

Vegetation Management and Restoration Plan

for the

Maroota Central Civil Quarry

Prepared by:



RWCorkery&co

February 2025



ACKNOWLEDGEMENT

R.W. Corkery & Co. acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located.

We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.





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Contents

	Page
1. INTRODUCTION.....	5
1.1 BACKGROUND.....	5
1.2 SITE PLANS.....	5
2. SITE ASSESSMENT	11
2.1 METHODOLOGY	11
2.1.1 Desktop Assessment	11
2.1.2 Field Surveys	11
2.2 NATURAL RESOURCE INFORMATION.....	12
2.2.1 Description of Vegetation Communities and Habitats	12
2.2.2 Vegetation Conditions	17
2.2.3 Watercourses and Riparian Zones	17
2.2.4 Soils and Geology	17
2.2.5 Management Zones	18
3. MANAGEMENT ISSUES.....	25
4. RESTORATION METHODS	28
4.1 PRELIMINARY ACTIVITIES	28
4.2 WEED CONTROL	28
4.3 CORRIDORS	29
4.4 REVEGETATION WORKS	29
4.5 ASSET PROTECTION ZONES	29
4.6 BUFFER ZONES.....	30
4.7 SOIL STABILISATION AND MANAGEMENT	30
4.8 STREAM AND WATERCOURSE MANAGEMENT	31
4.9 STORMWATER AND RUNOFF MANAGEMENT	31
4.10 MAINTENANCE ACTIVITIES	31
4.11 MONITORING AND REVIEW PROCESS	32
4.12 SCHEDULE OF WORKS	32
5. REHABILITATION PLAN	35
5.1 INTRODUCTION.....	35
5.2 FUTURE LAND USE.....	35
5.3 FINAL LANDFORM	35
5.4 REHABILITATION IMPLEMENTATION	35
5.4.1 Introduction	35
5.4.2 Operations.....	37
5.4.3 Decommissioning.....	37
5.4.4 Landform Establishment	38
5.4.5 Growth Medium Development	39
5.4.6 Ecosystem and Land Use Establishment	40
5.4.7 Ecosystem and Land Use Development.....	40

Contents

	Page
5.5 EROSION CONTROL	41
5.6 WEED MANAGEMENT	41
5.7 FINAL DRAINAGE	42
5.8 RESPONSIBILITIES	42
6. REFERENCES	43

FIGURES

Figure 1	Locality Plan	6
Figure 2	Quarry Site Layout	7
Figure 3	Land Uses	8
Figure 4	Land Zoning	9
Figure 5	Quarry Site Topography and Drainage	10
Figure 6	Quarry Site Vegetation Mapping	13
Figure 7	Threatened Species	16
Figure 8	Regional Geology	19
Figure 9	Land and Soil Capability	20
Figure 10	Vegetation Management Zones	24
Figure 11	Indicative Final Landform	36

TABLES

Table 1	Listed Fauna Recorded or Likely to be Present	14
Table 2	Vegetation Integrity Assessment	17
Table 3	Resilience Assessment	21
Table 4	Management Issues and Actions	26
Table 5	Indicative Schedule of Works	33

1. Introduction

1.1 Background

This Vegetation Management and Restoration Plan (“the Plan”) has been prepared by R. W. Corkery & Co Pty Limited (RWC) on behalf of Central Civil (NSW) Pty Ltd (“the Applicant”), to accompany a development application submitted to Hornsby Shire Council (“Council”) for the proposed development and operation of the Maroota Central Civil Quarry (“the Quarry”). The “Quarry Site” is located within Lots 1 and 2 DP609224 (owned by the Applicant), as well as an unnamed Crown road reserve, at 4773 Old Northern Road, Maroota (see **Figure 1**).

The Plan has been developed in accordance with the *Guidelines for the preparation of Vegetation Management and Restoration Plans 2008* (“the Guideline”) and Section 2.5.9 of the *Hornsby Development Control Plan*.

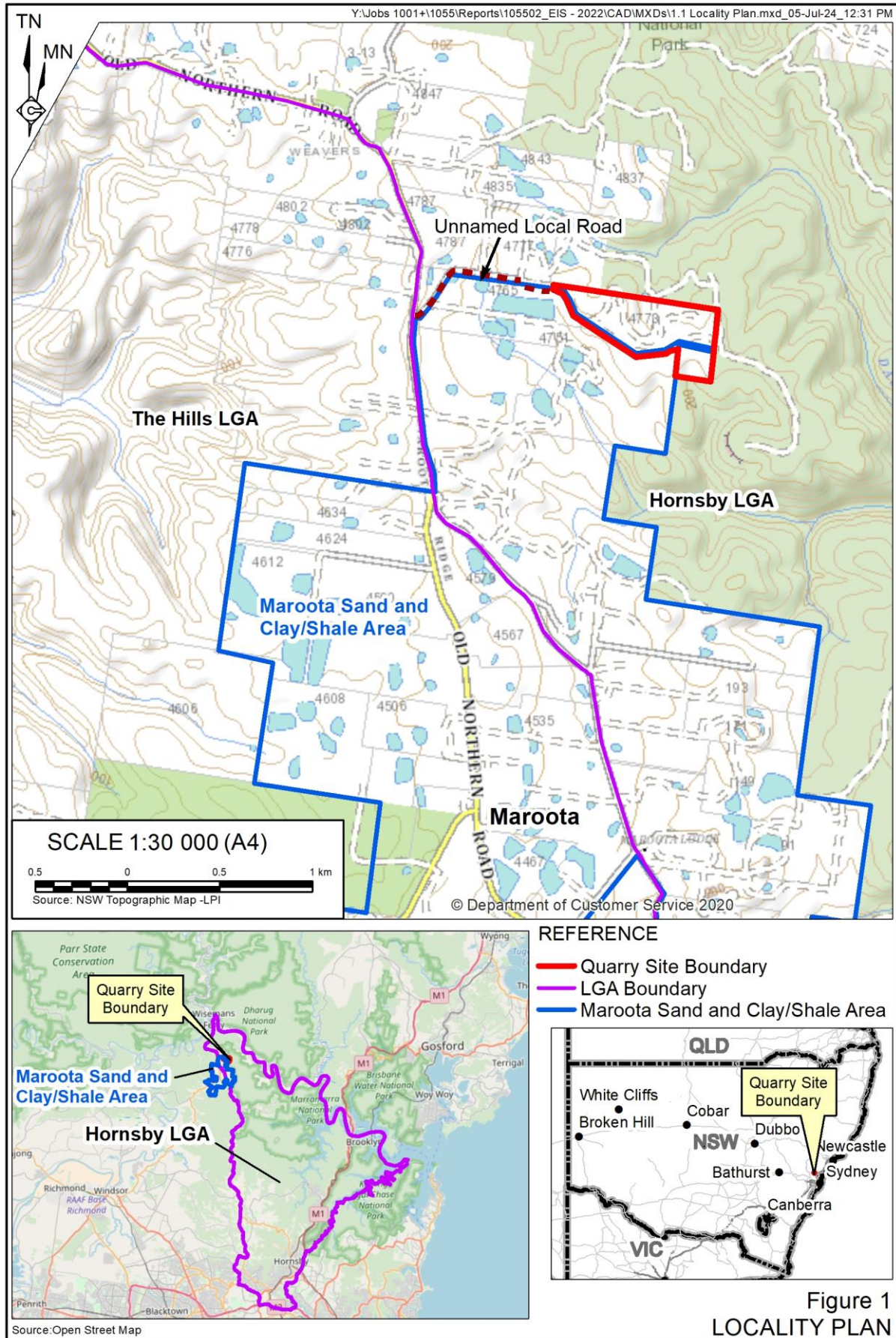
The Applicant is seeking approval for the development and operation of the Quarry (“the Proposal”) which would include the following.

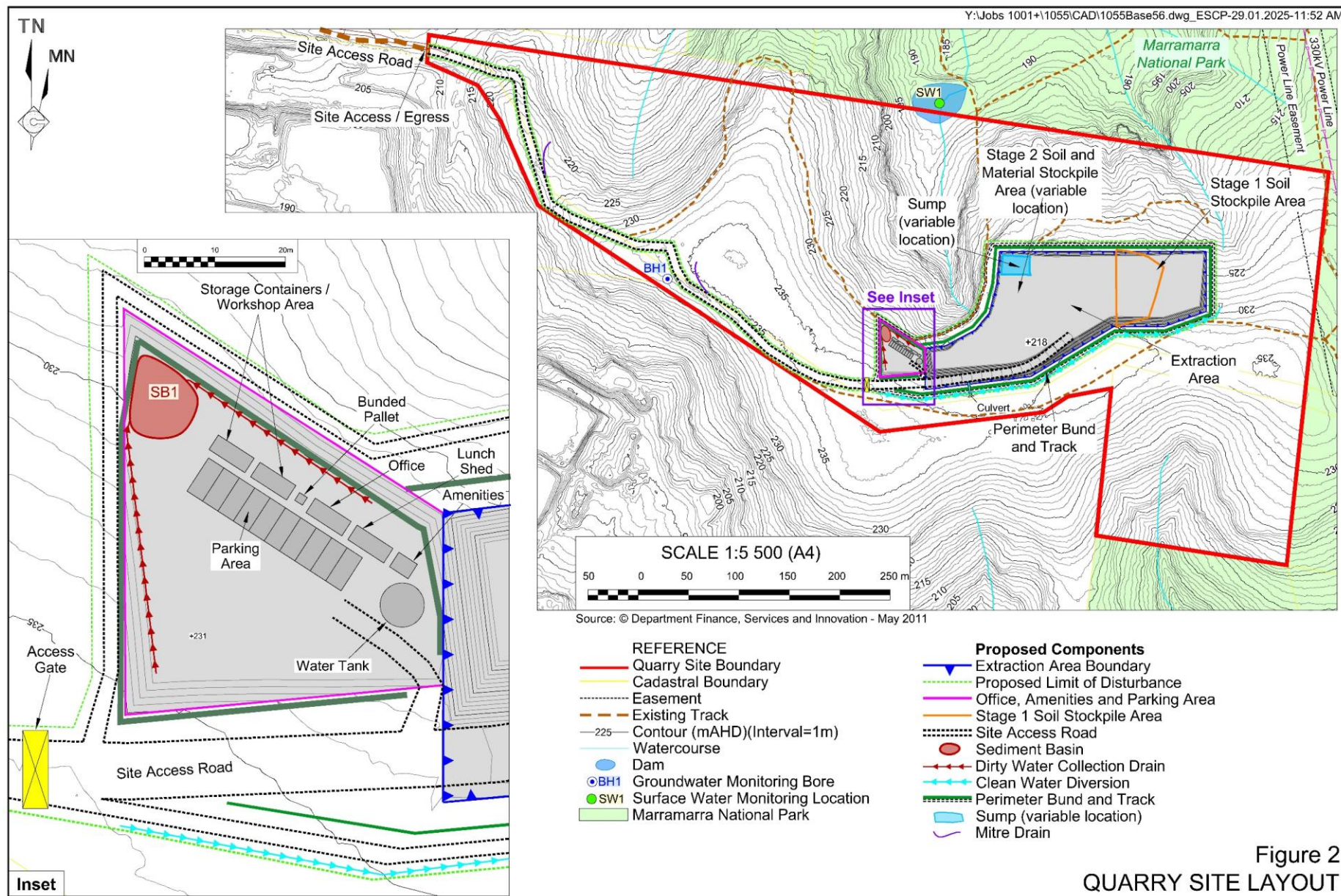
- Extraction, processing and despatch of up to 30,000 tonnes per annum (tpa) of sandstone logs, flagging stone and friable sandstone.
- Crushing and screening of friable sandstone using a mobile processing plant for use in on-site road and track maintenance.
- Importation of up to 30,000tpa of virgin excavated natural material (VENM) for use in landscaping and progressive rehabilitation at the Quarry.
- Product transportation and material importation involving a maximum of 10 laden heavy vehicle movements per day, with an average of 4 laden heavy vehicle movements per day.
- Progressive and final rehabilitation of the Quarry to develop a final landform suitable for nature conservation.
- Ongoing operations for a period of 30 years from the commencement of operations under the development consent.

