

Aboriginal Heritage Management Plan

Menangle Sand and Soil Quarry

Prepared for Menangle Sand and Soil Pty Ltd
February 2022





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Menangle Sand and Soil Quarry - Stage 8 Area

Aboriginal Heritage Management Plan

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Client

Menangle Sand and Soil Pty Ltd

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v2b	20 January 2021	R. Desic	P. Towler	Updated based on RAP/Heritage NSW comments
v2	20 April 2021	R. Desic	P. Towler	Updated based DPE comments
v3	28 February 2022	K. Ward	R. Desic	Updated to incorporate MOD2

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1 Introduction

1.1 Context

Menangle Sand and Soil Pty Ltd (Menangle Sand and Soil) operates the Menangle Sand and Soil Quarry at 15 Menangle Road, Menangle (Figure 1.1). Quarrying has been undertaken in the location for over 40 years by a number of operators and at varying rates of production. Extraction, processing and rehabilitation activities have been undertaken by Menangle Sand and Soil since 1978.

The quarry, located in the Wollondilly and Campbelltown local government areas, extracts sand and soil along the Nepean River as approved by Development Consent 85/2865, granted by the Minister for Planning on 15 November 1989.

To date, sand and soil has been extracted from Stages 1 to 2 and 4 to 7 (Figure 1.2). While previously approved, sand and soil will not be extracted from Stage 3.

On 10 September 2020, the NSW Land and Environment Court (LEC) approved the Menangle Quarry Extension – Modification 1 (MOD1) to Development Consent 85/2865. Consent Conditions are provided in the Notice of Orders for LEC 2018/342158.

On 5 November 2021, the Minister for Planning and Public Spaces approved the Menangle Quarry Extension – Modification 2 (MOD2). Changes to the Consent conditions are provided in the Notice of Modification for Development Consent DA 85/2865.

The Consolidated Consent ('the Consent') allows the extraction of sand and soil in a new area, the Stage 8 area (Figure 1.3), that is about 13 ha, and extends about 2 kilometres (km) along the Nepean River south of the Stage 7 area. The quarry is approved to extract sand and soil from the Stage 8 area at a rate of up to 150,000 tpa.

The extracted material will be transported to the processing area where it will be stockpiled, processed and blended with materials imported to the site, prior to being dispatched from the quarry. Operations (but not extraction) will continue in the Stage 6 and Stage 7 areas.

Modification 2 removed the requirement for an overland conveyor and replaced it with the operation of an off-road haul truck for the transfer of extracted materials from the Stage 8 area to the processing area using existing roads. There will be no additional ground disturbance as a result of MOD2.

This Aboriginal Heritage Management Plan (AHMP) has been prepared to address the requirements of the Consent.

The AHMP applies to the Stage 8 project area boundary as shown on Figure 1.3. This comprises the Stage 8 extraction area (Substages 8A–8M) and the Stage 8 restoration area which are referred to separately when relevant. The AHMP also provides management measures for a rockshelter site that is outside but in proximity to the project area, being Bulli Site 40 (AHIMS 52-2-3720 – rockshelter with art).

1.2 Project overview

The quarry has consent to extract the sand and soil resource in the Stage 8 area to 2035. The Stage 8 area extends approximately 2.8 km upstream of the currently active Stage 7 area.

As well as the extraction areas, key components of the quarry include:

- a wheel wash and weighbridge;

- a site office and amenity building;
- a workshop west of the site office;
- fuel supply tanks north of the storage shed;
- processing area, including stockpiles; and
- other minor infrastructure.

These components will be used to support activities in the Stage 8 area which include:

- extraction in the Stage 8 extraction area followed by rehabilitation;
- restoration of areas adjacent to the extraction areas; and
- haul roads.

1.3 Operations

1.3.1 Activities

Operations at the quarry comprises the following activities:

- vegetation management and clearance;
- sand and soil excavation;
- material transport by off-road haul truck;
- sorting and screening of excavated material;
- processing of excavated material;
- blending of excavated material with imported materials (permitted by the Consent and EPL 3991);
- stockpiling;
- loading of product into trucks; and
- transport of product off-site by road trucks.

1.3.2 Plant and equipment

Condition A33 of the development consent states:

All plant and equipment used on site, or to monitor the performance of the development must be:

- (a) maintained in a proper and efficient condition; and
- (b) operated in a proper and efficient manner.

Hence, regular maintenance of all plant and equipment will be logged and stored on site available for review at any time.

1.3.3 Quarry life

The Stage 8 Operations may be carried out on the site until 31 December 2035.

1.3.4 Operating hours

The quarry will operate during the approved hours in accordance with development consent Table 1.1, Condition A26, as reproduced in Table 2.1 below.

Table 1.1 Operating hours

Activity	Permissible hours
Construction work	<ul style="list-style-type: none">• 7 am to 5 pm Monday to Friday• 7 am to 1 pm Saturday• At no time on Sundays or public holidays
Quarrying operations including loading and dispatch of laden trucks	<ul style="list-style-type: none">• 6 am to 5 pm Monday to Friday• 6 am to 12 noon Saturday• At no time on Sundays or public holidays
Maintenance, security, office work, cleaning, etc	<ul style="list-style-type: none">• May be conducted at any time, provided that these activities are not audible at any residence on privately-owned land

Condition A27 of the development consent states that where police or other public authorities request that deliveries or dispatching of materials are to be carried out outside operating hours and emergency work to avoid the loss of lives, property or to prevent environmental harm is required, then these activities are permitted outside the normal operating hours. In such circumstances, the Applicant must notify the Department and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

1.4 Purpose and objectives

The primary purpose of this plan is to define management of Aboriginal heritage values within project area and its vicinity. The term 'management' includes both Aboriginal heritage protection as well as mitigation of impacts on Aboriginal heritage. This AHMP includes:

- a list of all Aboriginal sites identified in the project area;
- management procedures for Aboriginal cultural heritage values within and adjacent to the project boundary;
- measures to ensure ongoing consultation with the project's registered Aboriginal parties (RAPs) and Heritage NSW;
- protocols for RAP access arrangements for Aboriginal stakeholders outside of approved disturbance areas;
- protocols for educating staff and contractors of their obligations relating to Aboriginal cultural heritage values through a site induction process;
- protocols for newly identified sites;
- protocols for suspected human skeletal materials;
- protocols for the ongoing care of salvaged Aboriginal objects (if identified and salvage is required);

- protocols for monitoring and inspection of Aboriginal sites;
- reporting requirements and site database update requirements;
- provisions for continuous improvement to the plan through auditing and plan modification; and
- provisions for review and updates of the AHMP.

This AHMP has been prepared by EMM Consulting Pty Limited (EMM) on behalf of Menangle Sand and Soil.

Menangle Sand and Soil will not commence quarrying operations in the Stage 8 Area until this AHMP is approved by the Planning Secretary.

Menangle Sand and Soil will implement the AHMP as approved by the Planning Secretary.

1.5 Authorship

This plan was prepared by EMM Associate Archaeologist Ryan Desic (BA (hons) Historical and Prehistoric Archaeology) and reviewed by EMM Archaeologist Associate Director Dr Alan Williams FSA MAACA. In accordance with Schedule 3, CoA B62(a), Ryan Desic was endorsed to prepare the AHMP by the Planning Secretary (refer Appendix C.1).

1.6 Regulatory consultation

1.6.1 AHMP preparation

In accordance with CoA B62(b), EMM on behalf of Menangle Sand and Soil consulted with Heritage NSW about the preparation of AHMP. Consultation with the Aboriginal community is addressed in Section 3.

EMM initially emailed a letter to Heritage NSW on 22 October 2020 during the preparation of the AHMP. The letter advised that the preferred consultation approach would be for Heritage NSW to review the AHMP after the RAP review period and its submission to the Department of Planning Industry and Environment (now Department of Planning and Environment, DPE) but were also offered to provide any upfront input or feedback during the AHMP preparation.

EMM discussed matters regarding the AHMP with Heritage NSW via teleconference on 1 and 7 December 2020. EMM provided a draft of the AHMP to Heritage NSW on 7 December 2020 welcoming initial feedback but acknowledging that Heritage NSW was likely to undertake a formal review after the results of Aboriginal consultation were provided and the document was issued to DPE for assessment and approval. The draft AHMP was subsequently reviewed by Heritage NSW and their comments addressed (see Appendix

Following Department of Planning, Industry and Environment (DPE) review of the draft AHMP, the final AHMP (version 2, 20 April 2021) was approved by the Planning Secretary on 14 April 2021 (Appendix D).

1.6.2 AHMP update

There will be no additional ground disturbance as a result of MOD2.

Heritage NSW was consulted during the MOD2 application process. Their comments were considered by Menangle Sand and Soil during the application process and by DPE on behalf of the Minister in approving the application and amending the Consent conditions.

The updated wording in the Consent does not affect any matters related to Aboriginal heritage and there have only been small changes to this plan. Therefore, a draft of the updated plan was not sent to the RAPs and Heritage NSW. The plan will be provided to the RAPs and Heritage NSW.



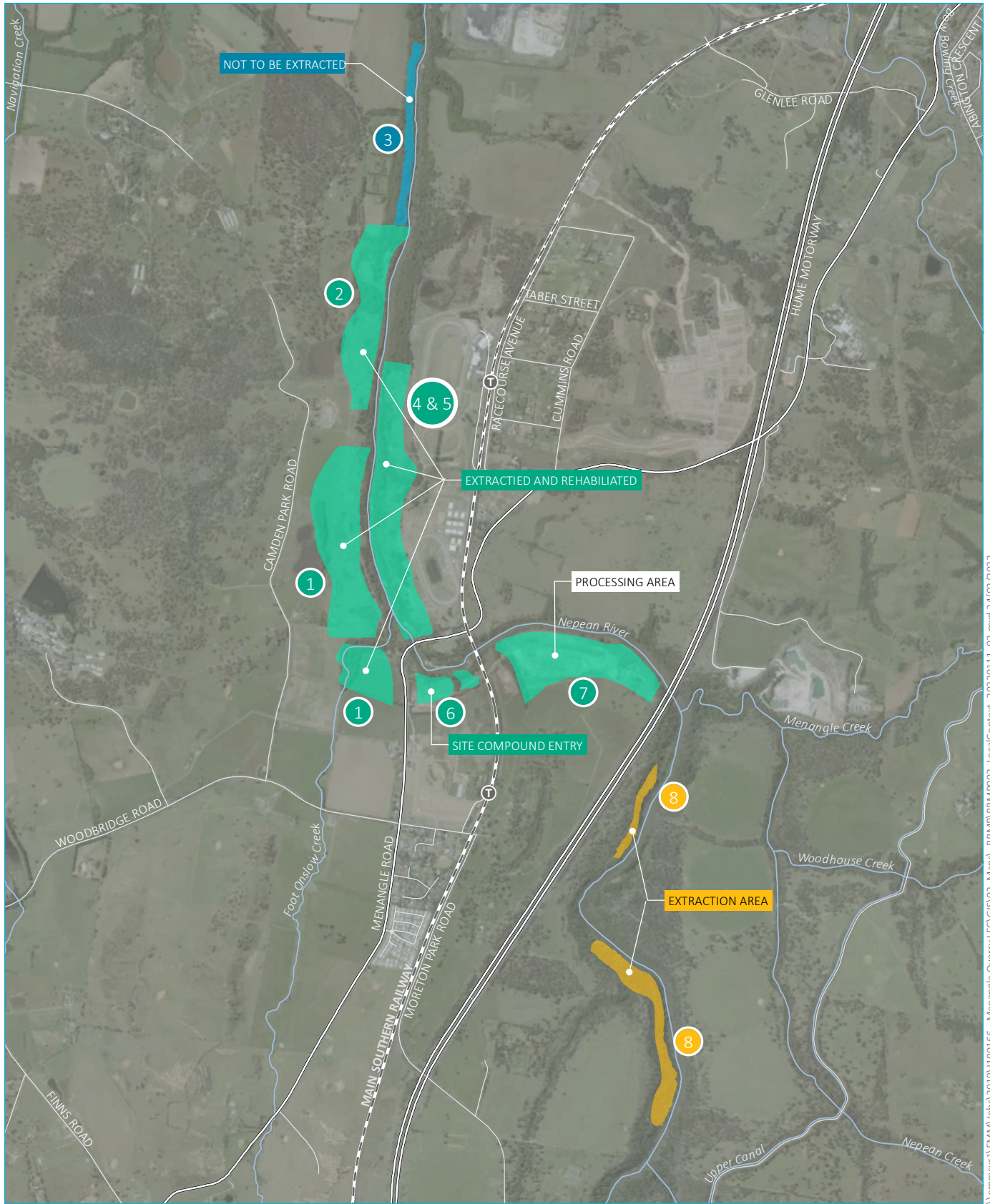
- | | |
|---|---|
| <p>KEY</p> <ul style="list-style-type: none"> --- Rail line == Major road — Named watercourse ▒ Named waterbody ■ NPWS reserve ▭ Local government area | <p>INSET KEY</p> <ul style="list-style-type: none"> — Main road ■ State forest |
|---|---|

Regional context

Menangle Sand and Soil Quarry
Figure 1.1



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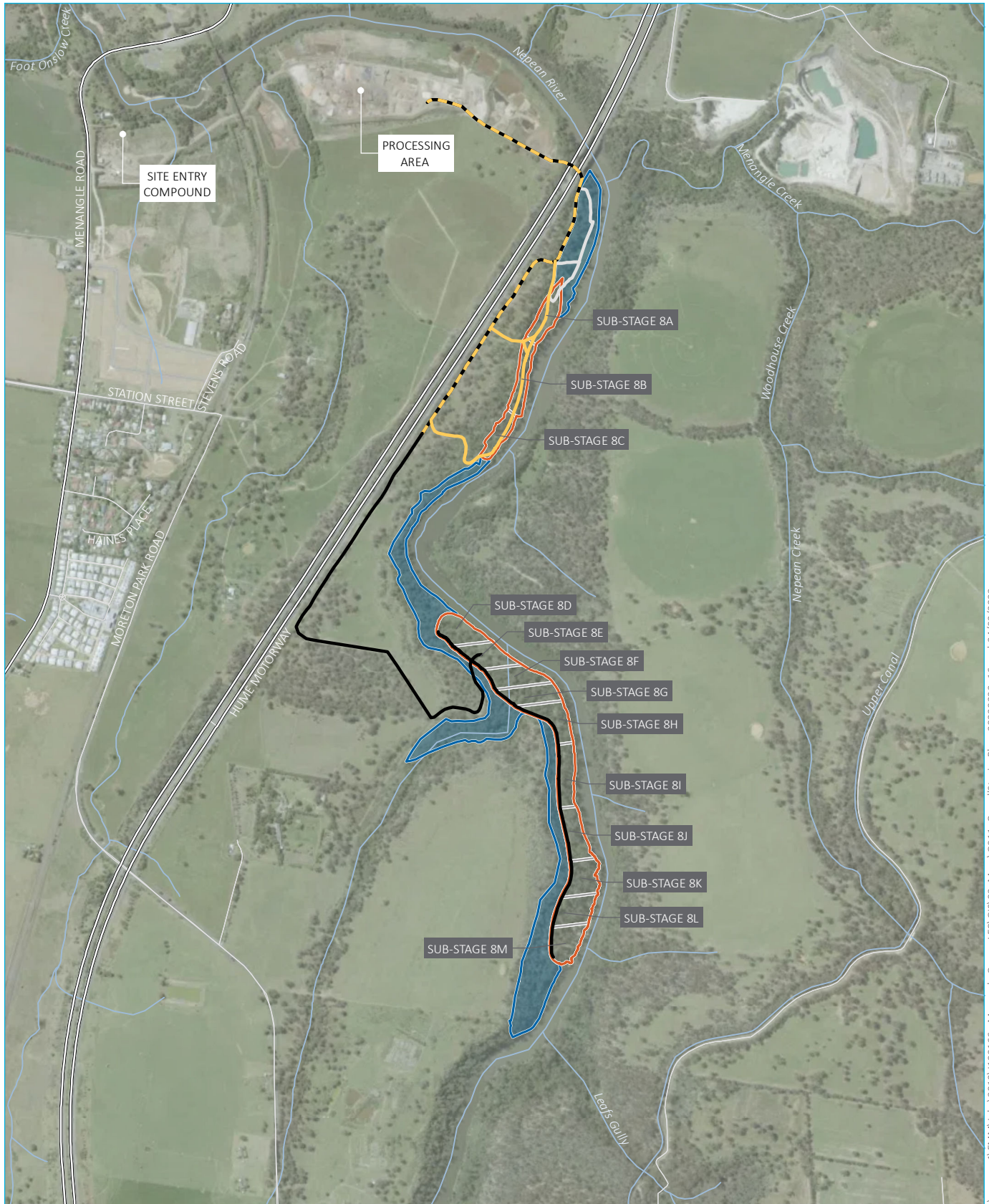


Source: EMM (2022); Metromap (2022); DFSI (2017)

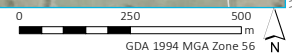
KEY

- Train station
- Rail line
- Main road
- Local road
- Named watercourse
- Extractive operations (approved)
- Extractive operations (approved but not extracted)
- Stage 8 - extraction/rehabilitation area

Menangle Quarry stages 1 to 8



Source: EMM (2022); Metromap (2022); DFSI (2017)



KEY

- | | | |
|--|----------------|----------------------------|
| Stage 8 - extraction/rehabilitation area | Access track | Substage boundary |
| Stage 8 - restoration area (no extraction) | Haul roads | Phase 1 Sub-stages 8A - 8B |
| Main road | Substage 8A-8M | Phase 2 Sub-stage 8C |
| Local road | Substage 8A-8C | Phase 3 Sub-stages 8D - 8E |
| Watercourse/drainage line | Substage 8D-8M | Phase 4 Sub-stages 8F - 8G |
| | | Phase 5 Sub-stages 8H - 8I |
| | | Phase 6 Sub-stages 8J - 8K |
| | | Phase 7 Sub-stages 8L - 8M |

Stage 8 area

Menangle Sand and Soil Quarry
Figure 1.3



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2 Environmental requirements

2.1 Legislative context

There are several Commonwealth and state Acts (and associated regulations) that manage and protect Aboriginal cultural heritage which are summarised in Table 2.1.

Table 2.1 Commonwealth and State legislation relevant to the project.

Legislation	Description	Relevant to the project?	Details
Commonwealth			
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Recognises sites with universal value on the World Heritage List (WHL). Protects Indigenous heritage places with outstanding heritage value to the nation on the National Heritage List (NHL), and significant heritage value on the Commonwealth Heritage List (CHL).	No	There are no Indigenous heritage places within the project area that are listed on the WHL, NHL, or the CHL.
<i>Native Title Act 1993</i>	Administers rights and interests over lands and waters by Aboriginal people. Provides for negotiation and registration of Indigenous Land Use Agreements (ILUAs). Often used in NSW to identify relevant stakeholders for consultation.	No	No native title claim applications or determinations or Indigenous Land Use Agreements exist over the project area.
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>	Preserves and protects areas and objects of particular significance to Aboriginal people that are under threat from injury or desecration.	No	There are no areas or objects within the project area subject to a Declaration under the Act.
State			
<i>Environmental Planning and Assessment Act 1979</i>	Requires environmental impacts, including to Aboriginal heritage, to be considered in land use planning. Provides for the development of environmental planning instruments, including State Environmental Planning Policies and Local Environmental Plans.	Yes	The project was originally approved by Development Consent 85/2865, granted by the Minister for Planning on 15 November 1989. The extension project was assessed as a modification under Section 75W of the EP&A Act as the extant development consent was issued under Section 101 of the Act (refer to Clause 12 of Schedule 6A for transitional arrangements).

Table 2.1 Commonwealth and State legislation relevant to the project.

Legislation	Description	Relevant to the project?	Details
<i>National Parks and Wildlife Act 1974</i> (NPW Act)	Provides blanket protection for all Aboriginal objects and declared Aboriginal places. Includes processes and mechanisms for development where Aboriginal objects are present, or where Aboriginal Places are proposed for harm.	Yes	The project was originally approved by Development Consent 85/2865, granted by the Minister for Planning on 15 November 1989. DPE has advised that the NPW Act requirement for an Aboriginal heritage impact permit (AHIP) to harm Aboriginal objects remains in force for this project development consent.
<i>Aboriginal Land Rights Act 1983</i>	Establishes Local Aboriginal Land Councils (LALCs). Allows transfer of ownership of vacant crown land to a Local Aboriginal Land Council. The Office of the Registrar, <i>Aboriginal Land Rights Act 1983 (ORALRA)</i> , registers Aboriginal land claims and maintains the Register of Aboriginal Owners. Often used in NSW to identify relevant stakeholders for consultation.	No	The project area does not appear to have Registered Aboriginal Owners pursuant to Division 3 of the Act.

2.2 Project consent conditions

Conditions B58–B64 of project approval set out Aboriginal heritage requirements. The conditions listed in Table 2.2 refer to the relevant sections of this plan which address them.

Table 2.2 Conditions of Consent relevant to this AHMP

Condition	Requirement	Where addressed in this document
Heritage Operating Conditions		
B58	The Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage item located outside the approved disturbance area.	Sections 5.1.2 and 5.1.3
B59	If suspected human remains are discovered on site, then all work surrounding the area must cease, and the area must be secured. The Applicant must immediately notify NSW Police and Heritage NSW, and work must not recommence in the area until authorised by NSW Police and Heritage NSW.	Section 5.4.3
B60	If any previously unknown Aboriginal object or Aboriginal place is discovered in the Stage 8 Area:	
(a)	all work in the immediate vicinity of the object or place must cease immediately;	Section 5.4.1
(b)	a 10 metre buffer area around the object or place must be cordoned off; and	
(c)	Heritage NSW must be contacted immediately.	

Table 2.2 Conditions of Consent relevant to this AHMP

Condition	Requirement	Where addressed in this document
B61	Work in the immediate vicinity of an object or place subject to condition B60 may only recommence if:	
(a)	the potential Aboriginal object or Aboriginal place is confirmed by Heritage NSW upon consultation with the Registered Aboriginal Parties not to be an Aboriginal object or Aboriginal Place; or	Sections 5.4.1 and 5.4.2
(b)	an Aboriginal Heritage Impact Permit is obtained under section 90 of the <i>National Parks and Wildlife Act 1974</i> , and the Aboriginal Cultural Heritage Management Plan is revised to include appropriate measures in respect the Aboriginal object or Aboriginal place, to the satisfaction of the Planning Secretary.	
Aboriginal Cultural Heritage Management Plan		
B62	The Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	This document
(a)	be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Section 1.5
(b)	be prepared in consultation with Heritage NSW and Registered Aboriginal Parties;	Section 1.6 (Heritage NSW) Section 3.3 (RAPs)
(c)	describe the measures to be implemented within the Stage 8 Area, Nepean River Buffer Zone and Restoration Area to:	
(i)	ensure all workers on the site receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;	Section 6.1
(ii)	protect, monitor and manage Aboriginal objects and Aboriginal places;	Section 5
(iii)	protect Aboriginal objects and Aboriginal places located outside the approved disturbance area from impacts of the development;	Section 5.1 Section 5.4.2
(iv)	manage any new Aboriginal objects or Aboriginal places discovered during the life of the development;	Section 5.4
(v)	maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area); and	Section 3.4.2
(vi)	facilitate ongoing consultation and involvement of Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site.	Section 3.4
B63	The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Aboriginal Cultural Heritage Management Plan is approved by the Planning Secretary.	Section 1.4
B64	The Applicant must implement the Aboriginal Cultural Heritage Management Plan approved by the Planning Secretary.	Section 1.4

3 Aboriginal consultation protocols

3.1 Registered Aboriginal parties

There are seven Aboriginal groups registered for the project (Table 3.1). The RAPs were identified, registered and consulted as part of the ACHA (EMM 2016). Previous consultation included discussion of the management measures which were outlined in the ACHA and are detailed in this AHMP.

Table 3.1 List of RAPs

Organisation	Date of registration
Cubbitch Barta Native Title Claimants Aboriginal Corporation (Cubbitch Barta)	1 Jun 2016
Peter Falk Consultancy (now Duncan Falk Consultancy)	14 Jun 2016
Gulaga	15 Jun 2016
Biamanga	15 Jun 2016
Callendulla	15 Jun 2016
Murramarang	15 Jun 2016
Goobah	15 Jun 2016
Tharawal Local Aboriginal Land Council	Not formally registered but consulted throughout the modification application, since July 2016

3.2 Consultation process for the EA

The following summary of the Aboriginal consultation process followed for the EA is based on the more extensive account given in the ACHAR (EMM 2016).

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a) were used for the ACHA. RAPs were invited to provide cultural information about the project area, were provided with draft assessment and fieldwork methods for review and kept consulted about project updates and management via a consultation meeting, letters and emails and provided with assessment documentation for review and comment. A summary of the main consultation components during the EA phase is provided in Table 3.2.

Table 3.2 Summary of consultation for the project EA

Component	Key features
May–November (EMM 2016) Main ACHA consultation component	<p>This phase included:</p> <ul style="list-style-type: none"> • the identification, notification and registration of RAPs; • presentation of project information and assessment methodologies (including on-site meeting on 23 September 2016); • gathering cultural information; • archaeological survey (April 2016); • archaeological test excavation (October 2016) • provision of draft ACHA for RAP review (November–December 2016); and • provision of final ACHA to RAPs as part of EA lodgement.

3.3 Consultation in developing this plan

In accordance with CoA B62(b), EMM consulted RAPs in developing this plan. Documentation of the consultation process is included in Appendix B.

Aboriginal consultation for this AHMP was approached in a manner consistent with the requirements set out in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a). Consultation was undertaken with existing RAPs who have been involved in the consultation process since the preparation of the ACHA (refer Section 3.1).

RAPs were notified via letter about the intention for EMM to prepare the AHMP on 22 October 2020. The notification letter outlined the consultation process for the AHMP and identified key matters to be discussed for the AHMP.

A draft of this AHMP was provided to all of the RAPs on 11 December 2020 allowing for a 28-day review period. The draft report included highlighted text indicating sections where RAP input was sought in reference to particular management decisions, such as the keeping place location. RAPs were also issued with a cover letter explaining the review process and highlighting where key input was sought.

Responses were received by Cubbitch Barta, Goobah, Murramarang, and Biamanga. A summary of RAP submissions and outcomes relating to the AHMP are presented in Table 3.3. Appendix B contains Cubbitch Barta’s detailed letter and EMM’s response along with copies of the other RAP submissions.

Table 3.3 Outcomes of consultation with RAPs (RAP submissions attached in Appendix B)

Stakeholder	Issue or recommendation (EMM paraphrase from submission)	Response and where issue is addressed in AHMP if applicable
Cubbitch Barta	Concern over environmental impact of the project, with specific reference to native old growth trees that will be destroyed.	This issue was previously raised during the ACHA phase of the project and addressed during that consultation period. This comment refers to the approval of the project in general and not the contents of the AHMP. Notwithstanding, EMM has provided a response attached in Appendix B. No changes to the AHMP have been made from this submission topic.
Cubbitch Barta	Cubbitch Barta raised an issue about the difference between vegetation removal and topsoil removal.	This was clarified in EMM’s response letter and did not require changes to the AHMP.

Table 3.3 Outcomes of consultation with RAPs (RAP submissions attached in Appendix B)

Stakeholder	Issue or recommendation (EMM paraphrase from submission)	Response and where issue is addressed in AHMP if applicable
Cubbitch Barta	Statement that no work should take place in areas not previously surveyed until further assessment has taken place.	EMM’s response letter (Appendix B) referred to Section 5.2 of the AHMP which states that additional survey prior to works in the Stage 8 extraction area will take place after the understorey is cleared and prior to the removal of mature trees to determine if any feature Aboriginal scarring or carving; and additional survey will take place for rock shelters in the Stage 8 restoration area.
Cubbitch Barta	Concern over impacting and removing Aboriginal scarred trees if identified.	This is addressed in Appendix B. No Aboriginal scarred or carved trees have been identified in the project area, but the trees will be subject to further survey once weeds are removed and they can be accessed. Note that any proposal to impact Aboriginal objects in the project area would require an Aboriginal Heritage Impact Permit (AHIP) issued by Heritage NSW. Section 5.4.2 of the AHMP sets out the level of assessment that will be required to accompany an AHIP application, including an impact assessment and demonstration why any site(s) in question cannot be reasonably avoided.
Murramarang	Supported the draft AHMP	None required
Biamanga	Supported the draft AHMP	None required
Goobah	Supported the draft AHMP	None required

3.4 Ongoing consultation

3.4.1 All RAPs to be kept informed

The RAPs will continue to be consulted on matters of Aboriginal heritage management for the project. Primary communication will be via letter which may be emailed or posted depending on RAP preferred means of communication. Issues raised in conversations, whether by telephone or in person, should be documented in a letter by the person raising the issue within a reasonable time of the conversation. Only suitably documented issues will be subject to further action by Menangle Sand and Soil with the RAPs.

Instances where consultation is required is set out throughout this report. In summary, consultation will be undertaken for (but may not be limited to) the following circumstances:

- when making changes to this plan, including the circumstances that trigger required changes to the plan (refer Section 6.3.6);
- when additional Aboriginal heritage assessment, investigation, protection or mitigation is required for the project; and
- when new Aboriginal sites and/or potential ancestral remains are discovered and input on their management is required (refer Section 5.4).

Menangle Sand and Soil will be responsible for consulting with the RAPs. Issues requiring the attention of RAPs will be communicated no later than one week of the issue arising. Feedback from RAPs is required no later than two weeks from the date correspondence is issued by Menangle Sand and Soil. Notwithstanding, review and feedback timeframes will be extended during periods such as Sorry Business or holidays. These extensions will be commensurate with period where RAPs are unable to conduct other activities.

3.4.2 Access to Aboriginal sites and objects

In accordance with CoA B62(c)(v), the AHMP must maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area). The primary aims of Aboriginal community access of these sites will be to achieve intergenerational equity through maintaining a cultural connection to Country and using the sites as cultural education tools.

Local Aboriginal community site visitation access Aboriginal sites and objects will be subject to the following provisions:

- given reasonable notice, visitation access to the Stage 8 area will be provided during quarry operating hours, in line with all safety and security requirements;
- access must comply with the facility's operational work health and safety (WHS) requirements, including appropriate transport to the Aboriginal heritage sites and a Menangle Sand and Soil site escort, if applicable;
- all visitors must log their attendance on a register made available by Menangle Sand and Soil to all RAPs (held on site);
- RAPs must give at least one week's notice to Menangle Sand and Soil or its delegate about their intent to access the project area and which sites wish to be visited;
- a RAP member may escort other members of the local Aboriginal community or other persons for research or educational reasons, on the condition that all proposed attendees give at least one week's notice written notice; and
- local Aboriginal community members seeking access to a RAP escort must receive prior written endorsement from one of the RAPs which identifies the name of the person, briefly describes their basis of interest and nominates the timeframe for access to the Aboriginal sites in order to provide confidence to Menangle Sand and Soil or their delegate and RAPs that the access request is authentic. At least two weeks' notice will need to be provided to Menangle Sand and Soil or its delegate.

3.4.3 Aboriginal involvement in Aboriginal heritage management measures

RAPs will be invited to provide a fieldwork representative to participate in Aboriginal heritage fieldwork activities as under contractual arrangement with Menangle Sand and Soil as presented in Section 5. Depending on the scope of specific management tasks, RAP fieldwork representatives may be required to work to a roster in an equal manner consistent with that employed during the project ACHA. All fieldwork management tasks will include at least one project archaeologist and will work in accordance with this plan.

RAPs will also be invited to assist in relevant Aboriginal heritage related fieldwork related to additional assessments as outlined in Section 6.3.5 where required.

RAPs will be provided with at least 14 days' notice prior to any fieldwork associated with this plan.

4 Existing environment

4.1 Overview

The Aboriginal cultural heritage values of relevance to the project were identified during the preparation of the project ACHA through archaeological investigation and Aboriginal community consultation with RAPs (EMM 2016). This section provides an overview of the Aboriginal sites and Aboriginal socio-cultural values relevant to the project as detailed in the project ACHA to provide context for the management provisions set out in Section 5.

4.2 Aboriginal socio-cultural and historical values

During ACHA preparation, the RAPs were consulted to determine whether any socio-cultural or historic heritage value relates specifically to the project area more broadly regardless of archaeological evidence. As a result of the consultation process, RAP Cubbitch Barta identified three types of intangible Aboriginal cultural heritage values during the consultation process.

The first type of values relate to the Nepean River which Cubbitch Barta identified as being culturally significant to the wider Aboriginal community. The Nepean River would have influenced many aspects of prehistoric Aboriginal life (eg resources and spiritual and cultural practices) and has continued as an important landscape feature up until the present. However, it is problematic to make management measures (other than complete avoidance) that respond to the general significance of the total Nepean River because it extends over a considerable geographic extent. No specific management measures for managing the cultural significance were proposed in the ACHA and are also not extended into the AHMP. Notwithstanding, the ACHA noted that the removal of exotic weeds and restoration of the project area will result in the Nepean River and its surrounds to ecologically resemble its pre-historic form to a level greater than it currently is.

The second type of values relate to a specific place (non-statutory) associated spiritual and traditional knowledge by Cubbitch Barta. This place was identified as associated with culturally sensitive information that was requested not to be shared publicly. EMM confirmed that the place is outside the Stage 8 impact areas and, because it relates to culturally sensitive knowledge, further information about the place was not provided to EMM. The project will avoid this area and no specific management measures for this area are set out in the AHMP.

The third type of values relates to the more recent and historic value Cubbitch Barta has associated with the Nepean River surrounding the Stage 8 area. This level of significance specifically relates to Glenda Chalker's family, including the continuation of cultural practices including fishing and collecting freshwater mussels. No management measures to address this were presented in the ACHA nor are proposed for this set of values in the AHMP. Note that the Nepean River will still be accessible generally from other land surrounding the Stage 8 area.

4.3 Summary of project ACHA and Aboriginal sites

The preparation of the Aboriginal cultural heritage assessment (ACHA) for the modification application included:

- background research of the Stage 8 area's environmental, archaeological and ethno-historical context;
- Aboriginal consultation in accordance with the *Aboriginal Consultation Requirements for Proponents 21010* (DECCW 2010c);
- an archaeological survey, geoarchaeological survey and test excavation program; and

- an assessment of archaeological, socio-cultural and historical values (significance to the Aboriginal community); impacts of the project and management for the identified Aboriginal cultural heritage values using the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (DECCW 2010b).

The archaeological survey and test excavation results, Aboriginal sites and proposed project impacts are summarised in Table 4.1 and shown on Figure 4.1. No other Aboriginal sites or areas of PAD relevant to the project area were identified during the project ACHA (EMM 2016).

In summary, the assessment found:

- The project area includes three distinct landform types adjacent to the Nepean River, comprising a lower terrace, upper terrace and sandstone escarpment (scarp). Each landform was assessed of its archaeological potential.
- Six known (recorded) Aboriginal sites relevant to the project. This comprises one confirmed Aboriginal site (Bulli Site 40, AHIMS #52-2-3720 – rockshelter with art) that was recorded prior to the project ACHA, and five rockshelters with PAD (sites MQ1–MQ5) that were recorded during the project ACHA but have not been confirmed to feature Aboriginal objects (eg art, engravings or stone artefacts). The Aboriginal sites were identified and assessed through review of AHIMS data and targeted archaeological survey and all occur on the scarp landform outside of the Stage 8 extraction area.
- No Aboriginal objects were identified through targeted test excavation in the Stage 8 extraction area and the upper and lower terrace landforms are considered to have low archaeological potential for subsurface archaeological deposits, primarily because of their geomorphological depositional sequence (EMM 2016 p.63). No other Aboriginal sites or areas of PAD relevant to the project area were identified during the project ACHA.
- The scarp landform is suitable to feature Aboriginal rock shelters sites. There is potential for further rockshelters to occur in the Stage 8 restoration area, but many areas were inaccessible due to thick vegetation cover.
- The project will not impact the known Aboriginal rockshelter sites relevant to the project.
- There is some residual potential for Aboriginal scar trees to occur within the Stage 8 extraction area as there are mature native trees that couldn't be accessed due to thick vegetation cover.
- The escarpment at the western boundary of the Stage 8 extraction area has been buried by sediment accumulation of the Nepean River. As such, there is a theoretical potential for buried rockshelter or other sandstone-type sites (eg engravings or grinding grooves) to be buried and potentially exposed by project works in the Stage 8 extraction area. This has been based on the geoarchaeological assessment completed for the ACHA.

The Aboriginal sites and predicted project impacts are summarised in Table 4.1 and shown on Figure 4.1. No other Aboriginal sites or areas of PAD relevant to the project area were identified during the project ACHA (EMM 2016).

Table 4.1 Known Aboriginal sites

Site Name	AHIMS	Site type	Archaeological significance	Relationship to the project area	Predicted project impacts
Bulli Site 40	52-2-3720	Aboriginal rockshelter with art and PAD	Not specified on AHIMS site card. However, presence of 7 art motifs and PAD indicates moderate to high archaeological significance.	350 m west of Stage 8 extraction area 30 m south-west of Stage 8 restoration area	None: avoidance
MQ1	TBC	Rockshelter with PAD	Low: Problematic shelter with limited floor space, difficult to access on a steep slope.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	None: avoidance
MQ2	52-2-4636	Rockshelter with PAD	Moderate: Moderate PAD area with minor disturbance.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	None: avoidance
MQ3	52-2-4637	Rockshelter with PAD	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height and difficult to access.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	None: avoidance
MQ4	52-2-4638	Rockshelter with PAD	Low: Limited floor area and low ceiling height, moderately accessible on moderately inclined slope.	Within 50 m of Stage 8 extraction area Inside Stage 8 restoration area	None: avoidance
MQ5	52-2-4639	Rockshelter with PAD	Low: Limited floor area and low ceiling height, moderately accessible on moderately inclined slope.	Within 50 m of Stage 8 extraction area Inside Stage 8 restoration area	None: avoidance

4.4 Limitations of project ACHA

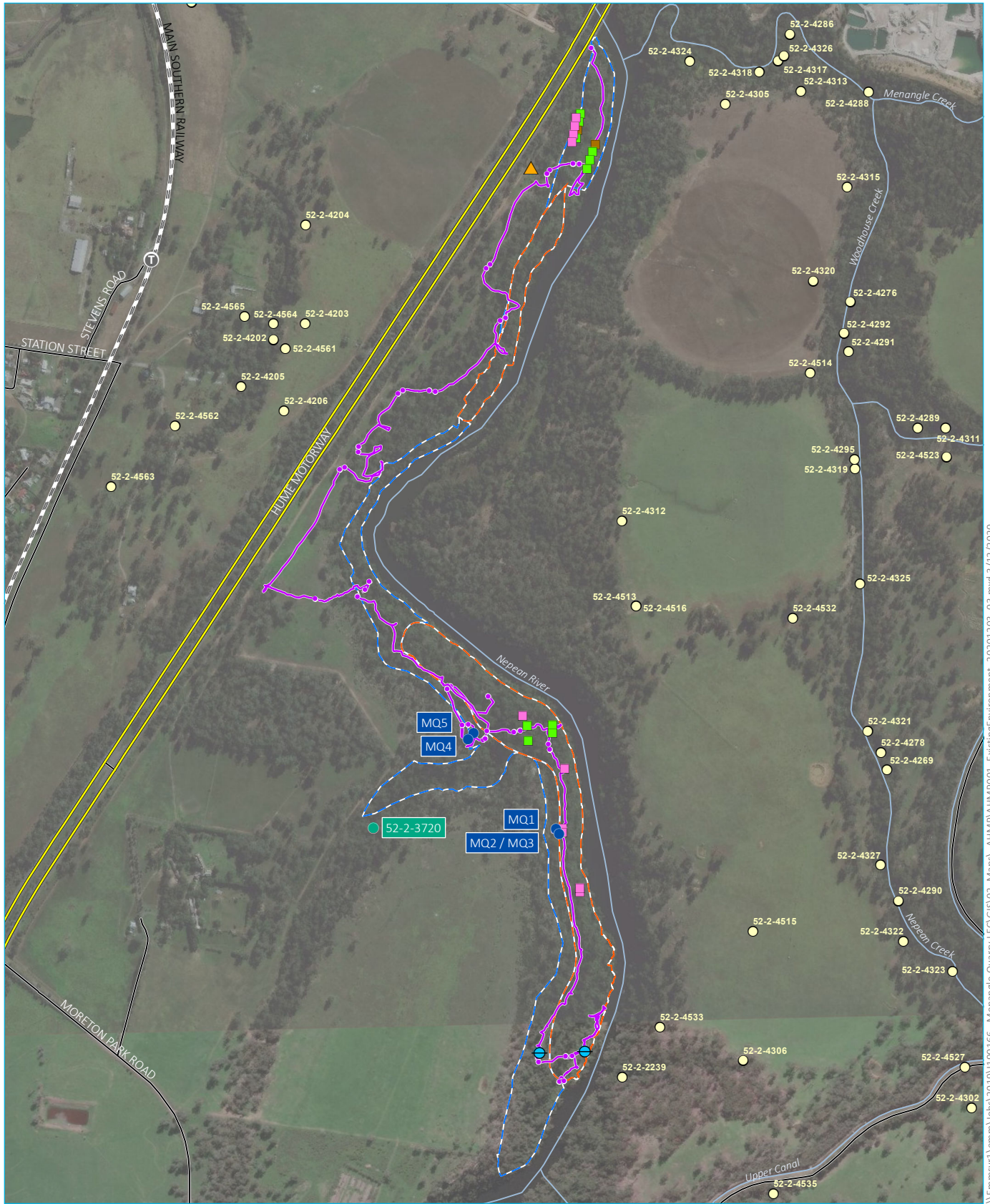
Certain limitations of the ACHA have influenced some of the provisions of this management plan. They are summarised here to provide context for the necessity of their inclusion in this AHMP.

