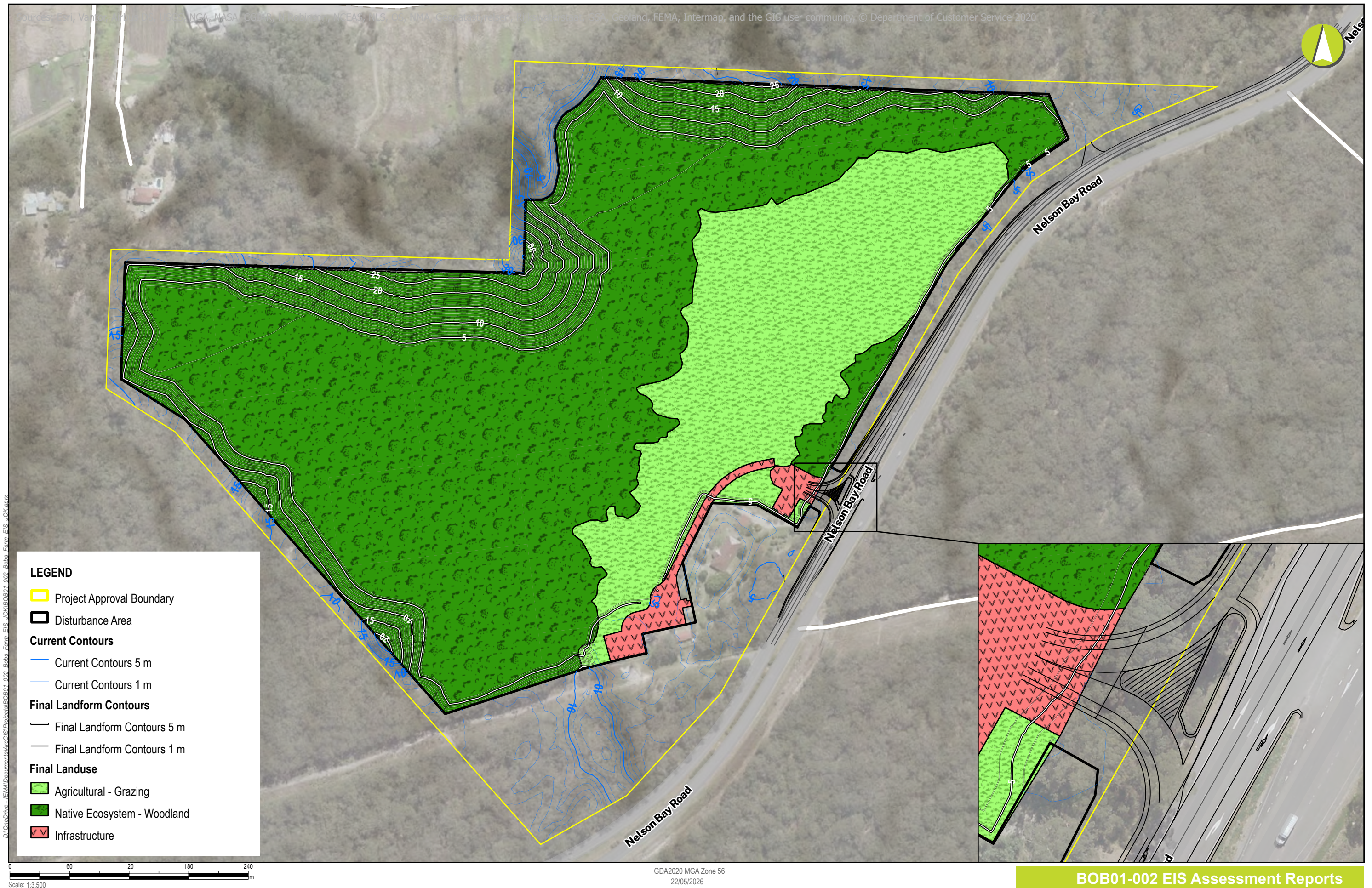
This area will:

- Be contoured to ensure stability and appropriate drainage.
- Be stabilised with a mix of native and/or non-native grass species, selected based on site conditions and intended land use.
- Be managed to maintain grassland condition where required for the intended land use.
- Be capable of supporting future rural or permissible land uses, subject to planning controls.
- Be maintained to prevent erosion and weed invasion.

Grassland areas do not require biodiversity offsetting, as they are located within previously cleared or modified land and do not contribute to biodiversity credit obligations.

4.2.6.3 Infrastructure Areas

A small hardstand area, intersection node and limited carparking area are proposed to be retained as part of the final land use. These areas are located within an already disturbed portion of the site associated with the existing on-site residence and would support ongoing property access, maintenance and future agricultural land management activities. Retention of this infrastructure would minimise unnecessary ground disturbance associated with removal and reconstruction, while remaining compatible with the intended post-quarry rural land use.



5 REHABILITATION OBJECTIVES AND COMPLETION CRITERIA

The rehabilitation objectives and completion criteria have been developed in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the project and are consistent with the principles of the Strategic Framework for Mine Closure and relevant NSW rehabilitation guidance.