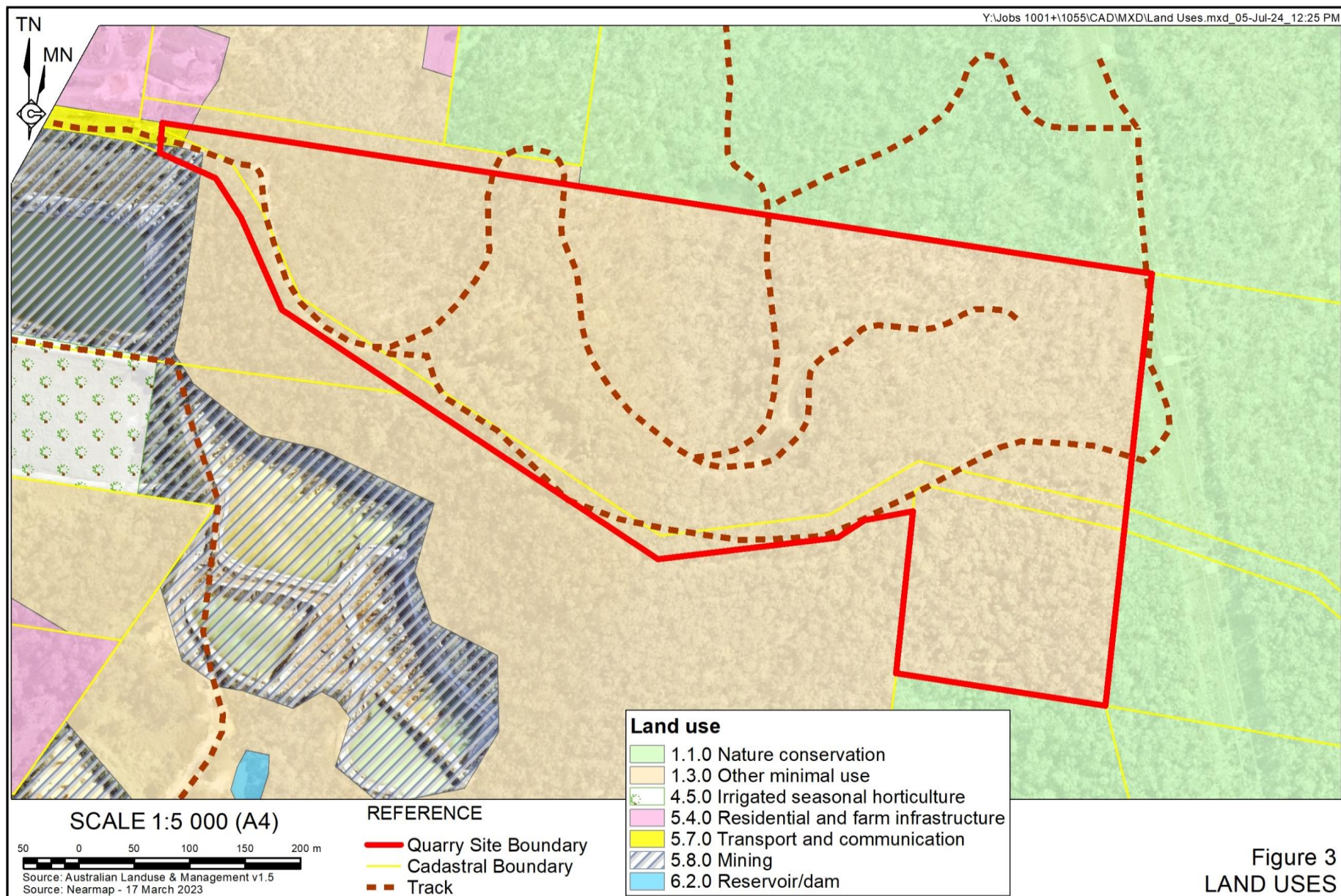
1.2 Site Plans

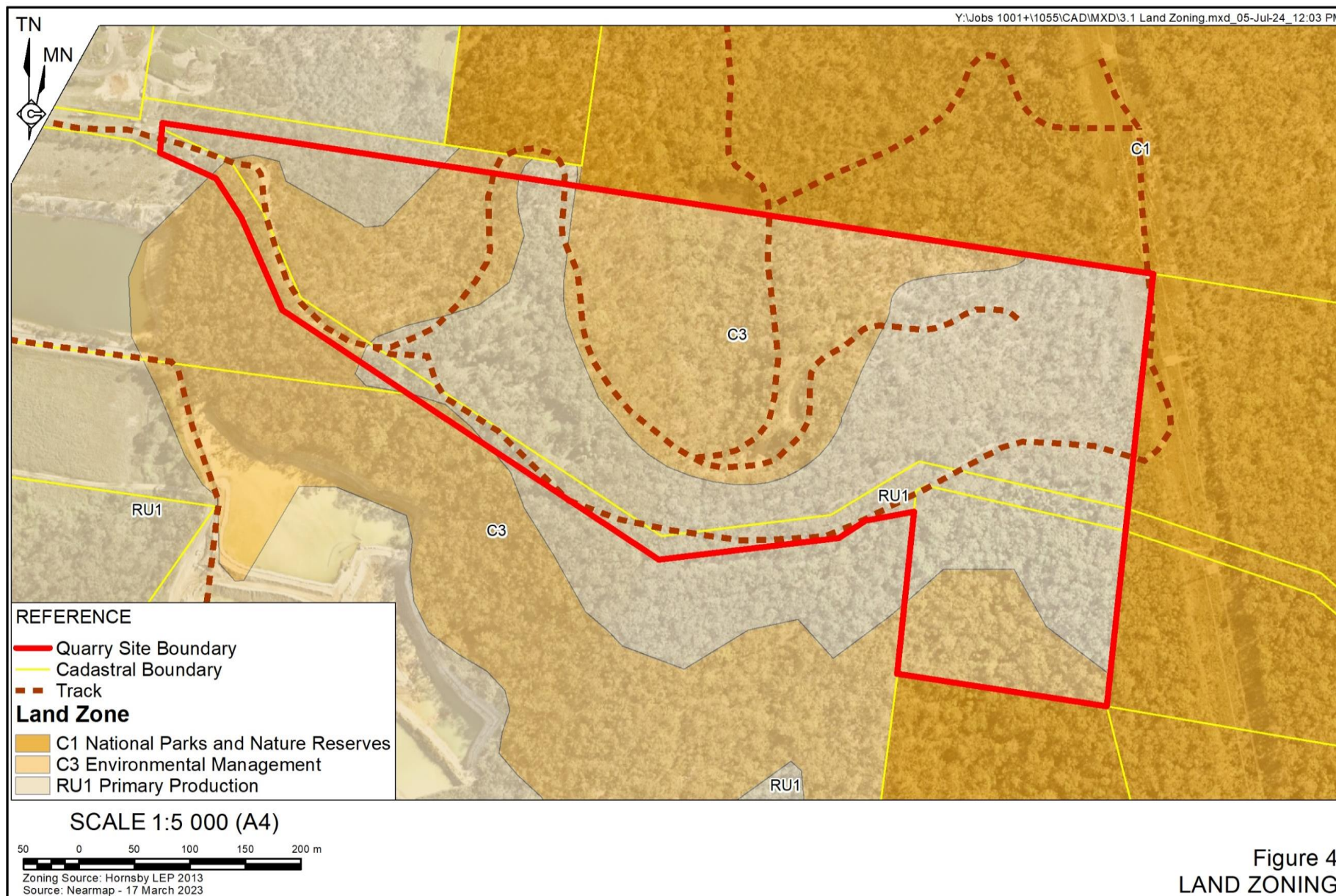
The following figures provide context for the Quarry Site of which this Plan applies to.

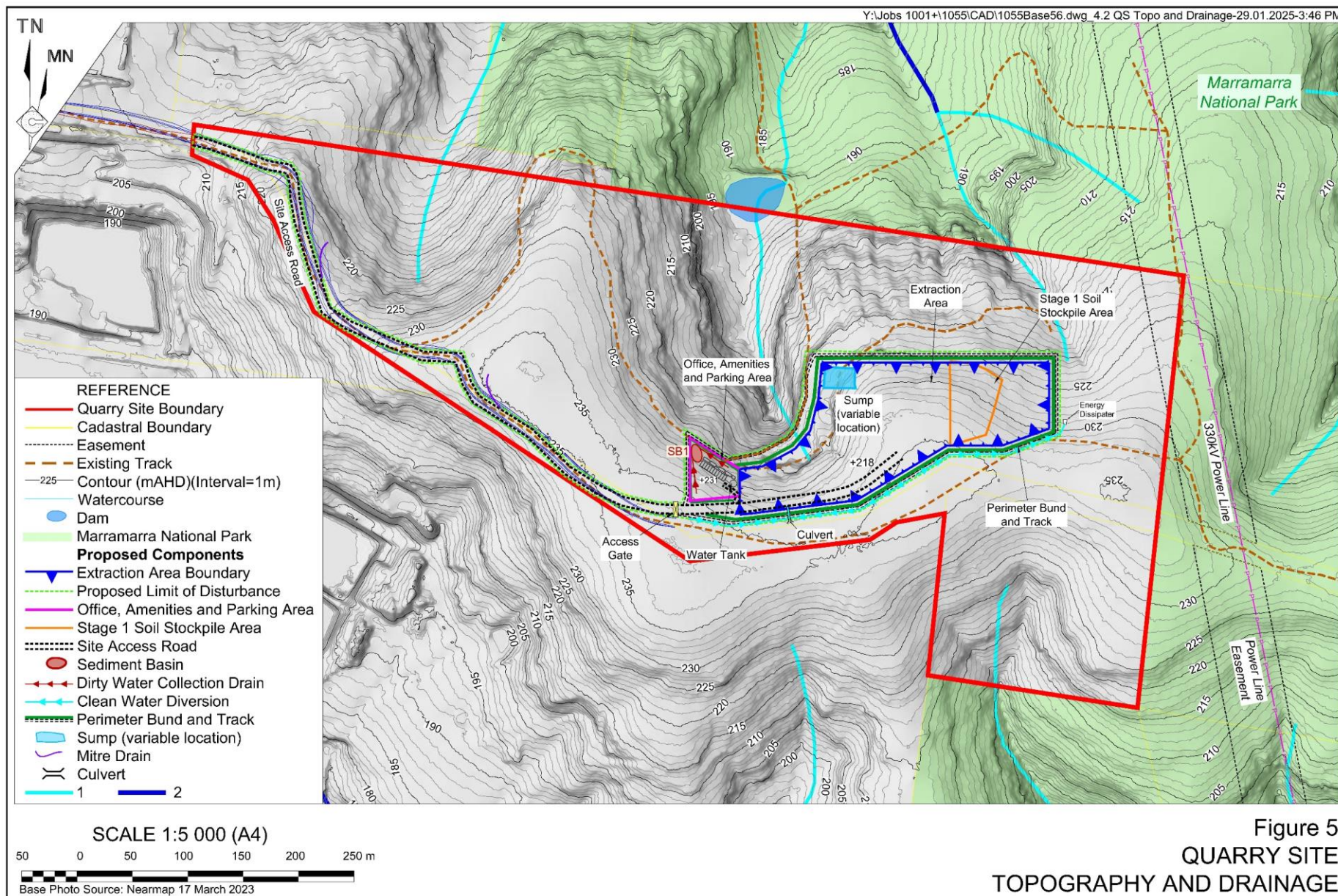
- **Figure 2** – Site Layout
- **Figure 3** – Land Use
- **Figure 4** – Land Zoning
- **Figure 5** – Topography and Drainage











2. Site Assessment

2.1 Methodology

A Biodiversity Development Assessment Report (BDAR) for the Proposal has been prepared by Ecoplanning Pty Ltd (Ecoplanning) which is referred to as Ecoplanning (2023). The following subsections detail the methodology utilised by Ecoplanning to assess the ecological and habitat values of the Quarry Site.