The archaeological survey component of the project ACHA was limited by dense vegetation throughout the Stage 8 area combined with the generally low ground surface visibility conditions. There were parts of the upper and lower terrace that could not be accessed across the project area. This meant that the survey was not effective for inspecting mature trees within the riparian community of Bangalay crossed with Sydney Blue Gum for Aboriginal scarring or carving within the project area. Even some of the trees within the surveyed areas had almost 3 m of their trunks obscured by a vegetated understory (the parts most likely to feature scarring or carving). Conservatively, these trees may be of suitable age to feature Aboriginal scarring or carving that cannot be discounted until inspected. As such, despite being a relatively uncommon site in the local area, there is some potential for unknown modified trees to be impacted by the project. A pre-clearance survey will enable identification of culturally modified trees (if any) in the Stage 8 extraction area (refer Section 5.2.3).

Note that no mature trees will be impacted in the Stage 8 restoration area, nor the Stage 8 access corridor, as only exotic plants will be removed, and native trees will be conserved.

The focus of the project ACHA was on the Stage 8 extraction area which theoretically had the most potential to impact Aboriginal objects through significant earthworks. The Stage 8 restoration area was not targeted for archaeological investigations as the impacts proposed at the time were limited to exotic weed removal without the method of removal specified. Since the project EA in 2016, the method of exotic weed removal had been defined and will involve machine removal of between approximately 200 mm and 300 mm of topsoil in some areas on upper terrace and scarp landforms that were not previously subject to archaeological survey. Clearing and topsoil removal is described in Sections 5.2 of the *Menangle Sand and Soil Quarry Biodiversity and Rehabilitation Management Plan* (BRMP). Furthermore, land within portions of the Stage 8 restoration area will be used for hauling material on existing tracks.

There is some potential for previously unrecorded Aboriginal rockshelters to occur in the restoration area. As such, additional survey to identify and protect (if applicable) further rockshelters will be undertaken in the Stage 8 restoration area (refer Section 5.3).



Source: EMM (2020); DFSI (2017); GA (2011)

KEY

- ▭ Stage 8 - extraction/rehabilitation area
- ▭ Stage 8 - restoration area (no extraction)
- Ⓜ Train station
- Rail line
- Main road
- Local road
- Named watercourse
- Survey transect
- Geoaerchaeology boreholes
- Test pit locations
- hand
- hand/machine
- machine
- ▲ Proposed artefact reburial location
- Aboriginal site
- Rock shelter with PAD
- Rock shelter with art & PAD
- AHIMS site

Existing environment

Menangle Sand and Soil
Aboriginal heritage management plan
Figure 4.1



\\Emmsvr1\emms\loba\2019\190166 - Menangle Quarry LEC\GIS\02_Maps\AHM\PA_HM\PO01_ExistingEnvironment_20201203_03.mxd 3/12/2020

5 Aboriginal heritage management

5.1 Management of known sites

Aboriginal heritage management over the life of the project for currently known (ie the six rockshelter) sites will take the form of protective measures for sites that will be avoided by project impacts. These measures apply to the six rockshelter sites as presented on Figure 4.1, Table 4.1 and Appendix A.

5.1.1 Active or passive protection

Aboriginal sites that are not identified as being impacted by the ACHA will be protected. Either active or passive protection measures will be implemented. Active management means construction of temporary or permanent barriers, installation of signage and controls on access by those undertaking activities within the project boundary. Passive management means no fencing or signage will be applied if sites are at limited risk of inadvertent impacts because they are a suitable distance from the disturbance footprints.

5.1.2 Active protection

Rockshelters MQ1 to MQ5 are outside of the Stage 8 extraction area but within the Stage 8 restoration area which will undergo exotic weed removal. This will also involve a component of topsoil stripping in some areas. The rockshelters and surrounding scarp are generally devoid of vegetation requiring removal, but nevertheless will have protective measures established to avoid any inadvertent impacts to shelter PAD areas or the structural integrity of the sandstone shelter features. This method will also apply to any newly identified Aboriginal rockshelters within the project area.

Site Bulli Seam 40 (AHIMS #52-2-3720) is outside the project area but within 50 m, and therefore will receive active protection too.

Protection buffer zones will be established for a 10 m radius around the observed extent of each rockshelter (including any PAD that extends beyond the shelter). The buffer zones will be demarcated using stake and wire fencing prior to extraction or restoration activities. The placement of fencing will be guided by markers set out by a suitably qualified archaeologist.

A durable sign will be attached to the fencing including words to the effect of:

Environmentally sensitive area

Do not disturb

Contact the Property Manager on [phone number].

Weed management associated with Stage 8 restoration activities in the Nepean River Buffer Zone will be limited to non-invasive measures such as cutting vegetation at its base and treating with weed control products. No ground disturbance activities such as uprooting vegetation or topsoil removal is permitted in this zone. Weed management will be implemented according to industry best management practice for the weed species present in accordance with relevant sections of Sections 6 and 7 of the *Biodiversity and Rehabilitation Management Plan*, but tailored to an approach which will not involve ground disturbance.

5.1.3 Passive protection away from project activities

Passive management is not proposed for the currently known sites. However, if new sites are identified on Menangle Sand and Soil property over 50 m from the project area (Stage 8 extraction and restoration areas), passive management will apply. While no fencing, signage or active land management measures are proposed for these sites, their locations will be kept by Menangle Sand and Soil for persons working on or visiting the project boundary. Their presence in the landscape will be demarcated by at least one high visibility peg, stake or other marker to alert persons to their location. These locations will be marked by a suitably qualified archaeologist.

5.2 Additional survey and management

5.2.1 Purpose

Additional archaeological survey is required to account for any unidentified Aboriginal scar trees and rockshelters in the project area due to the limitations of the project ACHA described in Section 4.4 of this AHMP. The following section provides details of survey requirements, staging and timing.

5.2.2 Stage 8 extraction area

The project ACHA identified that the Stage 8 extraction area contains mature native trees that are potentially over 100 years old. Currently much of the Stage 8 area is too overgrown with weeds to allow adequate access to inspect all mature trees. Therefore, an additional survey will be undertaken in the Stage 8 extraction area after the understorey is cleared and prior to the removal of mature trees to determine if any feature Aboriginal scarring or carving. The survey will use the methods:

- The tree survey will be completed across the entirety of the Stage 8 extraction footprint by the project archaeologist and RAP representatives.
- The survey may be completed in a staged approach in keeping with the extraction Sub-stages 8A to 8M or any variation or grouping of such stages. Menangle Sand and Soil should stage approaches with consideration to potential AHIP timeframes as set out in Section 5.4.2 of the AHMP, given that any required AHIP may require an approximate 4-month timeframe and must precede project-related impacts.
- The survey must be completed after removal of the vegetation understorey to a level that exposes the entirety of each mature tree trunk suitable for access and visual inspection.
- GPS coordinates and photographs will be taken for each inspected mature tree.
- A short report will be prepared by the project archaeologist documenting the outcomes of each fieldwork stint, inclusive of a figure showing the locations of the trees inspected. These reports will be issued to RAPs and Heritage NSW and kept by Menangle Sand and Soil for their internal records. If the Aboriginal sites are identified, the reports will be submitted as part of AHIMS site cards and lodged on the AHIMS register.
- If no Aboriginal scarred or carved trees or other Aboriginal objects are identified in the relevant portion of the Stage 8 extraction surveyed area during each stint, the report will provide clearance for project works to proceed (subject to other relevant environmental approvals or requirements).
- If Aboriginal scarred or carved trees, or other Aboriginal objects are identified and cannot be avoided, the new finds management procedures set out in Section 5.4.2 will be followed. This includes the requirement for all work in the immediate vicinity to cease and a 10 m buffer area around the object must be cordoned

off. A report detailing the fulfilment of relevant provisions of this AHMP will be required by the project archaeologist prior to project works proceeding in cordoned off area of the identified site.

5.2.3 Stage 8 restoration area:

i Survey for rock shelters

The project ACHA identified areas of scarp in the vicinity of the project area using GIS slope analysis teamed with visual observations during the archaeological survey. All scarp landform in the project area occurs outside of the Stage 8 extraction area and all to the south of the Sub-stage 8C area within the Stage 8 restoration area (Figure 1.3).

Only small sections of the scarp were targeted during the archaeological investigation because they were previously outside of proposed ground disturbance and also inaccessible due to dense vegetation. Furthermore, the targeted sections of scarp were heavily vegetated which may have obscured any rockshelters in the restoration area additional to MQ1–MQ5.

Archaeological survey will be undertaken by the project Archaeologist and RAP representatives in scarp landforms within the restoration area. The survey will be undertaken prior to invasive vegetation clearance (ie vegetation clearance that involves ground disturbance) of the scarp landforms. Depending on the density of vegetation, and resulting access constraints, it is likely that some level of mechanical and/or hand tool vegetation clearance on upper terrace landforms will be required, along with some preliminary non-ground-invasive vegetation on the scarp landforms to allow the scarp to be adequately inspected. The type of mechanical vegetation removal will be consistent with the methods described in the BRMP.

If additional rockshelter sites are identified during survey, they will receive the same active protection measures as presented in Section 5.1.2.

ii Survey of haul road

Existing tracks will be used as haul roads so no vegetation removal, other than pruning branches adjacent to the tracks, will be required. If any additional ground disturbance is required, archaeological survey for the identification of Aboriginal modified trees will be completed. The survey strategy in Section 5.2.2 will be employed.

5.3 Avoidance of buried sandstone features

Geotechnical borehole investigations completed by geoarchaeologist Sam Player as part of the project ACHA indicate that the sandstone escarpment continues below the ground surface in the Stage 8 extraction area on an angle that slopes toward the Nepean River. As such, there is a buried sandstone escarpment that continues beneath the upper terrace landform in the Stage 8 extraction area that will be subject to extraction. As the nature of this buried landscape is currently undefined, there is some residual risk that there are buried rockshelters or other sandstone-type sites (eg engravings or grinding grooves) to occur along the western boundary of the Stage 8 extraction area.

The sand and soil resource in the Stage 8 area will be extracted using an excavator and off-road haul truck. No vibrational impacts to nearby sandstone features are anticipated from this extraction method, given that machinery will only extract the sand and soil resource and will not interact with bedrock.

To reduce the risk of impacting unknown Aboriginal objects that are part of the buried escarpment, Menangle Sand and Soil will employ the following extraction controls:

- Machinery will exercise caution when excavating near existing exposed sandstone escarpment, and during contouring of the landward batter near sandstone escarpment features. Areas of existing visible sandstone

escarpment indicates where the escarpment is likely to continue into the Stage 8 extraction area and should be used as a guide to advise contractors where to employ caution. Currently this comprises the substages 8D to 8M areas but would also apply if other areas of escarpment are exposed during the extraction process.

- Works will stop if machinery encounters sandstone features (sandstone bedrock expanses, cliff or overhang features) during extraction. Machinery is not permitted to excavate, scrape, or demolish identified sandstone features. Before recommencing works, Menangle Sand and Soil will reassess their work plan within the area and attempt to leave a 50 cm layer of soil over sandstone features to avoid inadvertent impacts – this may require probing or other geophysical survey to establish the location of the sandstone escarpment (subject to the predictability of where the sandstone escarpment occurs).
- If suspected rockshelters, grinding grooves and engravings are exposed during extraction, works in that area will cease. Menangle Sand and Soil will contact a qualified archaeologist to inspect the find. The archaeologist will aim to verify the find and to establish suitable buffers to avoid any archaeological features. In general, the active avoidance measures as set out in 5.1.2 will be employed. Additionally, any buffers applied to sandstone features must consider:
 - measures to avoid impacting the structural features of rockshelters – ie the overhang, ceiling, inside and base;
 - measures to avoid any areas of potential archaeological deposit at the base of the rock shelter or any prior land surface that extends beyond the limits of the rockshelter feature; and
 - measures to avoid scraping, excavating or damaging exposed sandstone of grinding grooves or engravings, and the surrounding bedrock/rockbar that hosts the features.

Archaeological monitoring by an archaeologist may be required to establish suitable buffers to archaeological features during mechanical extraction in the area. Works will not proceed until the feature is appropriately protected and demarcated and a letter is prepared by the archaeologist confirming works may proceed. Heritage NSW and RAPs will be notified about the identification of any newly identified sites and the site will be registered on AHIMS.

5.4 New finds procedures

5.4.1 Discovery of new Aboriginal sites

In the event of discovery of suspected new Aboriginal sites within the project area during the life of the project, the following will apply:

- all work within the vicinity (minimum of 10 m) of the object or place will cease immediately;
- a minimum of 10 m around the site will be secured to protect the find with temporary fencing and the find will be immediately reported to the work supervisor who will immediately advise the Menangle Sand and Soil environmental manager or other nominated senior staff member;
- Heritage NSW will be contacted immediately and informed that a potential Aboriginal object or place has been identified and that an archaeologist will undertake further investigation to verify the nature of the unexpected find;
- an archaeologist must be contacted within five days of the find to validate the find and determine the archaeological significance of the object(s);

- if the object is determined not to be an Aboriginal object or place by the archaeologist, Heritage NSW and RAPs will be notified of this assessment in writing. RAPs will be given 5 days to review the assessment of the potential object or place and provide comments or feedback. If no feedback is provided, then the assumption is that there are no issues with the assessment. Heritage NSW will be advised on the outcome of the assessment and consultation. Works will only recommence within the vicinity of the find after Heritage NSW confirms that the find is not an Aboriginal object or place;
- if considered cultural, the site will be recorded in accordance with current best practice archaeological methods and guidelines and Heritage NSW and RAPs will be notified of this assessment and determination;
- assessments of archaeological significance will be documented in a letter report in a manner consistent with the significance assessment for the project ACHA;
- if the find is determined to be an Aboriginal object, RAPs will be contacted to determine the cultural significance of the find and have input into desired management measures;
- any new sites will be registered on the AHIMs database (refer Section 6.3.2); and
- any new sites will be added to the AHMP site inventory during its next review and update cycle.

5.4.2 Management of new Aboriginal sites

Newly identified sites that are not at risk of impact (ie over 50 m from the project area) will be avoided through passive protection (Section 5.1.3). Avoidable sites that are within 50 m of the project area will be managed through active protection measures identified in this plan (refer Section 5.1.2). Note that avoidance of newly identified Aboriginal objects is always the preferred heritage outcome. Mitigation measures should only be employed when it can be reasonably demonstrated that avoidance is not feasible.

Table 5.1 sets out the measures that will be employed for newly identified Aboriginal sites, subject to the approval of an Aboriginal heritage impact permit (AHIP) issued by Heritage NSW that endorses these methods in accordance with CoA B61 (b). The following procedure will be undertaken if an AHIP is required:

- The existing project ACHA (EMM 2016) will be used as the base supporting documentation for AHIP application(s). If new Aboriginal site(s) are identified and cannot be avoided by project activities, then an ACHA addendum assessment must be prepared to support an AHIP application. The addendum assessment must:
 - be completed by a suitably qualified archaeologist.
 - clearly describe the site, its location and boundaries.
 - assess the site's archaeological and cultural significance – if applicable, this may require further investigative measures in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (the Code). If archaeological test excavation is required, it may be completed in accordance with the Code. However, if test excavation is needed in a scenario that does not comply with the Code, an AHIP may be required to carry out test excavations.
 - include an impact assessment and demonstrate why the site cannot be reasonably avoided if impacts are proposed.
 - provide appropriate protective or mitigative management measures for the site(s). The measures listed in Table 5.1 provide general terms of reference for management measures.

- include evidence of the outcomes of consultation with the project RAPs listed in Table 3.1 of this document.
- AHIP applications should be lodged to heritagemailbox@environment.nsw.gov.au and include an AHIP application form, the EMM 2016 ACHA and the addendum assessment. Note that AHIPs applications have a 60-day determination period by Heritage NSW, but additional time should be allowed for contingency. Overall, given that an ACHA is already prepared for the project and RAPs have been established, the timeframe for the entire AHIP process should be approximately 3–4 months.
- Any AHIP application will be subject to consideration of the section 90k factors set out in the *National Parks and Wildlife Act 1974*, and therefore must be receive approval by Heritage NSW.
- If after the AHIP application is lodged and approved, additional sites are identified that would be impacted by the project, additional ACHA addendum assessment(s) would be required. An AHIP variation application would be lodged to include any additional sites, impacts and impact areas to the existing AHIP.
- The AHMP will be revised to refer to any AHIP issued in relation to the project. The AHMP will be updated to be consistent with the conditions of any AHIP issued. All AHIPs will be attached to the AHMP as an appendix.

Any AHIP issued in conjunction with this AHMP should be consulted prior to enacting any management measures for identified Aboriginal objects. All proposed salvage measures must be completed by a qualified archaeologist(s) with participation of at least one RAP representative. All salvaged objects will be managed in accordance with Section 5.5.

Table 5.1 Proposed management of newly identified sites within the project area

Site type	Site within Stage 8 restoration area	Site within Stage 8 extraction area
Open stone artefact site	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	<p>For sites of low to moderate archaeological significance, surface collection will be employed prior to project impact as follows:</p> <p>The collection will be undertaken by qualified archaeologists and RAP representatives. The collection method will be as follows:</p> <ol style="list-style-type: none"> 1. The general vicinity of each site location will be inspected by the field team. Stone artefacts will be flagged on the ground and a photo taken of the flagged site. Each flagged artefact will be marked as a waypoint in the GPS. 2. All artefacts will be collected into snap lock plastic bags or similar, marked with the project name, site name, collection date and waypoint number. 3. All artefacts will be sorted and recorded post-fieldwork with respect to technological type, implement type, raw material, maximum block length and weight. 4. The collected artefacts will be incorporated into a salvage report detailing the results of the fieldwork, the artefacts recovered at each site and GIS figures showing the artefact locations. 5. The Aboriginal Heritage Information Management System (AHIMS) records will be updated with a site impact recording form for each collected site. <p>For sites of high archaeological significance, or with potential to be of high archaeological significance through the identification of significant PAD, as determined by the project archaeologist, test excavation may be employed to a methodology prepared in consultation with Menangle Sand and Soil and RAPs.</p> <p>Any salvage excavation program would require a report on the methods and outcomes of the excavation.</p>

Table 5.1 Proposed management of newly identified sites within the project area

Site type	Site within Stage 8 restoration area	Site within Stage 8 extraction area
Modified trees	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	<p>Note that Aboriginal tree scars may require verification by a qualified scar tree expert such as an arborist or Aboriculturalist if the scars are ambiguous to a degree that they cannot be determined by the project archaeologist. If a tree is assessed by an expert not to be an Aboriginal object, then RAPs and Heritage NSW will be notified and confirm that the tree is not an Aboriginal object in accordance with CoA B62 (a) to confirm that works may proceed in the area of the tree.</p> <p>If find is determined to be an Aboriginal scar tree that cannot be avoided, the following Aboriginal scar tree removal procedure will be followed:</p> <ul style="list-style-type: none"> • A suitably qualified person in scar tree management (eg archaeologist with scar tree specialisation, Arboriculturalist or arborist) will be engaged to determine a suitable removal method in consultation with RAPs. This may involve the requirement to saw the tree above the scar location allowing a suitable buffer from the scar feature. The process of removal will be photographed. • The removed tree and scar may be treated to preserve the scar to prevent its further deterioration. Any treatment option would be completed in consultation with RAPs, Menangle Sand and Soil and a suitably qualified curator. • The tree will be relocated to a nominated Aboriginal keeping place or other location as guided by RAPs (yet to be determined) appropriately displayed using suitable materials in consultation with Menangle Sand and Soil and RAPs. <p>The outcomes of the tree management activity will be documented in a short letter report including records of the original and new tree location. Note that long term management of any salvaged trees may require a Care Agreement as set out in Section 6.3.3.</p> <p>The AHIMS records will be updated with a site impact recording form for the site.</p>
Hearths	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	Archaeological excavation of the hearth will be employed and will involve taking suitable dating and soil samples if feasible as determined by the archaeologist.
Rockshelters	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.
Grinding grooves or engravings	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.
Other rarer site types not known to occur in the project boundary (eg stone arrangements, middens etc).	Apply active or passive protection measures as per Sections 5.1.2 and 5.1.3.	<p>As other site types have a very limited chance of being identified in the project boundary, no specific management methodology has been devised.</p> <p>If other site types not previously identified in the project boundary are identified, a salvage method must be prepared by the project archaeologist in consultation with RAPs and Heritage NSW. This may be established through an extraordinary meeting with RAPs or through letter correspondence with a reasonable timeframe for review.</p> <p>Any salvage activity to such sites may require additional assessment and approvals as dictated by Heritage NSW would require a report on the methods and results of the exercise.</p>

5.4.3 Discovery of Aboriginal ancestral remains

In the event that known or suspected human skeletal remains are encountered during the activity, the following procedure presented in Table 5.2.

Table 5.2 Procedure for the discovery of potential Aboriginal ancestral remains

Stage	Actions
1. Stop work and secure site	<ul style="list-style-type: none"> The immediate vicinity will be secured to protect the find and the find will be immediately reported to the work supervisor who will immediately advise the site supervisor or other nominated senior staff member. A no-go zone will be established around the immediate area of the site. Complete review of activities to enable compliance and continued operations.
2. Notification to authorities and stakeholders	<ul style="list-style-type: none"> The environmental manager or other nominated senior staff member will notify: <ul style="list-style-type: none"> Police and State Coroner on the same day as the find; Heritage NSW (1300 361 967) or Environment Line (131 555); Engage suitably qualified archaeologist or forensic anthropologist to assist Police in monitoring of skeletal material.
3. Determination of the find and further notification	<ul style="list-style-type: none"> If it is determined that the skeletal material is of ancestral Aboriginal remains, RAPs contacted and consultative arrangements will be made to discuss ongoing care of the remains. Engage project archaeologist to assist and/or facilitate management of the Aboriginal ancestral remains with RAPs and Menangle Sand and Soil. If the skeletal material is not human, resume work. Ensure determination of non-human material is provided by relevant experts (eg Coroner or Police) before resuming work. If the remains are historic but non-Aboriginal human remains, the NSW Heritage Council (or delegate of the Heritage Council) will be consulted to determine requirements in accordance with the NSW <i>Heritage Act 1977</i> and relevant guidelines. Further actions are likely to require adherence with the following NSW Heritage Council guidelines: <ul style="list-style-type: none"> <i>Conservation Management Documents: Guidelines on Conservation Management Plans and other Management Documents.</i> <i>Skeletal Remains; Guidelines for Management of Human Skeletal Remains.</i> If the remains are non-Aboriginal and non-historic human remains, coordinate Menangle Sand and Soil involvement with police. Works will not proceed until written approval is granted from relevant authorities.
4. Initial planning and reporting if it is determined that the remains are Aboriginal ancestral remains.	<ul style="list-style-type: none"> Aboriginal ancestral remains certificate to be submitted to the Police/Coroner to address the Coroners Act. In consultation with RAPs, Heritage NSW and archaeologist, establish investigation area and any additional protocols to be adhered to during further investigation. The investigation will aim to establish whether any other burials are within or likely to occur nearby. Suitable methods could include controlled and monitored hand or machine excavation and/or non-invasive techniques such as geophysical techniques. Engage an archaeologist to record the site and undertake significance and impact assessment of the burial site with RAPs and archaeologist. Site recordings must involve drawings and photography. Additional technical studies and samples may be taken with the consent of RAPs such as those for dating and biological information (eg age, sex and health of deceased). Record burial site on AHIMs register, noting any restricted access requirements requested by RAPs.

Table 5.2 Procedure for the discovery of potential Aboriginal ancestral remains

Stage	Actions
5. Engagement with construction and operation manager to determine whether disturbance of the burial site(s) can be avoided.	<ul style="list-style-type: none"> • If the Aboriginal ancestral remains cannot be avoided: <ul style="list-style-type: none"> – Consult with RAPs, Heritage NSW and project archaeologist to facilitate recovery and reburial protocols and actions. Approval for recovery methods must be obtained by relevant authorities prior to any further movement of the remains: – Recovery methods must include: <ul style="list-style-type: none"> ▪ Exhumation in a controlled archaeological method and in consultation with RAPs and placed into a secure, temperate controlled storage location until a final reburial site can be identified. ▪ Access to the secure storage location containing any human remains will be managed and facilitated by Menangle Sand and Soil in consultation with RAPs. ▪ RAPs will determine if further studies, media releases or other investigations are appropriate for the finds. ▪ Where required, Menangle Sand and Soil will help facilitate any culturally appropriate reburial or ceremonial methods. – Prepare report for Heritage NSW and RAPs on the outcome of relevant investigation, recovery and reburial outcomes. – Update AHMP. – Works will not recommence until written approval is received from relevant authorities. • If the Aboriginal ancestral remains can be avoided: <ul style="list-style-type: none"> – develop appropriate management and mitigation measures in consultation with RAPs, Heritage NSW and archaeologists; – prepare report for DPE, Heritage NSW and RAPs; – update AHMP; and – works will not recommence until written advice is provided from the project archaeologist that the remains are suitably protected and away from project impacts.

5.5 Management of salvaged objects

There are currently no Aboriginal objects that require salvage as part of the project. If stone artefacts are identified and require salvage in accordance with this plan and any other relevant permits, they will be reburied on Menangle Sand and Soil property in an area suitable for long term conservation and not be at risk of any foreseeable impacts. The proposed reburial location is shown on Figure 4.1.

The reburial activity would be guided by the stone artefact disposition procedures as set out in Section 3.7 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). Any reburial fieldwork would be undertaken by a qualified archaeologist so that it is recorded appropriately. RAPs who wish to be involved in the activity will also be requested to participate.

As no Aboriginal objects are currently proposed for salvage, a Care Agreement under the *NSW National Parks and Wildlife Act 1974* (NPW Act) for the transfer of Aboriginal objects to Aboriginal owners is not currently proposed. If Aboriginal objects in the project are identified and subsequently permitted for salvage, a Care Agreement may be pursued, subject to the nature of the find. The AHMP will be updated in the event of a Care Agreement application.

5.6 Monitoring and inspection

The project will develop in a staged process and therefore monitoring and inspection protocols will only be triggered when relevant project activities begin in the proximity of individual Aboriginal sites. The aims of monitoring and inspection will be to verify that the Aboriginal sites designated for avoidance and protection are managed appropriately and that no inadvertent impacts have occurred.

All sites that occur within the project area, with the addition of Bulli Site 40 (AHIMS #52-2-3720 – rockshelter with art), that are designated for avoidance and active protection will be subject to monitoring inspections. Monitoring inspections and baseline recording will be completed prior to ground disturbance occurring within 100 m of each respective site. Table 5.3 presents the monitoring requirements.

Table 5.3 Monitoring program for Aboriginal heritage

Aboriginal sites	Monitoring		
	Prior to extraction	During extraction	Post extraction
Rockshelters	Baseline monitoring to record the sites before mining and note any existing cracks and areas of vulnerability. Baseline recording – photographs, plan drawings.	N/A	Visual inspection and photography conducted by an archaeologist after extraction activities have continued past the site that allows safe access to sites for inspection.

In the event that impacts are observed for sites designated for avoidance and protection, Menangle Sand and Soil at the earliest opportunity will:

- investigate to determine if the impact is related to non-project factors or is a consequence of project activities;
- take all reasonable steps to ensure that the impact ceases and does not reoccur;
- consider all reasonable and feasible options for remediation (where relevant) in consultation with RAPs and Heritage NSW;
- submit a report to DPE and Heritage NSW describing those options and any preferred remediation measures or other course of action; and
- implement remediation measures subject to the conditions of this AHMP and any other relevant permits.

6 Compliance management

6.1 Training

6.1.1 Obligation to avoid harm

All employees, contractors, sub-contractors and visitors to the project have an obligation to avoid harming Aboriginal heritage unless engaged in an Aboriginal heritage management activity described in this plan.

The NPW Act defines “harm” to an object or place as any act or omission that:

- (a) destroys, defaces or damages the object or place, or
- (b) in relation to an object-moves the object from the land on which it had been situated, or
- (c) is specified by the regulations, or
- (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c), but does not include any act or omission that:
- (e) desecrates the object or place, or
- (f) is trivial or negligible, or
- (g) is excluded from this definition by the regulations.

6.1.2 Obligation to protect and implement management measures

Site personnel, contractors and subcontractors responsible for land management or construction have an obligation to protect Aboriginal heritage within their area or work responsibility. Protection means active recognition of known Aboriginal heritage and active measure to avoid Aboriginal heritage. This may include fencing, erosion control and modification of work plans to avoid impacts to Aboriginal heritage, as well as facilitating a process where work personnel are aware of the nearby heritage.

Site personnel, contractors and subcontractors also have the responsibility to ensure that appropriate management measures have been employed prior to, or in association with, their activities which impact Aboriginal sites.

6.1.3 Aboriginal heritage induction and permitting process

All employees, contractors, sub-contractors involved in ground-disturbing activities will undergo an Aboriginal cultural heritage induction. In addition, visitors to the project and general contractors not involved in ground-disturbing activities will be made aware of their obligation to avoid harm to Aboriginal heritage through an Aboriginal heritage component of the general site induction. Records of these inductions will be kept by Menangle Sand and Soil.

The following points will be conveyed through site induction material:

- Aboriginal sites have been identified in the Stage 8 restoration area;
- Aboriginal sites are of high significance to the Aboriginal community, are important to the wider community and must be treated with respect;

- Aboriginal sites are protected by law and that project approval includes conditions allowing impacts to certain specified Aboriginal sites in accordance with this plan;
- Aboriginal sites can be hard to recognise, therefore reference must be made to the Aboriginal heritage maps in this AHMP in order to clearly identify demarcated site boundaries;
- certain areas of the project area must be managed by an archaeologist and RAPs prior to ground disturbance activities;
- that there are new finds procedures which involve stopping work if suspected new Aboriginal sites or skeletal material is identified on-site; and
- sites such as rock shelters, engravings and grinding grooves have some potential to be uncovered during extraction activities – all personnel undertaking activities related to excavation in the extraction area will be provided with photographic examples of these site types and be reminded to stop work if these finds are uncovered.

6.2 Auditing

6.2.1 Implementation of this plan

Menangle Sand and Soil will implement this AHMP as approved by the Secretary. The individuals responsible for the implementation of the plan are provided in Table 6.1. The plan will be stored in Menangle Sand and Soil’s document control system; the latest version will be available electronically at all times. As the document owner, Menangle Sand and Soil is the contact point for this plan and its requirements and will provide guidance and training to any person that requires additional training regarding this plan.

Table 6.1 Roles and responsibilities for Aboriginal heritage management

Role	Responsibilities
Quarry Manager	<ul style="list-style-type: none"> • Ensure that the AHMP is implemented as approved by the Secretary. • Ensure the implementation of this plan is carried out appropriately during construction/operations. • Ensure adequate financial and personnel resources are made available for the implementation of this plan. • Manage the implementation of this plan during extraction and restoration.
Environmental Manager	<ul style="list-style-type: none"> • Primary contact with RAPs. • Oversee signage and fencing of areas containing artefacts in accordance with this plan. • Ensure the Aboriginal heritage management measures required to be undertaken prior to ground disturbance activities are conducted in accordance with the measures outlined in this plan. • Ensure signage and fencing of Aboriginal sites is maintained. • Ensure inclusion of Aboriginal heritage in work inductions through delivery or input to induction documents. • Distribute copies of this plan as required. • Engage and coordinate relevant specialist personnel to undertake management measures or additional assessment as specified in this plan. • Maintain records of Aboriginal consultation. • Ensure relevant reporting, data management and registration is conducted, maintained and updated.

Table 6.1 Roles and responsibilities for Aboriginal heritage management

Role	Responsibilities
	<ul style="list-style-type: none">• Arrange for a review of this plan in accordance with review cycles and conditions specified in this plan.

6.2.2 Measuring performance

Actions undertaken under the plan will be reported as part of required Independent Environmental Audits to DPE. Compliance with the plan will be measured by standard environmental auditing procedures undertaken at regular intervals. The audit will include an assessment of compliance with development consent conditions and will include auditing the following measures:

- protection of all nominated sites;
- inductions are taking place and include appropriate material; and
- reporting and managing any newly identified Aboriginal objects in accordance with this plan.

Menangle Sand and Soil may engage a heritage consultant to assist with reporting compliance as part of an Independent Environmental Audit. Any incidents and non-compliance notifications will follow requirements set out in Part D of the project Conditions of Consent as per the Environmental Management Strategy (EMS).

6.3 Reporting

6.3.1 Statutory reporting requirements

Notifications to Heritage NSW are required in relation to discovery, impact and care of Aboriginal objects under the NPW Act. This will be the responsibility of the Environmental Manager.

6.3.2 Discovery of Aboriginal objects

Under Section 89A of the NPW Act, it is a requirement that Heritage NSW is notified of the existence of Aboriginal objects as soon as practicable after they are first identified. This is done through the completion of the Heritage NSW Aboriginal Site Card which is submitted to the Registrar of AHIMS for inclusion on the Aboriginal site database. Information regarding AHIMS and site recording forms can be downloaded from Heritage NSW's website:

<http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm>.

6.3.3 Care agreements

Under s85A of the NPW Act, Aboriginal objects remain the property, and under the protection of, the Crown until formal transfer to a person or persons of a class prescribed by the regulations occurs. A Care Agreement is not currently proposed under this plan; however, may be pursued in the future if Aboriginal objects are identified to a level of significance that the RAPs wish to retain such objects.

Care Agreement application forms can be downloaded at:

<https://www.environment.nsw.gov.au/topics/aboriginal-cultural-heritage/protect-and-manage/care-agreements>.

6.3.4 Reporting impact to Aboriginal sites

An Aboriginal Site Impact Recording Form must be completed following impacts to AHIMS sites that are:

- a) a result of test excavation carried out in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW*;
- b) authorised by an Aboriginal Heritage Impact Permit (AHIP) issued by Heritage NSW;
- c) undertaken for the purpose of complying with Secretary's environmental assessment requirements issued by DPE for:
 - i) state significant development (SSD),
 - ii) state significant infrastructure (SSI), or
 - iii) a major project, or
- d) authorised by a SSD/SSI/former Part 3A consent/approval under the EP&A Act.

Completed forms must be submitted to the AHIMS Registrar at:

www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm.

Aboriginal Site Impact Recording Forms can be downloaded at:

<http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf>.

6.3.5 Requirements for further assessment

Ground disturbance proposed outside of the approved project area, will not occur without prior Aboriginal heritage assessment and other relevant legislative and internal approvals. Depending on the scope, nature and approval pathway of the proposed ground disturbance, the following may apply:

- If the proposed activity requires additional environmental assessment, such as a modification to the existing development consent, an Aboriginal heritage assessment will be completed in accordance with relevant assessment requirements as specified by DPE.
- If the proposed activity is permissible under existing development consent and relevant heritage approvals, an Aboriginal heritage assessment must be completed to a level generally consistent with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (DECCW 2010c). Any potential impacts to known or newly identified Aboriginal objects will be managed in accordance with the new finds procedures set out in Section 5.4.
- If the proposed activity requires a separate approval pathway not permissible as part of the existing development consent under the EP&A Act and relevant heritage approvals, then an Aboriginal heritage assessment must initially be completed to a level generally consistent with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (DECCW 2010c) and relevant subdocuments. If Aboriginal objects are likely to be impacted, an AHIP would need to be pursued under the NPW Act to allow harm to Aboriginal objects.

6.3.6 AHMP review

i Review cycle for this plan

This AHMP will be reviewed within three months of an approved modification for the project, and following any incident or independent audit where issues are found.

ii Making changes to this plan

Changes to the plan will be made in the following circumstances:

- where new Aboriginal sites are discovered, they must be added to the inventory in this AHMP within one month of the find;
- where approved modifications to the project introduce new impacts on Aboriginal heritage which are not generally covered by the AHMP;
- where approved changes to the project change or remove previously planned impacts on Aboriginal heritage where mitigation was proposed in the plan but is no longer required; and/or
- where other conditions or situations arise that require the updating of this plan.

iii Aboriginal consultation for AHMP review

Where material changes are made to the AHMP, a draft of the modified plan will be provided to RAPs for their review and comment (14 calendar day review period).

Matters raised during consultation which are specific to any proposed changes in the plan will be acknowledged and addressed in the modified plan. Further requirements for Aboriginal consultation are set out in Chapter 3.

6.3.7 Complaints

The community complaints protocol as set out in the EMS for the project will apply in regard to complaints from the Aboriginal community.

The environmental manager will keep a complaints register for all complaints.

References

EMM Consulting Pty Limited (EMM) 2016, *Menangle Quarry Extension, Aboriginal Cultural Heritage Assessment*, prepared for Benedict Industries.

Department of Climate Change and Water (DECCW) 2010a, *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

- 2010b, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.
- 2010c, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales*
- 2010d, *Code of Practice Archaeological Investigation of Aboriginal Objects in NSW*.