Rehabilitation will be considered successful where monitoring confirms that performance indicators are met, and trends demonstrate that the site is self-sustaining and consistent with the intended final land use in **Table 4**. The completion criteria are designed to be specific, measurable and auditable, enabling effective monitoring and reporting of rehabilitation performance in accordance with SEARs requirements for environmental management and monitoring outlined in **Table 1**.

The completion criteria will be further refined in the Rehabilitation Management Plan (RMP) in consultation with relevant stakeholders.

Table 4: Rehabilitation Objectives and Preliminary Completion Criteria

Aspect	Rehabilitation Objective	Preliminary Completion Criteria
Decommissioning	Remove all temporary infrastructure and restore disturbed areas to enable rehabilitation.	- A limited area of hardstand and parking infrastructure may be retained to support ongoing access, property management and maintenance activities associated with the post-quarry land use. - No contamination or foreign materials remaining. - Landform consistent with final design and safe for intended land use. - Temporary sediment controls will be removed or reshaped.
Landform	Establish a stable, safe and free-draining final landform consistent with surrounding landscape and intended land use.	- Final landform achieves design levels and profiles. - Batters are stable with no active erosion, slumping or instability. - Landform integrates with surrounding topography. - Minimum separation to groundwater is maintained (as per design criteria). - No ponding except where intentionally designed.
Soil	Establish soil conditions that support vegetation growth.	- Topsoil evenly redistributed across rehabilitation areas. - Soil structure supports infiltration vegetation establishment and growth. - Soil condition supports sustained vegetation growth without ongoing intervention.
Erosion / Stability	Minimise erosion and ensure long-term surface stability.	- No active erosion features - Groundcover established to stabilise soils. - Rehabilitation areas remain stable under typical climatic conditions. - No significant wind erosion, scalding or sand drift.
Water Management	No groundwater interception and maintain separation post quarrying. Maintain appropriate hydrological function and protect water resources.	- No groundwater interception. - Final landform maintains required buffer to groundwater in accordance with the approved groundwater assessment. - No adverse impacts on surrounding surface water or groundwater systems.

Aspect	Rehabilitation Objective	Preliminary Completion Criteria
Native Vegetation (Revegetated Areas)	Re-establish native vegetation communities consistent with surrounding ecological communities.	- Native vegetation established with appropriate species composition and structure. - Canopy, midstorey and groundcover layers developing, where applicable. - Vegetation is establishing and self-sustaining without ongoing intensive management.
Grassland / Managed Area	Establish stable grassland areas suitable for intended post-mining land use.	- Grassland cover established and maintained across designated areas. - Grassland is established and stable for intended land use. - Groundcover sufficient to prevent erosion. - Species composition appropriate to intended land use - Areas are trafficable (if required) and stable.
Weeds and Pests	Minimise weed invasion and pest species to support ecosystem establishment.	- No significant weed infestations (i.e. weeds do not dominate vegetation community). - Pest species do not prevent vegetation establishment.
Bushfire	Ensure rehabilitation does not increase bushfire risk	- Fuel loads managed to acceptable levels - No increased bushfire risk to surrounding land - Access maintained where required - Consistent with relevant NSW Rural Fire Service guidelines.
Ongoing Public Safety	Ensure the site is safe, stable and suitable for the agreed final land use.	- No physical hazards. - Site is safe for intended access and use. - Final land use capability achieved.

6 MONITORING AND MANAGEMENT

6.1.1 Analogue Reference Sites

Analogue or reference sites established within nearby biodiversity offset area or other suitable locations. These are used for condition monitoring to measure and evaluate seasonal variation for comparison with rehabilitation vegetation health. Additionally, the sites are used to inform flora species diversity and composition, as an aid to developing final rehabilitation vegetation communities. Analogue sites may also be used in the refinement of completion criteria in conjunction with other scientific studies and data gathered.

6.1.2 Rehabilitation Monitoring Program

Post-closure monitoring will include:

- Annual inspections.
- Vegetation establishment surveys.
- Weed assessments.
- Groundwater level confirmation.
- Corrective measures such as infill planting or additional stabilisation will be implemented where required.

Monitoring will continue until performance criteria are met and the landform is demonstrated to be stable and self-sustaining and completion criteria have been met, demonstrated over a suitable period. Rehabilitation and ongoing site management will be implemented using a structured, staged approach to ensure effective outcomes and the availability of sufficient resources throughout the life of the quarry and following cessation of operations. Rehabilitation works will be undertaken progressively in accordance with extraction staging, allowing disturbed areas to be stabilised and rehabilitated as soon as practicable and minimising the extent of active disturbance at any one time. Rehabilitation works will be scheduled to coincide with optimal planting seasons to maximise vegetation establishment success and ensure efficient use of labour and materials.

6.1.3 Rehabilitation Management

Rehabilitated land will be actively managed for Bobs Farm Sand Quarry to achieve the approved final land use. The program will be implemented with the aim of providing rehabilitation that is sustainable for the long term. The program will include, as required, measures such as:

- Weeds and feral animal control.
- Erosion and drainage control works.
- Environmental monitoring and management of surface water, groundwater, ecology and land capability in line with other approved environmental management plans required by the development.
- Re-seeding/planting of rehabilitation areas that may have failed (e.g. Lack of germination, high plant mortality rate, etc) or require the establishment of later phase successional species.
- Repair of fence lines, access tracks and other general related land management activities.

7 REFERENCES LIST

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