2.1.1 Desktop Assessment

The following information sources were considered in preparation for field surveys of the Quarry Site. This information provided suitable background to inform the type and timing of surveys that would be required and to identify species likely to be present and potentially affected by the Proposal.

- BioNet Atlas
- BioNet Vegetation Classification
- Protected Matters Search Tool
- NSW Hydrography
- State Vegetation Type Map
- NSW threatened species profiles
- ePlanning Spatial Viewer
- Hornsby LEP

2.1.2 Field Surveys

Ecoplanning completed field surveys within the Quarry Site from 22 August 2022 to 12 July 2023 to validate predictions made based on the desktop assessment and to map potential habitats and identified species within the Quarry Site.

The survey methods are described in full in Sections 3.2.1, 4.3.3 and 4.3.6 of Ecoplanning (2023). In summary, the survey effort comprised:

- total of five survey plots consistent with the Biodiversity Assessment Methodology (BAM);
- general habitat searches to identify significant habitat features such as hollow-bearing trees;
- targeted threatened fauna transects;
- incidental threatened flora and fauna searches;

- search for scats / signs of habitat use;
- diurnal bird surveys;
- nocturnal bat and mammal spotlighting surveys;
- two x song meter acoustic recorders (42 days);
- two x Titley Anabat Express bat detectors (28 nights);
- 15 x motion-detecting cameras (42 days); and
- 20 x nest boxes (115 days).

2.2 Natural Resource Information

2.2.1 Description of Vegetation Communities and Habitats

2.2.1.1 Plant Community Types

Field surveys within the Quarry Site identified the following Plant Community Types (PCTs).

- PCT 3586 – Northern Sydney Scribbly Gum Woodland
- PCT 3616 – Sydney Hinterland Grey Gum Transition Forest
- PCT 3622 – Sydney Hinterland Yellow Bloodwood Woodland
- PCT 3621 – Sydney Hinterland Turpentine-Apple Gully Forest

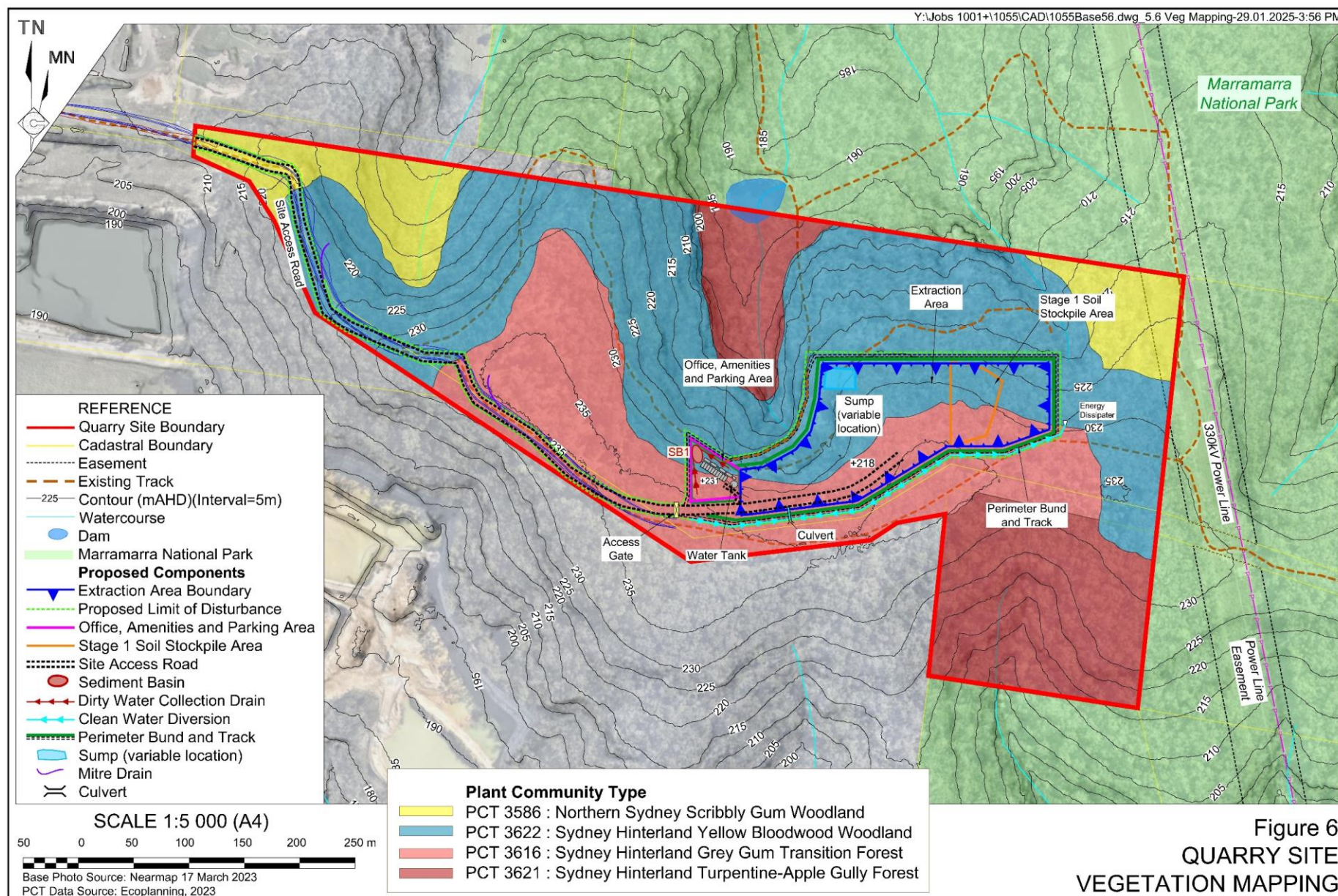
A total of 3.77ha of native vegetation would be removed throughout the life of the Quarry, all of which is currently in moderate condition. Ecoplanning (2023) notes that areas classified as PCT 3621 are located beyond the proposed limit of disturbance and would not be impacted by the Proposal. **Figure 6** shows the spatial extent of each identified PCT within the Quarry Site.

2.2.1.2 Threatened Ecological Communities

No threatened ecological communities (TEC) listed under the *Biodiversity Conservation Act 2016* (BC Act) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were identified within the Quarry Site.

2.2.1.3 Threatened Species

A total of 41 ecosystem credit species and 57 species credits species were either confirmed or assumed to frequent the Quarry Site. Complete listings of ecosystem and species credit species are provided in Tables 4.2 and 4.3 of Ecoplanning (2023). Threatened flora species are discussed in the subsection below, and details on the threatened fauna species and their habitats are discussed in Section 2.2.5.



Flora Species

The field surveys identified a total of 117 flora species, of which 114 are native flora species and three are exotic flora. A complete listing of flora species identified during field surveys is presented in Appendix A of Ecoplanning (2023).

Of the individual flora species recorded, three are threatened species listed under the BC Act and/or EPBC Act as follows.

1. *Darwinia fascicularis* subsp. *oligantha* – listed as an endangered population under the BC Act.
2. *Pimela curviflora* var. *curviflora* – listed as vulnerable under the BC Act and the EPBC Act.
3. *Tetratheca glandulosa* – listed as vulnerable under the BC Act.

The locations of these species are presented on **Figure 7**.

Fauna Species

The field surveys conducted by Ecoplanning (2023) identified a total of 64 fauna species including:

- 28 species of bird;
- 22 species of mammal;
- 6 species of reptile; and
- 8 species of frog.

Eight of the individual fauna species are threatened species listed under the BC Act and/or EPBC Act. **Table 1** provides a summary of these species, their legal status and an overview of the survey results.

Table 1
Listed Fauna Recorded or Likely to be Present

Page 1 of 2

Species	Legal Status	Overview of Survey Results / Comments
Bats		
Large Bent-winged Bat*	Vulnerable under the BC Act.	Large Bent-winged Bats are dual credit species, being ecosystem credit species for foraging purposes and species credit species for breeding habitat only. These species, although identified within the Quarry Site, are not required to be assessed as a species credit species as no breeding habitat (i.e. caves, derelict mines and other man-made structures) is present within the Quarry Site. In addition, although not preferred breeding habitat for this species, small crevices within sandstone outcrops were inspected and no evidence of breeding bats was identified.
Eastern Cave Bat	Vulnerable under the BC Act.	Possibly recorded during surveys. The species polygon for the Eastern Cave Bat includes all habitat within the Quarry Site within 2km of caves, scarps, cliffs, rock overhangs and disused mines. Therefore, the species polygon for the Eastern Cave Bat encompasses all areas of native vegetation within the Quarry Site.
Large-eared Pied Bat	Vulnerable under the BC Act and EPBC Act.	Recorded during surveys. The species polygon for the Large-eared Pied Bat includes all habitat within the Quarry Site within 2km of caves, scarps, cliffs, rock overhangs and disused mines. Therefore, the species polygon for the Large-eared Pied Bat encompasses all areas of native vegetation within the Quarry Site.