Abbreviations

Table 6.2 **Abbreviations**

Abbreviation	Full term
ACHA	Aboriginal cultural heritage assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AHMP	Aboriginal heritage management plan
EA	Environmental Assessment
EMM	EMM Consulting Pty Limited
DPE	NSW Department of Planning, Industry and Environment
IPC	Independent Planning Commission
LALC	Local Aboriginal Land Council
LGA	Local government area
RAP	Registered Aboriginal Party (for the project)
RTS	Response to submissions



Appendix A

Aboriginal site inventory



A.1 Site inventory

Table A.1 Site inventory

Site name	AHIMS	Site type	Height (m)	Depth (m)	Length (m)	Habitable area (PAD)	Disturbance to deposit, visibility	Aspect	Position	Depth of PAD (m)	Overall significance	Relationship to project area	Management measure
MQ1	52-2-4636	Rockshelter with PAD	2	2	4	1 x 2	Moderate, rock fall, leaf litter	East	Upper scarp	0.3	Low: Problematic shelter with limited floor space, difficult to access on a steep slope.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	Active protection
MQ2	52-2-4637	Rockshelter with PAD	2.5	4.5	4	3 x 2	Low, animal activity, sandy floor	East	Mid scarp	0.5	Moderate: Moderate PAD area with minor disturbance.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	Active protection
MQ3	52-2-4638	Rockshelter with PAD	8	4	10	0.5 x 5	Shallow yellow sand atop sandstone, sloping floor	East	Upper scarp	0.1	Low: Problematic shelter with limited floor space, very exposed due to narrow shelter with high roof height and difficult to access.	Within 20 m of Stage 8 extraction area Inside Stage 8 restoration area	Active protection
MQ4	52-2-4639	Rockshelter with PAD	2	4	3	2 x 1	Silty sand with low visibility, leaf cover	East	Mid scarp	0.3	Low: Limited floor area and low ceiling height, moderately accessible on moderately inclined slope.	Within 50 m of Stage 8 extraction area Inside Stage 8 restoration area	Active protection
MQ5	52-2-4636	Rockshelter with PAD	1.4	1.3	1.5	1 x 1	Low visibility, leaf litter	East	Upper scarp	0.2	Low: Limited floor area and low ceiling height, moderately accessible on moderately inclined slope.	Within 50 m of Stage 8 extraction area Inside Stage 8 restoration area	Active protection
Bulli Site 40	#52-2-3720	Rockshelter with art and PAD	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	However, presence of 7 art motifs and PAD indicates moderate to high archaeological significance.	30 m south-west of Stage 8 restoration area	



Appendix B

Aboriginal consultation



B.1 Consultation log (entire project)

Aboriginal Consultation Log - Menangle Quarry Extension**Stage 1 - Advisory Requests Sent**

Organisation	Contact type	Date Sent	Comment
Office of Environment and Heritage, Metropolitan division	Letter	16-May-16	response received 24/5/16. Extensive list provided.
The Registrar, Aboriginal Land Rights Act 1983	Letter	16-May-16	response received 19/6/16. No registered Aboriginal owners. Suggested contacting Tharawal LALC
National Native Title Tribunal	Letter	16-May-16	response received 27/5/16. ILUA overlap with Gundangurra
Native Title Services Corporation (NTSCORP)	Letter	16-May-16	response received 24/5/16. Will not provide names but will forward information to groups they know of.
Tharawal LALC	Letter	16-May-16	
Wollondilly Shire Council	Letter	16-May-16	response received 19/8/2016 via email identifying Cubbitch Barter Native Title Claimants Corp (Glenda Chalker) and Tharawal LALC (Denise Ezzy).
Greater Sydney Local Land Service	Letter	16-May-16	response received 19/5/16. recommends contacting OEH
Water NSW	Letter	16-May-16	response received 26/5/16. No additional information

Advertisement in local newspaper

Wollondilly Advertiser	Email	Published 25/5/16
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Aboriginal Group Invitations to register sent

Organisation	Contact type	Date	Comments
Tharawal LALC	letter	31/05/2016	
Cubbitch Barta	letter	31/05/2016	
Peter Falk Consultancy	letter	31/05/2016	
Kawul Cultural Services	letter	31/05/2016	
D'harawal Mens Aboriginal Corporation	letter	31/05/2016	
Walgalu	email	31/05/2016	
Thauaira	email	31/05/2016	
Dharug	email	31/05/2016	
Bilinga Cultural Heritage Technical Services	email	31/05/2016	
Gunyu Cultural Heritage Technical Services	email	31/05/2016	
Munyunga Cultural Heritage Technical Services	email	31/05/2016	
Murrumbul Cultural Heritage Technical Services	email	31/05/2016	
Wingikara Cultural Heritage Technical Services	email	31/05/2016	
Gulaga	email	31/05/2016	
Biamanga	email	31/05/2016	
Callendulla	email	31/05/2016	
Murramarang	email	31/05/2016	

Aboriginal Group Registration

Organisation	Contact type	Date	Comments
Cubbitch Barta	email	01-Jun-16	Glenda Chalker
Peter Falk Consultancy	email	14-Jun-16	Peter Falk
Peter Falk	email	14-Jun-16	Duncan Falk
Gulaga	email	15-Jun-16	Wendy Smith
Biamanga	email	15-Jun-16	Seli Storer
Callendulla	email	15-Jun-16	Corey Smith
Murramarang	email	15-Jun-16	Roxanne Smith
Goobah	email	15-Jun-16	Basil Smith

OEH & LALC notified of Registered Stakeholders

Organisation	Contact type	Date	Comments
OEH (Metro division)	email	4/07/2016	
Tharawal LALC	letter	4/07/2016	
Tharawal LALC	email	5/07/2016	PO box address provided by OEH different to website. Email sent to website email address

Stage1 - Presentation of methodology and project

Organisation	Contact type	Date Sent	Comments
Tharawal LALC	Email	20-Aug-16	(not formally registered but sent method)
Cubbitch Barta	Email	20-Aug-16	
Peter Falk Consultancy	Email	20-Aug-16	Response to method received on 1.09.2016. Also previous response about the project area on 14.06.2016
D'harawal Mens Aboriginal Corporation	Email	20-Aug-16	(had only expressed interest on phone)
Gulaga	Email	20-Aug-16	
Biamanga	Email	20-Aug-16	
Callendulla	Email	20-Aug-16	
Murramarang	Email	20-Aug-16	
Goobah	Email	20-Aug-16	

Stage 2 - Fieldwork details

Organisation	Contact type	Date Sent	Comments
Tharawal LALC	Email	14-Sep-16	
Cubbitch Barta	Email	14-Sep-16	

Peter Falk Consultancy	Email	14-Sep-16
D'harawal Mens Aboriginal Corporation	Email	14-Sep-16
Gulaga	Email	14-Sep-16
Biamanga	Email	14-Sep-16
Callendulla	Email	14-Sep-16
Murramarang	Email	14-Sep-16
Goobah	Email	14-Sep-16

Consultation meeting 1 - 23 September 2016

Organisation	Person present	Date Sent	Comments
Tharawal LALC	attend	23-Sep-16	
Cubbitch Barta	Glenda Chalker	23-Sep-16	
Peter Falk Consultancy	Duncan Falk	23-Sep-16	
D'harawal Mens Aboriginal Corporation	attend	23-Sep-16	
Gulaga	Wendy Smith	23-Sep-16	
Biamanga	attend	23-Sep-16	
Callendulla	Keeden Bell	23-Sep-16	
Murramarang	Jake Bell	23-Sep-16	
Goobah	Richard Detton	23-Sep-16	

Draft ACHA sent to RAPs _ 10 Nov 2016

Organisation	email/letter	Date sent	Comments
Tharawal LALC	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Cubbitch Barta	email and letter	10-Nov-16	Response recieved 18 November 2016, reply letter sent 7/12/2016
Peter Falk Consultancy	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Gulaga	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Biamanga	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Callendulla	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Murramarang	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
Goobah	email	10-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016
D'harawal Mens Aboriginal Corporation	email	11-Nov-16	Hightail link sent in email, follow up email/reminder sent 28/11/2016

Menangle AHMP - issue of notice of AHMP preparation

Organisation	email/letter	Date sent	Comments
Tharawal LALC	email	22-Oct-20	
Cubbitch Barta	email	22-Oct-20	
Peter Falk Consultancy	email	22-Oct-20	
Gulaga	email	22-Oct-20	
Biamanga	email	22-Oct-20	
Callendulla	email	22-Oct-20	
Murramarang	email	22-Oct-20	
Goobah	email	22-Oct-20	
D'harawal Mens Aboriginal Corporation	email	22-Oct-20	

Menangle AHMP - Draft AHMP

Organisation	email/letter	Date sent	Comments
Cubbitch Barta	email	11-Dec-20	Comment received 6 Jan 2021 requiring response. Response issued 20/02/2021
Peter Falk Consultancy	email	11-Dec-20	
Gulaga	email	11-Dec-20	
Biamanga	email	11-Dec-20	Comment received - supported AHMP
Callendulla	email	11-Dec-20	
Murramarang	email	11-Dec-20	Comment received - supported AHMP
Goobah	email	11-Dec-20	Comment received - supported AHMP
D'harawal Mens Aboriginal Corporation	email	11-Dec-20	

B.2 AHMP consultation correspondence

Ryan Desic

From: Ryan Desic
Sent: Thursday, 22 October 2020 1:19 PM
To: informationofficer@tharawal.com.au; reception@tharawal.com.au; kgchalker@bigpond.com; kanga26@live.com.au; eugoogleiser@hotmail.com; elwyn.brown@yahoo.com.au; gulagachts@gmail.com; biamangachts@gmail.com; cullendullachts@gmail.com; murramarangchts@gmail.com; goobahchts@gmail.com
Subject: Menangle Quarry Sand and Soil Quarry Extension Project: Notice of preparation of Aboriginal Heritage Management Plan

Dear Registered Party,

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. The letter at the link below is to advise that EMM Consulting Pty Limited (EMM) has been engaged on behalf of Menangle Sand and Soil Pty Ltd (Menangle Sand and Soil) to prepare an Aboriginal heritage management plan (AHMP) for the project.

The letter seeks your input into the contents and preparation of the AHMP. We will also provide the draft AHMP to you for your review and comment. EMM will proceed to draft the AHMP which is estimated be issued to RAPs within the next month. RAPs will be provided with 28 days to review the AHMP and provide written feedback.

Please do not hesitate to contact me with any questions about the project and AHMP.


Please download a copy of the letter from this link: <https://spaces.hightail.com/receive/D7PJc8NkOQ>

Regards,

Ryan Desic

Associate Archaeologist – Heritage Team Leader
Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)



T 02 9493 9500
M 0411 329 712
D 02 9493 9541
 Connect with us

SYDNEY | Ground floor, 20 Chandos Street, St Leonards 2065



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22 October 2020

Re: Menangle Sand and Soil Quarry Extension Project: notice of preparation of Aboriginal heritage management plan

Dear Registered Aboriginal Party,

1 Introduction

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. This letter is to advise that EMM Consulting Pty Limited (EMM) has been engaged on behalf of Menangle Sand and Soil Pty Ltd (Menangle Sand and Soil) to prepare an Aboriginal heritage management plan (AHMP) for the project.

2 Quarry overview

Menangle Sand and Soil Pty Ltd operates the Menangle Sand and Soil Quarry at 15 Menangle Road Menangle. Quarrying has been undertaken in the location for over 40 years by a number of operators and at varying rates of production. Extraction, processing and rehabilitation activities have been undertaken by Menangle Sand and Soil since 1978.

Current extractive activities were approved in 1989 (DA 85/2865) and have involved the construction and operation of the quarry in seven stages. Sand and soil has been extracted from Stages 1 to 2 and 4 to 6 and is currently being extracted from Stage 7. While previously approved, sand and soil will not be extracted from Stage 3.

In September 2020, the NSW Land and Environment Court approved 'Menangle Quarry Extension – Modification 1' (MOD1). This allows the extraction of sand and soil in a new area, the Stage 8 area, that is about 13 ha, and extends about 2 kilometres along the Nepean River south of the Stage 7 area. The extension will increase the life of the quarry by 15 years. The extracted material will be transported to the existing processing area where it will be stockpiled, processed and blended with materials imported to the site, prior to being dispatched from the quarry.

A description of the quarry, including MOD1, is provided in Appendix A. The Notice of Orders Made by the Land and Environment Court (the 'consent') is provided in Appendix B.

3 Assessment and approvals background

As part of the Environmental Assessment for the project, EMM prepared an Aboriginal cultural heritage assessment report (ACHA) for the project in December 2016. The ACHA included the outcomes of an Aboriginal consultation process, an archaeological investigation (survey and test excavation) and Aboriginal heritage impact assessment. The ACHA outlined management measures that are required to be detailed in an AHMP.

There has been some delay in developing the AHMP because the application was initially rejected by DPIE. However, Menangle Sand and Soil appealed the decision to the Land and Environment Court under Case number 2018/00342158, Case title Menangle Sand and Soil Pty Limited v Minister for Planning. On 10 September 2020 the Court made orders that the appeal was upheld and that the modification was approved. The Notice of Orders Made (the 'consent') is provided in Appendix B.

In accordance with Part B, Condition B62 (b) of the Determination, EMM on behalf of Menangle Sand and Soil, is preparing an AHMP in consultation with Heritage NSW and project Registered Aboriginal Parties (RAPs) The aims of this letter is to notify your organisation that the AHMP is being prepared and to gather upfront input and feedback about the management commitments outlined in the project ACHA. Further comments and feedback will be sought once the draft AHMP is prepared and issued to all RAPs.

4 Heritage assessment background

The preparation of the Aboriginal cultural heritage assessment (ACHA) for the modification application included:

- background research of the Stage 8 area's environmental, archaeological and ethno-historical context;
- Aboriginal consultation in accordance with the *Aboriginal Consultation Requirements for Proponents 21010* (DECCW 2010c);
- an archaeological survey, geoarchaeological survey and test excavation program; and
- an assessment of archaeological, socio-cultural and historical values (significance to the Aboriginal community); impacts of the project and management for the identified Aboriginal cultural heritage values using the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (DECCW 2010b).

The preparation of the ACHA included consulting seven Registered Aboriginal Parties (RAPs), including a consultation meeting at the quarry, RAP participation in the cultural heritage fieldwork and review of the draft ACHA report.

The ACHA identified that the project area includes three distinct landform types adjacent to the Nepean river, comprising a lower terrace, upper terrace and sandstone escarpment (scarp).

In summary, the assessment found:

- Six known (recorded) Aboriginal sites relevant to the project. This comprises one confirmed Aboriginal site (Bulli Site 40, AHIMS #52-2-3720 – rockshelter with art) that was recorded prior to the project ACHA, and five rockshelters with PAD (sites MQ1–MQ5) that were recorded during the project ACHA but have not been confirmed to feature Aboriginal objects (eg art, engravings or stone artefacts). The Aboriginal sites were identified and assessed through review of AHIMS data and targeted archaeological survey and all occur on the scarp landform outside of the Stage 8 extraction area.
- No Aboriginal objects were identified through targeted test excavation in the Stage 8 extraction area and the upper and lower terrace landforms are considered to have low archaeological potential for subsurface archaeological deposits, primarily because of their geomorphological depositional sequence (EMM 2016 p.63). No other Aboriginal sites or areas of PAD relevant to the project area were identified during the project ACHA.
- There is potential for further rockshelters to occur in the Stage 8 restoration area, but many areas were inaccessible due to thick vegetation cover.

- There is some residual potential for Aboriginal scar trees to occur within the Stage 8 extraction area as there are mature native trees that couldn't be accessed due to thick vegetation cover.
- The project will not impact the known Aboriginal rockshelter sites relevant to the project.
- The escarpment at the western boundary of the Stage 8 extraction area has been buried by sediment accumulation of the Nepean River. As such, there is a theoretical potential for buried rockshelter or other sandstone-type sites (eg engravings or grinding grooves) to be buried and potentially exposed by project works in the Stage 8 extraction area. This has been based on the geoarchaeological assessment completed for the ACHA.

These reports are available on the Major Projects website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8531.

5 Scope of AHMP

An AHMP will be prepared based on the management recommendations set out in the ACHA (2016) and will be updated to include any additional requirements as a result of the recently approved project design. The AHMP will involve the following main tasks:

- consultation with the Heritage NSW and RAPs about the details of the AHMP;
- preparation of a draft AHMP for RAP review, which will provide details of;
 - all Aboriginal sites identified during the archaeological investigation for the project;
 - measures to protect, monitor and manage Aboriginal objects;
 - measures to ensure ongoing consultation and involvement of project RAPs;
 - protocols for newly identified sites;
 - protocols for educating staff and contractors of their obligations relating to Aboriginal cultural heritage values through a site induction process;
 - protocols for suspected human skeletal materials;
 - protocols for the ongoing care of salvaged Aboriginal objects (if found and salvage is required); and
 - provisions for review and updates of the AHMP;
- preparation of a revised AHMP incorporating the outcomes of RAP consultation;
- preparation of a final draft for Heritage NSW review and comment; and
- preparation of the final AHMP, based on RAP, Heritage NSW, for issue to, and to be endorsed by, the Secretary of DPIE.

6 Next steps

This letter seeks your input into the contents and preparation of the AHMP. We will also provide the draft AHMP to you for your review and comment.

EMM will proceed to draft the AHMP which is estimated be issued to RAPs within the next month. RAPs will be provided with 28 days to review the AHMP and provide written feedback.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Desic', with a stylized flourish at the end.

Ryan Desic
Associate Archaeologist - Heritage Team Leader
rdesic@emmconsulting.com.au

Appendix A

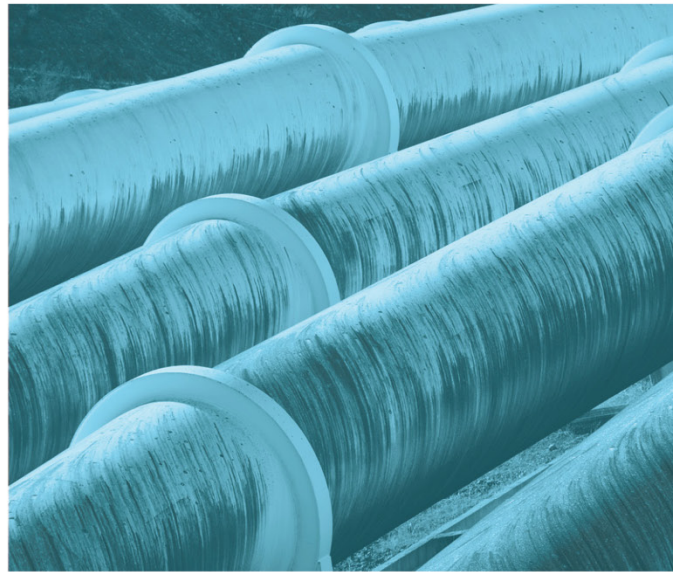
Project description



Land and Environment Court Proceedings 342158 of 2018

Applicant's Description of Amended Project

Menangle Sand & Soil Pty Limited v Minister for Planning
24 August 2020





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Land and Environment Court Proceedings 342158 of 2018

Applicant's Description of Amended Project

Prepared for Menangle Sand & Soil Pty Limited v Minister for Planning
24 August 2020

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Land and Environment Court Proceedings 342158 of 2018

Applicant's Description of Amended Project

Report Number

J190166 RP#4

Menangle Sand & Soil Pty Limited v Minister for Planning

Date

24 August 2020

Version

v7 Final

Approved by



Dr P. Towler
Associate Director
24 August 2020

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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1 Introduction

Menangle Sand and Soil Pty Ltd (Menangle Sand and Soil) seek a modification to Development Consent 85/2865 to extend the life of the quarry by 15 years while removing the need to re-establish quarrying activities, clear vegetation, and extract sand and soil from the approved Stage 3 area (the Menangle Sand and Soil Quarry Extension Project, the 'extension project'). It is proposed to forego approved land extraction (as well as dredging rights to another 200,000 tonnes) of 500,000 tonnes of sand and soil in the Stage 3 area and instead extend their current operations to extract sand and soil from an additional stage of the quarry (Stage 8). The Stage 8 area will extend approximately 2.8 km along the Nepean River on Company-controlled lands, within Lot 203//Deposited Plan 590247 on the eastern side of the Hume Highway. Approximately 760,000 tonnes of sand and soil will be extracted from the Stage 8 area land over about 15 years. Extraction will be in sequential substages so the active extraction area will be a small proportion of the total Stage 8 extraction area at any given time. No riverine extraction is proposed.

A modification application and accompanying environmental assessment (EA) report for the extension project was lodged in May 2017 and subsequently refused by the Department of Planning and Environment on 25 October 2018. The application is before the NSW Land and Environment Court (2018/342158).

An amended application was placed on public exhibition between 19 February 2020 and 4 March 2020. Amendments to the proposed modification are summarised in *NSW Land and Environment Court (2018/342158) Menangle Quarry - Project Amendments and Information Summary* (EMM [Towler] 2019a).

Given the application's history, the currently proposed modification is described in a range of documents.

This consolidated project description report provides a description of the currently approved quarry, based on Chapter 2 of the *Menangle Quarry Extension Environmental Assessment* (EA) (EMM 2017a), and the currently proposed modification (as amended) as described in Chapter 3 of the EA and subsequently amended in:

- *Supplementary Biodiversity Assessment* (EMM [Ward] 2019b);
- *Menangle Quarry - Amended Extraction Area and Setback* (EMM [Towler] 2019c);
- *Restoration Area Weed Strategy* (EMM [Grant] 2019d);
- *Groundwater Management* (EMM [Webb] 2019e); and
- *Flood Mitigation* (EMM [Towler] 2019f).

No modification amendments were proposed in the *Menangle Quarry Extension Response to Submissions* (RTS) (EMM 2017b).

The allotments subject to the development application modification, 'the site', are provided in Appendix A.

This consolidated project description report outlines the current proposal incorporating all of the changes to the project made since the Refusal and presents an updated statement of commitments.

2 Approved and proposed operations

2.1 Introduction

The extension project will increase the quarry life by 15 years (to 2035) by extracting the sand and soil resource in the Stage 8 area. The Stage 8 area extends approximately 2.8 km upstream of the currently active Stage 7 area. The project will require installation and operation of a conveyor between the existing processing area and the Stage 8 area. Menangle Sand and Soil will relinquish the approved extraction of resource (as well as its perpetual right to the resource located on the Elizabeth Macarthur Agricultural Institute land) from the approved Stage 3 area as part of the extension project.

The layout of the approved and proposed quarry is presented in Figure 2.1.

As well as the extraction areas, key components of the quarry include:

- an existing wheel wash and weighbridge;
- an existing site office and amenity building;
- an existing workshop west of the site office;
- existing fuel supply tanks north of the storage shed;
- existing sand and soils storage and processing area; and
- other existing minor infrastructure.

These components will be used to support activities in the Stage 8 area which will also include:

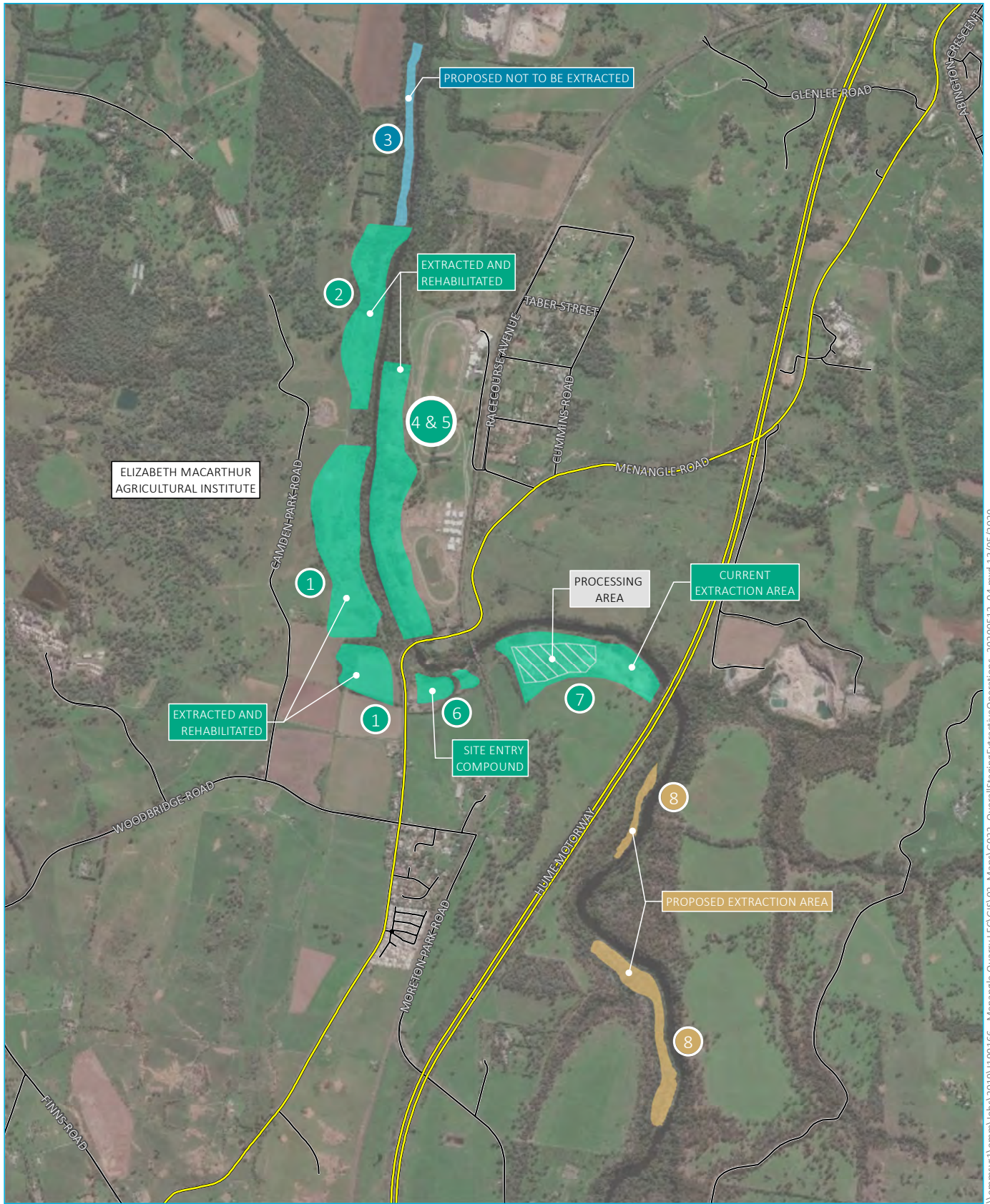
- extraction in the Stage 8 extraction area followed by rehabilitation;
- restoration of areas adjacent to the extraction areas;
- a conveyor; and
- a haul road.

These are described below.

2.2 Resource

The total resource in the 1989-approved quarry is approximately 7.7 million tonnes, made up of approximately 5.9 million tonnes of soil and 1.8 million tonnes of sand. The approved extraction area is approximately 123 ha. An extraction rate of up to 350,000–400,000 tonnes per annum (tpa) of soil and sand is approved. To date, the resource has been extracted in all but the Stage 3 (approximately 300,000 tonnes soil and 400,000 tonnes sand) and the remaining part of the of Stage 7 area.

It is proposed to extract 760,000 tonnes of sand and soil from the Stage 8 area at a rate of no more than 150,000 tpa.



Source: EMM (2020); DFSI (2017); GA (2011)



- KEY**
- Main road
 - Local road
 - Existing processing area (to be retained)
 - Extractive operations (approved)
 - Extractive operations (approved but not extracted)
 - Stage 8 - extraction/rehabilitation area

Menangle Quarry Stages 1 to 8

Menangle Quarry Extension
Figure 2.1



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It is proposed to extract sand and soil from the Stage 8 extraction area (Figure 2.2) which has a total area of 13.22 ha.

Given that the width of horizontal setback area (see Section 2.3.2i) is variable and to ensure that any biodiversity impacts are fully compensated for, the 'extraction area' is defined as including the horizontal setback area, although extraction will not occur within this setback. This also reflects the previous intent to grade parts of the horizontal setback area where there are no trees. However, it is now proposed to leave the entire horizontal setback area undisturbed, save for hand weeding of the extensive existing noxious weeds.

The 'active extraction area' is the area where the overlying vegetation will be cleared (removing extensive understory weeds and mature native trees) and the sand and soil resource extracted.

2.3 Quarrying

2.3.1 Quarry progression

Historically, quarrying has progressed from south to north (Stages 1–2) and from west to east (Stages 4–7). Quarrying activities in the Stage 7 area are progressing from west to east. Extraction in the Stage 8 area will occur in sub-stages such that only a small portion of the overall Stage 8 area will be the active excavation area at any one time. Extraction will progressively move upstream in thirteen sub-stages, with each sub-stage each covering about 1 ha (Figures 2.2 to 2.4). Each of these sub-stages will be a basic operating cell and will take approximately 1 year to complete, depending on demand for product. Each sub-stage will be progressively rehabilitated using similar methods to those as implemented in the Stage 1–2 and Stage 4–5 areas but with a more intensively managed native planting regime implemented.

The maximum area of each substage is provided in Table 2.1.

Table 2.1 Maximum area of each substage

Substage	Area (ha)
8a	0.93
8b	0.93
8c	0.69
8d	1.07
8e	1.07
8f	1.07
8g	1.07
8h	1.07
8i	1.07
8j	1.07
8k	1.07
8l	1.07
8m	1.07
Total	13.25



Source: EMM (2019); DFSI (2017); GA (2011)

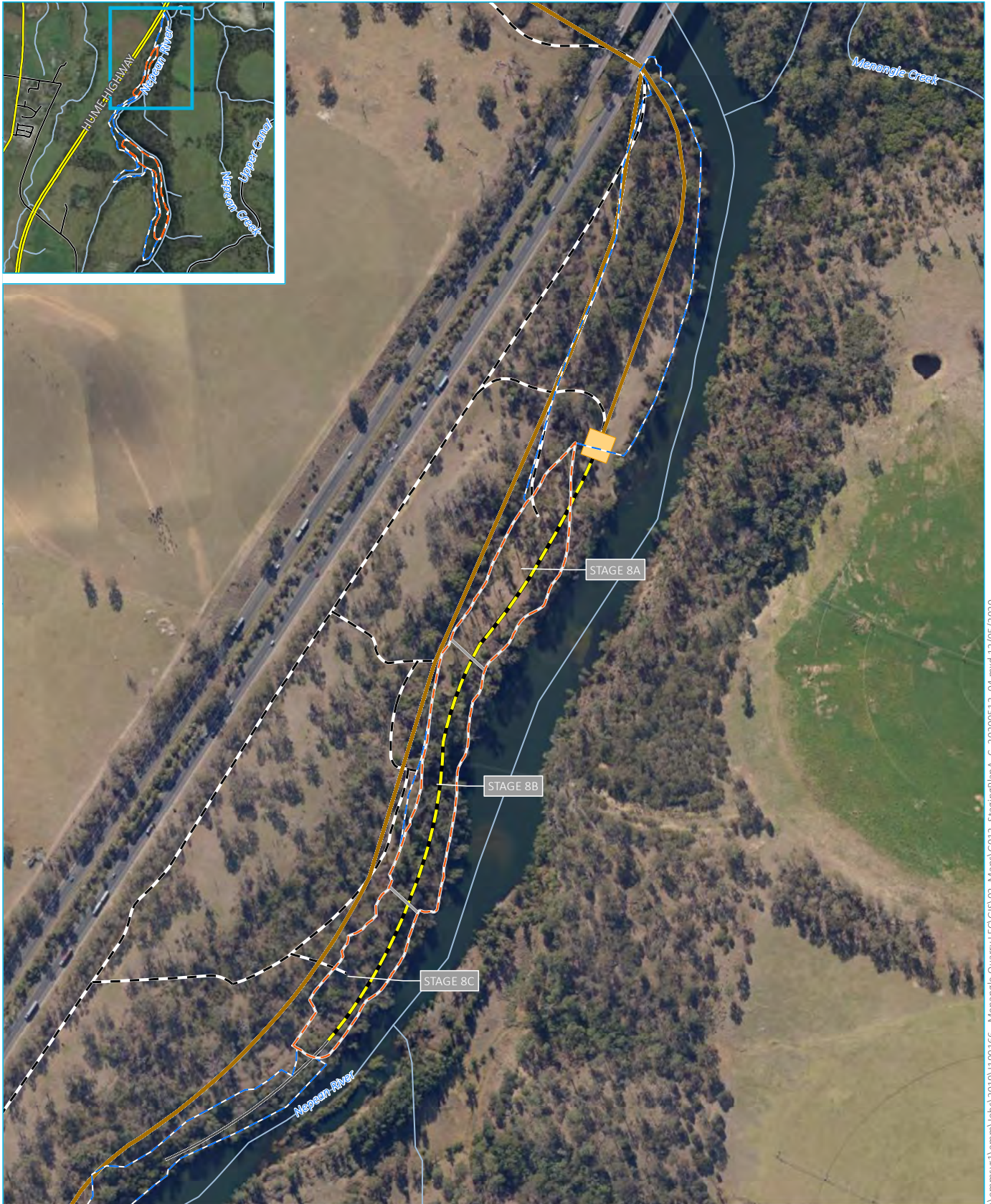
KEY

- Processing area (to be retained)
- Stage 7 - current extractive operations
- Stage 8 - extraction/rehabilitation area
- Stage 8 - restoration area (no extraction)
- Main road
- Local road
- Watercourse/drainage line

Overall staging plan

Menangle Quarry Extension
Figure 2.2

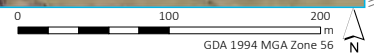
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Source: EMM (2019); DFSI (2017); GA (2011)

KEY

- ▭ Stage 8 - extraction/rehabilitation area
- ▭ Stage 8 - restoration area (no extraction) boundary
- Substage boundary
- Conveyor head
- Indicative conveyor location
- Haul road
- Access road
- Existing access track
- Watercourse/drainage line

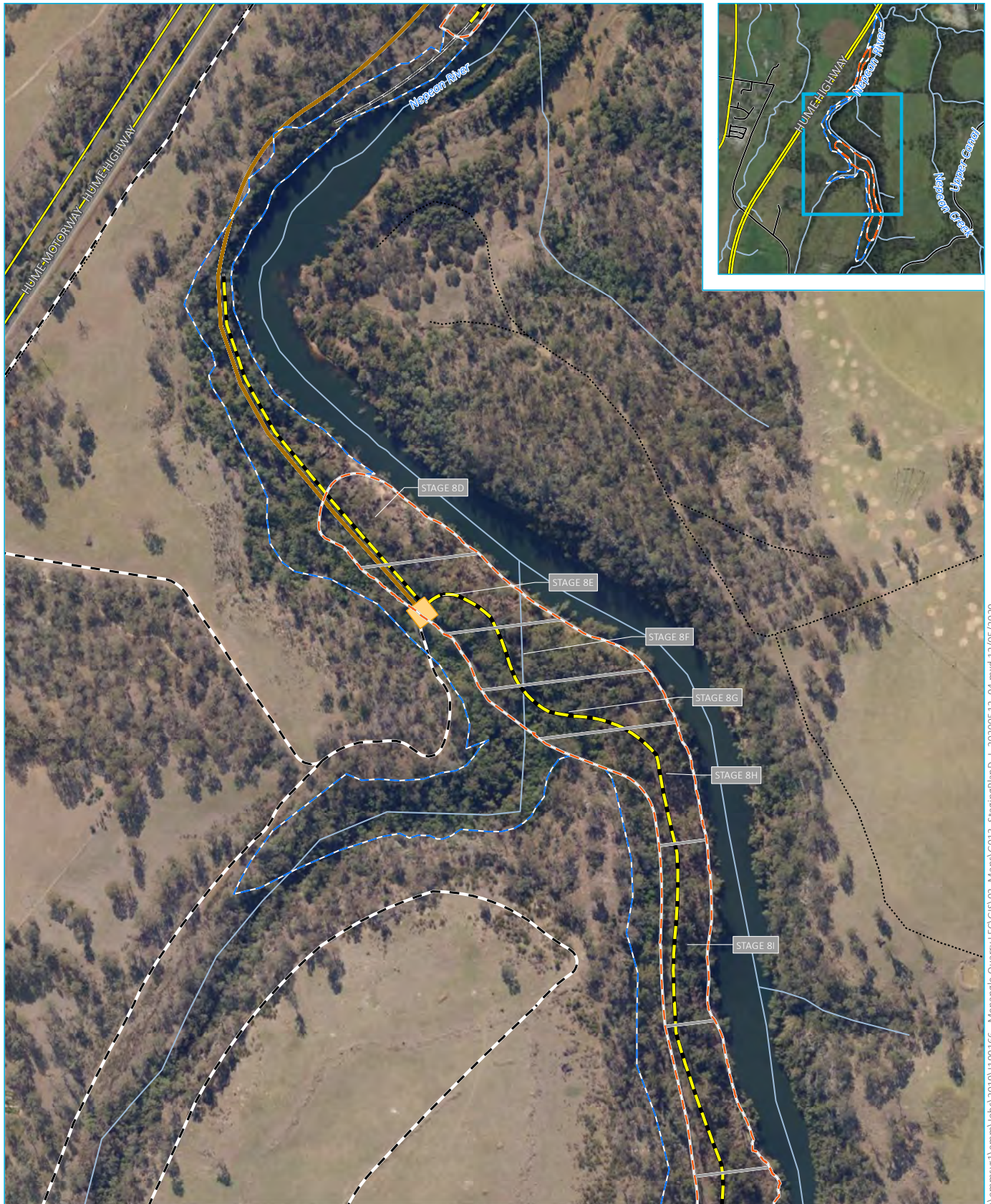


Stage 8 Extraction and restoration areas Stage 8A to 8C

Menangle Quarry Extension
Figure 2.3



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Source: EMM (2019); DFSI (2017); GA (2011)

KEY

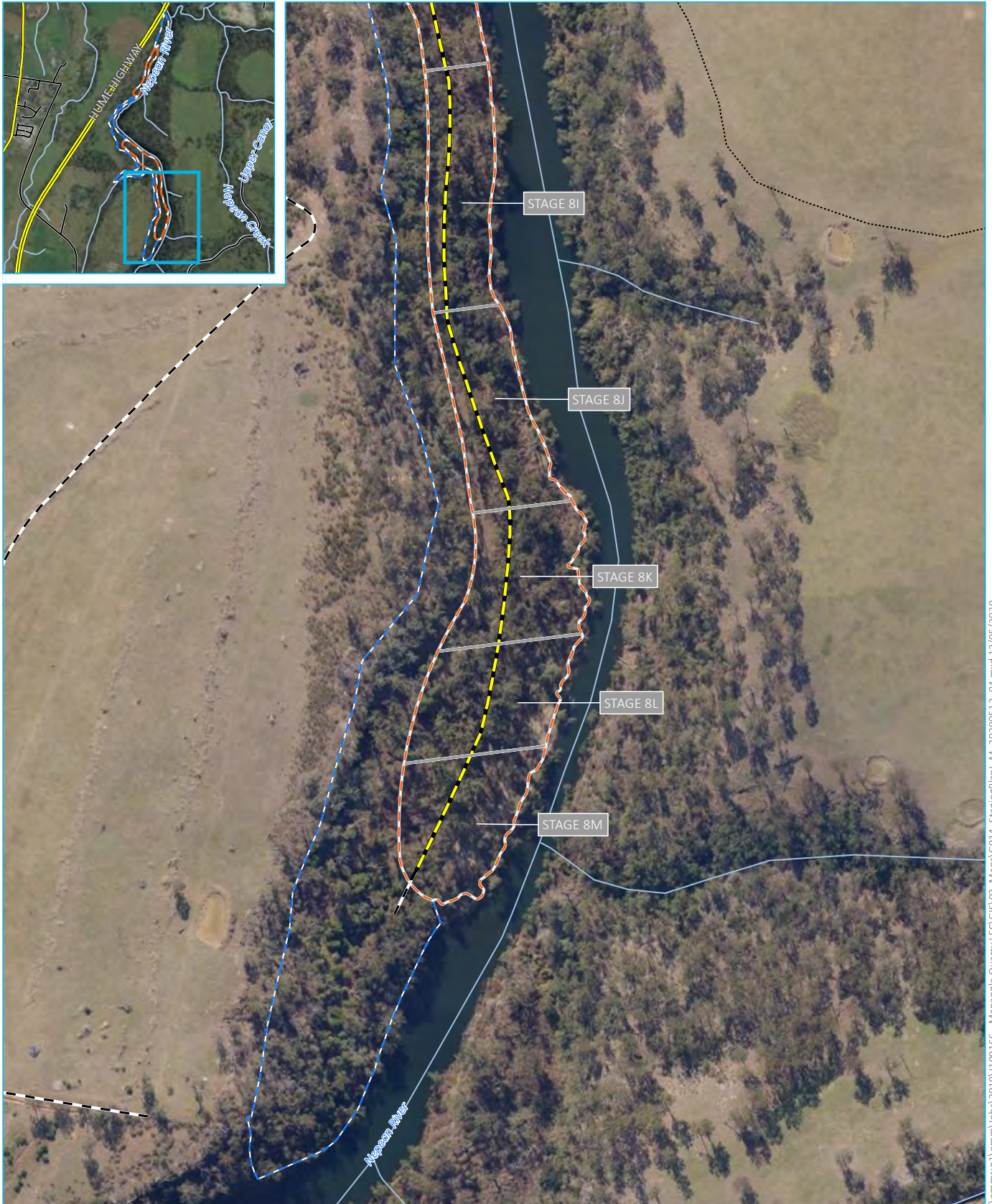
- Stage 8 - extraction/rehabilitation area
- Stage 8 - restoration area (no extraction) boundary
- Substage boundary
- Conveyor head
- Indicative conveyor location
- Haul road
- Access road
- Existing access track
- Main road
- Vehicular track
- Watercourse/drainage line

Stage 8 extraction and restoration areas – Stages 8D–8I

Menangle Quarry Extension
Figure 2.4



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Source: EMM (2019); DFSI (2017); GA (2011)

KEY

- Stage 8 - extraction/rehabilitation area
- Stage 8 - restoration area (no extraction) boundary
- Substage boundary
- Haul road
- Existing access track
- Local road
- Vehicular track
- Watercourse/drainage line

Stage 8 extraction and restoration areas – Stages 8I–8M

Menangle Quarry Extension
Figure 2.5

2.3.2 Stage 8 area quarry design

The Stage 8 quarry design is presented in Chapter 3 of the EA. Subsequently, the design has been amended to incorporate changes made since the Refusal. The amended proposed quarry design is summarised below.

Schematics showing the quarry progression in plan-view and in cross-section are presented in Figure 2.6 and Figure 2.7 respectively. An indicative cross-section perpendicular to the bank is presented in Figure 2.8 and Figure 2.9.

i Lower riverbank and horizontal setback retention

The level of the Nepean River adjacent to the Stage 8 area is controlled by the downstream Menangle Weir so as to be about 61 mAHD during normal low flow.

During extraction of the resource from the previous quarry stages, the lower riverbank was retained and a horizontal setback from a contour approximately 3 m above the normal river level was provided. For example, in the Stage 7 area, the lower riverbank (below 64 mAHD) was retained and a horizontal setback of 10 m from the 64 mAHD contour on the natural riverbank (ie 3 m above the normal level of the Nepean River) was provided.

A similar setback was proposed for the Stage 8 area. However, the proposed setback method has since been amended to protect all native trees in the 10-m wide horizontal setback area as follows:

- The lower riverbank will be retained below the 64 mAHD contour and remain untouched (except for hand removal of weeds, felling of non-native trees leaving the roots in place, and very selective herbicide application).
- The riverbank will also be retained in a horizontal setback that extends at least 10 m (measured horizontally) inland from the 64 mAHD contour up the bank (referred to as the '10-m-wide horizontal setback area')¹.
- Where there are native trees² within the 10-m-wide horizontal setback area, the width of the setback will be increased so that edge of the setback area/start of extraction area is at least 7.5 m (measured horizontally) from the trunk of these trees.