Table 1 (Cont'd)
Listed Fauna Recorded or Likely to be Present

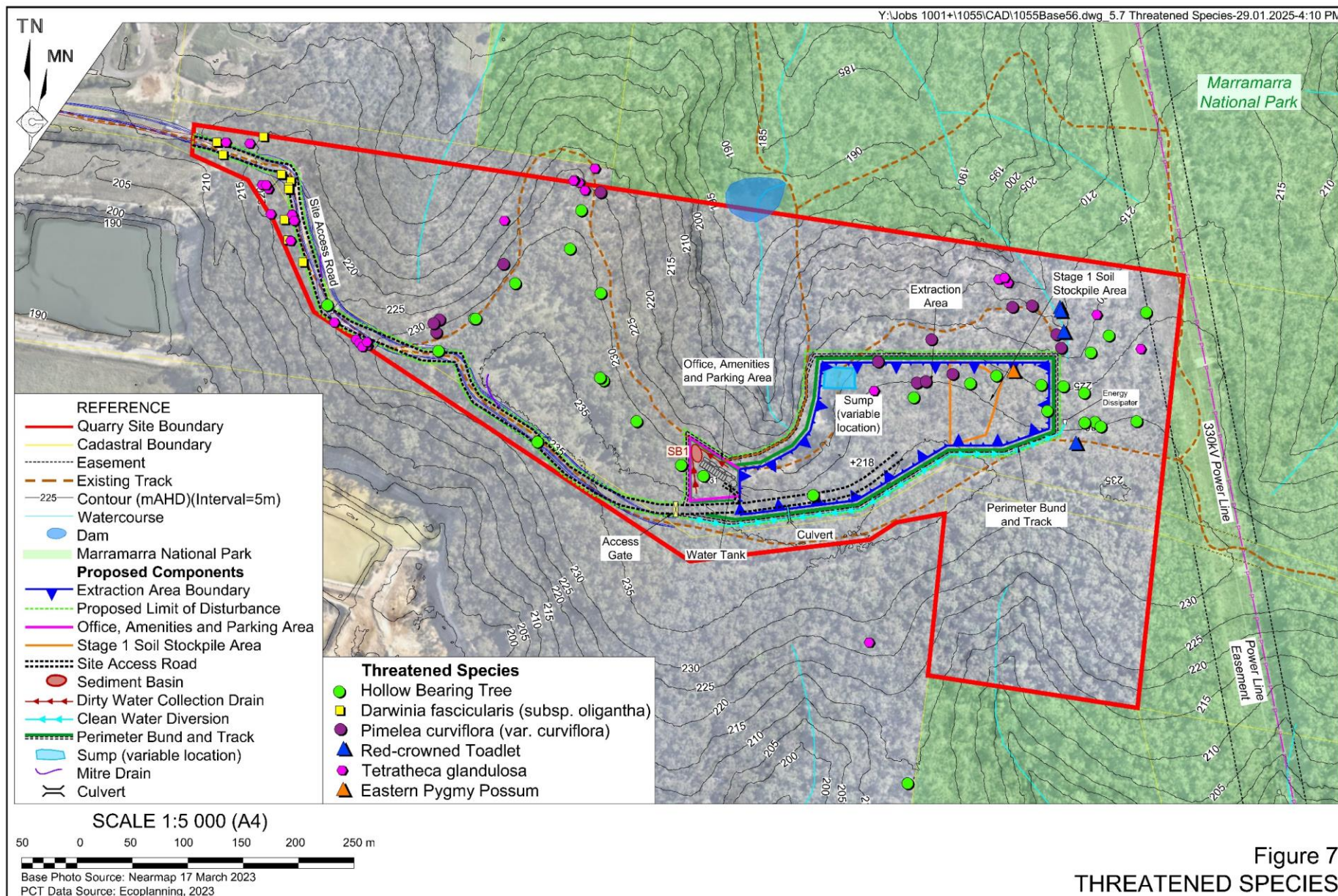
Page 2 of 2

Species	Legal Status	Overview of Survey Results / Comments
Bats (Cont'd)		
Little Bent-winged Bat*	Vulnerable under the BC Act.	Little Bent-winged Bats are dual credit species, being ecosystem credit species for foraging purposes and species credit species for breeding habitat only. These species, although identified within the Quarry Site, are not required to be assessed as a species credit species as no breeding habitat (i.e. caves, derelict mines and other man-made structures) is present within the Quarry Site. In addition, although not preferred breeding habitat for this species, small crevices within sandstone outcrops were inspected and no evidence of breeding bats was identified.
Southern Myotis	Vulnerable under the BC Act.	Recorded during surveys. The species polygon for the Southern Myotis includes all habitat within the Quarry Site that is within 200m of a waterbody with pools and/or stretches 3m or wider including rivers, creeks, billabongs, lagoons and dams. Therefore, the species polygon for the Southern Myotis encompasses all areas of native vegetation within the Quarry Site.
Birds		
Glossy Black-Cockatoo*	Vulnerable under the BC Act.	Recorded during surveys. However, Glossy Black-cockatoo is a species credit species for breeding only. The song meter recording was taken out of breeding season and no Glossy-Black-cockatoos were observed using hollows within the Quarry Site or otherwise engaging in breeding behaviour. Two stags capable of hosting breeding Glossy Black-cockatoos were observed during seasonal owl surveys, however, no Glossy Black-cockatoos were observed in these stags. Accordingly, no species polygon has been produced for this species.
Mammals		
Eastern Pygmy Possum	Vulnerable under the BC Act.	One Eastern Pygmy Possum was recorded with a camera and during spotlighting surveys within the eastern area of the Quarry Site. In addition, 20 nest boxes were installed for the period 4 November 2022 to 27 February 2023. However, no evidence of Eastern Pygmy Possum or other mammals was found in the nest boxes.
Frogs		
Red-crowned Toadlet	Vulnerable under the BC Act.	Recorded during every night of survey within the minor first-order watercourse located beyond the eastern boundary of the proposed Extraction Area.
* Not assessed as species credit species.		
Source: Ecoplaning (2023) – Compiled from Section 4		

2.2.1.4 Fauna Habitats

Details of the various fauna habitats identified within the Quarry Site are provided in **Table 1**. In summary, potential fauna habitats within the Quarry Site include small crevices within sandstone outcrops, areas of native vegetation within 200m of a waterbody and/or watercourse, and Hollow Bearing Trees (HBTs).

A total of 28 HBTs were recorded within the Quarry Site, with twelve located within the proposed limit of disturbance. HBTs ranged from small hollows <10cm in diameter to large hollows >20cm in diameter. The locations of HBTs within the Quarry Site are presented on **Figure 7**.



2.2.2 Vegetation Conditions

Five vegetation integrity survey plots were completed in the Quarry Site. **Table 2** presents the vegetation types that would be removed during Quarry operations, their Vegetation Integrity Score, and their respective areas. If an area has a Vegetation Integrity Score of more than 17, offsetting of any disturbance is required.

Table 2
Vegetation Integrity Assessment

PCT	Condition	Area to be Cleared (ha) ¹	Number BAM Plots Completed	Vegetation Integrity Score
3586	Moderate	0.08	1	35.9
3616	Moderate	1.42	2	47.8
3622	Moderate	2.26	2	53.5
Note 1: Subject to rounding errors.				
Source: Ecoplaning (2023) – Modified after Table 3.8				

Few weeds were identified within the Quarry Site during field surveys, with a generally sparse distribution across each identified PCT. An infestation of *Andropogon virginicus* (Whiskey Grass) was identified within an area of historic disturbance, however, this was the only high-threat weed recorded within the Quarry Site. It is noted that the entirety of the infested area is within the proposed limit of disturbance and would be cleared during progressive development of the Extraction Area.

2.2.3 Watercourses and Riparian Zones

The Quarry Site is located within the Hawkesbury River Catchment with the Hawkesbury River located approximately 2.4km east-northeast of the Quarry Site at its closest point. Three first order watercourses drain northwards from within the Quarry Site towards Dalgetys Creek. One historic dam is located at the northern extent of the Quarry Site, with the embankment located within the adjoining Marramorra National Park (**Figure 5**).

Two small former extraction areas are present within the Extraction Area, both of which are internally draining with no surface water discharged to the surrounding environment (**Figure 2**). Similarly, the Proposal would be internally draining and would not discharge water into the surrounding environment.

2.2.4 Soils and Geology

2.2.4.1 Geology

The geology of the Maroota area is described by Etheridge (1980), Hopkins and Ross (1996), Russell (2001) and Lawson and Webb (2018). In summary, the principal units of economic interest in the Maroota area include the Triassic-aged Hawkesbury Sandstone which is unconformably overlain by the Tertiary-aged Maroota Tertiary Sand.

The Hawkesbury Sandstone is a generally massive, cross-bedded, relatively homogeneous quartz arenite with a tightly cemented fine to coarse-grained matrix. In the vicinity of Maroota, the unit is 150m to 200m thick. The upper sections of the Hawkesbury Sandstone in places are friable and capable of being extracted using free-dig techniques and being broken down into the constituent sand grains. Within the Maroota area, sandstone outcrop exhibiting well developed, steeply dipping jointing are commonly extracted to produce flagging stone.

The Tertiary Sand is an unconsolidated to partly consolidated, poorly sorted, fine to coarse grained fluvial sand with local clay and gravel lenses. The Tertiary Sand may be up to 50m thick in places with clay lenses up to 13m thick (**Figure 8**).

2.2.4.2 Soils

The Quarry Site comprises the following Mitchell Landscapes.

- Maroota Sands
- Hornsby Plateau

The soils of the Maroota Sands are represented by fluvial quartz sands with minor gravel and white clay along ridgelines associated with the Hawkesbury Sandstone, possessing well developed podsol profiles with limited yellow to grey texture-contrast profiles (Department of Environment and Climate Change, 2002). Within the Quarry Site, the Maroota Sands landscape is coincident with a minor area on the western boundary, adjacent to the Site Access Road.

Australian Soil Classification

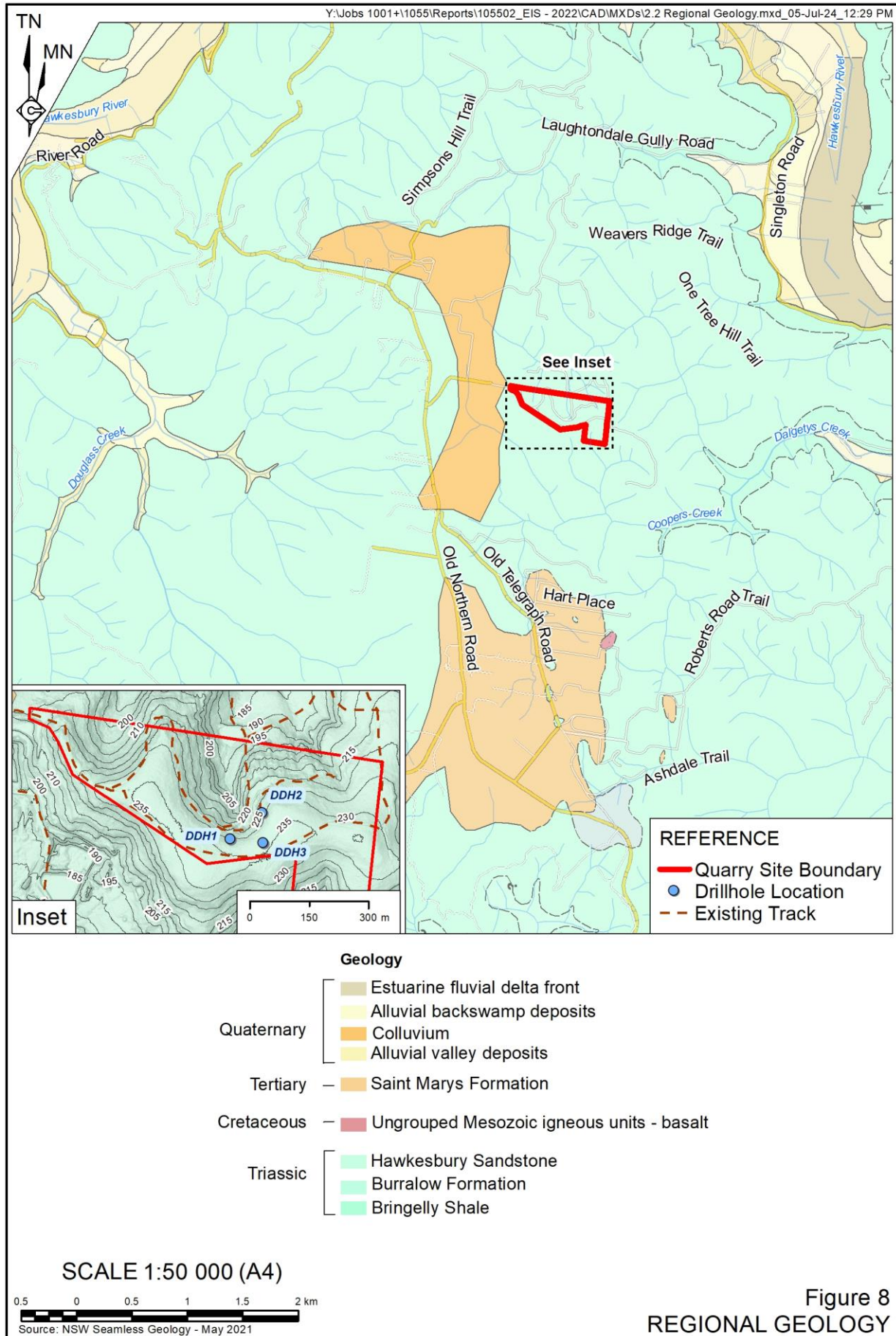
The Quarry Site contains Rudosols and Tenosols as defined by the Australian Soil Classification. These soil types are generally shallow, typically formed from materials that are quartz rich and low in clay. Rudosols and Tenosols have very low agricultural potential due to their low chemical fertility, poor structure and low water-holding capacity.

Land and Soil Capability

The Quarry Site comprises approximately 23.33ha of land with approximately 0.28ha of land classified as having a Land and Soil Capability (LSC) of Class 98 (not assessed) and the remainder of the Quarry Site land classified as having a LSC of Class 6. Class 98 (not assessed) land is generally associated with historical excavations or extraction areas. Class 6 is land is considered to have very high limitations, with land uses restricted to low impact activities such as low intensity grazing, forestry and nature conservation. Careful management of limitations is required for cropping and grazing to avoid land and environmental degradation. **Figure 9** shows the land and soil capability within and immediately surrounding the Quarry Site.

2.2.5 Management Zones

Each PCT identified within the Quarry Site was assessed against the criteria for high, moderate and poor resilience presented in Table 1 of the Guideline. **Table 3** presents an assessment of each PCT identified within the Quarry Site against these criteria.



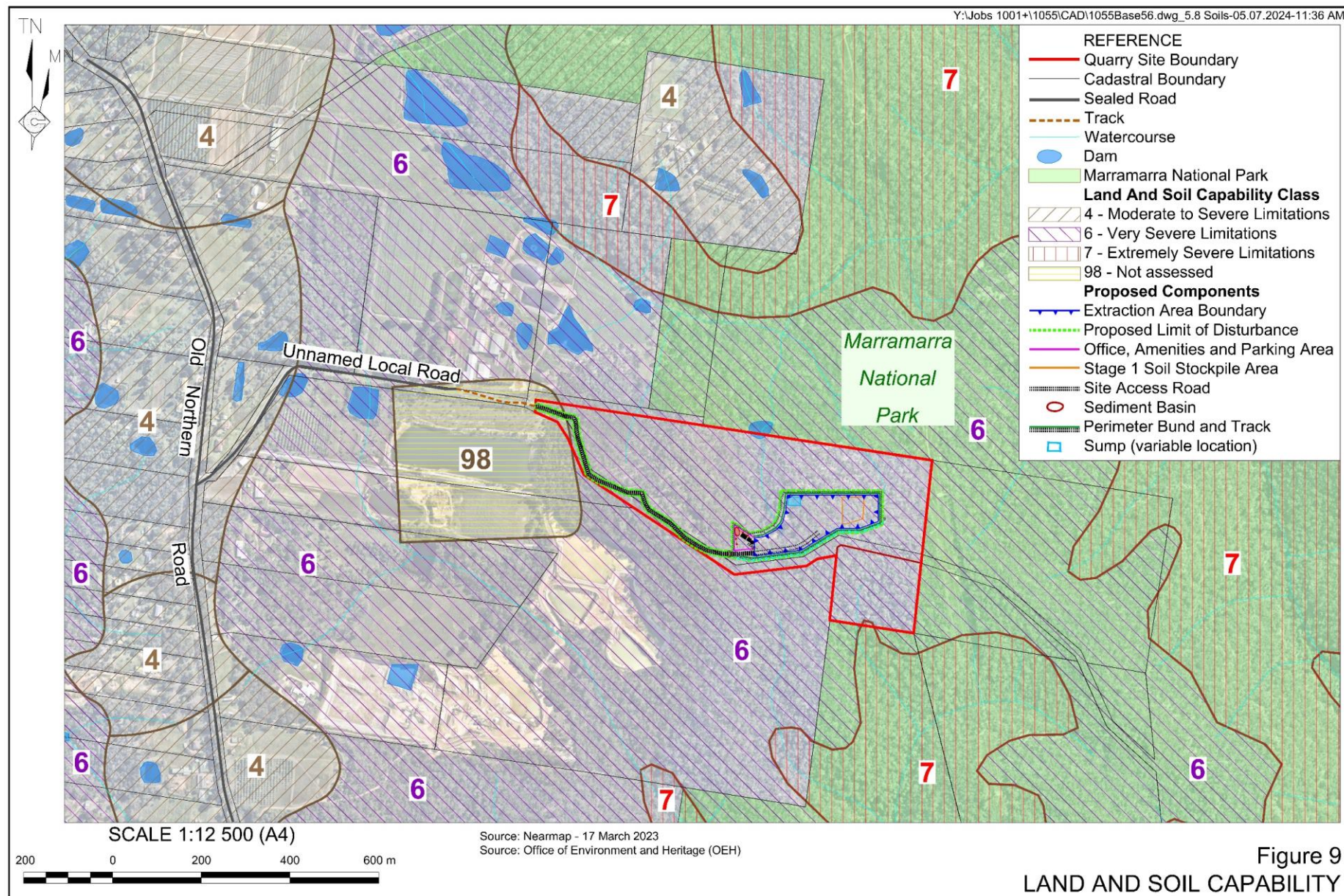


Table 3
Resilience Assessment

Page 1 of 2

PCT	Resilience Level Characteristics					
	Weeds	Canopy Vegetation	Mid-Stratum Vegetation	Groundcover Vegetation	Diverse Native Flora	Undisturbed / Unmodified Soils
3586	Few weeds were identified within the Quarry Site, with a generally sparse distribution across each identified PCT. An infestation of Whiskey Grass is present within an area of historic disturbance, however, the entirety of this area is located within the proposed limit of disturbance and would be cleared during progressive development of the Extraction Area.	Canopy coverage is sparse, but <i>Eucalyptus haemastoma</i> (Scribbly Gum) is the dominant tree with a subcanopy of <i>Angophora hispida</i> (Dwarf Apple), which are both typical of PCT 3586. The scarceness of canopy coverage is consistent with the attributes of PCT 3586.	The mid-stratum is dense, with thickets of <i>Banksia</i> species and <i>Petrophile pulchella</i> (Conesticks), as well as other shrubs species such as <i>Grevillea buxifolia</i> (Grey Spider Flower), <i>Lambertia formosa</i> (Mountain Devil), <i>Epacris pulchella</i> (Wallum Heath) and <i>Hakea sericea</i> (Needlebrush). All identified shrubs are typical of PCT 3586.	Groundcover layer species present within the Quarry Site include <i>Lepyrodia scariosa</i> , <i>Cyathochaeta diandra</i> and <i>Lomandra filiformis</i> (Wattle Mat-rush), all of which are typical of PCT 3586.	Various species of native flora are present within areas of PCT 3686 over the Quarry Site, however the composition is not classified as diverse.	The soils across a small section of PCT 3586 within the western edge of the Quarry Site are classified as Disturbed Terrain soil landscape according to the DPIE Soil Landscapes of Central and Eastern NSW Mapping. The remainder of soils underlying PCT 3586 are understood to be undisturbed and/or unmodified.
3616		<i>Eucalyptus punctata</i> (Grey Gum) is the dominant tree species, with <i>Syncarpia glomulifera</i> (Turpentine), and <i>Eucalyptus sparsifolia</i> (Narrow-leaved Stringybark) also present. All identified species are typical of PCT 3616.	The mid-stratum coverage is sparse and includes <i>Persoonia linearis</i> (Narrow-leaved Geebung), <i>Exocarpos strictus</i> (Dwarf Cherry), and <i>Dodonaea triquetra</i> (Large-leaf Hop-bush). The species and their sparseness are typical of PCT 3616.	The groundcover layer has good coverage, with species present including <i>Entolasia stricta</i> (Wiry Panic), <i>Themeda triandra</i> (Kangaroo Grass), <i>Imperata cylindrica</i> (Blady Grass) and <i>Microlaena stipoides</i> (Weeping Grass). The species are all typical of PCT 3616, with the exception of native grass <i>Imperata cylindrica</i> .	The vegetation composition of the groundcover layer is considered to be diverse.	The soils in PCT 3616 are understood to be undisturbed and/or unmodified according to the DPIE Soil Landscapes of Central and Eastern NSW Mapping.
3622		The canopy layer is co-dominated by <i>Corymbia eximia</i> (Yellow Bloodwood) and <i>Corymbia gummifera</i> (Red Bloodwood) and includes <i>Angophora bakeri</i> (Narrow-leaved Apple), <i>Eucalyptus punctata</i> (Grey Gum) and <i>Eucalyptus haemastoma</i> (Scribbly Gum). The species are all typical of PCT 3622.	The mid-stratum layer comprises <i>Phyllanthus hirtellus</i> (Thyme Spurge), <i>Persoonia linearis</i> (Narrow-leaved Geebung), <i>Persoonia levis</i> (Broad-leaved Geebung), <i>Platysace linearifolia</i> , <i>Monotoca scoparia</i> , <i>Acacia linifolia</i> (White Wattle), <i>Grevillea buxifolia</i> (Grey Spider Flower), <i>Lambertia formosa</i> (Mountain Devil) and others.	The ground layer, where not interrupted by sandstone outcrops, is dominated by <i>Entolasia stricta</i> (Wiry Panic), with good coverage of <i>Austrostipa pubescens</i> and <i>Themeda triandra</i> .	The vegetation composition of the mid-stratum layer is considered to be very diverse.	The soils in PCT 3622 are understood to be undisturbed and/or unmodified according to the DPIE Soil Landscapes of Central and Eastern NSW Mapping.

Table 3 (Cont'd)
Resilience Assessment

Page 2 of 2

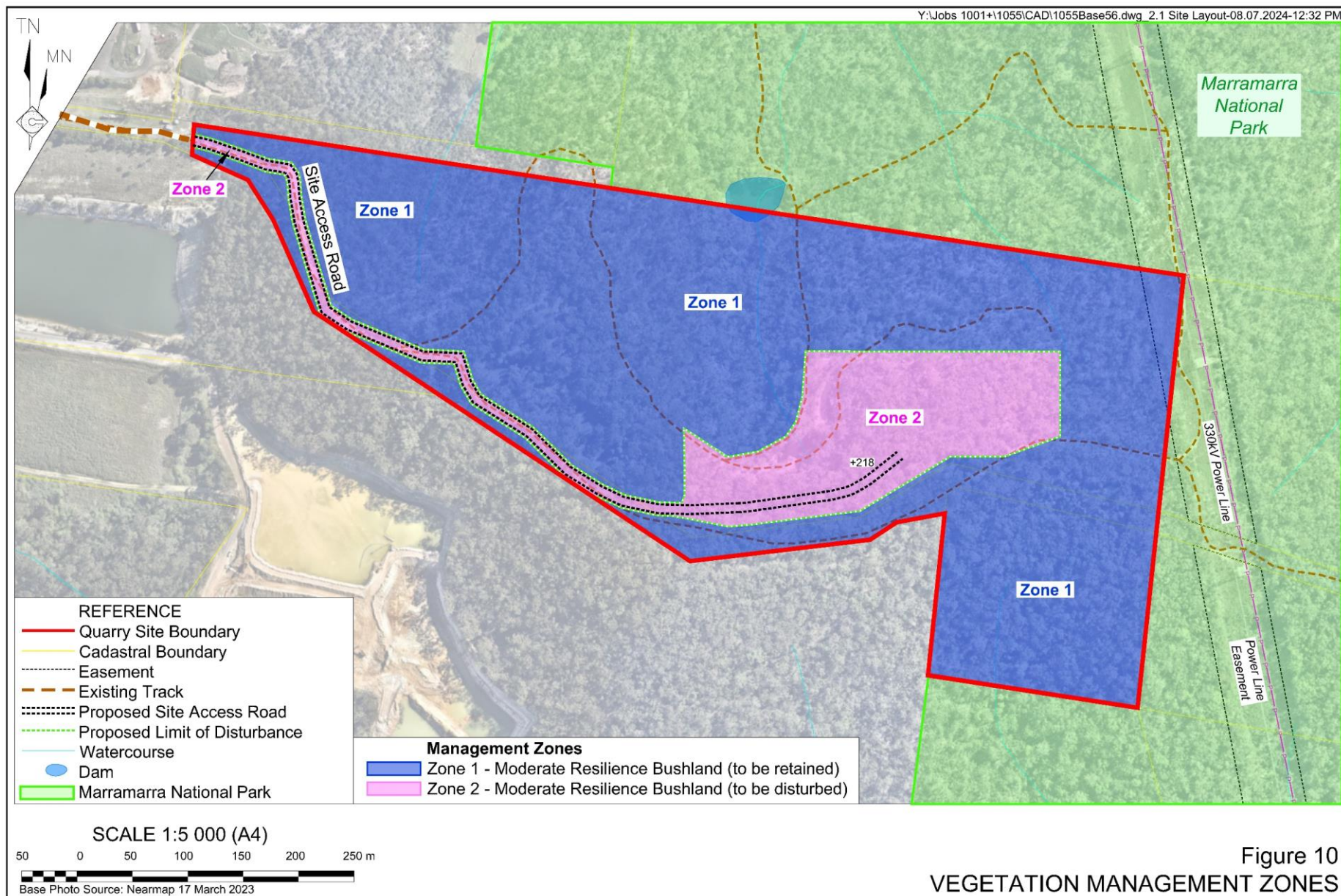
PCT	Resilience Level Characteristics					
	Weeds	Canopy Vegetation	Mid-Stratum Vegetation	Groundcover Vegetation	Diverse Native Flora	Undisturbed / Unmodified Soils
3621		The canopy layer is dominated by <i>Eucalyptus piperita</i> (Sydney Peppermint), <i>Angophora costata</i> (Sydney Red Gum) and <i>Syncarpia glomulifera</i> (Turpentine).	The mid-stratum was not assessed in the BDAR as it would not be impacted under the Proposal.	The ground layer was not assessed in the BDAR as it would not be impacted under the Proposal.	The diversity of plants in PCT 3621 was not assessed in the BDAR as it would not be impacted under the Proposal.	The soils in PCT 3621 are understood to be undisturbed and/or unmodified according to the DPIE Soil Landscapes of Central and Eastern NSW Mapping.
Source: Ecoplanning (2023) – Compiled from Section 3						

Based on **Table 3** and the outcomes of Ecoplanning (2023), the entire Quarry Site has been categorised as **moderate resilience bushland**. In accordance with the Guideline, remnant vegetation across the Quarry Site aligns with the following criteria:

- moderate weed densities, mainly in the mid stratum and ground layer;
- the canopy, mid stratum and groundcover layer are present or typical for the PCT but may have minor levels of modification due to weeds, clearing, grazing etc;
- a diverse assemblage of native flora species though in some areas weeds may dominate; and
- original natural soils persist but may be slightly disturbed or modified.