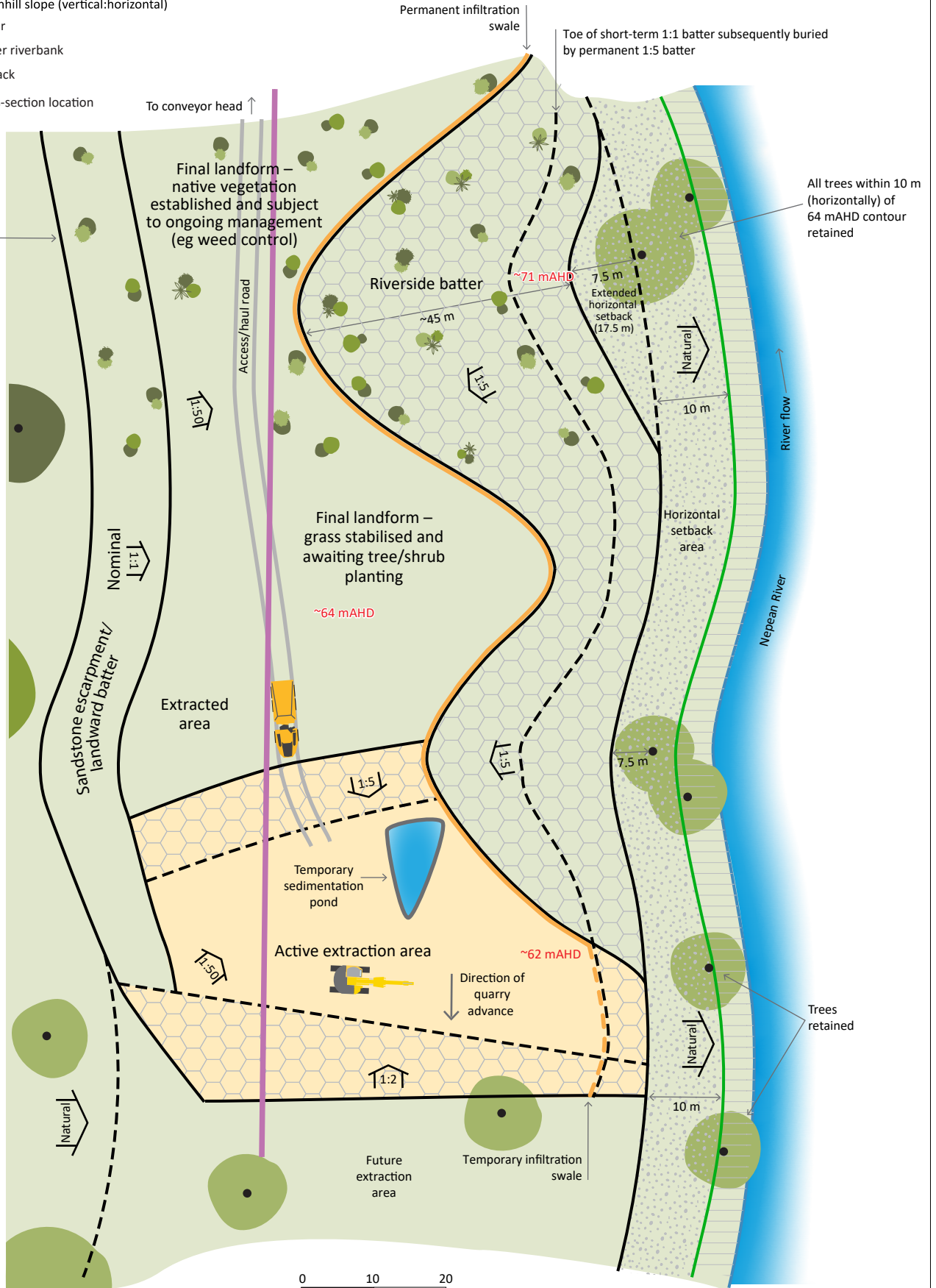
Therefore, the active extraction area will be separated from the river by the lower riverbank (ie between 61 mAHD and 64 mAHD) and additionally by the horizontal setback that will be between 10 and 17.5 m wide. The undisturbed bank (ie the combined lower riverbank and horizontal setback) will vary in height but will be at least 3 m above the low-flow river level where the bank slope is shallow but will be higher where the bank slope is steeper.

¹ It was previously proposed to grade the horizontal setback to a slope of 1:50 where there are no native trees within the horizontal setback area. This is no longer proposed and the existing landform within the horizontal setback area will be retained, including where there are no trees.

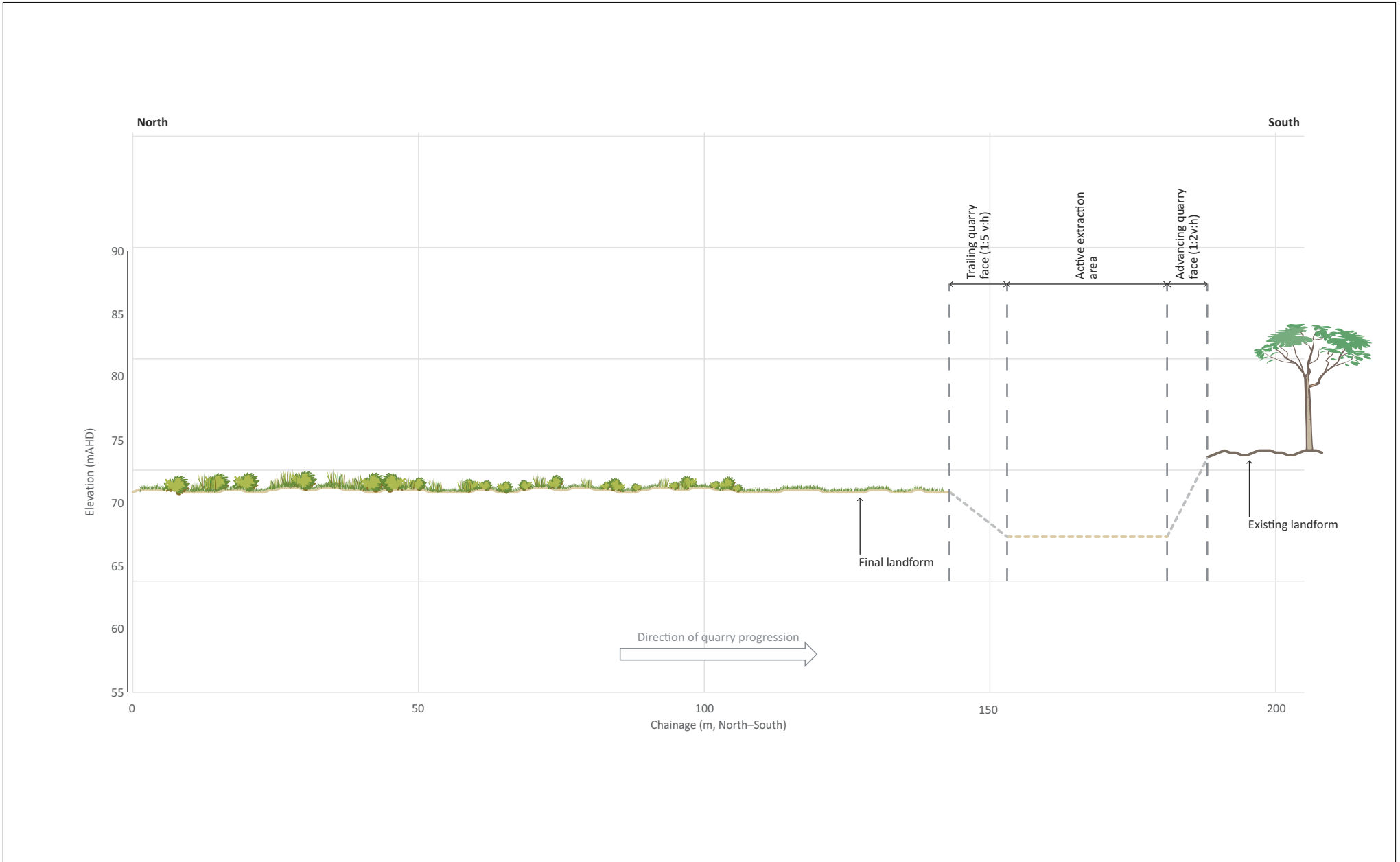
² Native trees with a trunk diameter of >0.1 m diameter at breast height (DBH).

KEY

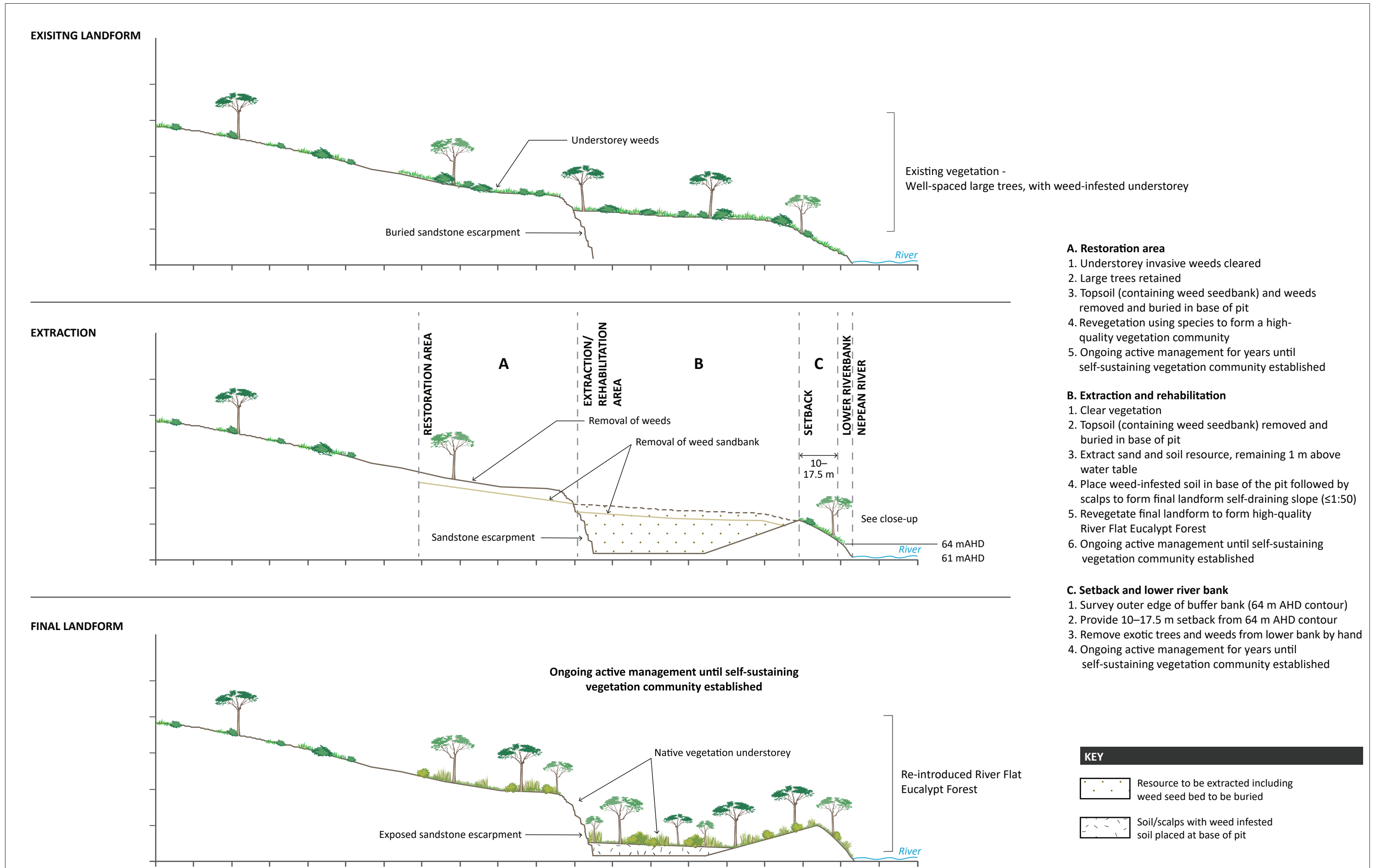
- ~64 mAHD Typical spot height
- 64 mAHD contour
- 1:2 Downhill slope (vertical:horizontal)
- Batter
- Lower riverbank
- Setback
- Cross-section location



Quarry progression schematic
 Menangle Quarry Extension
 Figure 2.6



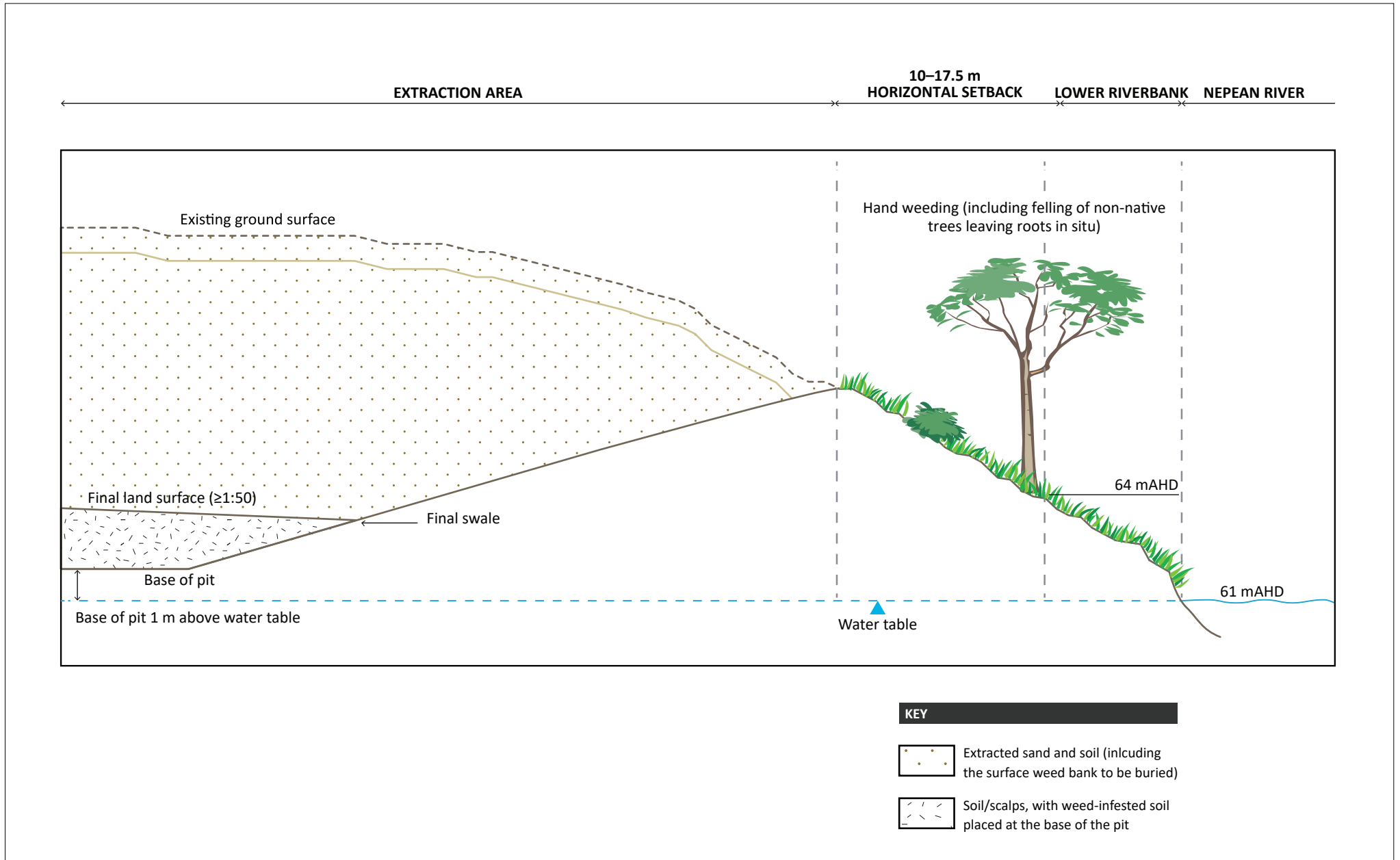
Quarry progression cross-section
 Menangle Quarry Extension
 Figure 2.7



- A. Restoration area**
1. Understorey invasive weeds cleared
 2. Large trees retained
 3. Topsoil (containing weed seedbank) and weeds removed and buried in base of pit
 4. Revegetation using species to form a high-quality vegetation community
 5. Ongoing active management for years until self-sustaining vegetation community established

- B. Extraction and rehabilitation**
1. Clear vegetation
 2. Topsoil (containing weed seedbank) removed and buried in base of pit
 3. Extract sand and soil resource, remaining 1 m above water table
 4. Place weed-infested soil in base of the pit followed by scalps to form final landform self-draining slope ($\leq 1:50$)
 5. Revegetate final landform to form high-quality River Flat Eucalypt Forest
 6. Ongoing active management until self-sustaining vegetation community established

- C. Setback and lower river bank**
1. Survey outer edge of buffer bank (64 m AHD contour)
 2. Provide 10–17.5 m setback from 64 m AHD contour
 3. Remove exotic trees and weeds from lower bank by hand
 4. Ongoing active management for years until self-sustaining vegetation community established



Indicative cross-section – close-up
 Menangle Quarry Extension
 Figure 2.9

ii Riverside batter

The riverside batter will be inland of the horizontal setback area (Figure 2.6).

It is proposed that:

- a temporary riverside batter with a maximum slope of 1:1 m (vertical: horizontal)³, will be used during sand and soil extraction – this will allow the efficient extraction of the resource;
- following extraction of the resource above this batter, the batter will be then built up with suitable site material to give a permanent slope of 1:5 – this will provide additional assurance that the bank will be stable if the active extraction area is flooded during extraction;
- the maximum length of the riverside batter that has a slope between 1:1 and 1:5 will be restricted to 30-m long so that it can be returned to a 1:5 batter within 12 hours if flooding is predicted;
- regardless of the amount of material required, the maximum length of the riverside batter that has a slope between 1:1 and 1:5 will be restricted to 30 m, measured parallel along the river;
- in the final landform, the riverside batter will have a permanent slope of 1:5 – this will provide additional assurance that the bank will be stable in the long term; and
- if over the life of the quarry, activities temporarily cease in the extraction area such that the excavator is relocated from the Stage 8 area, the riverside batter will be always left as a 1:5 batter.

iii Advancing quarry face

The quarry will progressively advance upstream at an average rate of about 150 m/year. The advancing quarry face will face downstream.

During large floods, river water may overtop the lower riverbank and horizontal setback area and flow into the active extraction area or may overtop the riverbank upstream of the active extraction area and flow along the bank to enter the active extraction area over the advancing face. A maximum batter angle of 1:2 will be applied to the advancing face so as to minimise any scour occurring as the water initially flows down the batter, until the water level in the extraction area is at the same level as the river.

iv Trailing quarry face

The trailing quarry face, between the active extraction area and backfilled extracted area, will face upstream.

A maximum landward batter angle of 1:5 is proposed for this face as it will face upstream in a flood. As for the riverside batter, this will mitigate the scour risk.

v Landward batter

The landward, or inland, batter is on the side of the extraction area furthest from the river (Figure 2.6).

A maximum landward batter angle of 1:1 is proposed as it will be exposed to far lower flood current speeds and peak shear stress than the riverside batter. There may be a steeper angle on the landward side of the extraction area where it is formed by the natural sandstone rock escarpment, which in places, may be vertical.

³ All slopes in this report are expressed as vertical:horizontal.

vi Base of the extraction area

Bores will be installed in the base of the active extraction area prior to the commencement of extraction in each successive substage and the water level will be recorded daily during active operations. The resource will be extracted in a manner that ensures that the base of the extraction area is always at least 1 m above alluvial water table resulting from the normal low flow water level in the Nepean River.

2.3.3 Pre-extraction surveys

Prior to any extraction occurring in each substage area, a qualified surveyor will:

- mark the boundary of the extraction area closest to the river as defined by the 64 m AHD contour;
- mark the extent of the 10-m-wide horizontal setback area;
- mark all living native trees with their trunk within the 10-m-wide horizontal setback area;
- place a peg 7.5 m horizontally landward of each tree within the 10-m-wide horizontal setback area – marking the extent to which the existing bank will be retained, ie forming the 10-m to 17.5-m-wide horizontal setback area;
- mark all other boundaries of the extraction area such that the area of each substage does not exceed the area in Table 2.1; and
- mark the boundaries of the adjacent restoration (no resource extraction) area.

2.3.4 Vegetation clearing

Vegetation will be cleared in campaigns ahead of sand and soil extraction. The area cleared at any one time will be minimised but will provide sufficient area to allow safe operations in the extraction area (allowing for the height of standing trees). The maximum extent of the cleared, but un-rehabilitated, extraction area will be 1 ha, but it is expected that a smaller portion will actually be cleared at any one time.

The timber will be stored onsite, prior to being periodically milled onsite using a portable mill. The milled timber will be used for fencing and other construction in the local area. Through a related entity, Menangle Sand and Soil control about 600 hectares in the local area where this milled timber will be used.

2.3.5 Topsoil removal

Topsoil will be stripped to a depth of approximately 0.2–0.3 m. Given that the topsoil in the Stage 8 area contains the seedbank for the noxious weeds infesting the area, this weed-infested material will be placed in the bottom of the preceding extraction area, following resource extraction, and will be covered by material returned as part of creating the final landform (see Section 2.8.1). It is important to bury these weed-infested soils deeply to prevent weed re-emergence.

2.3.6 Resource extraction

The sand and soil resource in the Stage 8 area will be extracted using an excavator and off-road haul truck. It will only be extracted to within 1 m above the water table (see Section 2.3.1). The excavator will load the haul truck, which will then transport the sand and soil to the conveyor head (see Section 2.4.1).

2.3.7 Dredging

Historically dredging has been used to extract sand from the Nepean River and is permitted in the existing Consent. Dredging is not proposed as part of the extension project (Stage 8).

2.4 Onsite material transport and processing

2.4.1 Stage 8 area material transport

Proposed Stage 8 works include the progressive construction of a haul road within the proposed Stage 8 area (see Figures 2.3 to 2.5). This haul road will follow existing cleared tracks.

An off-road haul truck will be used to transport excavated sand and soil from the active extraction area to the start of the conveyor, where it will be tipped.

At the conveyor head, sand and soil will be loaded into a self-powered screen which will remove the oversized material (>4 mm scalps). These scalps will be hauled back to the open excavation for use in rehabilitation. The screen will discharge sand and soil onto a conveyor.

The conveyor will be progressively extended south as the extraction moves south (see Figures 2.3 to 2.5). The conveyor will be a temporary structure (approximately 1.5-m high and 1-m wide) that will be removed upon completion of the project.

2.4.2 Processing

Mobile screens within the processing area are used to remove roots and coarse material (>4 mm) 'scalps'. The mobile stacker attached to the screen discharges screened soil into a stockpile for sale or blending. Some material is further screened to create specific blended soil products using mobile screening plants and a washing plant.

The wastes from the washing plant consist of organics such as pebbles, roots and fines (very fine sand, silt, and clay particles) in water. These wet fines are gravity fed to the settling pond in the processing area and are mostly recovered from the pond and blended into products. The remaining silts are used to rehabilitate the site.

No changes to material processing are proposed.

2.4.3 Blending

Environment Protection Licence (EPL) 3991 lists the type of wastes that can be accepted by the facility and the limits and conditions imposed on the acceptance and stockpiling of this waste. Extracted material is currently blended with these imported materials, where necessary.

No changes to material blending are proposed.

2.4.4 Stockpiling

Very little material is stockpiled in the extraction areas. Stockpiles are mainly kept in the processing area.

No changes to material stockpiling are proposed.

2.5 Access

2.5.1 Site access

The main access to the site is from Menangle Road. Menangle Road is an arterial road which provides sub-regional access. It is not proposed to change the site access for inbound materials or outbound materials.

2.5.2 Access to the Stage 8 area

Light vehicles accessing to the Stage 8 area will use the existing access under the Hume Motorway. The existing access was retained when the RMS bisected the lands when acquiring the corridor for the original Hume Highway in 1969. The existing access road under the bridge will be sealed and will comply with RMS drainage and pavements standards.

The earthmoving equipment, off-road haul truck and other plant to service the Stage 8 area will access the area via Moreton Park Road. Major plant is expected to remain onsite through-out the duration of the quarrying operations except for major servicing or replacement.

2.5.3 Product dispatch

No changes to product dispatch are proposed. Truck movements at the site (ie combined inbound and outbound movements) will not exceed an average of:

- 147 per day on Monday to Friday; and
- 80 per day on Saturday.

2.6 Quarry life

The proposed modification to the existing consent for the quarry would extend the approved life of the quarry for 15 years, from 2020 to 2035.

2.7 Biodiversity protection

A land 'swap' is proposed, surrendering the approval to extract sand and soil from the Stage 3 area (5.68 ha) for the same area (in hectares) of the Stage 8 extraction area on a 1:1 basis.

In addition, it is proposed to restore areas upstream, downstream and upslope of the extraction areas. These restoration areas are shown in Figures 2.3 to 2.5 and will form biodiversity offsets to compensate for the clearing of vegetation in the Stage 8 area that is not part of the land swap. Management of the restoration areas will include the removal of the extensive exotic vegetation in the restoration area, allowing restoration of the entire bank, back to a sustainable, high-quality, native ecosystem.

A Stage 8 area vegetation management plan will be prepared that:

- provides details of the conceptual final landform, soil stripping and vegetation clearing protocols, erosion and sediment control measures, rehabilitation of the extraction area and adjacent restoration activities;
- describes how the implementation of the biodiversity offset strategy will be integrated with the overall rehabilitation of the site; and
- details how connectivity will be managed during the rehabilitation program.

A full-time rehabilitation specialist will be employed as part of the Stage 8 area operations.

2.8 Rehabilitation and closure

2.8.1 Progressive rehabilitation of the Stage 8 area

Following completion of resource extraction, any weed-infested topsoil will be placed in the base of the extracted area followed by scalps and fines. These will be used to build up the base of the extracted area to about 64 mAHD. Following construction of the final landform, the area will be immediately planted with grasses to stabilise the surface. Native vegetation will then be established through planting and seeding. There will be ongoing active management of the rehabilitated extraction area, including weed control.

2.8.2 Final landform

The extraction area design (see Section 2.3.2), as amended to incorporate changes made since the Refusal, will result in the following final landform:

- the lower riverbank (below 64 mAHD) landform will be unchanged;
- the landform in the 10-m to 17.5-m wide horizontal setback will be unchanged;
- the land will slope down at 1:5 from the landward edge of the horizontal setback to 64 mAHD (the riverside batter);
- the infiltration swale along the toe of the riverside batter will be retained to prevent runoff from the final landform flowing overland to the river;
- a nearly-level area at about 64 mAHD gently sloping (1:50) down to the infiltration swale at the toe of the riverside batter;
- a 1:1 slope, or the exposed sandstone escarpment, down to the western edge of the extracted area; and
- the landform in the restoration area and outside of the extraction area will be unchanged.

The rate and volume of extraction will be monitored to ensure that a final landform can meet these design parameters.

Conceptual final landforms are provided in Figures 2.10 to 2.13.

As described in Section 2.3.2i, the horizontal setback area will vary between 10-m and 17.5-m wide along the length of the extraction areas, depending on the exact locations of trees within the 10-m wide horizontal setback. Conceptual final landforms are presented for a 10-m wide horizontal setback and a 17.5-m wide horizontal setback. The actual final landform will be a mixture between these two conceptual final landforms.

The accuracy of the existing contours is limited by the digital elevation model accuracy. It is not currently possible to improve this accuracy through a detailed topographic survey of the entire Stage 8 area given the density of woody weeds in much of the area. These weeds need to be cleared prior to a detailed survey which would compromise the stability of the land surface if undertaken in a single campaign across the entire Stage 8 extraction area. A qualified surveyor will survey each substage area prior to any extraction occurring in the substage and a detailed final landform for the substage will be prepared.

The base of the ephemeral creek in the southern part of the extraction area will be left at its present elevation below 64 mAHD.

The inland batter of the extraction area will be a 1:1 (vertical:horizontal) sand and soil slope or the currently buried sandstone escarpment. The exact location and slope of the buried sandstone escarpment will vary along the extraction areas. A nominal, 1:1 (vertical:horizontal) has been assumed in the conceptual final landform. Some of this area may be low exposed sandstone cliffs as currently occur upslope of the extraction area.

Over the coming decades, ongoing sand and soil deposition from the river's floods will fill the low areas, eventually recreating the current terraced benches.

2.9 Site infrastructure and services

2.9.1 Site buildings

There is a compound containing the administrative offices and allied buildings immediately at the site entrance on Menangle Road. The compound comprises:

- an existing site office and amenities building, housing offices, kitchen amenities and soil laboratory;
- an existing wheel wash and weighbridge are located at the top of an elevated bank, level with the floor level of the main building;
- an existing large workshop housing equipment and machinery as well as a storage area for ancillary machinery; and
- existing fuel supply tanks.

No changes to site buildings and infrastructure are proposed.

2.9.2 Lighting

There will be no changes to lighting in the processing and site entry areas.

No fixed lighting will be required in the Stage 8 area as extraction will only occur in daylight hours.

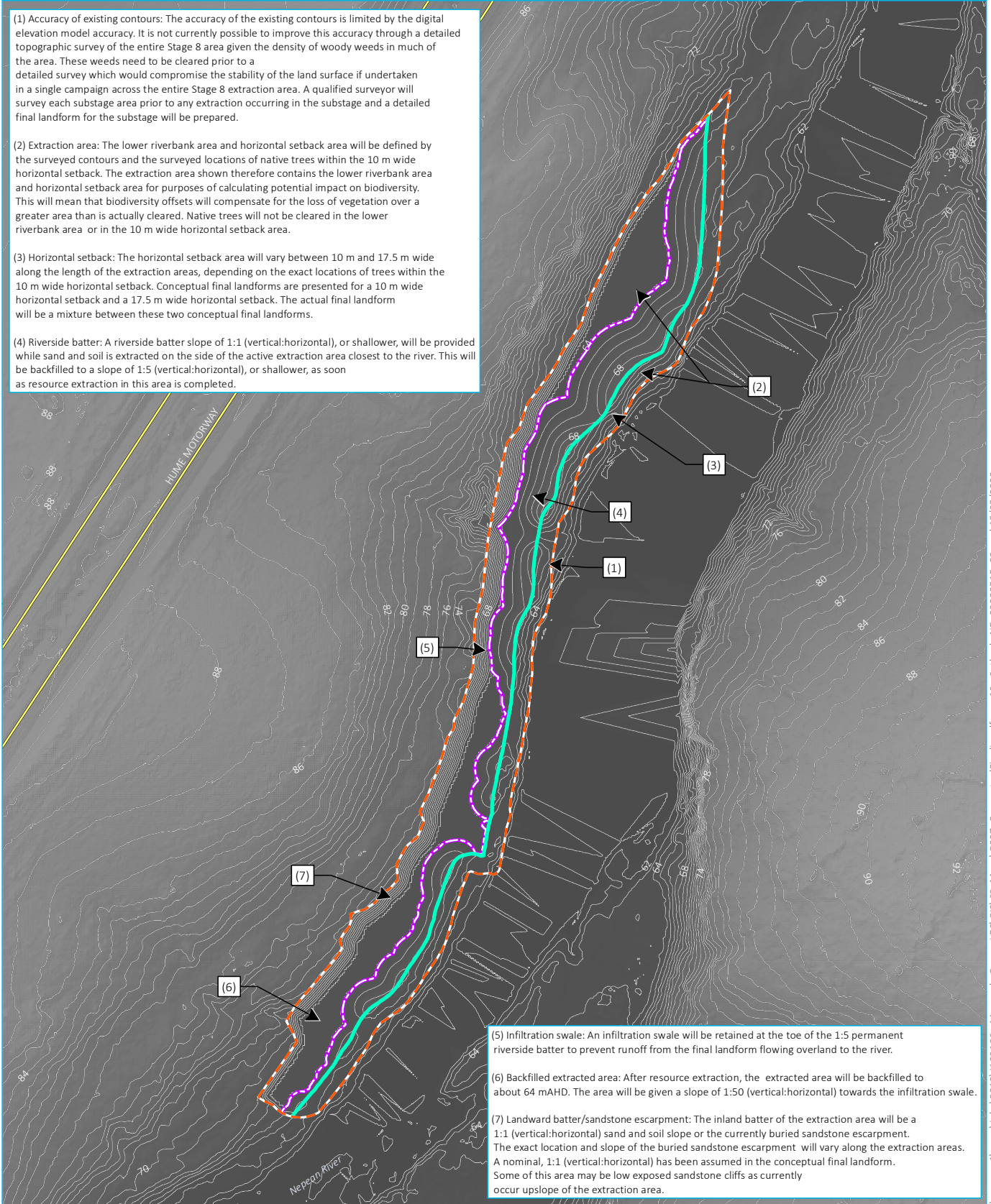
2.10 Hours of operation

The existing development consent allows the quarry to operate over the following hours:

- 6 am to 5 pm Monday to Friday;
- 6 am to 12 pm Saturday; and
- with no operations on Sundays or public holidays.

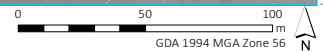
No changes to the approved hours of operation are proposed.

- (1) Accuracy of existing contours: The accuracy of the existing contours is limited by the digital elevation model accuracy. It is not currently possible to improve this accuracy through a detailed topographic survey of the entire Stage 8 area given the density of woody weeds in much of the area. These weeds need to be cleared prior to a detailed survey which would compromise the stability of the land surface if undertaken in a single campaign across the entire Stage 8 extraction area. A qualified surveyor will survey each substage area prior to any extraction occurring in the substage and a detailed final landform for the substage will be prepared.
- (2) Extraction area: The lower riverbank area and horizontal setback area will be defined by the surveyed contours and the surveyed locations of native trees within the 10 m wide horizontal setback. The extraction area shown therefore contains the lower riverbank area and horizontal setback area for purposes of calculating potential impact on biodiversity. This will mean that biodiversity offsets will compensate for the loss of vegetation over a greater area than is actually cleared. Native trees will not be cleared in the lower riverbank area or in the 10 m wide horizontal setback area.
- (3) Horizontal setback: The horizontal setback area will vary between 10 m and 17.5 m wide along the length of the extraction areas, depending on the exact locations of trees within the 10 m wide horizontal setback. Conceptual final landforms are presented for a 10 m wide horizontal setback and a 17.5 m wide horizontal setback. The actual final landform will be a mixture between these two conceptual final landforms.
- (4) Riverside batter: A riverside batter slope of 1:1 (vertical:horizontal), or shallower, will be provided while sand and soil is extracted on the side of the active extraction area closest to the river. This will be backfilled to a slope of 1:5 (vertical:horizontal), or shallower, as soon as resource extraction in this area is completed.



- (5) Infiltration swale: An infiltration swale will be retained at the toe of the 1:5 permanent riverside batter to prevent runoff from the final landform flowing overland to the river.
- (6) Backfilled extracted area: After resource extraction, the extracted area will be backfilled to about 64 mAHD. The area will be given a slope of 1:50 (vertical:horizontal) towards the infiltration swale.
- (7) Landward batter/sandstone escarpment: The inland batter of the extraction area will be a 1:1 (vertical:horizontal) sand and soil slope or the currently buried sandstone escarpment. The exact location and slope of the buried sandstone escarpment will vary along the extraction areas. A nominal, 1:1 (vertical:horizontal) has been assumed in the conceptual final landform. Some of this area may be low exposed sandstone cliffs as currently occur upslope of the extraction area.

Source: EMM (2020); DFSI (2017); ELVIS (2020)



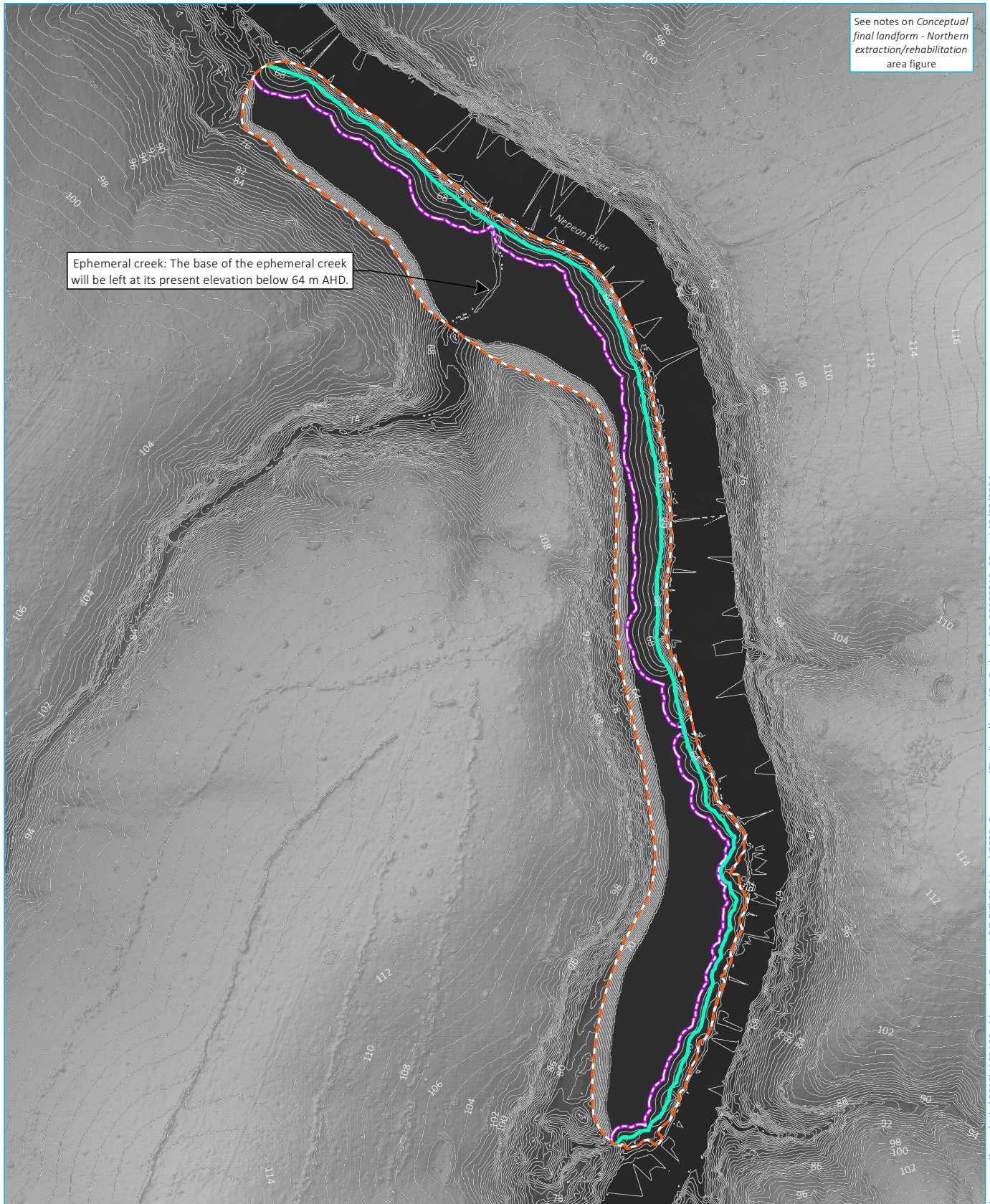
KEY

- Stage 8 - extraction/rehabilitation area
- Inland extent of horizontal setback (10 m)
- Infiltration swale/toe of riverside 1:5 permanent batter
- Contour (1 m)
- Major road

Conceptual final landform 10 m setback
Northern extraction/rehabilitation area

Menangle Quarry Extension
Figure 2.10

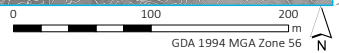
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See notes on Conceptual final landform - Northern extraction/rehabilitation area figure

Ephemeral creek: The base of the ephemeral creek will be left at its present elevation below 64 m AHD.