Based on the outcomes of the resilience assessment presented in **Table 3**, the Quarry Site has been divided into two Management Zones as follows. **Figure 10** presents spatial distribution of both Management Zones.

- Zone 1 – Moderate Resilience Bushland (to be retained)
- Zone 2 – Moderate Resilience Bushland (to be disturbed)



3. Management Issues

Table 4 presents the management issues that would likely affect the Quarry Site, as well as the objectives, actions and performance criteria that would be implemented to rectify the issues. The management issues are assigned to either Zone 1 or Zone 2 as relevant (refer Section 2.2.6 and **Figure 10**).

Table 4
Management Issues and Actions

Page 1 of 2

Management Issues	Objective	Actions	Performance Criteria
Zone 1 – Moderate Resilience Bushland (to be retained)			
Bushland degradation due to weed infestation.	To implement a weed management program.	Undertake regular visual inspections to identify any infestations. Engage a suitably qualified person to prepare and implement the weed removal program on an as-needed basis.	No further active weed control required.
Decreased water quality due to runoff into watercourses.	To ensure that the Quarry is internally draining.	Construct all surface water management infrastructure in accordance with the <i>Erosion and Sediment Control Plan</i> . Undertake visual inspections of structures to ensure stability and sediment storage capacity is maintained after any significant rainfall event.	Surface water management infrastructure is operating as expected and Quarry is internally draining.
Loss of hollow-bearing trees.	To ensure hollow-bearing trees are not disturbed.	Identify and retain all hollow-bearing trees beyond the proposed limit of disturbance.	Hollow-bearing trees recorded in Ecoplanning (2023) beyond the proposed limit of disturbance are still present at decommissioning.
Zone 2 – Moderate Resilience Bushland (to be disturbed)			
Clearing of 3.77ha of native vegetation.	To offset the impacts of vegetation clearing.	Determine preferred pathway for offsetting species and ecosystem credits in accordance with the Biodiversity Offset Scheme (e.g. a Biodiversity Stewardship Agreement, purchasing through the Biodiversity Conservation Fund or purchasing on the open market). Make the required contributions.	All impacts have been offset through the Biodiversity Offset Scheme.
Presence of endangered flora in proximity to areas of proposed disturbance.	To protect individuals of <i>Darwinia fascicularis</i> adjacent to the Site Access Road.	Suitably qualified ecologist involved during clearing processes, with follow-up reporting as required. Construct and maintain a barrier around individuals of <i>Darwinia fascicularis</i> adjacent to the Site Access Road to ensure species are not impacted by use and maintenance of the Site Access Road.	Individuals of <i>Darwinia fascicularis</i> adjacent to the Site Access Road are not impacted by Quarry operations.
Bushland degradation due to weed infestation.	To ensure the infestation of <i>Andropogon virginicus</i> within the proposed Extraction Area is managed prior to disturbance of this area.	Engage a suitably qualified person to remove all <i>Andropogon virginicus</i> from the proposed Extraction Area prior to commencement. Opportunistically monitor for <i>Andropogon virginicus</i> and implement further management if the infestation persists.	There is no presence of <i>Andropogon virginicus</i> within Zone 2.

Table 4 (Cont'd)
Management Issues and Actions

Page 2 of 2

Management Issues	Objective	Actions	Performance Criteria
Zone 2 – Moderate Resilience Bushland (to be disturbed) (Cont'd)			
Disturbed bushland needs to be revegetated.	To ensure that cleared bushland is progressively rehabilitated throughout the life of the Proposal.	Remove plant and all associated infrastructure from areas to be rehabilitated. Progressively backfill batters where necessary to achieve a 1:4 slope (V:H) or less and backfill the Extraction Area floor to an elevation of 223m AHD. Areas of disturbance ripped and then covered with soil and mulch where available. Engage a suitably qualified bush regeneration contractor to undertake seeding and/or planting. Report on revegetation in Annual Progress Report to Council.	Annual Progress Reports. Zone 2 is successfully revegetated.
Loss of hollow-bearing trees.	To ensure suitable precautions are taken prior to removal of hollow-bearing trees.	Engage a suitably qualified ecologist to develop a clearing procedure prior to any vegetation clearing. Ensure the procedure aligns with the recommendations presented in Ecoplanning (2023). Where appropriate, hollow-bearing segments would be selected and relocated sensitively under guidance of the ecologist.	Suitably qualified ecologist involved during clearing processes, with follow-up reporting as required. Appropriate hollow-bearing segments have been successfully relocated.
Final landform must be free draining.	To ensure the Quarry Site is free draining after rehabilitation.	Following cessation of operations, removal of the perimeter safety bund from the northern and western edges of the Extraction Area.	Quarry Site is free draining post rehabilitation.
Topsoil quality reduced due to inappropriate management.	To implement topsoil management for a future growth medium source.	Clearly mark areas for soil stripping and stockpiling. Strip soil from areas of disturbance and store in stockpiles no more than 2m high oriented parallel to the contours, with side slopes of 1:3 (V:H) or less. Ensure that stockpile surfaces are rough in a micro-scale to assist in seed retention and germination, and then spread seed over stockpiles. Signpost soil stockpiles and limit operation of machinery on stockpiles.	Testing of topsoil quality finds it is suitable for seeding and revegetation prior to commencement of rehabilitation.

4. Restoration Methods

The following subsections present the proposed restoration, management and rehabilitation methods that would be implemented throughout the Proposal.

4.1 Preliminary Activities

The following management measures would be implemented during the Site Establishment phase of the Proposal.

- Prepare a comprehensive *Environmental Management Plan* for the ongoing management of the relevant environmental issues at the Quarry, including separate sections relating to vegetation clearing, biodiversity and rehabilitation management.
- Ensure areas of proposed disturbance would be clearly marked prior to the commencement of clearing campaigns to minimise the potential for over-clearing of vegetation.
- The following procedures would be adopted to guide the clearing of all mature trees and any hollow-bearing trees.
 - Where necessary, a qualified or suitably experienced spotter-catcher would be engaged to undertake an initial assessment of the area to be cleared for threatened species.
 - All trees would be checked for the presence of nesting or roosting fauna before felling or pushing.
 - Clearing activities would cease if threatened fauna species are detected until after individuals have dispersed.
 - Felled mature trees would be relocated to defined storage areas within the Quarry Site or mulched to enhance habitat.
- Undertake pre-clearance surveys under the supervision of a suitably qualified ecologist prior to disturbance of areas where individuals of *Darwinia fascicularis* are present.
- Construct a barrier around individuals of *Darwinia fascicularis* adjacent to the Site Access Road to ensure species are not impacted by use and maintenance of the Site Access Road.
- Offset the species and ecosystem credits required for the Proposal in accordance with the Biodiversity Offset Scheme prior to commencement.

4.2 Weed Control

The following measures would be implemented to control existing and future potential weed infestations.

- Weed control programs would be prepared and implemented by a suitably qualified person periodically to manage invasive species.

- The infestation of *Andropogon virginicus* within the Quarry Site would be initially managed during extraction. If the weed persists, it would continue to be managed in the weed control programs.
- All mobile plant and vehicles would be cleaned of soil and weeds before entry to the Quarry Site.

4.3 Corridors

The area of operational disturbance under the Proposal would be approximately 4.13ha, resulting in the disturbance of approximately 3.77ha of remnant native vegetation. The Quarry Site has a total area of approximately 23.33ha, meaning the Proposal would disturb approximately 17% of the entire Quarry Site area. As such, 83% of the Quarry Site would remain undisturbed, the majority of which comprises remnant native vegetation.

Retaining native vegetation within the Project Site beyond the proposed limit of disturbance would allow vegetation corridors to continue linking the surrounding areas, in particular, the areas of Marramarra National Park adjoining the Quarry Site.

4.4 Revegetation Works

Detailed rehabilitation methodologies, including proposed methods for revegetation, are presented in Section 5.

Species selection for revegetation would include only native species listed as occurring within the PCTs which were mapped across the Quarry Site as part of Ecoplanning (2023). The proposed planting density is as follows:

- One tree per 16m² (4m centres)
- One shrub per 16m² (4m centres)
- Up to 4 groundcovers per 1m²

4.5 Asset Protection Zones

In accordance with Sections 8.3.5 and 8.3.6 of *Planning for Bushfire Protection* (RFS, 2019), a minimum Asset Protection Zone (APZ) of 10m would be maintained between any structures within the Office, Amenities and Parking Area and surrounding vegetation. The APZ would not require additional disturbance of vegetation as it would be contained entirely within the Office, Amenities and Parking Area boundary.

The APZ would be maintained throughout the life of the Quarry to a standard such that the Office, Amenities and Parking Area is considered a safe working environment in which efforts can be undertaken to defend any structures before, during and after the passage of bush fire.

4.6 Buffer Zones

The area that would require clearing has been minimised as much as feasible through the design process. However, given the nature of the Proposal, a total of 3.77ha of native vegetation within the proposed limit of disturbance would be disturbed throughout the life of the Proposal. As such, establishment of buffer zones within this area is not feasible or practicable.

Notwithstanding, indirect impacts to remnant native vegetation within the remainder of the Quarry Site that would be retained under the Proposal would be as follows.

- A barrier would be constructed around individuals of *Darwinia fascicularis* adjacent to the Site Access Road to ensure species are not impacted by use and maintenance of the Site Access Road.
- Areas of proposed disturbance would be clearly marked prior to the commencement of clearing campaigns to minimise the potential for over clearing of vegetation.
- Vegetation would be removed in a manner that avoids damage to surrounding vegetation.
- All personnel and contractors would be inducted and made aware that unauthorised clearing of native vegetation may have legislative consequences.

4.7 Soil Stabilisation and Management

Up to approximately 0.3m of topsoil, where present, would be removed with a focus on the recovery of seed-bearing material. The soil recovered would be placed initially within the designated Stage 1 Soil Stockpile Area (refer **Figure 2**). The following management measures would be implemented with the objective of appropriately storing topsoil until later use in rehabilitation.

- Clearly mark areas designated for soil stripping and stockpiling.
- Refrain from stripping or placing soil during wet conditions.
- Strip soil from all areas of disturbance and place directly within designated rehabilitation areas or store in stockpiles no more than 2m high oriented parallel to the contours.
- Ensure that soil stockpiles are constructed with side slopes of 1:3 (V:H) or less.
- Ensure that the soil stockpile surfaces have a surface that is as 'rough' as possible, in a micro-scale, to assist in surface water runoff control and seed retention and germination.
- Spread seed of a suitable cover crop on all soil stockpiles to facilitate revegetation.
- Signpost soil stockpiles and limit operation of machinery on stockpiles to minimise compaction and further degradation of soil structure.

4.8 Stream and Watercourse Management

Watercourses within the Quarry Site are ephemeral and the Extraction Area would be internally draining, therefore minimal management would be required.

Notwithstanding, a clean water diversion drain would be installed along the southern boundary of the Extraction Area to prevent clean water from encroaching on the Quarry, diverting clean runoff to adjacent areas of undisturbed vegetation and watercourses.

4.9 Stormwater and Runoff Management

As discussed in Section 4.8, the Quarry would be internally draining, and no sediment laden discharge would leave the Quarry Site. The following surface water infrastructure would be installed and maintained to manage risks of sediment laden runoff.

- Extraction Area Sump – The Extraction Area would be internally draining with all runoff reporting to the sump. Sediment laden runoff during Site Establishment and initial extraction operations would be managed through the installation of silt-stop fencing during development, as required. The perimeter safety bund would convey sediment-laden runoff from within this area to the sump.
- Sediment Basin – A sediment basin (SB1) would be constructed within the northwestern section of the Office, Amenities and Parking Area to collect and manage sediment-laden runoff from within this area. The sediment basin would be maintained such that it would continue to meet capacity requirements. This would involve excavation of sediment when this exceeds the identified sediment storage zone and stabilisation of drainage and sediment basin walls.
- Dirty Water Collection Drains – Dirty water collection drains would be constructed to convey sediment-laden runoff from areas of operational disturbance within the Office, Amenities and Parking Area to SB1. These drains would be constructed along the northern and western boundaries of the Office, Amenities and Parking Area to prevent sediment-laden runoff entering undisturbed areas.
- Clean Water Diversion – A clean water diversion would be constructed around the southern perimeter of the Extraction Area.

4.10 Maintenance Activities

Maintenance of rehabilitation and revegetation would be continuous throughout the full 30-year project life. Maintenance activities would also be responsive to the monitoring and review process discussed in Section 4.11. Maintenance activities may include, but are not limited to, the following.

- Earthworks or stabilisation measures to repair erosion.
- Stabilisation and reseeded of the perimeter safety bund.
- Implementation of weed and pest control measures.

- Application of fertilisers and/or mulches.
- Application of gypsum or lime to control pH and improve soil structure.

4.11 Monitoring and Review Process

The process for monitoring of the revegetation and rehabilitation of the Quarry Site would include the following.

- Regular visual inspections of general landform, vegetation cover, and infrastructure components as part of ongoing site monitoring and maintenance. Results from regular site monitoring inspections would be used to identify and action key management and maintenance activities, including the potential for increased monitoring frequency and/or scope.
- Annual photographic monitoring of revegetation works to record progress over time and identify issues or areas for improvement.
- Regular monitoring for pest and weed species presence/abundance.
- Preparation of an Annual Progress Report to be provided to Council.

The monitoring program would be designed with flexibility to incorporate updates based on results.

4.12 Schedule of Works

Table 5 presents an indicative schedule of works for revegetation and rehabilitation activities. The schedule of works is divided into the rehabilitation phases of:

- Operations;
- Decommissioning;
- Landform Establishment;
- Growth Medium Development;
- Ecosystem and Land Use Establishment; and
- Ecosystem and Land Use Development.

Basing the schedule of works off these phases allows the schedule to reflect the non-linear nature of rehabilitation work and the 30-year life of the Quarry and subsequent rehabilitation. It is noted that the schedule of works is indicative and would be updated as required based on monitoring and the progression of extraction operations.

Table 5
Indicative Schedule of Works

Page 1 of 2

Page 1 of 1

Management Zone	Actions from Table 4	Sequencing and Timing of Actions							Responsibility
		Site Establishment	Operations	Decommissioning	Landform Establishment	Growth Medium Development	Ecosystem and Land Use Establishment	Ecosystem and Land Use Development	
Zone 1	Weed Management Program								
	Undertake a visual inspection to identify any infestations.								Applicant
	Engage a suitably qualified person to prepare and implement the weed removal program on an as-needed basis.								Applicant and Bush Regeneration Contractor
Zone 2	Weed Management Program								
	Engage a suitably qualified person to remove all <i>Andropogon virginicus</i> from the proposed Extraction Area prior to disturbance in this area.								Applicant and Bush Regeneration Contractor
	Opportunistically monitor for <i>Andropogon virginicus</i> and implement further management if the infestation persists.								Applicant
	Progressive Rehabilitation								
	Remove plant and all associated infrastructure from areas to be rehabilitated.								Applicant
	Progressively backfill batters where necessary to achieve a 1:4 (V:H) slope or less and backfill the extraction area floor to an elevation of 223m AHD.								Applicant
	Rip areas of disturbance and then cover with soil and mulch where available.								Applicant

Table 5 (Cont'd)
Indicative Schedule of Works

Page 2 of 2

Page 2 of 3

Management Zone	Actions from Table 4	Sequencing and Timing of Actions							Responsibility
		Site Establishment	Operations	Decommissioning	Landform Establishment	Growth Medium Development	Ecosystem and Land Use Establishment	Ecosystem and Land Use Development	
Zone 2 (Cont'd)	Progressive Rehabilitation (Cont'd)								
	Engage a suitably qualified bush regeneration contractor to undertake seeding and/or planting.								Bush Regeneration Contractor
	Report on revegetation in Annual Progress Report to Council.								Applicant
	Ensure suitable precautions are taken prior to removal of hollow-bearing trees								Applicant
	Growth Medium Management								
	Clearly mark areas for soil stripping and stockpiling								Applicant
	Strip soil from areas of disturbance and store in stockpiles no more than 2m high oriented parallel to the contours, with side slopes of 1:3 (V:H) or less.								Applicant
	Ensure that stockpile surfaces are rough in a micro-scale to assist in seed retention and germination, and then spread seed over stockpiles.								Applicant
	Signpost soil stockpiles and limit operation of machinery on stockpiles.								Applicant

5. Rehabilitation Plan

5.1 Introduction

The following subsections detail the intended methods for rehabilitation of the Quarry Site in accordance with Section 2.5.9 of the *Hornsby Development Control Plan*. Rehabilitation would be focused on areas classed as Zone 2 (i.e. moderate resilience bushland that would be disturbed as part of the Proposal).

5.2 Future Land Use

Following cessation of extraction operations, the Quarry Site would be rehabilitated to achieve a final land use of native ecosystem. It is intended that the Quarry Site would be retained principally for biodiversity conservation purposes.

It is noted that preferences for final land use can change over time, and it is therefore acknowledged that as the Quarry approaches closure the final land use would be re-visited in consultation with Council.

5.3 Final Landform

Figure 11 displays the indicative final landform for the Quarry.

In summary, the Extraction Area floor would be backfilled to an elevation of 223m AHD and the Perimeter Safety Bund would be removed along the northern and western boundaries of the Extraction Area to ensure that the area is free draining. The Office, Amenities and Parking Area would be backfilled and shaped to ensure slopes are generally consistent with the pre-disturbance landform within this area.

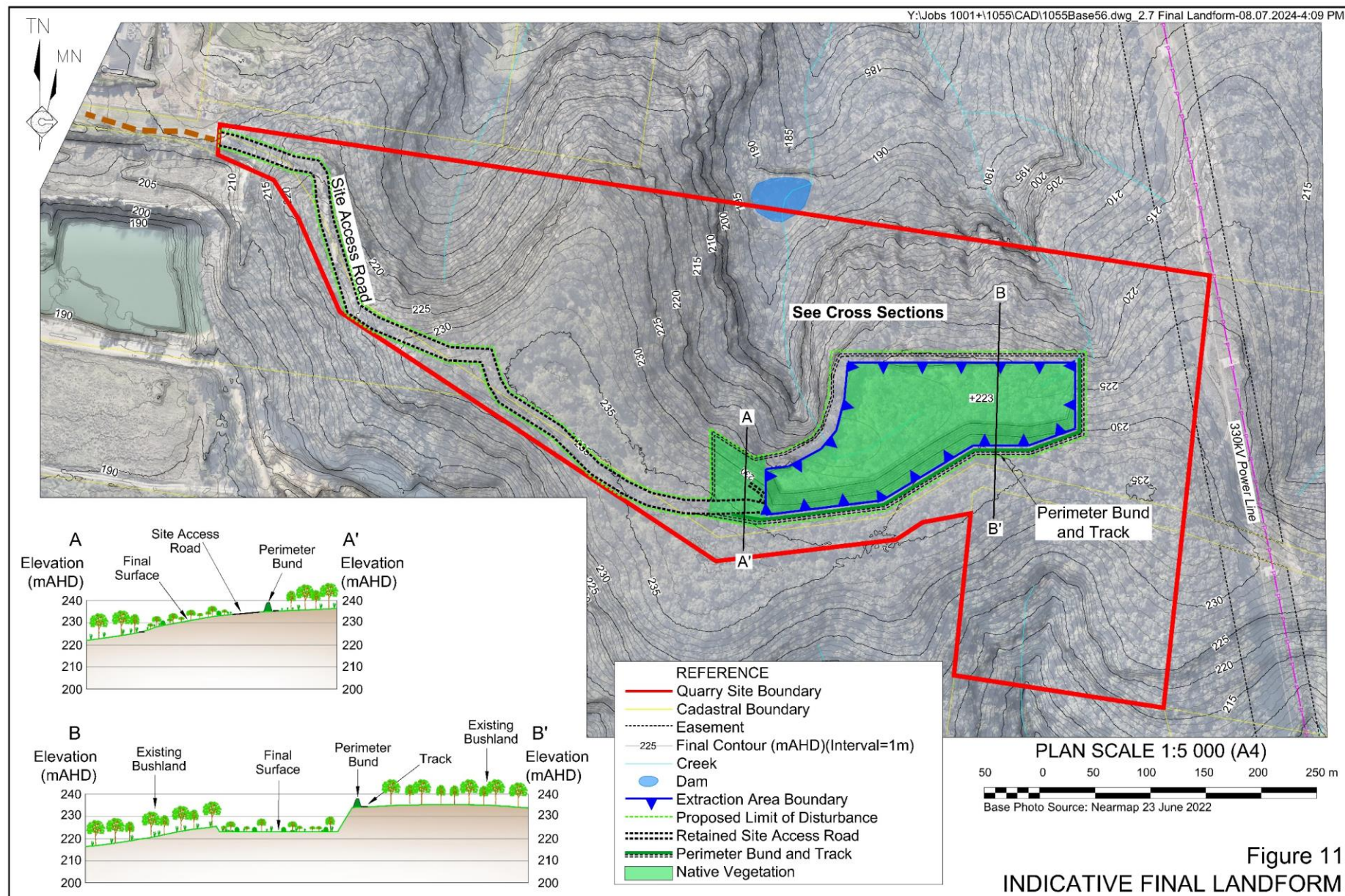
The methodologies described in Section 5.4 would be implemented to achieve the indicative final landform.

5.4 Rehabilitation Implementation

5.4.1 Introduction

Emphasis will be placed on progressive rehabilitation of completed areas within the Quarry Site, including those areas previously disturbed and no longer required.

It is anticipated that rehabilitation would be undertaken in accordance with the indicative schedule of works presented in Section 4.12. However, “out of sequence” rehabilitation activities would be undertaken in accordance with the methodologies detailed in the subsection for the relevant rehabilitation phase. For example, placement of topsoil and/or overburden on terminal extraction benches during the operations phase would be undertaken in accordance with the methodologies described in Section 5.4.4.