Source: EMM (2020); DFSI (2017); ELVIS (2020)



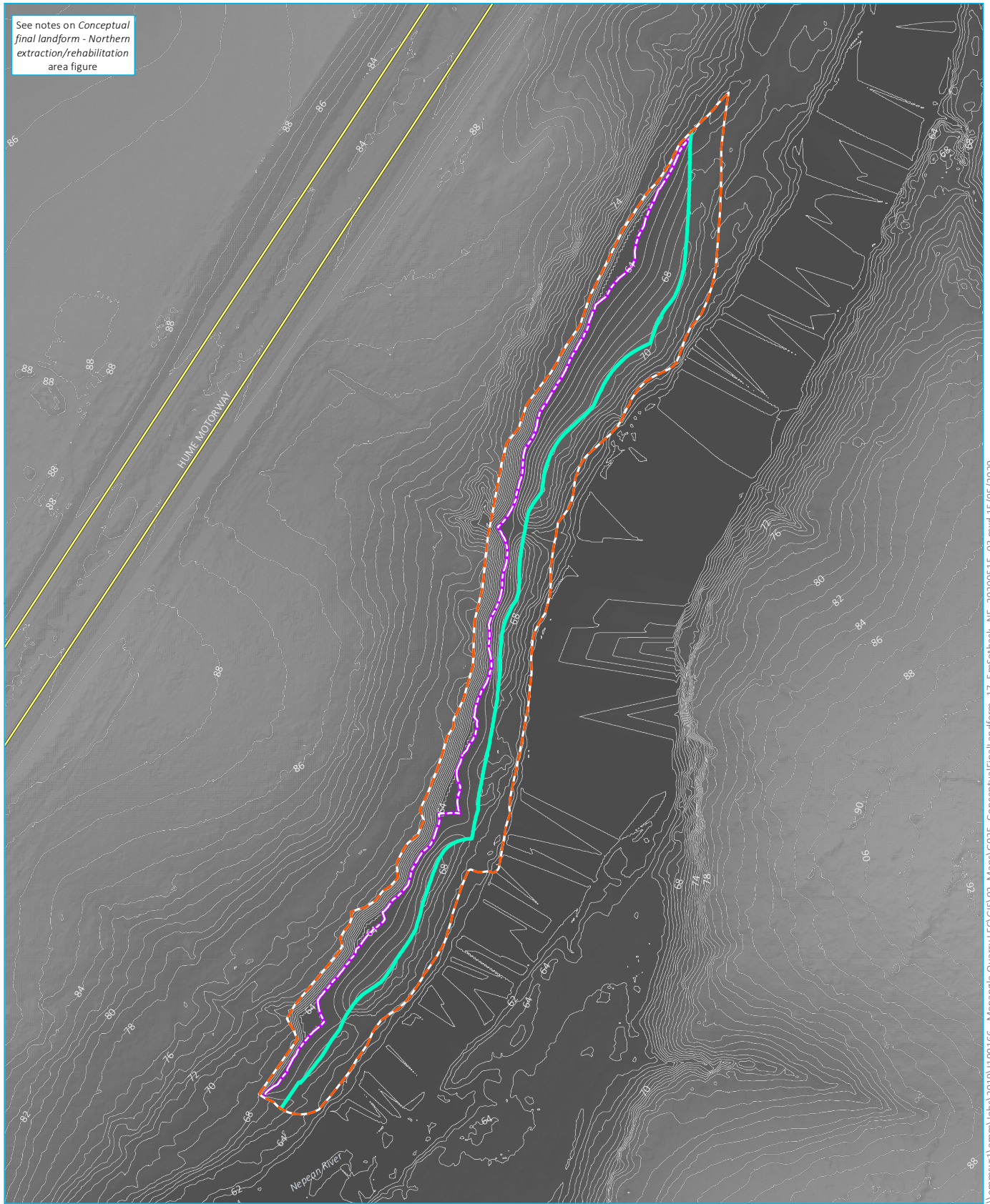
KEY

- Stage 8 - extraction/rehabilitation area
- Inland extent of horizontal setback (10 m)
- Infiltration swale/toe of riverside 1:5 permanent batter
- Contour (1 m)

Conceptual final landform 10 m setback
Southern extraction/rehabilitation area






Menangle Quarry Extension
Figure 2.11

See notes on Conceptual final landform - Northern extraction/rehabilitation area figure



Source: EMM (2020); DFSI (2017); ELVIS (2020)

KEY

-  Stage 8 - extraction/rehabilitation area
-  Inland extent of horizontal setback (17.5 m)
-  Infiltration swale/toe of riverside 1:5 permanent batter
-  Contour (1 m)
-  Major road

Conceptual final landform 17.5 m setback
Northern extraction/rehabilitation area

Menangle Quarry Extension
Figure 2.12







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See notes on Conceptual final landform - Northern extraction/rehabilitation area figure

Source: EMM (2020); DFSI (2017); ELVIS (2020)

KEY

-  Stage 8 - extraction/rehabilitation area
-  Inland extent of horizontal setback (17.5 m)
-  Infiltration swale/toe of riverside 1:5 permanent batter
-  Contour (1 m)

Conceptual final landform 17.5 m setback
Southern extraction/rehabilitation area

Menangle Quarry Extension
Figure 2.13

2.11 Employment

The quarry employs 16 people, most of whom are employees of long standing. When there is an additional production demand, staff from other Benedict sites are brought to site to assist. In addition, Benedict and contracted truck drivers deliver materials to the site and products to customers.

In addition, a full-time rehabilitation specialist will be employed as part of the Stage 8 area operations.

3 Statement of commitments

3.1 Introduction

The commitments to manage potential environmental impacts from the extension project are described in Chapter 7 of the EA (EMM 2017b). This includes a summary of commitments in EA Table 7.1. An updated statement of commitments is provided in Chapter 6 of the RTS (EMM 2017b).

3.2 Summary of commitments

A summary of the environmental management and mitigation measures, as amended to incorporate the changes made since the Refusal, is provided in Table 3.1. Additional commitments made following submission of the RTS are highlighted in bold.

Table 3.1 Summary of commitments

Aspect	Commitment
Air quality	Management measures to suppress dust and emissions consistent with current operations will be continued: <ul style="list-style-type: none">• level 2 water spraying for hauling on unpaved roads;• water spraying where screening occurs; and• water spraying at conveyor transfer points.
Noise and vibration	The current management measures to minimise noise emissions will continue to be implemented including: <ul style="list-style-type: none">• regular reinforcement of the need to minimise noise;• regular identification of noisy activities and adoption of improvement techniques;• working in shielded areas when possible (ie below the top of the bank of the Nepean River);• avoiding the use of portable radios with external speakers, public address systems or other methods of site communication that may unnecessarily impact upon nearby residents;• developing routes for the delivery of materials and parking of vehicles to minimise noise;• where possible, avoiding the use of equipment that generates impulsive noise;• minimising the need for vehicle reversing for example, by arranging for one-way site traffic routes;• minimising the movement of materials and plant and unnecessary metal-on-metal contact; and• scheduling respite periods for intensive works (such as timber milling). The following measures will be taken as part of the campaign use of the portable timber mill: <ul style="list-style-type: none">• campaigns will be scheduled to avoid the winter period;• a noise measurement trial will be conducted during worst case meteorological conditions at the start of the first campaign and if noise levels are above the noise criteria, mobile noise barriers and/ or noise curtains will be installed.

Table 3.1 Summary of commitments

Aspect	Commitment
Aboriginal heritage	<p data-bbox="408 443 560 465"><i>Aboriginal sites</i></p> <ul data-bbox="408 483 1391 775" style="list-style-type: none"> <li data-bbox="408 483 1391 533">• A pre-clearance survey will be undertaken to ensure that any scarred trees in the Stage 8 area are identified and recorded. <li data-bbox="408 551 1391 573">• Procedures will be implemented to ensure there is no inadvertent harm to buried rock shelters. <li data-bbox="408 591 1391 613">• Procedures will be implemented if human skeletal remains are discovered. <li data-bbox="408 631 1391 680">• Management measures will be implemented so that the quarry machinery avoids impacting buried sandstone features. <li data-bbox="408 698 1391 775">• If new Aboriginal sites are discovered during soil extraction or revegetation of the Stage 8 area, they will be assessed by an archaeologist and any new sites will be recorded on Aboriginal Heritage Information Management System (AHIMS).
Biodiversity, restoration and rehabilitation	<p data-bbox="408 792 1078 815">A full-time rehabilitation specialist will be employed by the quarry.</p> <p data-bbox="408 833 1031 855">Measures to minimise the project's biodiversity impacts will be:</p> <ul data-bbox="408 873 1391 1456" style="list-style-type: none"> <li data-bbox="408 873 1391 1066">• Avoid - avoidance of direct impacts on critically endangered ecological communities, namely Shale/Sandstone Transition Forest in the Sydney Basin Bioregion and Cumberland Plain Woodland in the Sydney Basin Bioregion. It is proposed that the development consent for the Stage 3 area is modified so there is no quarrying in this area, avoiding the approved clearing of 5.68 ha of an endangered ecological community, River Flat Eucalypt Forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions that would have otherwise occurred. <li data-bbox="408 1084 1391 1267">• Minimise: <ul data-bbox="437 1115 1391 1267" style="list-style-type: none"> <li data-bbox="437 1115 1391 1169">– each substage will be less than 1.07 ha and the active extraction area will be about 0.33 ha; and <li data-bbox="437 1187 1391 1267">– once extraction in each part of the sub-stage is complete, the area will be progressively rehabilitated so about 33% of the sub-stage will be bare sand and soil and about 66% will be a combination of existing vegetation and the area being rehabilitated. <li data-bbox="408 1285 1391 1393">• Mitigate - measures have been proposed to mitigate the clearing of native vegetation, loss of hollow-bearing trees, fauna injury and mortality and erosion and sedimentation (Table 4.1 in EA Appendix I and Section 6.5 in the Supplementary Biodiversity Assessment (EMM [Ward] 2019b)). <li data-bbox="408 1411 1391 1456">• Offset – biodiversity offsets will be provided in accordance with the Supplementary Biodiversity Assessment (EMM [Ward] 2019b). <p data-bbox="408 1473 922 1496">Extraction will be setback from the river as follows:</p> <ul data-bbox="408 1514 1391 1753" style="list-style-type: none"> <li data-bbox="408 1514 1391 1594">• The lower riverbank will be retained below the 64 mAHD contour and remain untouched (except for hand removal of weeds, felling of non-native trees leaving the roots in place, and very selective herbicide application). <li data-bbox="408 1612 1391 1666">• The riverbank will also be retained in a horizontal setback that extends at least 10 m (measured horizontally) inland from the 64 mAHD contour (the horizontal setback area). <li data-bbox="408 1684 1391 1753">• Where there are trees within the 10-m wide setback, the width of the setback will be further increased so that edge of the setback area/start of extraction area is at least 7.5 m (measured horizontally) from the trunk of these trees.

Table 3.1 Summary of commitments

Aspect	Commitment
	<p>All native trees in the 10-m-wide horizontal setback will be retained.</p> <p>Restoration and rehabilitation will be undertaken in accordance with a post extractive rehabilitation and vegetation management plan similar to those contained in EA Appendix C. This plan will:</p> <ul style="list-style-type: none"> • provide details of the conceptual final landform, soil stripping and vegetation clearing protocols, erosion and sediment control measures, rehabilitation of the extraction area and adjacent restoration activities; • describe how the implementation of the biodiversity offset strategy would be integrated with the overall rehabilitation of the site; and • detail how connectivity will be managed during the vegetation management plan works program. <p>Woody debris and logs from areas to be cleared will be retained and placed in the offset area, extraction area, and lower riverbank.</p> <p>A weed-control strategy will be prepared and implemented in the Stage 8 areas.</p> <p>Menangle Sand and Soil will ensure the vegetation maintenance in the Stage 8 area is fully funded.</p>
Groundwater	<p>The following groundwater monitoring and management measures will be implemented:</p> <ul style="list-style-type: none"> • A conceptual locally-specific groundwater model will be prepared based on local site data. • A water monitoring and modelling plan will be prepared. • Install nested monitoring bores will be installed at four locations along the stage 8 area. • In-bore aquifer tests (slug tests) will be conducted. • Piezometers/loggers will be installed in each bore and water levels recorded. • The ‘water take’ in the pit predicted as a result of elevated groundwater levels during flooding will be calculated. <p>Sufficient water access licences (WALs) will be purchased to account for the ‘intercepted’ groundwater, if required.</p> <p>The existing groundwater management controls implemented on the site for the approved operations will be continued, including:</p> <ul style="list-style-type: none"> • the base of the quarry pit will be no deeper than 62 mAHD, ie 1 m above the alluvial water table; and • if groundwater enters the pit, for example during extended high flow in the Nepean River, it will be allowed to infiltrate back into the alluvial groundwater system once the alluvial water table drops and extraction not recommenced until the water subsides.

Table 3.1 Summary of commitments

Aspect	Commitment
Surface water	<p>The existing soil and surface water management controls implemented on the site for the approved operations will be continued. These measures include:</p> <ul style="list-style-type: none"> • the extraction area will be setback from the river (see above); • flow diversions and check dams will be constructed to direct clean runoff around the extraction area; • a sedimentation basin (or basins), sized to trap and treat runoff, will be excavated within the pit; and • the erosion and sediment control measures will be regularly maintained. <p>The sedimentation basin will be formed in the base of the pit and will be relocated as the extraction area progresses.</p> <p>Only commercially available non-toxic flocculants will be used at the site.</p> <p>Any water in the pit will not be dewatered using a pump. Rather, it will flow to a sedimentation basin or will be allowed to infiltrate to the water table under gravity.</p> <p>If the water level in the pit rises to a level where operations need to cease, operations will only recommence when the water level has dropped sufficiently to be safe (no operations within standing water are required).</p> <p>The following actions will be taken when flooding of the Nepean River above 64 m AHD in the Stage 8 area is predicted:</p> <ul style="list-style-type: none"> • any riverside batter that has a batter angle of less than 1:5 will be built up so that it has a maximum 1:5 slope; • exposed batters and the base of the pit will be flattened so that there are no isolated highpoints susceptible to scour; • all exposed sand and soil will be smoothed such that there are no rapid changes in slopes, particularly at the intersections of different batters; and • unattended earthmoving equipment will not be left within the Stage 8 area below the 1% annual exceedance probability flood level while a flood warning is current. <p>These measures will be detailed in a flood preparedness plan that will be part of the site’s operational environmental management plan.</p>
Traffic and transport	<p><i>Road upgrades</i></p> <ul style="list-style-type: none"> • No road upgrades will be required as a result of the extension. <p><i>Traffic management plan</i></p> <ul style="list-style-type: none"> • The existing traffic management plan will be monitored and reviewed. <p><i>Access beneath the Hume Highway/Menangle Bridges</i></p> <ul style="list-style-type: none"> • There will be no clearing of native vegetation, excavation or stockpiles placed within 50 m of the Hume Highway/Menangle Bridges or within 30 m of the edge of the boundary of the Hume Highway road corridor within the Stage 8 area. • Menangle Sand and Soil will continue to provide Transport for NSW (TfNSW) access to the Hume Highway/Menangle Bridges structure and associated facilities at all times, including for routine and emergency maintenance. • Access under the Hume Highway/Menangle Bridges will be restricted to light vehicles only. • Access under the Hume Highway/Menangle Bridges will be sealed and comply with RMS drainage and pavements standards. • The piers of the Hume Highway/Menangle Bridges, as well as any other part of the bridge structure and associated facilities, will be protected from any potential damage as a result of the construction or operations of the Menangle Sand and Soil Quarry.

Table 3.1 Summary of commitments

Aspect	Commitment
	<ul style="list-style-type: none"> • The conveyor and access under the bridges will be the subject of a license agreement drawn up by TfNSW's lawyers at no cost to TfNSW. This will be in place prior to starting any works under and adjacent to the Menangle Bridges and Hume Highway. • Any detritus associated with the construction and use of the access road under Hume Highway/Menangle Bridges will be removed by Menangle Sand and Soil. <p>There will be no access to or from the Hume Highway road reserve area from the Menangle Sand and Soil Quarry site (specifically between Lot 202 and Lot 203 DP 590247) other than to travel beneath the Hume Highway/Menangle Bridges.</p> <p>A Drivers Code of Conduct will be prepared that applies to all employee and contractor drivers.</p>
Social	Menangle Sand and Soil will continue to ensure that preference is given to local employees. As well, they will use local or regional contractors and suppliers where this presents a cost effective and feasible option.
Visual	Menangle Sand and Soil will continue to consult with surrounding landowners regarding the visual amenity of the quarry and will implement any reasonable additional controls to further reduce their visual impact, if necessary.
Historical heritage	Extraction in the northern-most part of the Stage 8 extraction area will avoid the storage container. The industrial equipment on the west bank of the Nepean River in the Stage 8 restoration area will not be disturbed.

References

EMM 2017a, *Menangle Quarry Extension Environmental Assessment*, prepared for Menangle Sand and Soil Pty Limited by EMM Consulting Pty Limited. 23 May 2017.

EMM 2017b, *Menangle Quarry Extension Response to Submissions*, prepared for Menangle Sand and Soil Pty Limited by EMM Consulting Pty Limited. 14 September 2017.

EMM [Towler] 2019a, NSW Land and Environment Court (2018/342158) *NSW Land and Environment Court (2018/342158) Menangle Quarry - Project Amendments and Information Summary*. Letter prepared by EMM Consulting Pty Limited for Minter Ellison. 20 December 2019.

EMM [Ward] 2019b, *Menangle Sand and Soil Pty Ltd v Minister for Planning, LEC 2018/342158 Supplementary Biodiversity Assessment*. Report prepared by EMM Consulting Pty Limited for Minter Ellison. Version 2. 6 September 2019.

EMM [Towler] 2019c, NSW Land and Environment Court (2018/342158) *Menangle Quarry - Amended Extraction Area and Setback*. Letter prepared by EMM Consulting Pty Limited for Minter Ellison. 16 August 2019.

EMM [Grant] 2019d, NSW Land and Environment Court (2018/342158) *Menangle Sand and Soil - Restoration Area Weed Strategy*. Letter prepared by EMM Consulting Pty Limited for Minter Ellison. 9 September 2019.

EMM [Webb] 2019e, NSW Land and Environment Court (2018/342158) *Menangle Sand and Soil - Groundwater Management*. Letter prepared by EMM Consulting Pty Limited for Minter Ellison. 16 August 2019.

EMM [Towler] 2019f, NSW Land and Environment Court (2018/342158) *Menangle Sand and Soil – Flood Mitigation*. Letter prepared by EMM Consulting Pty Limited for Minter Ellison. 9 September 2019.

Appendix A

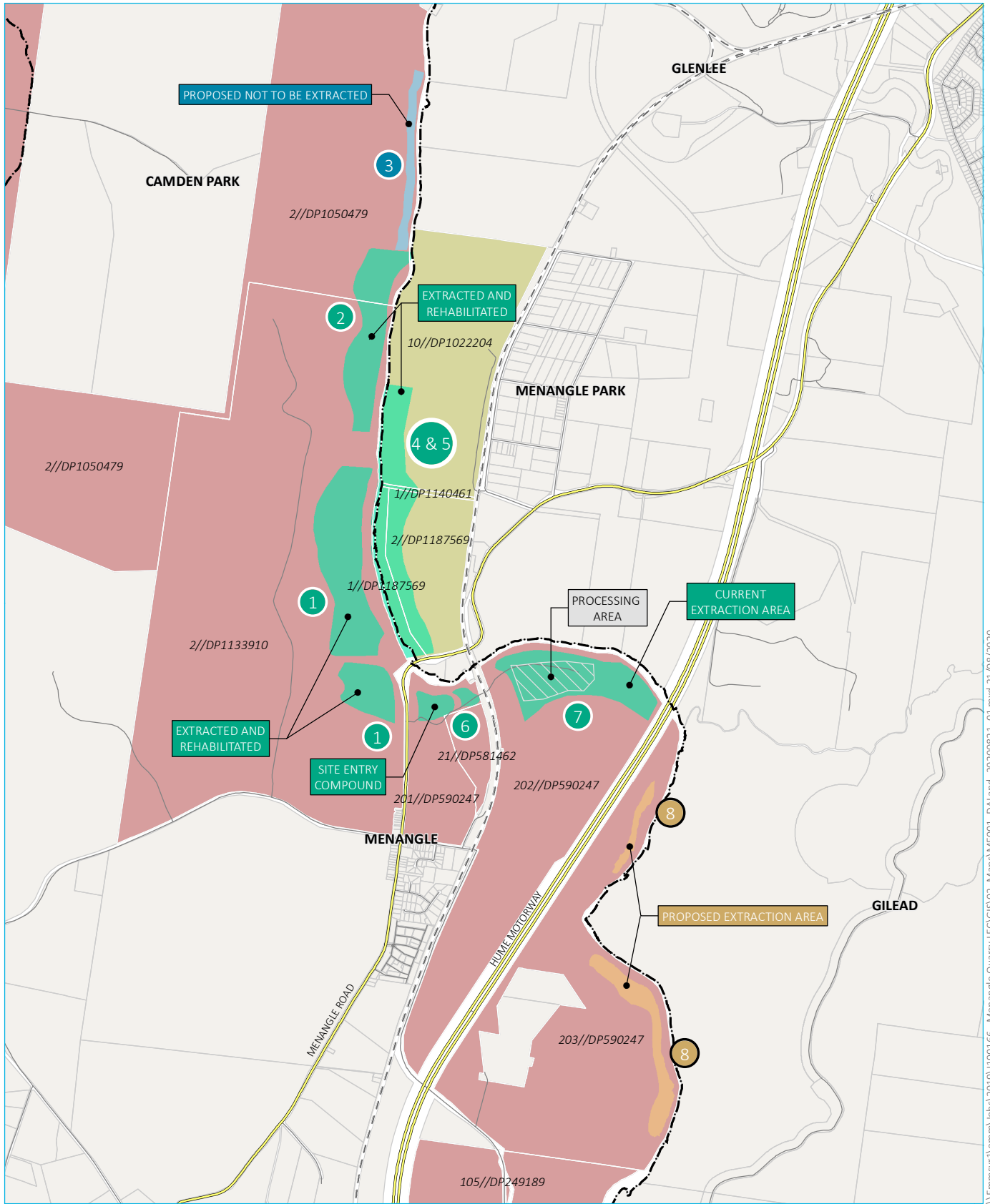
Development Application Land

A.1 Development Application Land

The allotments subject to the development application modification are listed in Table A.1 and shown in Figure A.1.

Table A.1 Development application land

Lot	Deposited plan
Lot 10	DP1022204
Lot 2	DP1050479
Lot 2	DP1133910
Lot 1	DP1140461
Lot 1	DP1187569
Lot 2	DP1187569
Lot 105	DP249189
Lot 21	DP581462
Lot 201	DP590247
Lot 202	DP590247
Lot 203	DP590247



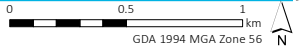
Source: EMM (2020); DFSI (2020)

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KEY

- — Rail line
- Major road
- Minor road
- ▭ Cadastral boundary
- ▭ Local government area boundary
- ▭ Campbelltown impacted lots
- ▭ Wollondilly impacted lots
- ▭ Existing processing area (to be retained)
- ▭ Extractive operations (approved)
- ▭ Extractive operations (approved but not extracted)
- ▭ Stage 8 - extraction/rehabilitation area

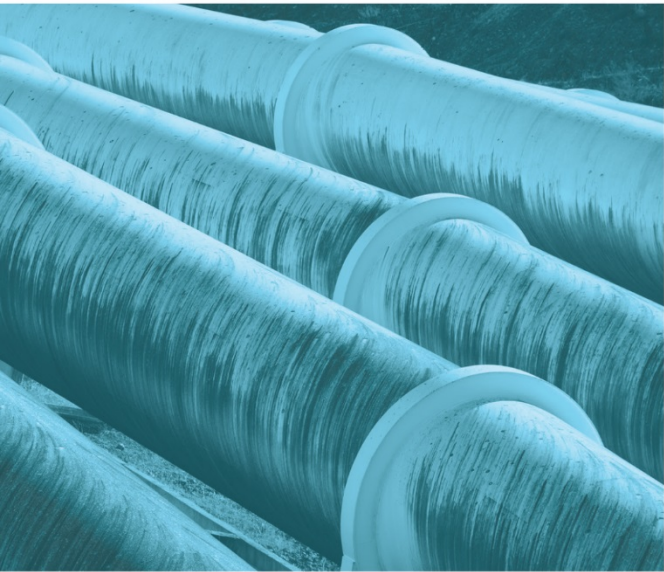
Development Application Land



Menangle Quarry Extension
Figure A.1







Appendix B

Notice of Orders Made (LEC 2018/00342158)



**Land and Environment
Court**
of New South Wales

Level 4 225 Macquarie Street SYDNEY NSW 2000
Level 4 GPO Box 3565 SYDNEY NSW 2001
DX 264, Sydney

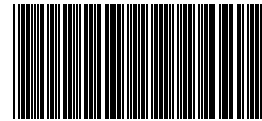
Telephone: 02 9113 8200
Facsimile: 02 9113 8222
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Website: <http://www.lec.justice.nsw.gov.au>

ABN: 52 659 114 436

Luke Anthony James Walker
luke.walker@minterellison.com

Your Ref:



D0001BMPSE

10 September 2020

NOTICE OF ORDERS MADE

Case number 2018/00342158
Case title Menangle Sand and Soil Pty Limited v Minister for Planning

On 10 September 2020 the following orders (and/or directions) were made:

The Court orders that:

- (1) The appeal is upheld.
- (2) Modification to development application DA 85/2865 "Menangle Quarry Extension – Modification 1" (MOD1) lodged by the Applicant on 22 May 2017 with the Minister for Planning, which includes (amongst other things) extending the life of the quarry by 15 years until 2035 by developing a new 13 ha, 2.8 kilometre (km) long southern extraction area (Stage 8) within Lot 203 DP 590247, is approved subject to the conditions set out in 'Annexure A' attached hereto.

For the Registrar

Menangle Sand and Soil Pty Limited v Minister for Planning (LEC 2018/342158)

Annexure "A"

Modifications

*Note: Amendments to existing conditions of approval are shown in tracked changes (**bold and underlined** and where relevant ~~strikeout font~~)*

1. **Amend the Schedule heading on page 2 as follows:**

Schedule 1

2. **Delete condition 5 and 6.**

3. **Add additional condition 5A. as follows:**

The Applicant must not carry out any Quarrying Operations or extraction in Stage 3.

4. **Amend condition 14(a) as follows:**

a. ~~Stages 2-3~~ **Stage 2** (Western Bank)

5. **Amend condition 28 as follows:**

Breach of Consent

In the event of a breach of any of the conditions of consent by the applicant, the Campbelltown City and the Wollondilly Shire Council reserve the right to enter and rectify any such breach and recover the costs of such rectification from the amount of the guarantee **required under condition 25 of this Schedule.**

6. **Amend condition 30 as follows:**

Completion of Extraction

The applicant shall ensure that all extraction in Stage 1 and Stage 2 is completed by 30 June, 1995; and ~~all stages~~ **Stages 4 to 7** of the development by **31 December** 2020.

7. **Amend condition 31 as follows:**

Levy for Implementation of Management Plan

The applicant or its assigns shall pay the Director a levy on all sand and soil removed or carried from, the site from Stages ~~1, 2 and 3~~ **1 and 2**, within the Shire of Wollondilly, such levy being paid into a Trust Fund to be administered by the Director for the purpose of providing public facilities on the land subject to this consent in accordance with the requirements of the Camden Park Estate Management Plan which is to be prepared by the Department of Planning. The levy shall be paid at a rate of 8 cents per tonne of sand and soil and shall be adjusted annually on the Index Review Date in accordance with the formula contained in Condition 26.

Menangle Sand and Soil Pty Limited v Minister for Planning (LEC 2018/342158)

8. **Insert Schedule 2 as follows:**

*Menangle Sand and Soil Pty Limited v Minister for Planning (LEC 2018/342158)***SCHEDULE 2****TABLE OF CONTENTS**

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*Menangle Sand and Soil Pty Limited v Minister for Planning (LEC 2018/342158)***DEFINITIONS**

Aboriginal object	Has the same meaning as the definition of the term in section 5 of the NP&W Act
Aboriginal place	Has the same meaning as the definition of the term in section 5 of the NP&W Act
Active extraction area	The area of exposed sand or soil within each Substage which is not subject to rehabilitation
AHD	Australian Height Datum
AEP	Annual Exceedance Probability
Annual Review	The review required by condition D9
Applicant	Menangle Sand and Soil Pty Ltd, or any person carrying out any development under this consent
Approved disturbance area	The area identified as such on the development layout figures in Appendix 1, as amended by the conditions of this consent
Amended Project Summary	<p>The amended project as described in:</p> <ul style="list-style-type: none"> • correspondence prepared by EMM dated 20 December 2019, including: <ul style="list-style-type: none"> ○ Amended Extraction Area and Setback Letter dated 16 August 2019, prepared by EMM Consulting; ○ Groundwater Management Letter dated 16 August 2019, prepared by EMM Consulting; ○ Aquatic Ecology Assessment of Significance Letter regarding Sydney Hawk Dragonfly dated 2 September 2019, prepared by Marine Pollution Research Pty Ltd; ○ Fluvial Geomorphology Assessment for Menangle Quarry Modification to Development Consent 85/2865 dated 5 September 2019, prepared by Fluvial Systems Pty Ltd; ○ Stage 8 Area Weed Control Strategy Letter dated 9 September 2019, prepared EMM Consulting; ○ Flood Mitigation Letter dated 9 September 2019, prepared by EMM Consulting; ○ Supplementary Biodiversity Assessment Report dated 16 September 2019, prepared by EMM Consulting; ○ Menangle Quarry Extension – Flood Impact Sensitivity Assessment dated September 2019, prepared by Advisian; and ○ Additional Flood Impact Sensitivity Assessment dated 17 December 2019, prepared by Advisian; and • the Consolidated Project Description
BAM	Biodiversity Assessment Method
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCD	Biodiversity and Conservation Division within the Department
BCT	NSW Biodiversity Conservation Trust
Calendar year	A period of 12 months from 1 January to 31 December
Conditions of this consent	Conditions contained in Schedules 2 and 3
Consolidated Project Description	The document titled <i>Applicant's Description of Amended Project for Case Management Conference 23 July 2020</i> prepared by EMM Consulting dated 24 August 2020
Construction	All physical works to enable Quarrying Operations to be carried out, including demolition and removal of buildings or works, and erection of buildings and other infrastructure permitted by this consent
Council	Wollondilly Shire Council

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Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
DBH	Diameter at breast height
Decommissioning	The deconstruction or demolition and removal of works installed as part of the development
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site
Department	NSW Department of Planning, Industry and Environment
Development	The development described in the document/s listed in condition A7(c), as modified by the conditions of this consent
Development Layout	The figures in Appendix 1, as amended by the conditions of this consent
DPIE Water	Water Group within the Department
EA (Mod 1)	The EA titled <i>Environmental Assessment Menangle Quarry Extension</i> , prepared by EMM and dated 23 May 2017, the associated Response to Submissions titled <i>Response to Submissions Menangle Quarry Extension</i> , prepared by EMM and dated 14 September 2017, and additional information provided by the Applicant in support of the application including <i>Flood Impact Assessment</i> prepared by Advisian and dated May 2018, <i>Review of Fluvial Geomorphology</i> prepared by Fluvial Systems and dated May 2018, and correspondence prepared by EMM dated 27 August 2017 and 21 February 2018
Early Works	Means clearing for and construction of the linear infrastructure (being conveyors, access roads and haul roads) located between Stage 7 and Stage 8, but does not include Quarrying Operations within the Substage 8A.
EIS	The Environmental Impact Statement titled <i>Proposed Sand & Soil Extraction Nepean River & Environs Menangle NSW</i> , prepared by Planning Workshop and dated December 1987, submitted with the application for consent for the development.
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence under the POEO Act
Exclusion Areas	Means those areas with 1% AEP peak flow velocities greater than 4 metres/second as identified in the figures in Appendix 2 and the plan required under condition A15.
Feasible	Means what is possible and practical in the circumstances
Final determination	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - endangered ecological community final determination (as amended in 2011)
GPS	Global Positioning System
Heritage item	An Aboriginal object, an Aboriginal place, or a place, building, work, relic, moveable object, tree or precinct of heritage significance that is listed under any of the following: <ul style="list-style-type: none"> • the State Heritage Register under the <i>Heritage Act 1977</i>; • a state agency heritage and conservation register under section 170 of the <i>Heritage Act 1977</i>; • a Local Environmental Plan under the EP&A Act; • the World Heritage List; • the National Heritage List or Commonwealth Heritage List under the EPBC Act; or • anything identified as a heritage item under the conditions of this consent
Heritage NSW	Heritage NSW within the Department of Premier and Cabinet

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Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Laden trucks	Trucks transporting quarry products from the site and/or trucks transporting waste and other blending material to the site
Land	Has the same meaning as the definition of the term in section 1.4 the EP&A Act, except for where the term is used in the noise and air quality conditions in PART B of Schedule 2 of this consent where it is defined to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of determination of Modification 1
Material harm	<p>Is harm that:</p> <ul style="list-style-type: none"> • involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or • results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) <p>This definition excludes “harm” that is authorised under either this consent or any other statutory approval’</p>
MEG	Mining, Exploration and Geoscience within Regional NSW
m	Metres
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the development
Nepean River Buffer Zone	A horizontal setback area extending landward from the 64 m AHD contour of the western low bank of the Nepean River, as defined under condition A10 of Schedule 2
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
Phase 1	Substages 8A – 8B as shown in the figures in Appendix 1
Phase 2	Substage 8C as shown in the figures in Appendix 1
Phase 3	Substages 8D – 8E as shown in the figures in Appendix 1
Phase 4	Substages 8F to 8G as shown in the figures in Appendix 1
Phase 5	Substages 8H to 8I as shown in the figures in Appendix 1
Phase 6	Substages 8J to 8K as shown in the figures in Appendix 1
Phase 7	Substages 8L to 8M as shown in the figures in Appendix 1
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Processing Areas	Any areas used for processing (including blending with waste material), stockpiling and transportation of extractive materials during Stage 8 Operations, including any disturbed areas within Stages 6-7 required to facilitate Quarrying Operations in the Stage 8 Area
Protected Trees	Any native trees identified as such in a native vegetation identification report prepared in accordance with condition A10(b) of Schedule 2
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc
Quarrying Operations	The extraction, processing (including blending with waste material), stockpiling and transportation of extractive materials carried out on the site and the associated removal of vegetation, topsoil and overburden

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Quarry products	Includes all saleable quarry products, but excludes tailings and other wastes and rehabilitation material
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Registered Aboriginal Parties	As described in the <i>National Parks and Wildlife Regulation 2009</i>
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Residence	Existing or approved dwelling at the date of determination of Modification 1
Restoration Area	The area shown as "Amended stage 8 – restoration area" in the figures in Appendix 1
RFS	NSW Rural Fire Service
River-Flat Eucalypt Forest EEC	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions endangered ecological community, as listed under the <i>Biodiversity Conservation Act 2016</i> and described in the Final Determination
TfNSW	Transport for New South Wales
Site	The land identified as: Lot 10 DP1022204 Lot 2 DP1050479 Lot 2 DP1133910 Lot 1 DP1140461 Lots 1-2 DP1187569 Lot 105 DP249189 Lot 21 DP581462 Lots 201-203 DP590247
Stage 3 Area	The area labelled Stage 3 and shown in blue in Figure 1 in Appendix 1
Stage 8 Area	The area labelled Stage 8 and shown in brown in Figure 1 in Appendix 1, comprising the 13 Substages labelled Stages 8A-8M and associated infrastructure including the conveyor and haul roads, shown in Figures 2-5 of Appendix 1
Stage 8 Operations	Quarrying Operations associated with extraction within the Stage 8 Area, including the operation of the Processing Areas identified in the figures in Appendix 1 and any private access roads or haul roads necessary for the carrying out of the development
Substage	Each of the 13 extraction areas labelled Stages 8A-8M and identified in the figures in Appendix 1, as amended by conditions of this consent
V:H	Vertical to horizontal
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Weed	Any weed specified by the Department of Primary Industries as being a weed on the website NSW WeedWise (or any successor websites or policies). For the avoidance of doubt, privet and lantana are weeds for the purposes of this definition.

PART A ADMINISTRATIVE CONDITIONS

APPLICATION OF THIS SCHEDULE

- A1. The conditions in this Schedule have no effect until the Applicant provides notification of the commencement of construction activities associated with Stage 8 Operations, as required under condition A5(a) of this Schedule.
- A2. The conditions in this Schedule do not apply retrospective requirements in relation to Quarrying Operations undertaken in Stages 1 to 7 of the development that have been completed prior to 31 December 2020 (inclusive).
- A3. From the commencement date of construction activities associated with Stage 8 Operations, as notified under condition A5(a) of this Schedule, the obligations in Schedule 1 of this development consent will continue to apply in relation to Stages 1 to 7 of the development, except in so far as they are specifically amended by the conditions of this Schedule.
- A4. In the event of an inconsistency, ambiguity or conflict between the conditions in Schedules 1 and 2 of this development consent, as they relate to the Stage 8 Operations, the conditions in Schedule 2 prevail to the extent of the inconsistency, ambiguity or conflict.

NOTIFICATION OF COMMENCEMENT (STAGE 8)

- A5. The Applicant must notify the Department in writing of the date of commencement of any of the following phases of the development, at least two weeks before that date:
- (a) construction activities associated with Stage 8 Operations;
 - (b) Quarrying Operations in each of Phases 1 to 7;
 - (c) cessation of Quarrying Operations (i.e. quarry closure); and
 - (d) any period of suspension of Quarrying Operations (i.e. care and maintenance).

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

- A6. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the operation of the development, and any rehabilitation required under this Schedule.

TERMS OF CONSENT

- A7. The development (as modified) may only be carried out:
- (a) in compliance with the conditions of this consent;
 - (b) in accordance with all written directions of the Planning Secretary; and
 - (c) generally in accordance with the EIS, EA (Mod 1), Amended Project Summary and the Development Layout.
- A8. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:
- (a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
 - (b) the implementation of any actions or measures contained in any such document referred to in condition A8(a) of Schedule 2.
- A9. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document/s listed in condition A7(c) of Schedule 2. In the event of an inconsistency, ambiguity or conflict between any of the document/s listed in condition A7(c) of Schedule 2, the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

LIMITS OF CONSENT

Nepean River Buffer Zone

- A10. The Applicant must establish and maintain a Nepean River Buffer Zone during Quarrying Operations in the Stage 8 Area. This buffer zone must:
- (a) include a minimum horizontal setback of 10 m extending landward from the 64 m AHD contour on the western side of the Nepean River;
 - (b) be informed by a native vegetation identification report, which must:
 - (i) be prepared by a suitably qualified and experienced botanist or ecologist, whose appointment has been endorsed by the Planning Secretary;
 - (ii) include detailed site surveys to identify the DBH of all native trees that occur within the 10 m horizontal setback from the 64 m AHD contour referred to in sub-paragraph (a);

- (iii) classify all native trees identified in subparagraph (b)(ii) with a DBH of greater than or equal to 0.1 m as Protected Trees and provide their GPS coordinates; and
 - (iv) include a map illustrating a 7.5 m setback (measured at the outside of the native tree trunk) around each of the identified Protected Trees;
 - (v) the map required under subparagraph (iv) must overlay high-resolution ortho-photographs, with supporting digital terrain data files provided in spatial format for GIS and as high-resolution JPEG files; and
- (c) be amended to include the findings of the native vegetation identification report, such that it is widened to include areas where the Protected Tree setbacks extend beyond the minimum 10 m horizontal setback referred to in subparagraph (a).

- A11. The Applicant must submit a copy of the native vegetation identification report and associated survey plans, GPS coordinates and data files required under condition A10(b) of Schedule 2 and associated final landform plans to the Planning Secretary for each of Phases 1 to 7 of the development prior to commencing any vegetation clearing or Quarrying Operations in the relevant phase.
- A12. With the written agreement of the Planning Secretary, the Applicant may seek to reduce the minimum 7.5 m horizontal setback distance for Protected Trees to an appropriate distance recommended by a consulting arborist assessment. Any variation request must be supported by an expert report prepared by the consulting arborist and will be determined by the Planning Secretary on a case by case basis.
- A13. The Applicant must retain and manage the minimum Nepean River Buffer Zone in accordance with the commitments in the documents listed in condition A7(c) of Schedule 2 (as may be amended by the conditions of this consent).

General Limits on Extraction and Processing

- A14. Prior to undertaking Quarrying Operations in Substage 8G, the Applicant must update the TUFLOW hydrodynamic model used to generate the flood sensitivity analysis in the Additional Flood Impact Sensitivity Assessment dated 17 December 2019, prepared by Advisian in the Amended Project Summary, to include the post extraction topography for Substages 8G-M, using hydraulic roughness Scenario B, and simulate the 1% AEP flood.
- A15. Prior to undertaking Quarrying Operations in Substage 8G, the Applicant must provide the Planning Secretary with a copy of the model required under condition A14 and a plan depicting any areas identified as having a post extraction 1% AEP peak flow velocity of 4 metres/second or greater.
- A16. The Applicant must not carry out construction works or Quarrying Operations or locate any ancillary infrastructure within the Exclusion Areas.
- A17. The Applicant must not:
- (a) carry out Quarrying Operations or regrading; and/or
 - (b) remove vegetation, except where necessary for Weed control,
- within the Nepean River Buffer Zone, without the prior written agreement of the Planning Secretary.
- The written agreement of the Planning Secretary may be provided in circumstances where those activities are necessary for environmental management purposes.
- A18. The Applicant must ensure that any Weed control activities undertaken within the Nepean River Buffer Zone:
- (a) are limited to Weed removal techniques that use hand-held tools; and
 - (b) minimise ground disturbance to the greatest extent practicable.
- A19. The Applicant must not undertake extraction within 7.5 m of any Protected Trees without the written agreement of the Planning Secretary under condition A12 of Schedule 2.
- A20. The Applicant must maintain a minimum 7.5 m setback between Quarrying Operations and any native trees^a located in the Restoration Area, except where a reduced setback is supported by an assessment by a suitably qualified and experienced arborist, and evidence of this assessment has been provided to the Planning Secretary.
- ^a *In this condition, the setback is to be measured from the outside of the tree trunk.*
- A21. The Applicant must not carry out any extraction:
- (a) in Stages 1, 2, 4, 5, 6 or 7 after the date specified in condition 30 of Schedule 1; or
 - (b) in Stage 3 at any time.

Identification of Approved Disturbance Area

- A22. Prior to the commencement of Quarrying Operations in each of Phases 1 to 7, the Applicant must:
- a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction for the relevant Substages in each phase (as set out conceptually in the Appendix 1 and as amended by the conditions of this consent);

- b) submit a survey plan of these boundaries and their GPS coordinates to the Planning Secretary; and
- c) ensure that these boundaries are clearly marked at all times during the life of the development in a manner that allows operating staff and inspecting officers to clearly identify those limits.

Quarrying Operations

A23. Stage 8 Operations may be carried out on the site until 31 December 2035.

Note: Under this consent, the Applicant is required to decommission and rehabilitate the site and carry out other requirements in relation to Quarrying Operations. Consequently, this consent will continue to apply in all respects other than to permit the carrying out of Quarrying Operations until the rehabilitation of the site and other requirements have been carried out to the required standard.

A24. A maximum of 150,000 tonnes of extractive material may be extracted from the site in any calendar year.

Quarry product transport

A25. Truck movements at the site (ie inbound combined with outbound movements) must not exceed:

- (a) a maximum of 248 movements on any given weekday;
- (b) an average of 148 movements per weekday, averaged on a weekly basis; and
- (c) a maximum of 80 movements per day on Saturdays.

Hours of Operation

A26. The Applicant must comply with the operating hours set out in Table 1.

Table 1: Operating Hours

Activity	Permissible Hours
Construction work	<ul style="list-style-type: none"> • 7 am to 5 pm Monday to Friday • 7 am to 1 pm Saturday • At no time on Sundays or public holidays
Quarrying Operations including loading and dispatch of laden trucks	<ul style="list-style-type: none"> • 6 am to 5 pm Monday to Friday • 6 am to 12 noon Saturday • At no time on Sundays or public holidays
Maintenance, security, office work, cleaning, etc	<ul style="list-style-type: none"> • May be conducted at any time, provided that these activities are not audible at any residence on privately-owned land

A27. The following activities may be carried out outside the hours specified in Table 1.

- (a) delivery or dispatch of materials as requested by Police or other public authorities; and
- (b) emergency work to avoid the loss of lives, property or to prevent environmental harm.

In such circumstances, the Applicant must notify the Department and affected residents prior to undertaking the activities, or as soon as is practical thereafter.

EVIDENCE OF CONSULTATION

A28. Where conditions of this consent require consultation with an identified party, the Applicant must:

- (a) consult with the relevant party prior to submitting the subject document; and
- (b) provide details of the consultation undertaken including:
 - (i) the outcome of that consultation, matters resolved and unresolved; and
 - (ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

A29. The Applicant may prepare and submit the Soil and Water Management Plan and/or Biodiversity and Rehabilitation Management Plan required under conditions B36 and B73 of Schedule 2 on a staged basis, prior to the commencement of Quarrying Operations in each of Phases 1 to 7. Quarrying Operations must not commence in any phase until a management plan has been approved by the Planning Secretary for that phase.

A30. With the approval of the Planning Secretary, the Applicant may:

- (a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or

program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);

- (b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and
- (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

A31. If the Planning Secretary agrees, a strategy, plan or program may be approved, staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

PROTECTION OF PUBLIC INFRASTRUCTURE

A32. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Note: *This condition does not apply to any damage to roads caused as a result of general road usage or otherwise addressed by contributions required by condition 26 of Schedule 1.*

OPERATION OF PLANT AND EQUIPMENT

A33. All plant and equipment used on site, or to monitor the performance of the development must be:

- (a) maintained in a proper and efficient condition; and
- (b) operated in a proper and efficient manner.

COMPLIANCE

A34. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

APPLICABILITY OF GUIDELINES

A35. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A36. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

PRODUCTION DATA

A37. Each year, from the date of commencement of Quarrying Operations in the Stage 8 Area, the Applicant must provide calendar year quarry production data to MEG by no later than 30 January.

A38. The data must be provided using the relevant standard form and a copy of the data must be included in the Annual Review.

OTHER STATUTORY APPROVALS, LICENCES AND CONSENTS

A39. The Applicant must obtain all necessary approvals, licences and consents required for the carrying out of the development, including but not limited to, approvals under the *Roads Act 1993*, the *Water Management Act 2000* and the POEO Act.

PART B SPECIFIC ENVIRONMENTAL CONDITIONS

EARLY WORKS

- B1. The Applicant may prepare an Early Works Construction Environmental Management Plan for the Early Works, to the satisfaction of the Planning Secretary. This plan must:
- describe measures to be implemented to minimise construction-related impacts on biodiversity, including:
 - specific measures to minimise impacts on tree hollows, termite mounds and fauna; and
 - detailed procedures for pre-clearance surveys and supervision (by an appropriately qualified person) of the felling of habitat trees within disturbance areas associated with the Early Works;
 - describe measures to be implemented to manage sediment and erosion risks, including:
 - a detailed description of the surface water management measures to be implemented in relation to the Early Works; and
 - appropriate clean water diversion systems and construction of appropriate erosion and sediment controls for the management of disturbed areas associated with the Early Works;
 - include a Trigger Action Response Plan which outlines actions to be undertaken to rectify impacts associated with erosion and sedimentation during the Early Works (to the extent that these actions are not addressed by other management plans required to be in place prior to the commencement of Early Works); and
 - describe detailed procedures to be implemented to receive, record, handle and respond to complaints associated with the Early Works construction.
- B2. If the Applicant opts to seek approval for Early Works, the Applicant must not commence Early Works until the Early Works Construction Environmental Management Plan is approved by the Planning Secretary.
- B3. If the Planning Secretary approves an Early Works Construction Environmental Management Plan, the Applicant must implement that plan as approved by the Planning Secretary.

NOISE

Operational Noise Criteria

- B4. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any Residence on privately-owned land.

Table 2: Operational Noise Criteria dB(A)

Residences ^a	Day	Shoulder Period 6.00 am to 7.00 am Monday to Saturday	
	<i>L_{Aeq} (15 minute)</i>	<i>L_{Aeq} (15 minute)</i>	<i>L_{A(max)}</i>
2, 3, 5 ^b , 6, 7, 8, 9	45	45	55
4	54	52	62
10, 11	35	35	45
All other Residences	35	35	45

^a Residence locations are shown as "Assessment Locations" in Figure 6 in Appendix 3.

^b Receiver location 5 is representative of Residences in Menangle Village as identified in the red polygon on Figure 6 in Appendix 3.

Noise generated by the development must be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the *NSW Industrial Noise Policy* (EPA, 2000). Appendix 4 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

- B5. The noise criteria in condition B4 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Noise Operating Conditions

- B6. The Applicant must:
- take all reasonable steps to minimise all noise from operational activities, including low frequency noise and other audible characteristics, as well as road noise associated with the development;
 - take all reasonable steps to minimise the noise impacts of the development during noise-enhancing meteorological conditions, particularly when the noise criteria in this consent do not apply (see Appendix 4);
 - carry out regular attended noise monitoring (every three months unless otherwise agreed with the Planning Secretary) to determine whether the development is complying with the relevant conditions of Schedule 2; and

- (d) regularly assess the noise monitoring data and modify or stop operations on the site to ensure compliance with the relevant conditions of Schedule 2.

Noise Management Plan

- B7. The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- be prepared by a suitably qualified and experienced person/s;
 - be prepared in consultation with the EPA;
 - describe the measures to be implemented to ensure:
 - compliance with the noise criteria and operating conditions in this consent;
 - best practice noise management is being employed; and
 - noise impacts of the development are minimised during noise-enhancing meteorological conditions; under which the noise criteria in this consent do not apply (see Appendix 4); and
 - include a monitoring program that:
 - is capable of evaluating the performance of the development against the noise criteria;
 - monitors noise at the nearest and/or most affected residences; and
 - includes a protocol for identifying any noise-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events.
- B8. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Noise Management Plan is approved by the Planning Secretary.
- B9. The Applicant must implement the Noise Management Plan as approved by the Planning Secretary.

AIR QUALITY

Odour

- B10. The Applicant must ensure that no offensive odours (as defined under the POEO Act) are emitted by the development.

Air Quality Criteria

- B11. The Applicant must ensure that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 3 at any residence on privately-owned land.

Table 3: Air Quality Criteria

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³
	24 hour	^b 25 µg/m ³
Total suspended particulate (TSP) matter	Annual	^{a, c} 90 µg/m ³
^d Deposited dust	Annual	^b 2 g/m ² /month ^a 4 g/m ² /month

Notes:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.

^d Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method

- B12. The air quality criteria in Table 3 do not apply if the Applicant has an agreement with the owner/s of the relevant residence to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Air Quality Operating Conditions

- B13. The Applicant must:

- (a) take all reasonable steps to:
 - (i) minimise odour, fume, greenhouse gas and dust (including PM₁₀ and PM_{2.5}) emissions of the development;
 - (ii) minimise any visible off-site air pollution generated by the development; and
 - (iii) minimise the extent of potential dust generating surfaces exposed in the Stage 8 Area at any given point in time;
- (b) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Table 3 above);
- (c) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of Schedule 2; and
- (d) regularly assess meteorological and air quality monitoring data and relocate, modify or stop operations on the site to ensure compliance with the relevant conditions of Schedule 2.

Air Quality Management Plan

- B14. The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- (a) be prepared by a suitably qualified and experienced person/s;
 - (b) be prepared in consultation with the EPA;
 - (c) describe the measures to be implemented to ensure:
 - (i) compliance with the air quality criteria and operating conditions in this Schedule;
 - (ii) best practice air quality management is being employed; and
 - (iii) air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; and
 - (d) include an air quality monitoring program that:
 - (i) is capable of evaluating the performance of the development against the air quality criteria; and
 - (ii) includes a protocol for identifying any air quality-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events.
- B15. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Air Quality Management Plan is approved by the Planning Secretary.
- B16. The Applicant must implement the Air Quality Management Plan as approved by the Planning Secretary.

METEOROLOGICAL MONITORING

- B17. Prior to the commencement of Quarrying Operations in the Stage 8 Area, and for the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in close proximity to the site that:
- (a) complies with the requirements in the *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales* (DEC, 2007); and
 - (b) is capable of measuring meteorological conditions in accordance with the *NSW Industrial Noise Policy* (EPA, 2000),
- unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.

SOIL AND WATER

- B18. The Applicant must ensure that diesel spills and the like are cleaned up immediately so as not present a risk to water quality if the relevant Substage is inundated by floodwaters.

Groundwater Monitoring and Management

- B19. The Applicant must monitor groundwater levels at Groundwater Bores BH01_S, BH01_D, BH02, BH03 and BH04 as shown in Figure 7 in Appendix 5, using continuous data loggers, for the duration of Quarrying Operations in the Stage 8 Area.
- B20. The Applicant must ensure that Quarrying Operations do not compromise the integrity of the monitoring bores identified in condition B19 of Schedule 2.
- B21. The Applicant must:
- (a) collect groundwater quality samples at each of the monitoring locations identified in condition B19; and
 - (b) analyse collected groundwater quality samples for all major anions and cations and field parameters;
- on an annual basis for the duration of Quarrying Operations in the Stage 8 Area.
- B22. The Applicant must ensure that:

- (a) temporary bores are drilled or augered progressively in each Substage to determine the local water table position immediately prior to commencing extraction in each Substage; and
- (b) the pit floor in each Substage remains at least 1 metre above the measured water table level averaged over a seven-day period following the date of drilling or augering.

Water Supply and Licensing

- B23. The Applicant must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.
- B24. The Applicant must develop a groundwater model using a variant of Modflow standard software, or equivalent software, to quantify the progressive takes from water sources during Quarrying Operations in the Stage 8 Area.
- B25. The Applicant must:
- (a) initially construct the groundwater model required under condition B24 of Schedule 2 using the first three months of groundwater monitoring data collected from 17 June 2020 to 16 September 2020;
 - (b) update the groundwater model following collection of the first 12 months of data collected from 17 June 2020 to 16 June 2021; and
 - (c) incorporate the outputs of the groundwater model into the Site Water Balance as required under condition B36(c)(i) of Schedule 2.
- B26. If a potential flood event (equivalent to a level of 64 m AHD at Menangle Weir, which represents the approximate height of overtopping of the Nepean River bank) does not occur between 17 June 2020 to 16 June 2021, then the Applicant must update the groundwater model required under condition B24 of Schedule 2 following the first flood event equivalent to or greater than this level when it occurs.
- B27. The Applicant must obtain any necessary Water Access Licences for the development under the *Water Act 1912* and/or the *Water Management Act 2000*.
- B28. When making an application for any necessary Water Access Licence, the Applicant must specify the annual take of water from each affected water source, as estimated by the groundwater model required under condition B24 of Schedule 2.
- B29. Should the maximum annual water take as calculated by the groundwater model increase due to subsequent revisions of the groundwater model, as required under conditions B25 and B26 of Schedule 2, the Applicant must acquire the necessary additional licence shares to account for the maximum predicted annual volume.
- B30. The Applicant must report on any water captured, intercepted or extracted from the site each year (directly and indirectly) in the Annual Review, including water taken under each Water Access Licence as applicable.

Soil Erosion

- B31. The Applicant must install and maintain suitable erosion and sediment control measures in the Stage 8 Area. These measures must be designed and implemented having regard to the guidance series *Managing Urban Stormwater: Soils and Construction*, and be detailed in the Soil and Water Management Plan required under condition B36 of Schedule 2.

Flood Management

- B32. The Applicant must prepare a Flood Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- (a) be prepared by suitably qualified and experienced person/s;
 - (b) identify measures to:
 - (i) proactively prepare for, and respond to, any flood event in which the active extraction area is likely to be inundated by floodwaters emanating from the Nepean River;
 - (ii) ensure the safety of site personnel;
 - (iii) minimise, to the greatest extent practicable, the areas of exposed ground on the site that would be susceptible to flood risks (including scour and erosion and potential transport of sediment to downstream waters);
 - (iv) ensure that the active extraction area in any Substage does not exceed 0.33 hectares at any one time;
 - (v) ensure that the batter adjacent to the Nepean River Buffer Zone does not exceed:
 - a maximum slope of 1:1 at any time; and
 - a maximum slope of 1:5 in preparation for flood events;
 - (vi) ensure that no more than a 30 metres length of the batter adjacent to the Nepean River Buffer Zone (measured in total) has a slope exceeding 1:5 at any one time; and
 - (vii) rectify any flood-related damage to areas undergoing rehabilitation; and

- (c) include a Trigger Action Response Plan which outlines actions to be undertaken in preparation for, and immediately following, a flood event including detailed protocols and timeframes for:
- (i) backfilling the active extraction area to achieve a maximum batter slope of 1:5 adjacent to the Nepean River Buffer Zone in preparation for flood events;
 - (ii) avoiding the downstream movement of debris from the site;
 - (iii) recommencing Quarrying Operations following a flood event; and
 - (iv) rectifying any damage to areas undergoing rehabilitation following a flood event.
- B33. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Flood Management Plan is approved by the Planning Secretary.
- B34. The Applicant must implement the Flood Management Plan as approved by the Planning Secretary.
- B35. The Applicant must ensure that the flood storage capacity of the final rehabilitated landform is no less than the pre-existing flood storage capacity at all stages of the development, unless otherwise approved in writing by the Planning Secretary. Details of the available flood storage capacity must be reported in the Annual Review.

Soil and Water Management Plan

- B36. The Applicant must prepare a Soil and Water Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- (a) be prepared by suitably qualified and experienced person/s;
 - (b) be prepared in consultation with EPA and DPIE Water; and
 - (c) include a:
 - (i) **Site Water Balance** that:
 - includes details of:
 - sources and security of water supply;
 - water use and management on the site;
 - reporting procedures, including the annual preparation of a site water balance; and
 - minimises clean and potable water use on the site;
 - incorporates the outputs of the groundwater water model required under condition B24 of Schedule 2;
 - (ii) **Surface Water Management Plan**, that includes:
 - detailed baseline data on surface water flows and quality in watercourses and/or water bodies that could potentially be affected by the development;
 - surface water impact assessment criteria, including trigger levels for investigating any potentially adverse impacts, and surface water management performance measures;
 - a detailed description of the surface water management system on the site, including the:
 - clean water diversion system;
 - erosion and sediment controls (including the construction of bunds and swales within each Substage); and
 - water storages (including a description of measures to maintain the storage capacity of sediment basins);
 - a program to monitor and report on:
 - any surface water discharges;
 - the effectiveness of the water management system;
 - surface water quality in sediment basins; and
 - water levels and quality in the Nepean River both upstream and downstream of the site; and
 - a protocol for identifying and investigating any exceedances of the surface water impact assessment criteria and for notifying the Department and relevant stakeholders of these events;
 - (iii) **Groundwater Management Plan** that includes:
 - all available baseline data for the site;
 - groundwater performance criteria, including trigger levels for investigating any potentially adverse groundwater impacts, particularly with respect to aquatic habitat and regional groundwater systems;
 - a protocol to ensure that Quarrying Operations do not exceed the extraction depth limit specified in condition B22(b) of Schedule 2;

- measures to ensure that the integrity of the groundwater monitoring network is not compromised by Quarrying Operations;
- a clear description of the reporting processes and procedures to be adopted for the routine collation, analysis and provision of monitoring data as required under conditions B21 and B22 of Schedule 2; and
- a protocol for identifying and investigating any exceedances of the groundwater performance criteria and for notifying the Department and relevant stakeholders of these events.

- B37. Subject to condition A29, the Applicant must not commence Quarrying Operations in the Stage 8 Area until the Soil and Water Management Plan is approved by the Planning Secretary.
- B38. The Applicant must implement the Soil and Water Management Plan approved by the Planning Secretary.
- B39. The Applicant must ensure that all surface discharges from the site comply with the relevant provisions of the POEO Act.

Ephemeral Creek Management Plan

- B40. The Applicant must prepare an Ephemeral Creek Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
- be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;
 - describes the measures that would be implemented to manage and control soil erosion and bank stabilisation (if required) and limit the risk of impacts on downstream receiving environments;
 - provide details of the methods and timing of extraction within Substages 8E, 8F or 8G that demonstrate the integrity of the ephemeral creek (shown conceptually in Figure 4 of Appendix 1) would be maintained for as long as practicable during operations;
 - provide for construction and stabilisation of appropriate diversion channels to divert surface water flows around the disturbance area, unless otherwise approved by the Planning Secretary;
 - provide final designs for the road crossing and realigned section of creek that are supported by hydrological modelling and meet the rehabilitation objectives in Table 4; and
 - describe the methods and timing for rehabilitation of the final realigned section of creek channel.
- B41. The Applicant must not undertake any construction activities or Quarrying Operations within Substages 8E, 8F or 8G until the Ephemeral Creek Management Plan is approved by the Planning Secretary.
- B42. The Applicant must implement the Ephemeral Creek Management Plan approved by the Planning Secretary.

TRANSPORT

Works within Hume Highway Motorway Road Reserve

- B43. Prior to commencing Quarrying Operations in the Stage 8 Area, the Applicant must make an application to TfNSW under Section 138 of the *Roads Act 1993* for any proposed works within the Hume Highway Motorway Road Reserve (including the area under the Menangle Bridges).
- B44. The Applicant must enter into a legally binding agreement with TfNSW (eg a licence, not a lease or an easement), for the construction, operation and decommissioning of the conveyor within the Hume Highway Motorway Road Reserve (including under the Menangle Bridges). The legally binding agreement must be executed prior to any construction within the road reserve. All TfNSW legal costs associated with drafting and executing the legally binding agreement must be borne by the Applicant.
- B45. The Applicant must:
- provide a sealed access under and adjacent to the Menangle Bridges and comply with TfNSW drainage and pavement standards;
 - restrict vehicular access under Menangle Bridge to light vehicles only;
 - provide unrestricted access to TfNSW to undertake maintenance on the Menangle Bridges and associated facilities at all times;
 - remove any detritus associated the construction and use of the access road under and adjacent to the Menangle Bridges;
 - protect the piers of the Menangle Bridges, as well as any other part of the bridge structure and associated facilities from any potential damage as a result of the development;
- B46. In making the application to TfNSW required under condition B43, the Applicant must provide:

- (a) details demonstrating how the requirements in condition B45 will be met during the early establishment phase of the development, including:
 - (i) sealing and drainage design details for the access road under and adjacent to the Menangle Bridges; and
 - (ii) anchoring details for any structure(s) associated with the development that may become floating debris during flood events; and
- (b) details demonstrating how the compliance with the requirements in condition B45 will be maintained over the life of the development.

B47. The Applicant must ensure that works undertaken within the Hume Highway Motorway Road Reserve do not in any way destabilise the foundations of the Hume Highway, including the Menangle Bridges. Should rectification works be required as a result of the development, they must be undertaken by the Applicant in accordance with TfNSW requirements and standards, and at no expense to TfNSW.

B48. The Applicant must not undertake any works within the Hume Highway Motorway Road Reserve (including the area under the Menangle Bridges) without the consent of TfNSW under Section 138 of the *Roads Act 1993*.

Road Safety and Condition Audit

B49. Within 12 months of commencing Quarrying Operations in the Stage 8 Area, and every five years thereafter until the conclusion of Quarrying Operations, the Applicant must undertake a Road Safety and Condition Audit for the development, to the satisfaction of the Planning Secretary. This Audit must:

- (a) be undertaken by a suitably qualified independent expert/s whose appointment has been endorsed by the Planning Secretary;
- (b) be prepared in consultation with Council;
- (c) assess the safety, performance and condition of the site's vehicular access onto Menangle Road, including the associated acceleration and deceleration lanes;
- (d) identify any road works that are required to ensure compliance with relevant Austroads standards or relevant Council requirements;
- (e) be documented in a Road Safety and Condition Audit Report which must be submitted to Council and the Planning Secretary for approval within three months of commencing the Audit.

B50. Within 12 months of completing each Road Safety and Condition Audit required under condition B49 of this Schedule, unless otherwise agreed by the Planning Secretary, the Applicant must complete any road works recommended in the Audit, to the satisfaction of Council. If there is a dispute regarding the implementation of any recommendations contained in the Audit, the Applicant may refer the matter to the Planning Secretary for resolution.

Continuation of Rehabilitation Levy

B51. For the duration of the Stage 8 Operations, the Applicant must continue to pay Council a rehabilitation levy on all sand and soil removed from the Stage 8 Area in accordance with the existing rates, calculation methods and indexation required under condition 26 of Schedule 1. The first instalment of these payments is to be made based on the most recent Index Review Date under Schedule 1.

Monitoring of Product Transport

B52. The Applicant must keep accurate records of all truck movements to and from the site (including time of arrival and dispatch) and publish a summary of records on its website every 6 months.

Transport Operating Conditions

B53. No direct access to or from the development via the Hume Highway is permitted.

B54. The Applicant must:

- (a) ensure that all laden trucks entering or exiting the site have their loads covered;
- (b) ensure that all laden trucks exiting the site are cleaned of material that may fall from vehicles, before leaving the site;
- (c) take all reasonable steps to minimise traffic safety issues and disruption to local road users; and
- (d) take all reasonable steps to ensure that appropriate signage is displayed on all trucks used to transport quarry products from the development so they can be easily identified by other road users.

Traffic Management Plan

B55. The Applicant must prepare a Traffic Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;

- (b) be prepared in consultation with TfNSW and Wollondilly Shire and Campbelltown Councils;
- (c) include details of all transport routes and traffic types to be used for development-related traffic;
- (d) describe the processes in place for the control of truck movements entering and exiting the site;
- (e) include details of the measures to be implemented to minimise traffic safety issues and disruption to local road users;
- (f) include a Drivers' Code of Conduct that includes procedures to ensure that drivers:
 - (i) adhere to posted speed limits or other required travelling speeds;
 - (ii) adhere to designated transport routes; and
 - (iii) implement safe and quiet driving practices;
- (g) describe the measures to be put in place to ensure compliance with the Drivers' Code of Conduct; and
- (h) describe measures to minimise the transmission of dust and tracking of material onto the surface of public roads from vehicles exiting the site.

B56. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Traffic Management Plan is approved by the Planning Secretary.

B57. The Applicant must implement the Traffic Management Plan as approved by the Planning Secretary.

HERITAGE

Heritage Operating Conditions

B58. The Applicant must ensure that the development does not cause any direct or indirect impact on any identified heritage item located outside the approved disturbance area.

B59. If suspected human remains are discovered on site, then all work surrounding the area must cease, and the area must be secured. The Applicant must immediately notify NSW Police and Heritage NSW, and work must not recommence in the area until authorised by NSW Police and Heritage NSW.

B60. If any previously unknown Aboriginal object or Aboriginal place is discovered in the Stage 8 Area:

- (a) all work in the immediate vicinity of the object or place must cease immediately;
- (b) a 10 metre buffer area around the object or place must be cordoned off; and
- (c) Heritage NSW must be contacted immediately.

B61. Work in the immediate vicinity of an object or place subject to condition B60 may only recommence if:

- (a) the potential Aboriginal object or Aboriginal place is confirmed by Heritage NSW upon consultation with the Registered Aboriginal Parties not to be an Aboriginal object or Aboriginal Place; or
- (b) an Aboriginal Heritage Impact Permit is obtained under section 90 of the *National Parks and Wildlife Act 1974*, and the Aboriginal Cultural Heritage Management Plan is revised to include appropriate measures in respect the Aboriginal object or Aboriginal place, to the satisfaction of the Planning Secretary.

Aboriginal Cultural Heritage Management Plan

B62. The Applicant must prepare an Aboriginal Cultural Heritage Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

- (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;
- (b) be prepared in consultation with Heritage NSW and Registered Aboriginal Parties;
- (c) describe the measures to be implemented within the Stage 8 Area, Nepean River Buffer Zone and Restoration Area to:
 - (i) ensure all workers on the site receive suitable Aboriginal cultural heritage inductions prior to carrying out any activities which may cause impacts to Aboriginal objects or Aboriginal places, and that suitable records are kept of these inductions;
 - (ii) protect, monitor and manage Aboriginal objects and Aboriginal places;
 - (iii) protect Aboriginal objects and Aboriginal places located outside the approved disturbance area from impacts of the development;
 - (iv) manage any new Aboriginal objects or Aboriginal places discovered during the life of the development;
 - (v) maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area); and
 - (vi) facilitate ongoing consultation and involvement of Registered Aboriginal Parties in the conservation and management of Aboriginal cultural heritage on the site.

- B63. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Aboriginal Cultural Heritage Management Plan is approved by the Planning Secretary.
- B64. The Applicant must implement the Aboriginal Cultural Heritage Management Plan approved by the Planning Secretary.

BIODIVERSITY AND REHABILITATION

Construction of Linear Infrastructure

- B65. Prior to commencing construction of any linear infrastructure required for the carrying out of the development (including conveyors, access roads and haul roads), the Applicant must:
- determine the final alignment of the linear infrastructure by survey;
 - minimise the environmental impacts of the alignment of this infrastructure, where practicable;
 - map the final vegetation clearance, excluding any vegetation within the approved disturbance area as identified under condition A22 of Schedule 2;
 - submit a survey plan of the disturbance boundaries for linear infrastructure and their respective GPS coordinates to the Planning Secretary; and
 - identify relevant ecosystem and species credits required to compensate for the clearance identified in subparagraph (c), to the satisfaction of BCD.
- B66. The Applicant must retire the ecosystem and species credits identified under condition B65(e) in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.

Biodiversity Offset Strategy

- B67. Prior to commencing Quarrying Operations in the Stage 8 Area, or other timeframe agreed by the Planning Secretary, the Applicant must make suitable arrangements for the long-term protection of the Restoration Area as described in the documents listed in condition A7(c) of Schedule 2, to the satisfaction of the Planning Secretary.
- B68. If the Restoration Area does not meet the listing criteria of the targeted communities or the completion criteria in Table 6 in Appendix 7, within the timeframes established in the Biodiversity and Rehabilitation Management Plan, then the Applicant must retire the relevant deficient biodiversity credits in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.
- B69. The Applicant may satisfy condition B67 of Schedule 2 by establishing a positive covenant on title under section 88E of the *NSW Conveyancing Act 1919*. If the Applicant seeks to establish a positive covenant on title:
- the positive covenant must stipulate that the Applicant will manage the Restoration Area and all rehabilitated Substages in accordance with the Biodiversity and Rehabilitation Management Plan required under condition B73 of Schedule 2; and
 - the Applicant must establish a trust with sufficient funds (calculated in accordance with the total fund deposit requirements for a biodiversity stewardship site in accordance with BC Act) to provide for the ongoing management of the Restoration Area and all rehabilitated Substages in accordance with the Biodiversity and Rehabilitation Management Plan,
- to the satisfaction of the Planning Secretary.

Rehabilitation Objectives

- B70. The Applicant must rehabilitate all areas impacted by the Stage 8 Operations to the satisfaction of the Planning Secretary. This rehabilitation must be consistent with the final rehabilitation plans submitted to the Planning Secretary under condition A11 of Schedule 2 and must comply with the objectives in Table 4, to the satisfaction of the Planning Secretary.

Table 4: Rehabilitation objectives

Feature	Objective
Stage 8 Area	<ul style="list-style-type: none"> Safe (both within the site and in relation to downstream environs, including under flood conditions) Hydraulically, geotechnically and geomorphologically stable Non-polluting Fit for the intended post-Quarrying Operations land use(s) Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land or the Hume Highway

<i>Surface infrastructure</i>	<ul style="list-style-type: none"> • Conveyor decommissioned and removed, unless otherwise agreed by TfNSW and the Planning Secretary • All other surface infrastructure decommissioned and removed, unless otherwise agreed by the Planning Secretary
<i>Quarry Substages</i>	<ul style="list-style-type: none"> • Pit floor partially backfilled with sufficient and appropriate material to promote establishment of River-Flat Eucalypt Forest EEC • Substages progressively landscaped and vegetated to meet the objectives, performance and completion criteria in Table 6 in Appendix 7 • Batters to be established to a maximum slope of 1:1 (V:H) along the landward edge of each Substage and 1:5 (V:H) adjacent to the Nepean River Buffer Zone
<i>Final Landform</i>	<ul style="list-style-type: none"> • No reduction in flood storage capacity, compared with pre-development conditions, unless otherwise agreed by the Planning Secretary • Designed to incorporate geomorphological features to allow for the free draining discharge of clean water from the site • Minimise sediment laden run-off into the Nepean River
<i>Water Quality</i>	<ul style="list-style-type: none"> • Water discharged from the site is suitable for receiving waters and capable of supporting existing aquatic ecology and riparian vegetation
<i>Community</i>	<ul style="list-style-type: none"> • Ensure public safety

Progressive Rehabilitation

B71. The Applicant must rehabilitate the Substages progressively, to the satisfaction of the Planning Secretary.

B72. Unless otherwise agreed by the Planning Secretary, the Applicant must ensure that:

- (a) no more than two Substages are opened, excavated or worked at any one time without the written approval of the Planning Secretary;
- (b) the active extraction area in all combined Substages does not exceed 0.33 hectares at any one time;
- (c) the area of exposed ground at any one time is minimised as far as reasonable and feasible, for the life of the development;
- (d) Quarrying Operations do not progress from one phase of the development to another unless the progressive rehabilitation performance criteria in the Biodiversity and Rehabilitation Management Plan have been met (with the exception of in the active extraction area) for the previous phase (see condition B73(d) of Schedule 2); and
- (e) the post-extraction batter along the landward edge of each Substage does not exceed a maximum slope of 1:1 (V:H) or the natural underlying sandstone profile.

Biodiversity and Rehabilitation Management Plan

B73. The Applicant must prepare a Biodiversity and Rehabilitation Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:

- (a) be prepared by suitably qualified and experienced person/s;
- (b) be prepared in consultation with BCD and Council;
- (c) describe the short, medium, and long-term measures to be undertaken to:
 - (i) ensure compliance with the biodiversity objectives outlined in Table 6 in Appendix 7;
 - (ii) ensure compliance with the rehabilitation objectives outlined in Table 4 of Schedule 2; and
 - (iii) prevent impacts on aquatic biodiversity, including through the stabilisation of riverbanks and the prevention of sediment-laden runoff;
- (d) include detailed progressive rehabilitation performance criteria that must be met for each phase of the development before extraction can progress into subsequent phases;
- (e) include detailed performance and completion criteria for the Restoration Area and the final rehabilitation of the Stage 8 Area (including timeframes for the achievement of the listing criteria of the targeted communities) based on the performance and completion criteria in Table 6 in Appendix 7;
- (f) include a program to monitor, independently audit and report on progress against the criteria in subparagraphs (d) and (e), including reporting in the Annual Review;
- (g) include an evaluation of the performance of the Restoration Area and the progressive rehabilitation of the Stage 8 Area against the performance and completion criteria required under paragraph (d) above;

- (h) include triggers for remedial action (including additional planting or seeding), where the performance or completion criteria required under (d) and (e) above are not met;
 - (i) describe management measures to ensure that Quarrying Operations do not encroach on the Nepean River Buffer Zone and Exclusion Areas;
 - (j) include a detailed description of the measures to be implemented to:
 - (i) demonstrate compliance with conditions B76 and B78;
 - (ii) manage the collection and propagation of seed;
 - (iii) trial methods of extraction of seed resources on site and implement the most effective method of seed recovery;
 - (iv) minimise impacts on tree hollows and termite mounds where reasonable and feasible;
 - (v) minimise impacts on fauna, including undertaking pre-clearance surveys and supervision (by an appropriately qualified person) of the felling of habitat trees;
 - (vi) protect native vegetation and fauna habitat outside the approved disturbance area, including in the Restoration Area;
 - (vii) implement the *Stage 8 Area Weed Control Strategy* in the Amended Project Summary, except where varied by condition A18 of Schedule 2;
 - (viii) control feral pests;
 - (ix) control erosion;
 - (x) control unrestricted access;
 - (xi) manage bushfire hazards;
 - (xii) rehabilitate any areas of the Nepean River that are materially harmed by the development (including indirect or incidental impacts); and
 - (xiii) progressively rehabilitate the site and reasonably and feasibly minimise disturbance areas; and
 - (xiv) ensure the successful rehabilitation and protection of Stages 6 and 7 until the completion of Quarrying Operations in the Stage 8 Area;
 - (k) include an annual program to monitor and report on:
 - (i) the effectiveness of the measures required under (j) above;
 - (ii) progress against the detailed performance and completion criteria required under (d) and (d) above;
 - (iii) any progressive improvements that could be implemented to improve biodiversity outcomes; and
 - (iv) any additional or remedial actions required over the next 12 months;
 - (l) identify the potential risks to the successful rehabilitation of the Stage 8 Area, particularly where rehabilitation is damaged or delayed by flooding, and include a detailed description of the contingency measures to be implemented to mitigate against these risks; and
 - (m) include details of who would be responsible for monitoring, reviewing, and implementing the plan.
- B74. Subject to condition A29, the Applicant must not commence Quarrying Operations in the Stage 8 Area until the Biodiversity and Rehabilitation Management Plan is approved by the Planning Secretary.
- B75. The Applicant must implement the Biodiversity and Rehabilitation Management Plan as approved by the Planning Secretary.
- B76. The Applicant must place or create a minimum of 106 nest boxes or tree hollows within the Restoration Area within 12 months of commencing Quarrying Operations in the Stage 8 Area.
- B77. The Applicant must, to the greatest extent practicable, maximise the salvage of resources within the Stage 8 Area, including retention of:
- (a) nut and seed resources from native trees; and
 - (b) leaf and small branch material for mulching,
- for beneficial reuse on the site, including in rehabilitated Substages and in the Restoration Area.
- B78. Following the conclusion of extraction in each Substage, the Applicant must actively place logs and woody debris salvaged from the approved disturbance area within the completed Substage at the following ratios:
- (a) logs and woody debris at least 10 cm in diameter and greater than 0.5 m in length are to be placed in a configuration that reflects natural systems, such that there is overall at least 400 m of this woody debris per hectare for all completed Substages; and
 - (b) large woody debris at least 50 cm in diameter and greater than 0.5 m in length, such that there is overall at least 100 m of this large woody debris per hectare for all completed Substages.

Disposal of Vegetation (Stage 8)

B79. The Applicant may undertake timber milling in Stage 8, provided this timber milling occurs outside of the Nepean River Buffer Zone and the Exclusion Areas, and that the Applicant can demonstrate ongoing compliance with condition B78 of this Schedule.

Additional Rehabilitation Requirements for Stages 6 and 7

B80. The Applicant must rehabilitate 1.22 ha within Stage 6 and 3.44 ha within Stage 7 of the development in accordance with the objectives and the performance and completion criteria in Table 6 in Appendix 6.

B81. By the end of December 2020, or other timing as agreed by the Planning Secretary, the Applicant must submit a Vegetation Management Plan for Stages 6 and 7 to the Planning Secretary for approval. This plan must:

- (a) satisfy the relevant requirements of condition 13 of Schedule 1;
- (b) clearly define the extent and scope of Stage 6 vegetated lands;
- (c) clearly define the extent and scope of Stage 7 vegetated lands and identifies that the diversity of species established via retention of current species, tubestock planting or direct seeding is to be raised to deliver the native plant species diversity identified in Table 5 in Appendix 6;
- (d) establish baseline data for the existing habitat in the Stage 6 and 7 areas;
- (e) describe how the Stage 6 and 7 vegetated lands would be managed and how habitat would be established and retained; and
- (f) include detailed biodiversity objectives and performance and completion criteria for Stages 6 and 7 of the development, based on the general objectives and performance and completion criteria in Table 5 in Appendix 6,

to the satisfaction of the Planning Secretary.

B82. The Applicant must implement the Vegetation Management Plan for Stages 6 and 7 to the satisfaction of the Planning Secretary.

Rehabilitation Bond

B83. Within 6 months of the approval of the Biodiversity and Rehabilitation Management Plan, the Applicant must lodge a Rehabilitation Bond with the Department to ensure that rehabilitation of the Stage 8 Area is implemented in accordance with the performance and completion criteria set out in the plan and the relevant conditions in Schedule 2 of this consent. The sum of the bond must be an amount agreed by the Planning Secretary and determined by:

- (a) calculating the cost of rehabilitating all disturbed areas of the site at third party rates (other than land acquisition costs), taking into account the likely surface disturbance over the next 3 years of Quarrying Operations; and
- (b) employing a suitably qualified, independent and experienced person to verify the calculated costs.

B84. The calculation of the Rehabilitation Bond must be submitted to the Department for approval at least 2 months prior to the lodgement of the bond.

B85. The Rehabilitation Bond must be reviewed and if required, an updated bond must be lodged with the Department within 3 months following:

- (a) any update or revision to the Biodiversity and Rehabilitation Management Plan;
- (b) the completion of an Independent Environmental Audit in which recommendations relating to the implementation of the Biodiversity and Rehabilitation Management Plan have been made; or
- (c) in response to a request by the Planning Secretary.

B86. If rehabilitation is completed generally in accordance with the relevant performance and completion criteria, to the satisfaction of the Planning Secretary, the Planning Secretary will release the bond.

B87. If rehabilitation is not completed generally in accordance with the relevant performance and completion criteria, the Planning Secretary will call in all, or part of, the bond, and arrange for the completion of the relevant works.

B88. If the Applicant establishes a positive covenant on title under section 88E of the *NSW Conveyancing Act 1919* under condition B69, then the Planning Secretary may waive the requirement for all or part of the Rehabilitation Bond required under conditions B83 to B87.

Weed Management

B89. The Applicant must manage noxious weeds on the site in accordance with the Biodiversity and Rehabilitation Management Plan, and subject to the restrictions in condition A18 of this Schedule, to the satisfaction of the Planning Secretary.