5.4.2 Operations

Areas of disturbance requiring soil stripping would be clearly defined following vegetation clearing (using marker pegs/posts if necessary). The soil recovered would be placed initially within the designated Stage 1 Soil Stockpile Area. Soil and select vegetation removed during subsequent clearing campaigns (i.e. Stage 2) would preferentially be placed directly on areas requiring rehabilitation to minimise double handling and maximise efficiencies, or alternatively, be stockpiled within completed sections of the Extraction Area for later use in rehabilitation. The topsoil stockpiles would be no higher than 2m, and with slopes no greater than 1:3 (V:H) with a slightly roughened surface to minimise erosion.

Wherever possible, no soil would be removed in wet conditions to avoid breakdown of the soil structure. Topsoil would be stripped to an average depth of approximately 30cm in all areas of disturbance, where present. Stripping would generally be undertaken using an excavator.

Appropriate sedimentation controls, including sediment fencing, would be placed immediately down slope of any soil stockpiles and maintained until such time as a stable vegetation cover over the stockpile is achieved. Any soil stockpile likely to be retained for more than 3 months and that has not naturally established vegetation cover would be stabilised using a non-persistent cover crop.

In the event that unacceptable weed generation is observed on the soil stockpiles, an appropriate weed eradication program would be implemented.

5.4.3 Decommissioning

Following the cessation of extraction, all infrastructure, including the demountable office, portable amenities and workshop, would be removed from the Quarry Site. It is proposed that the Site Access Road would be retained following the life of the Quarry to provide ongoing access for rehabilitation and maintenance activities and any subsequent land uses on the property. Unsealed internal tracks, ramps and safety bunds along the southern and eastern Extraction Area boundaries would be retained following the cessation of operations to provide for ongoing, safe access to the Extraction Area for rehabilitation and maintenance activities.

All demolition procedures and subsequent waste removal undertaken during the decommissioning phase of rehabilitation operations will comply with requirements as identified through consultation with Council and other relevant Government agencies, as required. As a minimum, the following controls will be implemented during demolition works at the Quarry Site.

- Areas will be continually damped down with water to suppress dust during decommissioning, with sediment laden water captured as appropriate.
- Works will be undertaken so as to minimise the generation of particulate matter.
- Works will not be undertaken during periods of high wind.
- Loads of waste material (i.e. scrap steel) removed from decommissioned site infrastructure will be covered prior to transportation.

All material and waste products generated from any demolition, decommissioning and/or removal operations will be collected and either disposed of within the Quarry Site where appropriate, removed immediately from the Quarry Site or stored in appropriate (i.e. disturbed) areas for removal by a licensed waste contractor as soon as practicable.

5.4.4 Landform Establishment

5.4.4.1 Final Landform Construction – General Requirements

As shown on **Figure 11**, the majority of the Quarry Site would be progressively rehabilitated to achieve the appearance of vegetated natural landforms in the surrounding area. Areas which would remain unvegetated, i.e. retained roads, would be consistent with the final land use for the Quarry Site. Furthermore, it is envisaged that the final landform would be safe, stable and internally draining to ensure there would be no impacts to downslope cultural or ecological values. Notwithstanding, should any changes to the final landform arise, any potential downslope impacts will be re-assessed.

5.4.4.2 Extraction Area

The Extraction Area will be progressively rehabilitated as extraction progresses and as such, rehabilitation of this area will invariably be linked to the sequence of extraction operations. Notwithstanding, rehabilitation activities undertaken within the Extraction Area to achieve the final landform consistent with that presented on **Figure 11** would be as follows.

- Imported VENM and/or stockpiled overburden would be utilised to backfill the Extraction Area floor to an elevation of 223m AHD.
- Imported VENM and stockpiled topsoil and/or overburden would be relocated into completed areas and shaped in accordance with the final landform. The shaped material would form an inward sloping final landform with final slopes of 1:2 (V:H) or less.
- ‘Fine’ grained VENM and/or overburden material will be preferentially placed at the surface so as to provide a layer of material that will better maintain moisture and facilitate establishment of vegetation.
- The Perimeter Safety Bund would be removed along the northern and western boundaries of the Extraction Area to ensure that the area is free draining.
- The surface of the final landform would be lightly scarified and soil material spread to a minimum of 50mm. In the event that adequate soil material is not available, soil conditioner / fertiliser and mulch (particles <16mm and thickness 20mm to max 40mm / 200m³ to 400m³ per ha) would be spread to create a growth medium (see Section 5.4.5).
- Vegetation material recovered from clearing activities would then be spread across the final landform (see Section 5.4.6).
- The area would then be seeded with native species consistent with those listed as occurring within the PCTs mapped across the Quarry Site (see Section 5.4.6).

5.4.4.3 Operational Disturbance Area

Rehabilitation activities undertaken within the remainder of the Quarry Site to achieve the final landform consistent with that presented on **Figure 11** would be as follows.

- Imported VENM and stockpiled topsoil and/or overburden would be emplaced within the Office, Amenities and Parking Area and shaped in accordance with the final landform. The shaped material would form slopes generally consistent with the pre-disturbance landform within this area and western adjoining undisturbed area.
- 'Fine' grained VENM and/or overburden material will be preferentially placed at the surface so as to provide a layer of material that will better maintain moisture and facilitate establishment of vegetation.
- The surface of the final landform would be lightly scarified and soil material spread to a minimum of 50mm. In the event that adequate soil material is not available, soil conditioner / fertiliser and mulch (particles <16mm and thickness 20mm to max 40mm / 200m³ to 400m³ per ha) would be spread to create a growth medium (see Section 5.4.5).
- Vegetation material recovered from clearing activities would then be spread across the final landform (see Section 5.4.6).
- The area would then be seeded with native species consistent with those listed as occurring within the PCTs mapped across the Quarry Site (see Section 5.4.6).

5.4.5 Growth Medium Development

Growth medium development activities would primarily involve placement of soil and/or fine-grained overburden material at the surface before being lightly scarified and spread to a minimum of 50mm. In the event that adequate soil material is not available, soil conditioner / fertiliser and mulch (particles <16mm and thickness 20mm to max 40mm / 200m³ to 400m³ per ha) would be spread to create a growth medium.

A water cart would be utilised to lightly wet growth medium material prior to spreading in order to minimise dust generation. In areas where there is an elevated risk of erosion, earthworks and revegetation via direct seeding or hydromulch would be applied to facilitate stabilisation and vegetation establishment. Areas which are not considered vulnerable to erosion would be sown using broadcast seeding methods or allowed to revegetate naturally from the stored seedbank and airborne seed. Growth medium spreading would not be undertaken during excessively wet or windy conditions.

Seasonal and local meteorological conditions would be monitored to identify conditions which may result in delaying vegetation establishment (e.g. extended drought conditions). Land preparation and growth medium spreading activities would only be undertaken where conditions are predicted to be favourable (i.e. average or above average annual rainfall) to the establishment of vegetation.

5.4.6 Ecosystem and Land Use Establishment

Vegetation establishment activities at the Quarry, including the application of hydromulch and broadcast seeding, would occur only where favourable climatic conditions are expected to occur. Consequently, prolonged drought periods may result in extended delays to rehabilitation activities including growth medium spreading and seeding.

Seeding of available areas would be completed using a combination of direct seeding, broadcast seeding and hydromulch application methods. The application of individual methods would depend partially upon the vulnerability of individual areas to erosion by wind and water.

Given suitable climatic conditions, rehabilitation earthworks would comprise the first stage of the process. The aim of these earthworks would be to control surface water runoff and also provide micro-scale niche environments where nutrients, water and seed can collect and increase the likelihood of germination and survival of emergent seedling. Contour ripping on flat and sloped ground would preferentially be employed to achieve these aims.

Revegetation would be undertaken following any earthworks and surface preparation works. Areas located adjacent to remnant vegetation which are generating seed on a routine basis (e.g. the western portion of the Office, Amenities and Parking Area) may not require the application of supplemental seed during rehabilitation operations. Larger disturbed areas would require direct seeding of local species following the completion of earthworks.

Seed material would be sourced where possible from local suppliers, nurseries and/or propagation specialists. Seed would also be sourced from commercial suppliers where the required volume of seed material or specific species are not available locally for rehabilitation works.

As outlined in Section 4.4, species selection for revegetation would include only native species listed as occurring within the PCTs mapped across the Quarry Site. The proposed planting density is as follows:

- One tree per 16m² (4m centres)
- One shrub per 16m² (4m centres)
- Up to 4 groundcovers per 1m²

The proposed planting density has been determined by Ecoplanning with consideration of the PCTs mapped across the Quarry Site, the standard planting densities identified in the *NSW Rehabilitation Cost Estimate Tool version 2024-1* (NSW Resources Regulator, July 2024) and site characteristics such as rainfall, elevation, topography and soil capability.

5.4.7 Ecosystem and Land Use Development

The management measures which would be implemented to monitor revegetation operations during the ecosystem and land use development phase of rehabilitation are described in Section 4.11.

Results from rehabilitation monitoring would be used to assess the progress of revegetated areas towards target values based on analogue sites for each of the established vegetation community types, i.e. areas of undisturbed native vegetation associated with the relevant PCT within the Quarry Site.

In the event rehabilitation monitoring identifies that revegetation has not been successful, additional management actions would be implemented as required. These additional management actions may include, but would not be limited to:

- growth medium amelioration (e.g. fertiliser or organic matter application);
- reseedling of areas with seed of target species where species assemblages are not consistent with those of analogue sites; and
- engaging a suitably qualified expert to provide recommendations to improve rehabilitation outcomes.

5.5 Erosion Control

Erosion and sedimentation risks during progressive rehabilitation activities undertaken throughout the operations phase would be managed and mitigated via the proposed closed water management system (see Section 4.9).

Erosion and off-site sedimentation risks during subsequent phases of rehabilitation would principally be managed via the installation and maintenance of silt-stop fencing downslope of rehabilitation areas, as required.

5.6 Weed Management

Weed management would primarily be handled by weed control programs that would be prepared and implemented by a suitably qualified person on an as-needed basis. Additionally, areas of progressive rehabilitation would be opportunistically monitored by site personnel for weed infestations which would be managed where present.

Several parameters associated with the presence of weeds and grazer impacts (if any) will be recorded as part of rehabilitation monitoring activities and included in the Annual Progress Report. At a minimum, this will include the following.

- An overview of any weed and pest management measures implemented at the Quarry Site during the 12-month reporting period.
- A list of weed species identified during rehabilitation monitoring and any other inspections completed at the Quarry Site.
- Details of any pests or evidence of grazer damage to revegetated areas identified during inspections, including a plan showing distribution within the Quarry Site, where appropriate.
- Recommendations for specific weed and pest management measures to be implemented during the subsequent 12-month period.

5.7 Final Drainage

Following completion of rehabilitation, the Quarry Site would be free draining. Removing the Perimeter Safety Bund along the northern and western boundaries of the Extraction Area and other surface water diversion structures would allow all clean water to drain passively and freely from the Quarry Site.

5.8 Responsibilities

The Applicant would be responsible for implementing rehabilitation activities throughout the life of the Proposal.

6. References

- Department of Environment and Climate Change (DECC) (2002).** Descriptions for NSW (Mitchell) Landscapes Version 2 (2002)
(<https://www.environment.nsw.gov.au/resources/conservation/LandscapesDescriptions.pdf>)
- Ecoplaning Pty Ltd (2023).** *Biodiversity Development Assessment Report*. Prepared on behalf of Central Civil (NSW) Pty Ltd and presented as Appendix 7 to the EIS
- Etheridge (1980).** *Geological Investigation and Resource Assessment of the Maroota Tertiary Alluvial Deposit*. Geological Survey of NSW, Department of Mineral Resources. Report No. GS1980/201
- Hopkins and Ross (1996).** *Maroota Groundwater Study, Stage 1*. NSW Department of Land and Water Conservation Hydrogeology Unit. Report no. CS96.027
- Hornsby Shire Council (2008).** *Guidelines for the preparation of Vegetation Management and Restoration Plans 2008*
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- NSW Royal Fire Service (RFS) (2019).** *Planning for Bush Fire Protection – A guide for councils, planners, fire authorities and developers*
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