VISUAL

B90. The Applicant must:

- (a) take all reasonable steps to minimise the visual and off-site lighting impacts of the development, including potential lighting impacts on the Hume Highway;
- (b) ensure that the visual appearance of all new structures, facilities or works (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape; and
- (c) take all reasonable steps to:
 - (i) shield views of Quarrying Operations and associated equipment from users of public roads and at privately-owned residences; and
 - (ii) direct any on-site lighting downwards to avoid lighting impacts on the Hume Highway.

WASTE

B91. The Applicant must:

- (a) manage on-site sewage treatment and disposal in accordance with the requirements of an applicable EPL, and to the satisfaction of EPA and Council;
- (b) minimise the waste generated by the development;
- (c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and
- (d) report on waste minimisation and management in the Annual Review.

B92. Except as expressly permitted in an applicable EPL, specific resource recovery order or exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*, the Applicant must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.

LIQUID STORAGE

B93. The Applicant must ensure that all tanks and similar storage facilities (other than for water) are protected by appropriate bunding or other containment, in accordance with the relevant Australian Standards.

DANGEROUS GOODS

B94. The Applicant must ensure that the storage, handling, and transport of dangerous goods is done in accordance with the latest version of the Australian Standards, particularly *AS 1940-2004 The storage and handling of flammable and combustible liquids* (Standards Australia, 2004) and *AS/NZS 1596:2014 The storage and handling of LP Gas* (Standards Australia, 2014), and the *Australian Dangerous Goods Code*.

BUSHFIRE MANAGEMENT

B95. The Applicant must:

- (a) ensure that the development:
 - (i) provides for asset protection in accordance with the relevant requirements in *the Planning for Bushfire Protection* (RFS, 2006) guideline; and
 - (ii) ensure that there is suitable equipment to respond to any fires on the site; and
- (b) assist the RFS and emergency services to the extent practicable if there is a fire in the vicinity of the site.

PART C ADDITIONAL PROCEDURES

NOTIFICATION OF EXCEEDANCES

- C1. As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise or air quality criterion in PART B of Schedule 2 following the date of commencement of Quarrying Operations in the Stage 8 Area, the Applicant must provide details of the exceedance to any affected landowners/tenants if the Applicant has not otherwise reached an agreement to exceed the relevant criteria with the affected landowner pursuant to condition B5 or B12. For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected land owners and tenants a copy of the fact sheet entitled "*Mine Dust and You*" (NSW Health, 2017).

INDEPENDENT REVIEW

- C2. If, at any time following the date of commencement of Quarrying Operations in the Stage 8 Area, a landowner considers the development to be exceeding any noise or air quality criterion in PART B of Schedule 2, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their land.
- C3. If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.
- C4. If the Planning Secretary is satisfied that an independent review is warranted, then within 3 months of the Planning Secretary's decision, or as otherwise agreed by the Planning Secretary and the landowner, the Applicant must:
- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to:
 - (i) consult with the landowner to determine their concerns;
 - (ii) conduct monitoring to determine whether the development is complying with the relevant criteria in PART B of Schedule 2; and
 - (iii) if the development is not complying with that criteria, identify measures that could be implemented to ensure compliance with the relevant criteria; and
 - (b) give the Planning Secretary and landowner a copy of the independent review; and
 - (c) comply with any written requests made by the Planning Secretary to implement any findings of the review.

PART D ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

- D1. An Environmental Management Strategy must be prepared for the development to the satisfaction of the Planning Secretary. This strategy must:
- (a) provide the strategic framework for environmental management of the development;
 - (b) identify the statutory approvals that apply to the development;
 - (c) set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
 - (d) set out the procedures to be implemented to:
 - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - (ii) receive record, handle and respond to complaints;
 - (iii) resolve any disputes that may arise during the course of the development;
 - (iv) respond to any non-compliance and any incident;
 - (v) respond to emergencies; and
 - (e) include:
 - (i) references to any strategies, plans and programs approved under the conditions of this consent; and
 - (ii) a clear plan depicting all the monitoring to be carried out under the conditions of this consent.
- D2. The Applicant must not commence Quarrying Operations in the Stage 8 Area until the Environmental Management Strategy is approved by the Planning Secretary.
- D3. The Applicant must implement the Environmental Management Strategy as approved by the Planning Secretary.

Management Plan Requirements

- D4. Management plans required under this Schedule must be prepared in accordance with relevant guidelines, and include:
- (a) a summary of relevant background or baseline data;
 - (b) details of:
 - (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
 - (ii) any relevant limits or performance measures and criteria; and
 - (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
 - (c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;
 - (d) a program to monitor and report on the:
 - (i) impacts and environmental performance of the development; and
 - (ii) effectiveness of the management measures set out pursuant to condition D4(c);
 - (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
 - (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
 - (g) a protocol for managing and reporting any:
 - (i) incident, non-compliance or exceedance of the impact assessment criteria or performance criteria;
 - (ii) complaint; or
 - (iii) failure to comply with statutory requirements; and
 - (h) a protocol for periodic review of the plan.

Note: *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

REVISION OF STRATEGIES, PLANS AND PROGRAMS

- D5. Within three months of:
- (a) the submission of an incident report under condition D7;
 - (b) the submission of an Annual Review under condition D9;

- (c) the submission of an Independent Environmental Audit under condition D11;
- (d) the approval of any modification to the conditions of this consent; or
- (e) the issue of a direction of the Planning Secretary under condition A8 which requires a review,

the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

- D6. If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary and submitted to the Planning Secretary for approval within six weeks of the review.

Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.*

REPORTING AND AUDITING

Incident Notification

- D7. The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to compliance@planning.nsw.gov.au and must comply with the requirements specified in Appendix 8.

Non-Compliance Notification

- D8. Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to compliance@planning.nsw.gov.au and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note: *A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*

Annual Review

- D9. By the end of March in each year after the commencement of Quarrying Operations in the Stage 8 Area, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:
- (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
 - (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the:
 - (i) relevant statutory requirements, limits or performance measures/criteria;
 - (ii) requirements of any plan or program required under this consent;
 - (iii) monitoring results of previous years; and
 - (iv) relevant predictions in the documents listed condition A7(c).
 - (c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;
 - (d) evaluate and report on:
 - (i) the effectiveness of the noise and air quality management systems; and
 - (ii) compliance with the performance measures, criteria and operating conditions in this consent, as they relate to the Stage 8 Area;
 - (e) identify any trends in the monitoring data over the life of the development;
 - (f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
 - (g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.
- D10. Copies of the Annual Review must be submitted to Council and made available to any interested person upon request.

Independent Environmental Audit

- D11. Within one year of the commencement of Quarrying Operations in the Stage 8 Area, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must:
- (a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary;

- (b) be carried out in consultation with the relevant agencies;
- (c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals);
- (d) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;
- (e) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and
- (f) be conducted and reported to the satisfaction of the Planning Secretary.

D12. Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.

Note: *The audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Planning Secretary.*

Monitoring and Environmental Audits

D13. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.

Note: *For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.*

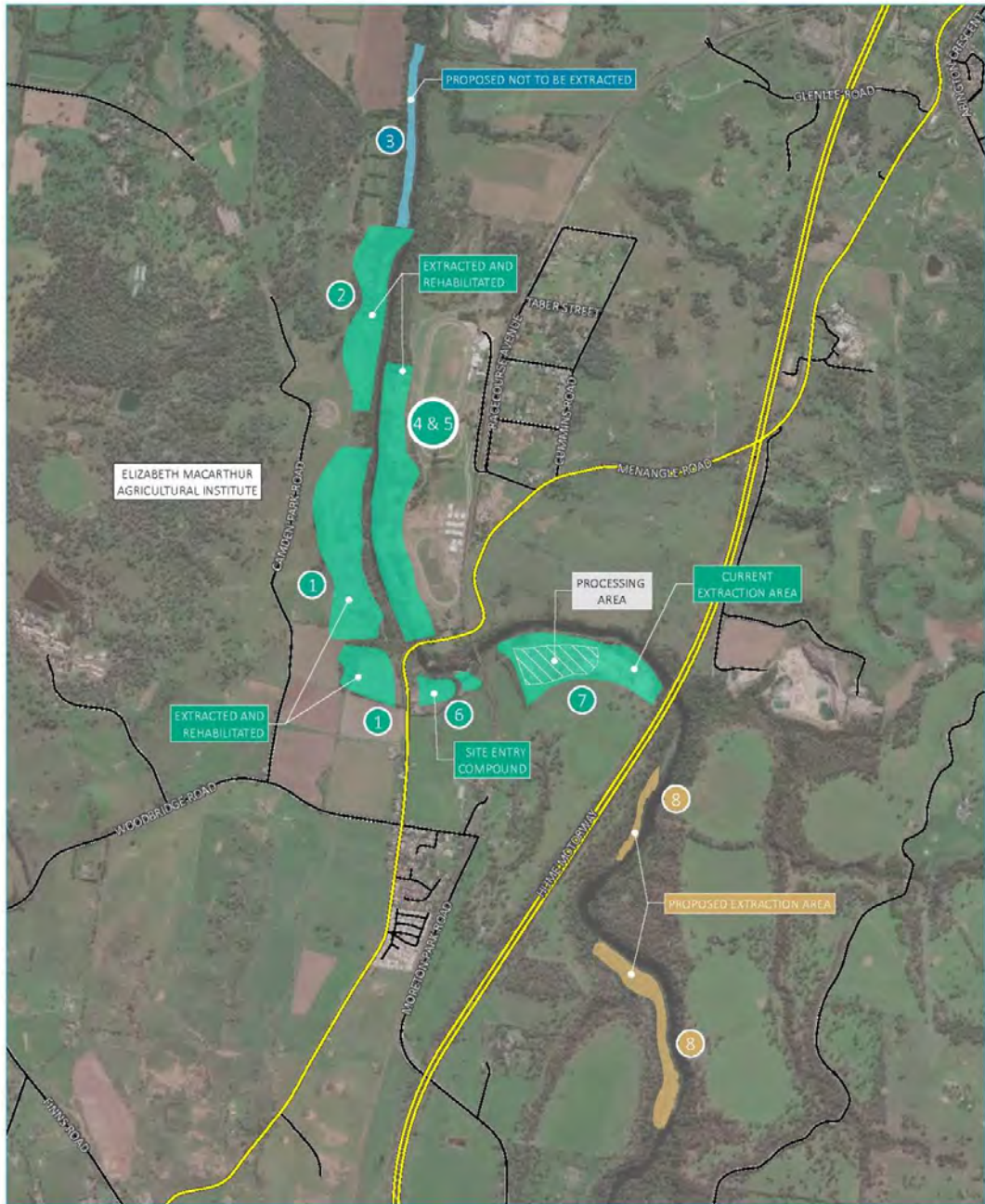
D14. Noise and air quality monitoring under Part B of this Schedule is not required at all privately-owned residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria.

ACCESS TO INFORMATION

D15. Prior to commencing Quarrying Operations in the Stage 8 Area, the Applicant must:

- (a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website:
 - (i) the document/s listed in condition A7(c);
 - (ii) all current statutory approvals for the development;
 - (iii) all approved strategies, plans and programs required under the conditions of this consent;
 - (iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
 - (v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
 - (vi) a summary of the current stage and progress of the development;
 - (vii) contact details to enquire about the development or to make a complaint;
 - (viii) a complaints register, updated monthly;
 - (ix) the Annual Reviews of the development;
 - (x) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report;
 - (xi) any other matter required by the Planning Secretary; and
- (b) keep such information up to date for the life of the development and to the satisfaction of the Planning Secretary.

Appendix 1 Development Layout



Source: EMM (2020), DFSI (2017), GA (2013)

- KEY**
- Main road
 - Local road
 - Existing processing area (to be retained)
 - Extractive operations (approved)
 - Extractive operations (approved but not extracted)
 - Stage 8 - extraction/rehabilitation area

0 0.5 1 km
GDA 1994 MGA Zone 56

Menangle Quarry Stages 1 to 8

Menangle Quarry Extension
Figure 2.1



Figure 1 - Overall Development Layout Plan (Stages 1 to 8)



Figure 3 - Substages 8A to 8C

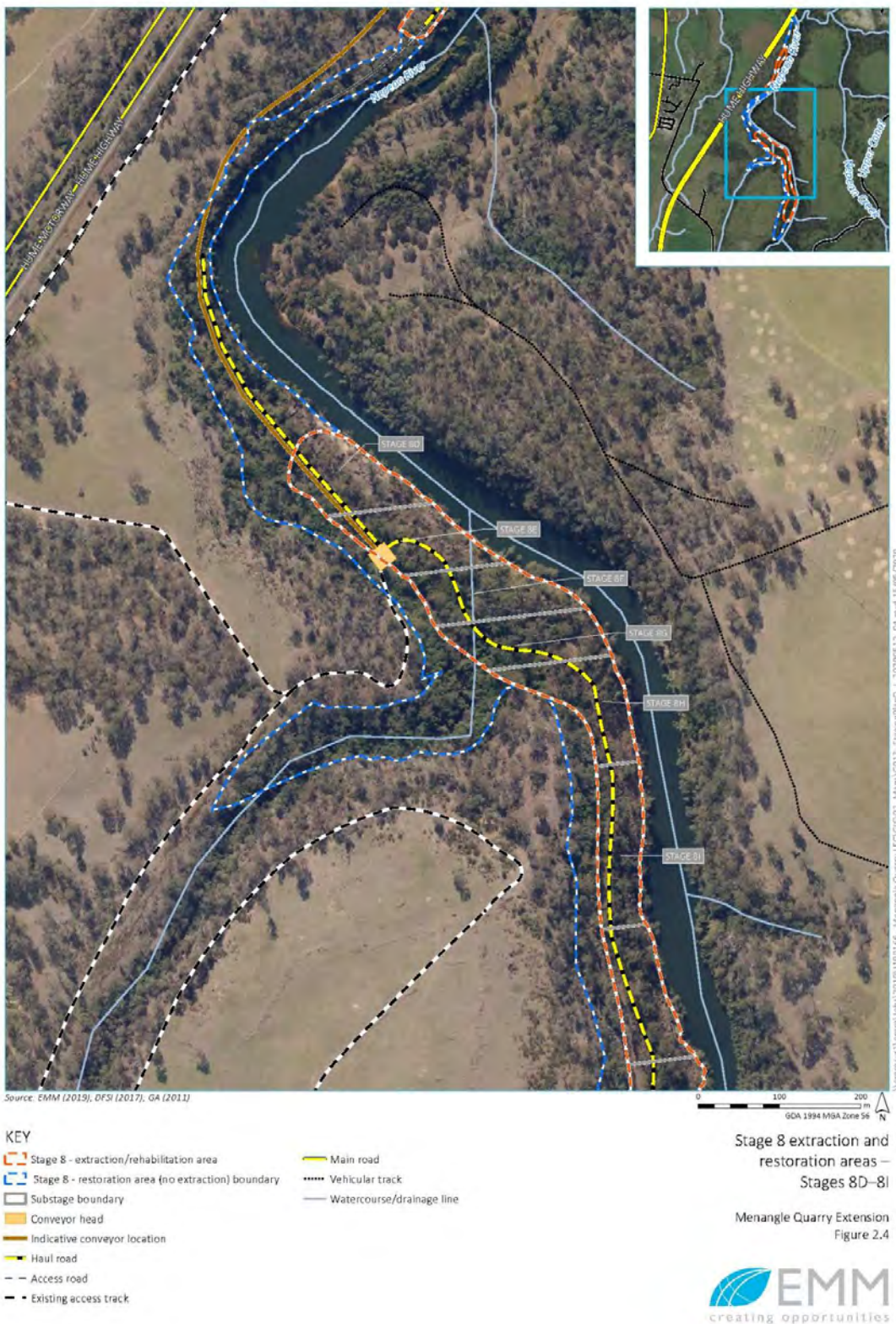
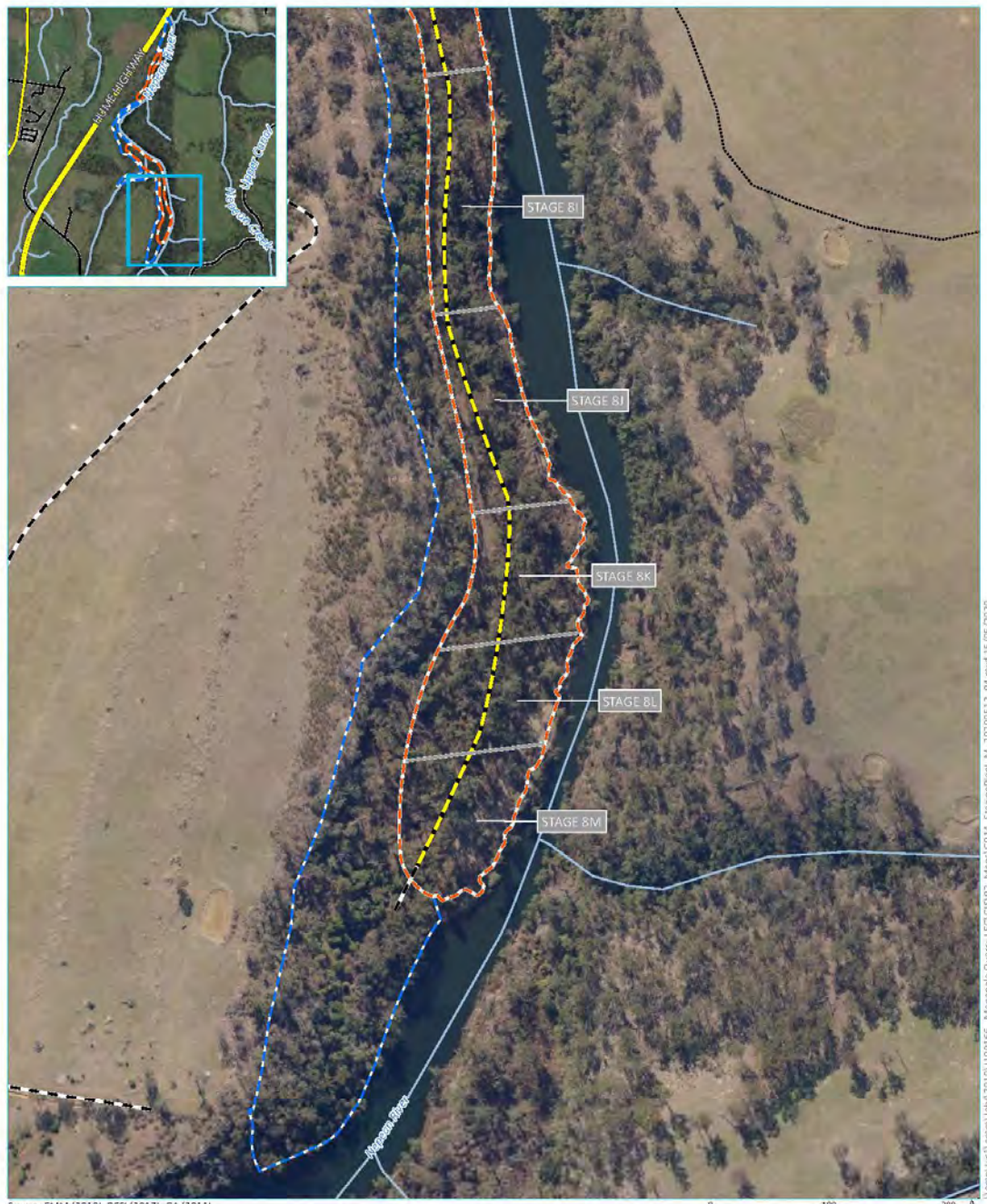


Figure 4 - Substages 8D to 8I



Source: EMM (2019); DFSI (2017); GA (2011)

- KEY**
- Stage 8 - extraction/rehabilitation area
 - Stage 8 - restoration area (no extraction) boundary
 - Substage boundary
 - Haul road
 - Existing access track
 - Local road
 - Vehicular track
 - Watercourse/drainage line

Stage 8 extraction and restoration areas – Stages 8I–8M

Menangle Quarry Extension
Figure 2.5



Figure 5 - Substages 8I to 8M

Appendix 2 Exclusion Areas

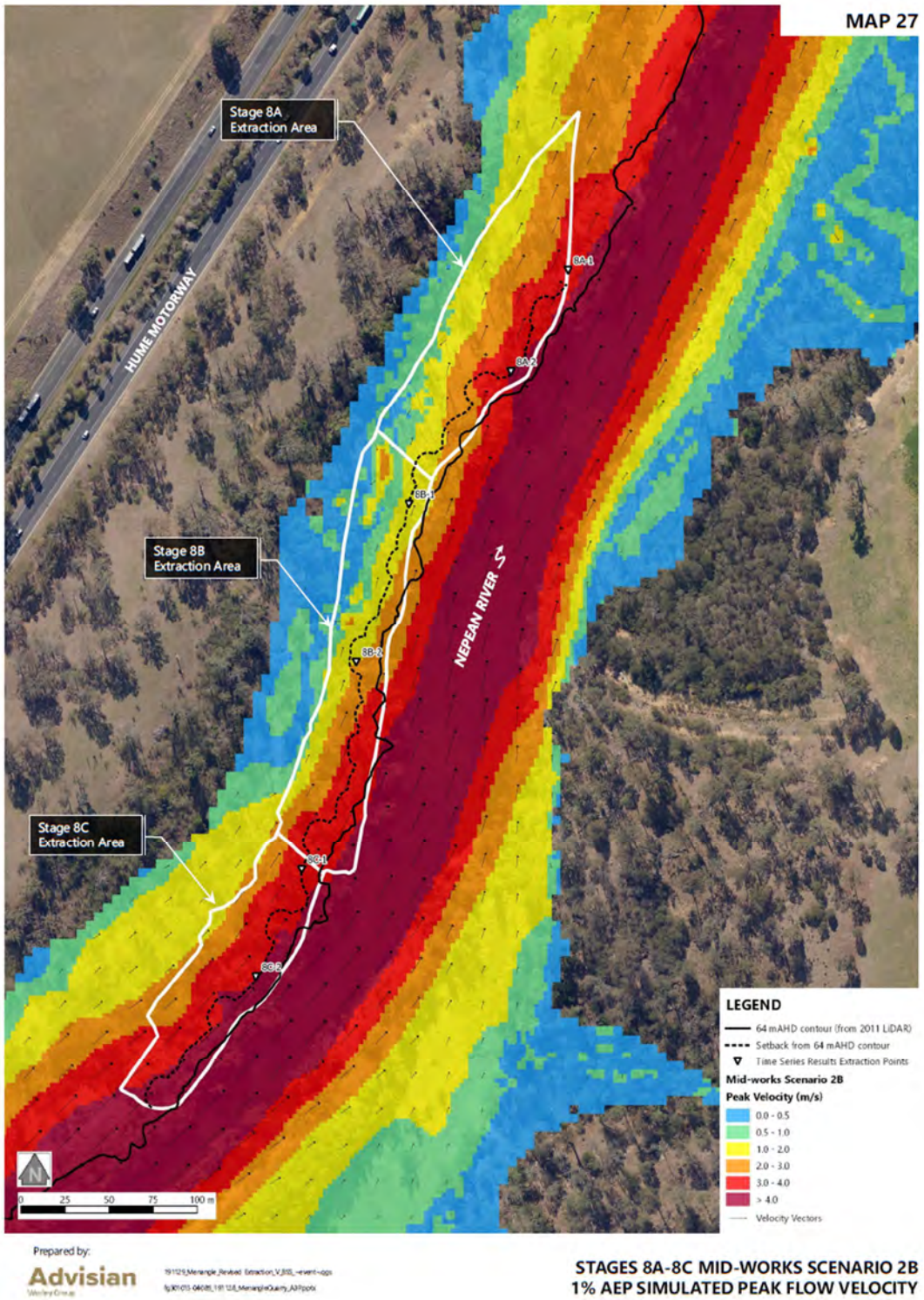


Figure 1 – Exclusion Areas Map Stages 8A-8C

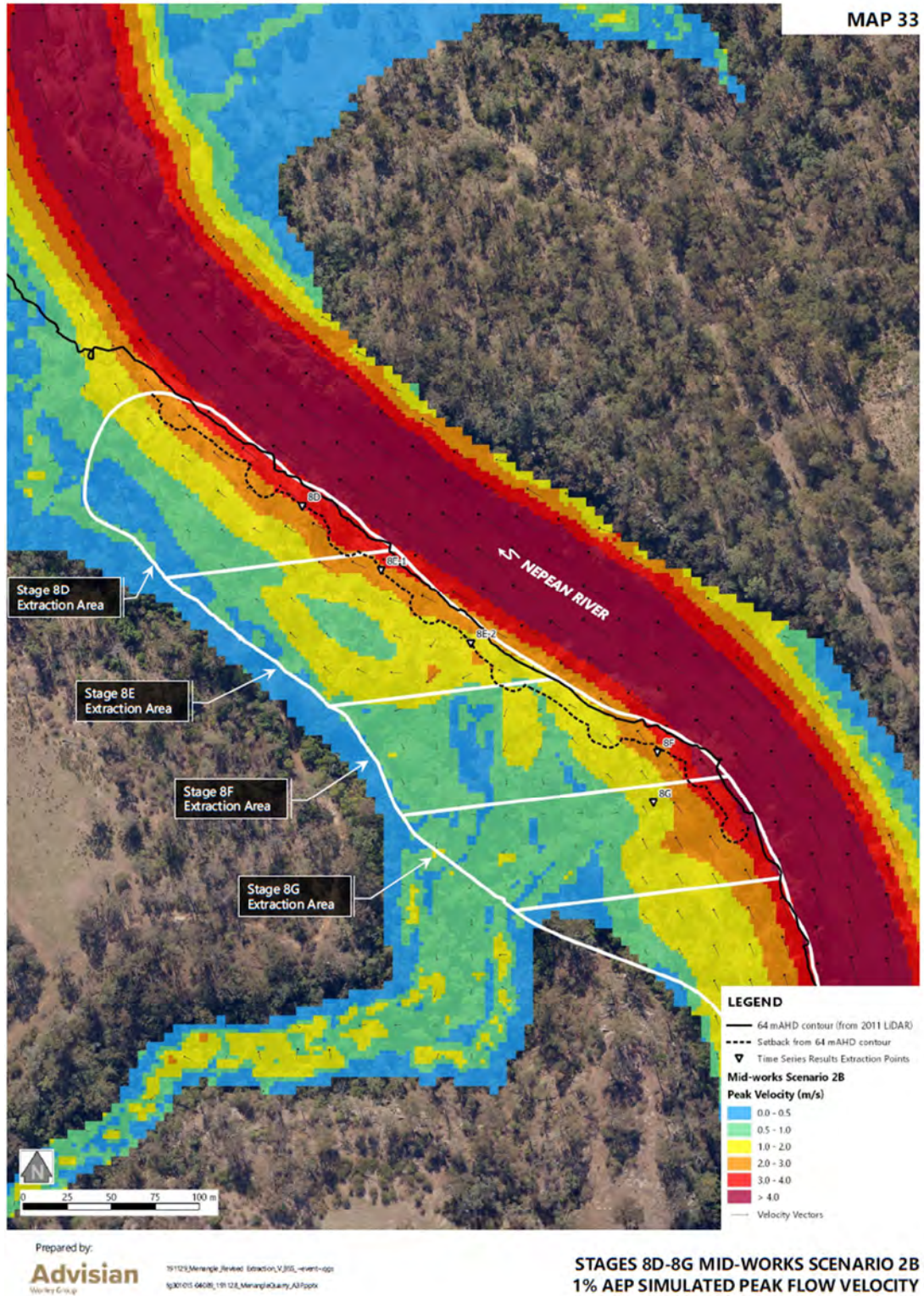
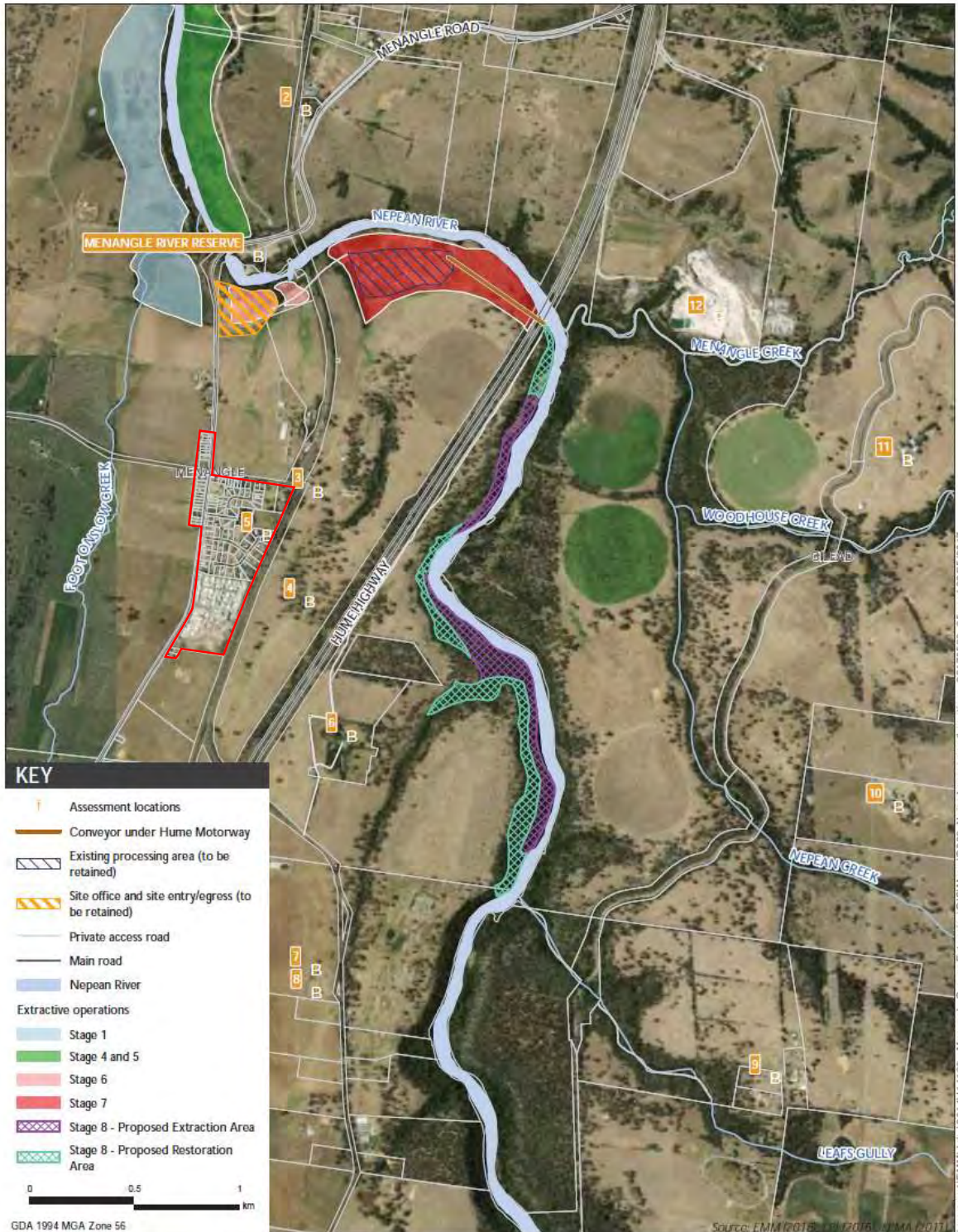


Figure 2 – Exclusion Areas Map Stages 8D-8F

Appendix 3 Receiver Locations



Assessment locations and surrounding land uses
Menangle Sand & Soil Continuation Project
Noise Impact Assessment

Figure 3.1

Figure 6 - Noise Receiver Locations

Appendix 4 Noise Compliance Assessment

Applicable Meteorological Conditions

1. The noise criteria in condition B4 of Schedule 2 are to apply under all meteorological conditions except the following:
 - (a) where 3°C/100 metres (m) lapse rates have been assessed, then:
 - (i) wind speeds greater than 3 metres/second (m/s) measured at 10m above ground level;
 - (ii) temperature inversion conditions between 1.5°C and 3°C/100m and wind speeds greater than 2m/s measured at 10m above ground level; or
 - (iii) temperature inversion conditions greater than 3°C/100m.
 - (b) where Pasquill Stability Classes have been assessed, then:
 - (i) wind speeds greater than 3m/s at 10m above ground level;
 - (ii) stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
 - (iii) stability category G temperature inversion conditions.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition B17 of Schedule 2.

Compliance Monitoring

3. A noise compliance assessment must be undertaken within two months of commencement of Quarrying Operations in the Stage 8 Area. The assessment must be conducted by a suitably qualified and experienced acoustical practitioner and must assess compliance with noise criteria in this consent. A report must be provided to EPA within 1 month of the assessment.
4. Unless otherwise agreed by the Planning Secretary, attended compliance monitoring must be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (EPA, 2000), in particular the requirements relating to:
 - (a) monitoring locations for the collection of representative noise data;
 - (b) meteorological conditions during which collection of noise data is not appropriate;
 - (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
 - (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration,
 - (e) modifying factors apart from adjustments for duration,

with the exception of applying appropriate modifying factors for low frequency noise during compliance testing. This should be undertaken in accordance with Fact Sheet C of the *NSW Noise Policy for Industry* (EPA, 2017).

Appendix 5 Monitoring Locations



Figure 7 - Groundwater Monitoring Locations

Appendix 6 Additional Stage 6 and 7 Biodiversity and Rehabilitation Requirements

Table 5: Additional Biodiversity Objectives and Performance and Completion Criteria for Stage 6 and 7 Vegetated Areas

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
Composition Objective				
The vegetation composition of Stages 6 and 7 are recognisable as River-flat Eucalypt Forest EEC.	Native plant species are characteristic of River-flat Eucalypt Forest EEC as described in the Final Determination. <i>HN526 benchmark for native plant species richness is ≥24 species.</i> <i>It is noted that Eucalyptus botryoides x saligna is not listed in the River-flat Eucalypt Forest EEC Final Determination, but is to count as one species towards the benchmark value.</i>	Presence of a suitable number or proportion of species listed in the Final Determination. This is considered to be ≥24 species, across all monitoring plots, that are aligned with the species list in the Final Determination.	Use of standard 20 x 20 m floristic sampling plot(s) where all flora species present are recorded.	This criterion should be met early (i.e. at 5 years post-establishment), otherwise it is unlikely to be met in the long-term.
Structure Objectives				
The vegetation structure of Stages 6 and 7 are recognisable as, or is trending towards, the target BVT HN526, which provides a suitable surrogate for River-flat Eucalypt Forest EEC	Cover and abundance of plant growth forms are characteristic of, or are trending towards, the target BVT benchmarks, which are provided in the completion criteria.	Total foliage cover of species allocated to Tree (TG) growth form is trending towards the benchmark range of 27.5– 32.5	Use of BAM where all flora species present in a 20 x 20 m plot are recorded, with foliage cover and abundance of each species.	Foliage cover of Tree (TG) growth form is trending towards target value.
		Total foliage cover of species allocated to Shrub (SG) growth form is trending towards the benchmark range of 21-31		Foliage cover of Shrub (SG) growth form is trending towards target value.

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
		Total foliage cover of species allocated to Grass and Grass-like (GG) growth form is trending towards the benchmark range of 24.45-30.45		Foliage cover of Grass and Grass-like (GG) growth form is trending towards target value.
		Total foliage cover of species allocated to Forb (FG) growth form is trending towards the benchmark range of 24.45-30.45		Foliage cover of Forb (FG) growth form is trending towards target value.
Function Objectives				
Levels of ecosystem function have been established that demonstrate that Stages 6 and 7 are self-sustainable, or is trending towards self-sustainability	Evidence of plant reproduction and regeneration is present	The cover and species richness of the groundcover, including grasses and forbs, is stable or increasing, and is within the benchmark ranges	The ongoing persistence of groundcover species, which are relatively short lived and for which recruitment is not straightforward to measure, is regarded as evidence of reproduction and regeneration of these species	An initial decline in species richness and cover may occur, however a stabilisation in observed cover and richness should be observed by 5 to 10 years post-establishment.
		Second generation individuals of shrubs and trees are present	Presence of second-generation canopy species is evident within the rehabilitation domain (i.e. not limited to the plot, but present within rehabilitation of the same target community and age).	No performance guidance. The presence of second-generation trees and shrubs may not be evident for many years post-establishment.

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
	Cover of exotic species is low	Cover of 'high threat exotic' (HTE) and 'priority weeds' is no more than 2%.	Data collected in accordance with BAM. Sum foliage cover of species identified as 'high threat exotic' under the BAM and 'priority weeds' as identified by the Local Land Services (LLS) in the relevant strategic weed management plan for the region.	Cover of HTE and priority weed species are declining towards target value. Given the very high weed loads it is expected that it will take some time for weed growth to be brought under control and will require ongoing maintenance.
	Indicators of nutrient cycling are suitable for sustaining the target plant community type	Litter cover is within the benchmark range. There is no biometric benchmark, and thus the BAM benchmark of 40 for PCT835 is adopted	Data collected in accordance with BAM via five 1 m ² subplots within the 20 m ² floristic plot	Litter cover is increasing towards target value.
<p>Notes:</p> <p><i>Achieving biometric vegetation type (BVT) HN526 and/or plant community type (PCT) in the NSW Bionet Vegetation Information System (PCT835), can be used as a suitable surrogate for the EEC. BVT benchmarks are more specific (to vegetation type level, usually with lower and upper thresholds), whereas PCT benchmarks are to a broader vegetation class level (which is a grouping of similar vegetation types). For this reason, BVT benchmarks have generally been utilised in this table as being the best available.</i></p> <p><i>The Completion Criteria column refers to the desired end goal, with the Performance Guidance column providing broad guidance on how the completion criteria should be interpreted in terms of producing future performance criteria in relevant Vegetation Management Plan(s). It is noted that the completion criteria and performance indicators in Table 5 will need to be resolved with more specific performance criteria relevant to different areas of the site.</i></p> <p><i>It is also noted that stochastic events such as flood or fire might affect the achievement of performance standards and criteria, and whilst the intent will still be to achieve restoration and rehabilitation of the River-flat Eucalypt Forest EEC in the long-term, such events will need to be taken into account on a case by case basis for specific performance standards.</i></p>				

Appendix 7 Stage 8 Operations Biodiversity and Rehabilitation

Table 6: Biodiversity Objectives and Performance and Completion Criteria

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
Composition Objective				
The vegetation composition of the Restoration Area and rehabilitated substages are recognisable as River-flat Eucalypt Forest EEC.	Native plant species are characteristic of River-flat Eucalypt Forest EEC as described in the Final Determination. <i>HN526 benchmark for native plant species richness is ≥24 species.</i> <i>It is noted that Eucalyptus botryoides x saligna is not listed in the River-flat Eucalypt Forest EEC Final Determination, but is to count as one species towards the benchmark value.</i>	Presence of a suitable number or proportion of species listed in the Final Determination. This is considered to be ≥24 species, across all monitoring plots, that are aligned with the species list in the Final Determination.	Use of standard 20 x 20 m floristic sampling plot(s) where all flora species present are recorded.	This criterion should be met early (i.e. at 5 years post-establishment), otherwise it is unlikely to be met in the long-term.
Structure Objectives				
The vegetation structure of the Restoration Area and rehabilitated substages are recognisable as, or is trending towards, the target BVT HN526, which provides a suitable surrogate for River-flat Eucalypt Forest EEC	Cover and abundance of plant growth forms are characteristic of, or are trending towards, the target BVT benchmarks, which are provided in the completion criteria.	Total foliage cover of species allocated to Tree (TG) growth form is trending towards the benchmark range of 27.5– 32.5	Use of BAM where all flora species present in a 20 x 20 m plot are recorded, with foliage cover and abundance of each species.	Foliage cover of Tree (TG) growth form is trending towards target value.
		Total foliage cover of species allocated to Shrub (SG) growth form is trending towards the benchmark range of 21-31		Foliage cover of Shrub (SG) growth form is trending towards target value.

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
		Total foliage cover of species allocated to Grass and Grass-like (GG) growth form is trending towards the benchmark range of 24.45 - 30.45		Foliage cover of Grass and Grass-like (GG) growth form is trending towards target value.
		Total foliage cover of species allocated to Forb (FG) growth form is trending towards the benchmark range of 24.45 - 30.45		Foliage cover of Forb (FG) growth form is trending towards target value.
Function Objectives				
Levels of ecosystem function have been established that demonstrate the Restoration Area and rehabilitated substages are self-sustainable, or is trending towards self-sustainability	Evidence of plant reproduction and regeneration is present	The cover and species richness of the groundcover, including grasses and forbs, is stable or increasing, and is within the benchmark ranges	The ongoing persistence of groundcover species, which are relatively short lived and for which recruitment is not straightforward to measure, is regarded as evidence of reproduction and regeneration of these species	An initial decline in species richness and cover may occur, however a stabilisation in observed cover and richness should be observed by 5 to 10 years post-establishment.
		Second generation individuals of shrubs and trees are present	Presence of second-generation canopy species is evident within the rehabilitation domain (i.e. not limited to the plot, but present within rehabilitation of the same target community and age).	No performance guidance. The presence of second-generation trees and shrubs may not be evident for many years post-establishment.

Rehabilitation Objective	Performance Indicator	Completion Criteria	Example Justification/validation methods	Performance Guidance
	Cover of exotic species is low	Cover of 'high threat exotic' (HTE) and 'priority weeds' is no more than 2%.	Data collected in accordance with BAM. Sum foliage cover of species identified as 'high threat exotic' under the BAM and 'priority weeds' as identified by the Local Land Services (LLS) in the relevant strategic weed management plan for the region.	Cover of HTE and priority weed species are declining towards target value. Given the very high weed loads it is expected that it will take some time for weed growth to be brought under control and will require ongoing maintenance.
	Indicators of nutrient cycling are suitable for sustaining the target plant community type	Litter cover is within the benchmark range. There is no biometric benchmark, and thus the BAM benchmark of 40 for PCT835 is adopted	Data collected in accordance with BAM via five 1 m ² subplots within the 20 m ² floristic plot	Litter cover is increasing towards target value.
<p>Notes:</p> <p><i>Achieving biometric vegetation type (BVT) HN526 and/or plant community type (PCT) in the NSW Bionet Vegetation Information System (PCT835), can be used as a suitable surrogate for the EEC. BVT benchmarks are more specific (to vegetation type level, usually with lower and upper thresholds), whereas PCT benchmarks are to a broader vegetation class level (which is a grouping of similar vegetation types). For this reason, BVT benchmarks have generally been utilised in this table as being the best available.</i></p> <p><i>The Completion Criteria column refers to the desired end goal, with the Performance Guidance column providing broad guidance on how the completion criteria should be interpreted in terms of producing future performance criteria within the Biodiversity and Rehabilitation Management Plan required under condition B73 of Schedule 2 of this consent. It is noted that the completion criteria and performance indicators in Table 6 will need to be resolved with more specific performance criteria relevant to different areas of the site. For example, the Amended restoration area will contain a tree overstorey and thus the performance standard should be higher compared to the Amended extraction area where some time will be required for the tree overstorey cover to become established. Refined performance criteria are to be included in the Biodiversity and Rehabilitation Management Plan.</i></p> <p><i>It is also noted that stochastic events such as flood or fire might affect the achievement of performance standards and criteria, and whilst the intent will still be to achieve restoration and rehabilitation of the River-flat Eucalypt Forest EEC in the long-term, such events will need to be taken into account on a case by case basis for specific performance standards.</i></p>				

Appendix 8 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition D7 of Schedule 2 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
 - a. identify the development and application number;
 - b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
 - c. identify how the incident was detected;
 - d. identify when the applicant became aware of the incident;
 - e. identify any actual or potential non-compliance with conditions of consent;
 - f. describe what immediate steps were taken in relation to the incident;
 - g. identify further action(s) that will be taken in relation to the incident; and
 - h. identify a project contact for further communication regarding the incident.
3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
 - a. a summary of the incident;
 - b. outcomes of an incident investigation, including identification of the cause of the incident;
 - c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and

details of any communication with other stakeholders regarding the incident.

Ryan Desic

From: Ryan Desic
Sent: Friday, 11 December 2020 3:25 PM
To: informationofficer@tharawal.com.au; reception@tharawal.com.au; kgchalker@bigpond.com; kanga26@live.com.au; eugoogleiser@hotmail.com; elwyn.brown@yahoo.com.au; gulagachts@gmail.com; biamangachts@gmail.com; cullendullachts@gmail.com; murramarangchts@gmail.com; goobahchts@gmail.com
Cc: Jeremy Slattery; Phil Towler
Subject: Menangle Quarry Sand and Soil Quarry Extension Project: draft review of Aboriginal Heritage Management Plan
Attachments: J190116_MQE_AHMP_v2_Draft.pdf

Dear Registered Party,

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. Attached is the draft Aboriginal heritage management plan (AHMP) for the project. We are now up to the next stage of consultation for the project which is providing the draft AHMP to RAPs for their review and comments.

Notes for your review and comment on the draft ACHA

If you have specific comments for the draft AHMP document, please identify the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter. You will note that there are highlighted sections of the document that will be updated based on further consultation and amended for the final report.

Please note that appendices are in preparation and are not all are attached. But additional information about sites can be provided upon request.

When to respond by

If you wish to comment on the draft AHMP, please provide your consolidated comments within 28 days (ie by **8 January 2021**). This timeframe is in accordance with the NSW *Aboriginal consultation requirements for proponents* (DECCW 2010). If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Closing

Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the document.

Regards,

Ryan Desic

Associate Archaeologist – Heritage Team Leader
Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)



T 02 9493 9500
M 0411 329 712
D 02 9493 9541
in Connect with us

SYDNEY | Ground floor, 20 Chandos Street, St Leonards 2065



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Ryan Desic

From: Goobah <goobahchts@gmail.com>
Sent: Saturday, 12 December 2020 11:27 AM
To: Ryan Desic
Subject: Re: Menangle Quarry Sand and Soil Quarry Extension Project: draft review of Aboriginal Heritage Management Plan

CAUTION: This email originated outside of the Organisation.

Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW

This is confirm that we support the Draft Heritage Management Plan and wish to be kept informed of any further developments

On Fri, Dec 11, 2020 at 3:25 PM Ryan Desic <rdesic@emmconsulting.com.au> wrote:

Dear Registered Party,

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. Attached is the draft Aboriginal heritage management plan (AHMP) for the project. We are now up to the next stage of consultation for the project which is providing the draft AHMP to RAPs for their review and comments.

Notes for your review and comment on the draft ACHA

If you have specific comments for the draft AHMP document, please identify the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter. You will note that there are highlighted sections of the document that will be updated based on further consultation and amended for the final report.

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When to respond by

If you wish to comment on the draft AHMP, please provide your consolidated comments within 28 days (ie by **8 January 2021**). This timeframe is in accordance with the NSW *Aboriginal consultation requirements for proponents* (DECCW 2010). If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Closing

Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the document.

Regards,

Ryan Desic

Associate Archaeologist – Heritage Team Leader

Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)



T 02 9493 9500

M 0411 329 712

D 02 9493 9541

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--

Regards

**Basil Smith
Chairperson/CEO
GOBAH**

Contact Details:

Address:

**Unit 25 26-28
Native Way,
MORUYA HEADS
NSW 2537**

Mobile: 0405 995 725

Email: goobahchts@gmail.com

ABN: 67 517 874 760



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Ryan Desic

From: Murramarang <murramarangchts@gmail.com>
Sent: Saturday, 12 December 2020 12:15 PM
To: Ryan Desic
Subject: Re: Menangle Quarry Sand and Soil Quarry Extension Project: draft review of Aboriginal Heritage Management Plan

CAUTION: This email originated outside of the Organisation.

Menangle Sand and Soil Quarry Extension Project draft Aboriginal heritage management plan (AHMP)

This is to confirm that we support the Draft and wish to be kept informed of any further developments for the above project.

On Fri, Dec 11, 2020 at 3:25 PM Ryan Desic <rdesic@emmconsulting.com.au> wrote:

Dear Registered Party,

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. Attached is the draft Aboriginal heritage management plan (AHMP) for the project. We are now up to the next stage of consultation for the project which is providing the draft AHMP to RAPs for their review and comments.

Notes for your review and comment on the draft ACHA

If you have specific comments for the draft AHMP document, please identify the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter. You will note that there are highlighted sections of the document that will be updated based on further consultation and amended for the final report.

Please note that appendices are in preparation and are not all are attached. But additional information about sites can be provided upon request.

When to respond by

If you wish to comment on the draft AHMP, please provide your consolidated comments within 28 days (ie by **8 January 2021**). This timeframe is in accordance with the NSW *Aboriginal consultation requirements for proponents* (DECCW 2010). If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Closing

Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the document.

Regards,

Ryan Desic

Associate Archaeologist – Heritage Team Leader

Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)



T 02 9493 9500

M 0411 329 712

D 02 9493 9541

 Connect with us

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--

Kind Regards
Roxanne Smith
Cultural Heritage Officer
Murramarang

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Ryan Desic

From: Biamanga <biamangachts@gmail.com>
Sent: Saturday, 12 December 2020 12:44 PM
To: Ryan Desic
Subject: Re: Menangle Quarry Sand and Soil Quarry Extension Project: draft review of Aboriginal Heritage Management Plan

CAUTION: This email originated outside of the Organisation.

We confirm the draft Aboriginal heritage management plan (AHMP) for this project and please keep me in the loop for any further developments

On Fri, Dec 11, 2020 at 3:25 PM Ryan Desic <rdesic@emmconsulting.com.au> wrote:

Dear Registered Party,

Thank you for your continued involvement in Aboriginal cultural heritage matters for the Menangle Sand and Soil Quarry Extension Project (the project) in Menangle NSW. Attached is the draft Aboriginal heritage management plan (AHMP) for the project. We are now up to the next stage of consultation for the project which is providing the draft AHMP to RAPs for their review and comments.

Notes for your review and comment on the draft ACHA

If you have specific comments for the draft AHMP document, please identify the section heading and page number so that we know specifically which part of the document to address. Our preference is for you to provide your comments in writing via email or letter. You will note that there are highlighted sections of the document that will be updated based on further consultation and amended for the final report.

Please note that appendices are in preparation and are not all are attached. But additional information about sites can be provided upon request.

When to respond by

If you wish to comment on the draft AHMP, please provide your consolidated comments within 28 days (ie by **8 January 2021**). This timeframe is in accordance with the NSW *Aboriginal consultation requirements for proponents* (DECCW 2010). If you are having trouble responding within this timeframe please let us know early so that we can consider alternative options.

Closing

Please do not hesitate to contact me on my details below for any matters regarding the project or if you have any difficulties in downloading or reading the document.

Regards,

Ryan Desic

Associate Archaeologist – Heritage Team Leader

Bushfire, Ecology, Heritage and Spatial Solutions (BEHSS)



T 02 9493 9500

M 0411 329 712

D 02 9493 9541

 Connect with us

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--

Kind Regards
Janaya Smith
Chief Executive Officer
Biamanga

This email may contain privileged information. Privilege is not waived if it has been sent to you in error, or if you are not the intended recipient. Please immediately notify me and delete the email if you have received this in error.

Cubbitch Barta Native Title Claimants
Aboriginal Corporation
55 Nightingale Road,
PHEASANTS NEST. N.S.W. 2574.
6th January, 2021.

EMM
Ground Floor 20 Chandos Street,
ST. LEONARDS. N.S.W. 2065.

Dear Ryan,

MENANGLE QUARRY

Thank you for the opportunity of commenting on the AHMP for the Menangle Quarry. As you are aware I have a life long connection to this particular part of the river that will be fatally impacted by this project. I have very vivid childhood memories of this particular part of the river, and also to where mining is currently taking place. Those places will no longer exist for me to tell my great grandchildren about, because there simply will be nothing left. What is the good of access to a place after it is destroyed for intergenerational equity

In my opinion the destruction of this place in the name of a sand and soil quarry is a crime, not only to the Aboriginal Heritage, but also to the environment. There are trees that I believe could be over 500 years old, and also are part of an endangered ecological community. I remember those trees as giants even as a child, and even my father talks about the giants along the river bank when he was a child.

I cannot believe that this project was given government approval, especially in regards to the environment. The removal of all this soil, sand and trees has the potential to change the natural flow of the river completely, just as the current sand and soil removal area affected the flow of the river in the flood of 2016. Don't say I did not warn anybody in the future.

On one hand this document says that weed removal will be done by cutting and pasting, and then says that up to 500mm of topsoil will be removed in the restoration area. Kind of defeats the purpose of cutting and pasting and then removing 500mm of topsoil.

Just because there were no Aboriginal artefacts excavated, does not take away the cultural significance of the place. There should be no work take place within those unidentified areas until a further assessment has taken place in regards to the trees and possible shelters. How many scarred trees are Aboriginal people expected to put in keeping places now and into the future. They should be left insitu to live out their lives where they are not removed to a keeping place. Didn't anyone learn from the Victorian issue about culturally important trees to the Aboriginal Community. I do not agree that this project should go ahead at all.

Yours faithfully,



Glenda Chalker
Phone/Fax 0246841129 0427218425
kgchalker@bigpond.com

20 January 2021

Level 1, 146 Hunter Street
Newcastle NSW 2300

Glenda Chalker
Cubbitch Barta Native Title Claimants

T 02 4907 4800
E info@emmconsulting.com.au
www.emmconsulting.com.au

Re: Menangle Sand and Soil Extension Project

Dear Glenda,

Thank you for taking the time to prepare a submission in response to the draft Aboriginal Heritage Management Plan for the Menangle Sand and Soil Extension Project (the project). On behalf of EMM and Menangle Sand and Soil I would like to take the opportunity to respond to your issues and concerns.

I would firstly like to acknowledge that the main concern raised is a continuation of that provided during the project Aboriginal Cultural Heritage Assessment (ACHA) in 2016. Your previous submissions raised concerns about the environmental impact of the project and specifically mentioned old growth trees present in the project area. As these concerns were targeted at potential impacts to the ecosystem, EMM directed Cubbitch Barta to the ecology chapter of the project environmental assessment (EA) and the proposed management strategies in Section 9.4–10.5 of the EA (EMM 2016). EMM took this approach acknowledging that ecological sustainability and intergenerational equity are key concerns to the Aboriginal community, but that the trees in question were not attributed with specific Aboriginal cultural heritage values. As such, the ACHA had limited mechanisms to address impacts to these items within the provisions of Part 6 of the *National Parks and Wildlife Act 1974*, which only applies to Aboriginal objects and declared Aboriginal places. This statement does not aim to detract from the significance Cubbitch Barta places on the Nepean River and riparian corridor through historical family experiences, rather it highlights the ACHA limitations given that no declared places or known Aboriginal objects are currently proposed for project impacts.

Overall, trees will be removed as part of the project. However, management strategies will be employed across many disciplines to minimise environmental impacts. In particular, there will be no extraction within the river and the lower riverbank will be left in place. Rehabilitation of the Stage 8 area and adjacent restoration activities will remove exotic weeds, restore native vegetation and provide habitats for native fauna. Outcomes that we hope are aligned with Cubbitch Barta's desire to return the Nepean River in its natural state. It is acknowledged that Cubbitch Barta views that the quarry will result in vegetation losses before the rehabilitated areas become self-sustaining. We believe that the proposed rehabilitation and management measures will replace the existing weed-infested vegetation community with a high-quality sustainable vegetation community. While the largest the trees will take many years to reach maturity, when they do, they will be part of an improved vegetation community. To reduce the lag in equity, the extraction and rehabilitation process will be progressive along the Stage 8 area so that the rehabilitation can commence in certain areas while extraction continues in others.

I would like to address the specific issues raised about the draft AHMP. Below I have provided excerpts from your letter followed by our responses:

1. *On one hand this document says that weed removal will be done by cutting and pasting, and then says that up to 500 mm of topsoil will be removed in the restoration area. Kind of defeats the purpose of cutting and pasting and then removing 500 m of topsoil.*

We would like to clarify that weed management involving non-invasive measures such as cutting vegetation and using weed control products will apply within protection buffer zones for the Aboriginal sites that require active protection and to the lower riverbank where soil removal could cause bank instability. Soil will be removed from the restoration areas to remove the weed seedbank as part of restoring these areas. No ground disturbance activities such as uprooting vegetation or topsoil removal is permitted in the protection buffer zones. Please refer to section 5.1.2 of the AHMP for further details.

2. *Just because there were no Aboriginal artefacts excavated, does not take away the cultural significance of the place. There should be no work take place within those unidentified areas until a further assessment has taken place in regards to the trees and possible shelters.*

Section 5.2 of the AHMP addresses this issue by stating that Additional archaeological survey is required to account for any unidentified Aboriginal scar trees and rockshelters in the project area due to the limitations of the project ACHA described in Section 4.4 of the AHMP. This will involve additional survey in the Stage 8 extraction area after the understorey is cleared and prior to the removal of mature trees to determine if any feature Aboriginal scarring or carving; and additional survey for rock shelters in the Stage 8 restoration area.

3. *How many scarred trees are Aboriginal people expected to put in keeping places now and into the future. They should be left in situ to live out their lives where they are not removed to a keeping place.*

No Aboriginal scarred or carved trees have been identified to date and the proposed additional survey is a conservative measure to account for the limitations of the archaeological survey completed during the ACHA. We acknowledge that the preference is to avoid any identified Aboriginal scarred or carved trees if identified. However, Menangle Sand and Soil require contingencies if avoidance is not feasible and avenues for tree removal need to be explored. Any proposal to impact Aboriginal objects in the project area would require an Aboriginal Heritage Impact Permit (AHIP) issued by Heritage NSW. Section 5.4.2 of the AHMP sets out the level of assessment that will be required to accompany an AHIP application, including an impact assessment and demonstration why any site(s) in question cannot be reasonably avoided.

In the event that an Aboriginal scar tree requires removal, further consultation would be undertaken during the AHIP application process to determine an appropriate keeping place or other arrangement that suits the local Aboriginal community.

I hope this letter clarifies and addresses the issues raised in your letter. We acknowledge that Cubbitch Barta opposes the project as per your letter; however, the measures proposed in the AHMP and other management plans aim to mitigate Aboriginal cultural heritage and ecological impacts to the best of our ability.

Please do not hesitate to contact me if you have any further questions about the AHMP.

Yours sincerely,



Ryan Desic

Associate Archaeologist - Heritage Team Leader

rdesic@emmconsulting.com.au



Appendix C

Regulatory consultation



C.1 Endorsement of author



Jeremy Slattery
EMM Consulting
PO Box 21
St Leonards NSW 1590

Via email: jslattery@emmconsulting.com.au

13/10/2020

Dear Mr Slattery

**Menangle Quarry (DA 85/2865)
Stage 8 Environmental Management Plans
Endorsement of Experts**

I refer to your letter dated 6 October 2020 seeking the Planning Secretary's endorsement of suitably qualified persons to prepare various reports and environmental management plans required to carry out Stage 8 of the above development.

The Department has reviewed the information provided and is satisfied that each of the nominated persons possesses the necessary qualifications and experience to prepare the relevant documents. Consequently, the Planning Secretary has endorsed the appointment of these experts as outlined below.

Document	Relevant Condition	Appointed Person
Native Vegetation Identification Report(s)	A10(b)(i) of Schedule 2	Dr Steven Ward
Ephemeral Creek Management Plan	B40(a) of Schedule 2	Chris Kuczera
Traffic Management Plan	B55(a) of Schedule 2	Abdullah Uddin
Aboriginal Cultural Heritage Management Plan	B62(a) of Schedule 2	Ryan Desic

Please note that any further post approval requests, including endorsement requests and the lodgement of plans for approval should be made via the Department's Major Projects website.

If you wish to discuss this matter further, please contact Lauren Evans at the details above.

Yours sincerely,

Matthew Spratt
Director
Resource Assessments
as nominee of the Planning Secretary

C.2 Consultation with Heritage NSW



Our ref: DOC21/285176-2

Ryan Desic
Associate Archaeologist – Heritage Team Leader
EMM Consulting Pty Ltd
email: rdesic@emmconsulting.com.au

Dear Mr Desic,

Menangle Sand and Soil Quarry Extension – draft Aboriginal Heritage Management Plan (DA85/2865 & LEC 2018/342158)

Thank you for providing Heritage NSW the opportunity to comment on the draft Aboriginal Heritage Management Plan (AHMP) for Stage 8 of the Menangle Sand and Soil Quarry Extension as approved under LEC 2018/342158 on 10 September 2020. Condition B62 of the LEC approval require Heritage NSW to be consulted as part of the preparation of the AHMP.

Heritage NSW has reviewed the draft AHMP and the LEC Notice of Orders and provide comments in relation to Aboriginal cultural heritage matters only. Detailed comments on the AHMP are provided in Attachment A.

We note that condition B61(b) requires an Aboriginal Heritage Impact Permit (AHIP) to be obtained if any Aboriginal objects are located and cannot be avoided by the project. Heritage NSW advises that the issuing of any AHIP will be subject to consideration of the section 90k factors set out under the *National Parks and Wildlife Act 1974*. While the draft AHMP describes a process and measures to assess and manage Aboriginal objects as part of project operations, Heritage NSW cannot provide certainty that an AHIP will be issued until an assessment of any AHIP application has been made.

Heritage NSW is available to discuss the comments and AHMP process further if required.

If you have any questions regarding the above advice please contact me on (02) 6229 7089 or via email at jackie.taylor@environment.nsw.gov.au.

Yours sincerely

Jackie Taylor
Senior Team Leader, Aboriginal Cultural Heritage Regulation - South
Heritage NSW
13 April 2021

Attachment A: Detailed Heritage NSW comments on draft Aboriginal Heritage Management Plan for Menangle Sand and Soil Quarry Extension

AHMP section	Issue/ Comment	Action required
Title page and Introduction 1.1	It is not clear from this section that the AHMP relates to Stage 8 works only.	Move section 1.6 'Area to which this plan applies' up to the front of the AHMP.
Table 3.1	Confirm whether the Tharawal Local Aboriginal Land Council are a Registered Aboriginal Party for this project.	Update Table if required.
Table 3.3	Spelling error in this sentence: <i>This is addressed in Appendix B. No Aboriginal scarred or carved trees have been identified in the project area, but the trees will eb subject to further survey once weeds are removed and they can be accessed.</i>	Revise spelling.
3.4.1	The AHMP outlines the proponent is responsible for consulting with RAPs with feedback required no later than two weeks from the date of correspondence.	Recommend allowances be made and specified for sorry business or holiday periods where a longer timeframe may be required for RAPs to consider and provide comments.
3.4.2	This section states: <i>the AHMP must maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area).</i> However, the first dot point states: <i>visitation access will be provided at the completion of the project (after extraction and rehabilitation is fully completed), in line with all safety and security requirements.</i> It is not clear when access will occur or to which area(s).	<ul style="list-style-type: none"> Clarify when access will be provided to RAPs. If the conditions of approval allow for access outside of the disturbance area - can visitation be provided before completion of the project. Clarify whether "completion of project" refers to completion of Stage 8 works only.
4.2	Due to the types of values raised by Cubbitch Barta are there other avenues or opportunities for these values to be recorded and protected – either through Cultural Values Assessment and/ or nomination of an Aboriginal Place?	Consider other opportunities and avenues to record and protect cultural values identified.
4.3, page 15, 7 th dot point.	Grammar error in this sentence: <i>The is some residual potential for Aboriginal scar trees to occur within the Stage 8 extraction area as there are mature native trees</i>	Revise grammar.

AHMP section	Issue/ Comment	Action required
	<i>that couldn't be accessed due to thick vegetation cover.</i>	
4.4, page 16, 2 nd para	Repeated wording in the 2 nd para, 2 nd sentence: <i>There were parts of the upper and lower terrace that could not be accessed across the project area that could not be accessed.</i>	Revise sentence.
4.4, page 17, 2 nd para	This para identifies the exotic weed removal has now been defined and includes removal of "up to 500 mm of topsoil in some areas". How will the 500mm of topsoil be removed?	Provide detail on how the topsoil will be removed.
5.1.2	What is the proposed buffer zone distance 10m based on and is this enough distance from works? Does there need to be a larger distance between proposed extraction and the rockshelters? Is the proposed weed management a one-off event or intended to be ongoing during the life of the works?	<ul style="list-style-type: none"> Justify the 10 m buffer zone. Clarify the timeframes for weed management.
5.2	This section deals with the survey for the Stage 8 extraction area. Does the AHMP also need to include a longer term 'unexpected finds' protocol if objects are also uncovered during extraction activities.	Consider including an additional section for 'unexpected finds' during the life of the project.
5.2.2, dot point 2	Is there a timeframe for the staged approach? If an AHIP is sought, longer timeframes may be needed to allow for the determination of an AHIP.	Consider including timeframes for the staged approach and the AHIP approval process.
5.2.2, dot point 5	What Do these reports need to be provided to AHIMS as a record of survey or consolidated in a larger report?	Clarify what will happen with the short survey reports prepared?
5.2.2, dot point 6	Spelling error in this sentence: <i>If no Aboriginal scarred or carved trees or other Aboriginal objects are identified in the relevant portion of the Stage 8 extraction surveyed are during each stint, the report will provide clearance for project works to proceed (subject to other relevant environmental approvals or requirements).</i>	Revise sentence.
5.2.3, i, 1 st para	Spelling error in this sentence: <i>Only small sections of the scarp were targeted during the archaeological investigation because they were previously</i>	Revise sentence.

AHMP section	Issue/ Comment	Action required
	<i>outside of proposed ground disturbance and also inaccessible due to dense vegetation.</i>	
5.2.3, i, 2 nd para	This section refers to the use of mechanical vegetation clearance. Will mechanical techniques have a greater impact on the area?	Describe the type of mechanical vegetation clearance proposed.
5.2.3, ii	This section states surveys of the haul road and conveyor alignments will be undertaken "if applicable".	Clarify when surveys will be "applicable"
5.2.4	This section doesn't explicitly state whether survey will occur of the conveyor alignments outside of the Stage 8 area.	Clarify where survey will occur.
5.3, page 22, dot point 1	Have sandstone features been encountered in previous stages of the quarry? If so, has this process of stopping worked?	Consider providing further detail of the stop work process.
5.3, page 22, dot point 2	Is training required for contractors to know how to identify grinding grooves and engravings?	Consider providing further detail of training for contractors.
5.4.2	Any further investigative measures in line with the 2010 <u>Code of Practice Archaeological Investigation of Aboriginal Objects in NSW</u> , such as test excavations, may require an AHIP application. Would the AHMP benefit from raising this early? Any AHIP application will require consultation on the proposed management measures.	<ul style="list-style-type: none"> • Provide additional detail that an AHIP may be required for test excavations, if required. • Provide detail on the AHIP process and timeframes. • Include an additional point that an AHIP is not guaranteed to be issued.
5.4.3	As extraction of the sand and soil resource will be undertaken by machinery – are there any specific measures that could be put in place as a warning sign of possible burial locations such as change in soil colour etc? Is there information known regarding the historical depths of burials in the area that may assist?	Outline any additional measures that could be used to identify burial features, if known.
5.6	Spelling error in this sentence: <i>All sites that occur within the project area, with the additional of Bulli Site 40 (AHIMS #52-2-3720 – rockshelter with art), that are designated for avoidance and active protection will be subject to monitoring inspections.</i>	Revise sentence.
6.3.5, 2 nd dot point	What allowances will be made to consult with RAPs as part of any further assessments?	Include the requirement for consultation with RAPs as part of any further assessment.

AHMP section	Issue/ Comment	Action required
6.3.5, 3 rd dot point	If a separate approval pathway is required is following Due Diligence an appropriate level of assessment.	Consider whether due diligence is an appropriate level of assessment.
References, page 35		Include <u>Code of Practice Archaeological Investigation of Aboriginal Objects in NSW</u> .
Abbreviations, page 36		Include AHIP and Aboriginal Heritage Impact Permit.
B.1 Consultation log	It is noted that Tharawal LALC is not listed in the last section under the heading Menangle AHMP – Draft AHMP .	Clarify whether Tharawal LALC sent a copy of the draft AHMP for comment.
Appendix B	The LEC Notice of Orders includes the requirements for a number of other environmental plans to be prepared. How do these other plans interact with the AHMP? Is there a need to broaden the AHMP assessment and further surveys to incorporate any of the onsite works that may be required to be undertaken for these plans?	Outline if and how the AHMP interacts with other environmental plans.
Consultation letter from Cubbitch Barta and EMM response	We note the concerns raised by Cubbitch Barta and the response from EMM.	<ul style="list-style-type: none"> • Recommend other considerations be made to record oral history and cultural values of the area during future assessments. • Can RAPs be involved in the rehabilitation works for the site as part of caring for country?

20 April 2021

Level 1, 146 Hunter Street
Newcastle NSW 2300

T 02 4907 4800

E info@emmconsulting.com.au

www.emmconsulting.com.au

Re: Menangle Sand and Soil Quarry Extension - draft Aboriginal Heritage Management Plan. Response to Heritage NSW submission.

The following table provides responses to Heritage NSW's comments on the draft Aboriginal Heritage Management Plan (AHMP) for Stage 8 of the Menangle Sand and Soil Quarry Extension as approved under LEC 2018/342158 on 10 September 2020. Heritage NSW's comments were provided on 13 April 2021.

Responses provided in the table below are also reflected in the updated draft AHMP version for DPIE's consideration.

Yours sincerely,



Ryan Desic

Associate Archaeologist - Heritage Team Leader

rdesic@emmconsulting.com.au

AHMP section	Issue/ Comment	Action required	Response
Title page and Introduction 1.1	It is not clear from this section that the AHMP relates to Stage 8 work only.	Move section 1.6 'Area to which this plan applies' up to the front of the AHMP.	<ul style="list-style-type: none"> Title page updated to include Stage 8 area Section 1.6 moved to Section 1.1 to clarify that the project area relates to Stage 8 only.
Table 3.1	Confirm whether the Tharawal Local Aboriginal Land Council area Registered Aboriginal Party for this project.	Update Table if required.	The Tharawal Local Aboriginal Land Council is not formally registered but consulted throughout process since July 2016. Table 3.1 has been updated to reflect this.
Table 3.3	Spelling error in this sentence: <i>This is addressed in Appendix B. No Aboriginal scarred or carved trees have been identified in the project area, but the trees will eb subject to further survey once weeds are removed and they can be accessed.</i>	Revise spelling.	Error corrected.
3.4.1	The AHMP outlines the proponent is responsible for consulting with RAPs with feedback required no later than two weeks from the date of correspondence.	Recommend allowances be made and specified for sorry business or holiday periods where a longer timeframe may be required for RAPs to consider and provide comments.	Section 3.4.1 has been updated to state "Notwithstanding, review and feedback timeframes will be extended during periods such as Sorry Business or holidays. These extensions will be commensurate with period where RAPs are unable to conduct other activities."

AHMP section	Issue/ Comment	Action required	Response
3.4.2	<p>This section states: <i>the AHMP must maintain and manage reasonable access for relevant Aboriginal stakeholders to Aboriginal objects and Aboriginal places (outside of the approved disturbance area).</i></p> <p>However, the first dot point states: <i>visitation access will be provided at the completion of the project (after extraction and rehabilitation is fully completed), in line with all safety and security requirements.</i></p> <p>It is not clear when access will occur or to which area(s).</p>	<p>Clarify when access will be provided to RAPs. If the conditions of approval allow for access outside of the disturbance area - can visitation be provided before completion of the project.</p> <p>Clarify whether “completion of project” refers to completion of Stage 8 works only.</p>	<p>First dot point in Section 3.4.2 has been amended to state: “given reasonable notice, visitation access to the Stage 8 area will be provided during quarry operating hours, in line with all safety and security requirements”.</p>
4.2	<p>Due to the types of values raised by Cubbitch Barta are there other avenues or opportunities for these values to be recorded and protected – either through Cultural Values Assessment and/ or nomination of an Aboriginal Place?</p>	<p>Consider other opportunities and avenues to record and protect cultural values identified.</p>	<p>Refer to Section 4.2 that discusses the identified Aboriginal socio-cultural and historical values of the Stage 8 area. The section identifies three types of values, the first and third values are the Nepean River in general and the family values of the Chalker family respectively. Both these values were identified as unlikely to meet the criteria to be nominated to become a successfully declared Aboriginal place.</p> <p>The second intangible value related to an area of spiritual significance nearby the Stage 8 area, but which would not be impacted by the project. EMM were not provided with detail about the place due to culturally sensitive information.</p> <p>As this area is outside of the Stage 8 area and will not be impacted, no further assessment is proposed.</p>

AHMP section	Issue/ Comment	Action required	Response
4.3, page 15, 7 th dot point.	Grammar error in this sentence: <i>The is some residual potential for Aboriginal scar trees to occur within the Stage 8 extraction areas there are mature native trees</i>	Revise grammar.	Error corrected.
4.4, page 16, 2 nd para	Repeated wording in the 2 nd para, 2 nd sentence: <i>There were parts of the upper and lower terrace that could not be accessed across the project area that could not be accessed.</i>	Revise sentence.	Error corrected.
4.4, page 17, 2 nd para	This para identifies the exotic weed removal has now been defined and includes removal of "up to 500 mm of topsoil in some areas". How will the 500mm of topsoil be removed?	Provide detail on how the topsoil will be removed.	<p>Note: the level of topsoil removal has been amended from 500 mm to 200–300 mm.</p> <p>In general, topsoil will be removed by machine but it will seek to avoid native trees and shrubs where practical to do so. This includes leaving suitable buffers around established native vegetation.</p> <p>Clearing and topsoil removal is described in Sections 3.1, 5.3 and 5.3 of the Biodiversity and Rehabilitation Management Plan (BRMP) (EMM 2021).</p> <p>Section 4.4 has been updated to reflect the amended soil removal depth.</p>
5.1.	What is the proposed buffer zone distance 10m based on and is this enough distance from works? Does there need to be a larger distance between proposed extraction and the rockshelters? Is the proposed weed management a one-off event or intended to be ongoing during the life of the works?	<p>Justify the 10 m buffer zone.</p> <p>Clarify the timeframes for weed management.</p>	<p>The 10 m buffer applies to topsoil stripping activities within the Stage 8 restoration area and not extraction activities. All of the rockshelters are outside of potential risk of impact from extraction as they all occur on terraced rock scarp landforms above the recently deposited alluvial sands below in the extraction area.</p> <p>Weed management will be implemented according to industry best management practice for the weed species present in accordance with relevant sections of Sections 6 and 7 of the Biodiversity and Rehabilitation Management Plan (BRMP) but tailored to an approach which will not involve ground disturbance from hand tool use. This will be an ongoing process during the life of the project.</p>

AHMP section	Issue/ Comment	Action required	Response
5.2	This section deals with the survey for the Stage 8 extraction area. Does the AHMP also need to include a longer term 'unexpected finds' protocol if objects are also uncovered during extraction activities.	Consider including an additional section for 'unexpected finds' during the life of the project.	Section 5.4 already addresses unexpected finds protocols, but Section 5.4.1 has been updated to specify that the protocol applies during the life of the project.
5.2.2, dot point 2	Is there a timeframe for the staged approach? If an AHIP is sought, longer timeframes may be needed to allow for the determination of an AHIP.	Consider including timeframes for the staged approach and the AHIP approval process.	The staging for survey requires flexibility and therefore no timing has been nominated. Section 5.2.2 has been updated to state: "Menangle Sand and Soil should stage approaches with consideration to potential AHIP timeframes as set out in Section 5.4.2 of the AHMP, given that any required AHIP may require an approximate 4-month timeframe and must precede project-related impacts".
5.2.2, dot point 5	What Do these reports need to be provided to AHIMS as a record of survey or consolidated in a larger report?	Clarify what will happen with the short survey reports prepared?	Section 5.2.2 has been updated to state the following "These reports will be issued to RAPs and Heritage NSW and kept by Menangle Sand and Soil for their internal records. If the Aboriginal sites are identified, the reports will be submitted as part of AHIMS site cards and lodged on the AHIMS register."
5.2.2, dot point 6	Spelling error in this sentence: <i>If no Aboriginal scarred or carved trees or other Aboriginal objects are identified in the relevant portion of the Stage 8 extraction surveyed are during each stint, the report will provide clearance for project work to proceed (subject to other relevant environmental approval or requirements).</i>	Revise sentence.	Error corrected.
5.2.3, i, 1 st para	Spelling error in this sentence: <i>Only small sections of the scarp were targeted during the archaeological investigation because they were previously outside of proposed ground disturbance and also inaccessible due to dense vegetation.</i>	Revise sentence.	Error corrected.

AHMP section	Issue/ Comment	Action required	Response
5.2.3, i, 2 nd para	This section refers to the use of mechanical vegetation clearance. Will mechanical techniques have a greater impact on the area?	Describe the type of mechanical vegetation clearance proposed.	This section has been updated to state “The type of mechanical vegetation will be consistent with the methods described in the Biodiversity and Rehabilitation Management Plan (BRMP) (including in Sections 5.2–5.3).”
5.2.3, ii	This section states surveys of the haul road and conveyor alignments will be undertaken “if applicable”.	Clarify when surveys will be “applicable”	Section 5.2.3, ii has been reworded to clarify that surveys in those areas will only be required if ground disturbance is proposed as part of the project scope. These surveys will be undertaken if additional ground disturbance or vegetation clearing is required for haul roads the conveyor. Noting, a) existing 4-m wide tracks will be used and that it is proposed the conveyor will not be used (instead, extending the distance the haul truck will travel on the existing tracks).
5.2.4	This section doesn’t explicitly state whether survey will occur of the conveyor alignments outside of the Stage 8 area.	Clarify where survey will occur.	This section has been updated to state that these areas will be surveyed if they are beyond previously surveyed areas. See comment above for further clarification.
5.3, page 22, dot point 1	Have sandstone features been encountered in previous stages of the quarry? If so, has this process of stopping worked?	Consider providing further detail of the stop work process.	No sandstone features have been encountered in the earlier quarry stages.
5.3, page 22, dot point 2	Is training required for contractors to know how to identify grinding grooves and engravings?	Consider providing further detail of training for contractors.	Section 6.1.3 (induction and permitting process) has had an additional bullet point added to assist contractors to identify potential sandstone-type sites.

AHMP section	Issue/ Comment	Action required	Response
5.4.2	Any further investigative measures in line with the 2010 <u>Code of Practice Archaeological Investigation of Aboriginal Objects in NSW</u> , such as test excavations, may require an AHIP application. Would the AHMP benefit from raising this early? Any AHIP application will require consultation on the proposed management measures.	<p>Provide additional detail that an AHIP may be required for test excavations, if required.</p> <p>Provide detail on the AHIP process and timeframes.</p> <p>Include an additional point that an AHIP is not guaranteed to be issued.</p>	Section 5.4.2 has been updated to address these points.
5.4.3	As extraction of the sand and soil resource will be undertaken by machinery – are there any specific measures that could be put in place as a warning sign of possible burial locations such as change in soil colour etc? Is there information known regarding the historical depths of burials in the area that may assist?	Outline any additional measures that could be used to identify burial features, if known.	<p>The project ACHA concluded that the soils subject to extraction are all within the recent historical period whereby European artefacts were identified at depth until the current water table was reached. As such, as the machine test excavation program for the project included mechanical excavation to the water table, and no older stratum was identified, EMM does not have any evidence to suggest a potential burial-bearing deposit exists.</p> <p>Overall, it is proposed that the project will be extracting modern alluvial deposits on lower terraces, and modern alluvial deposits overlying older swamp stratum, not suitable for past Aboriginal occupation.</p> <p>As such, no additional measures have been nominated.</p>
5.6	<p>Spelling error in this sentence:</p> <p><i>All sites that occur within the project area, with the additional of Bulli Site 40 (AHIMS #52-2-3720 – rockshelter with art), that are designated for avoidance and active protection will be subject to monitoring inspections.</i></p>	Revise sentence.	Error corrected.
6.3.5, 2 nd dotpoint	What allowances will be made to consult with RAPs as part of any further assessments?	Include the requirement for consultation with RAPs as part of any further assessment.	<p>Section 3.4.1 states that RAP consultation is required:</p> <ul style="list-style-type: none"> “when making changes to this plan, including the circumstances that trigger required changes to the plan; when additional Aboriginal heritage assessment, investigation, protection or mitigation is required for the project; and

AHMP section	Issue/ Comment	Action required	Response
			<ul style="list-style-type: none"> when new Aboriginal sites and/or potential ancestral remains are discovered and input on their management is required.
6.3.5, 3 rd dotpoint	If a separate approval pathway is required is following Due Diligence an appropriate level of assessment.	Consider whether due diligence is an appropriate level of assessment.	This section has been updated to refer more generally to the <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales</i> (DECCW 2010c) which provides the process and requirements for Aboriginal heritage assessments in NSW.
References,page 35		Include <u>Code of Practice Archaeological Investigation of Aboriginal Objects in NSW</u> .	Section updated with this reference.
Abbreviations,page 36		Include AHIP and Aboriginal Heritage Impact Permit.	Section updated with this reference
B.1 Consultationlog	It is noted that Tharawal LALC is not listed in the last section underthe heading Menangle AHMP – Draft AHMP.	Clarify whether Tharawal LALC sent a copy of the draft AHMP for comment.	The Tharawal LALC were sent a copy of the draft AHMP for comment on the same date as all other RAPs. This was a typographical error.
Appendix B	The LEC Notice of Orders includesthe requirements for a number of other environmental plans to be prepared. How do these other plans interact with the AHMP? Is there a need to broaden the AHMPassessment and further surveys toincorporate any of the onsite works	Outline if and how the AHMP interacts with other environmentalplans.	<p>The AHMP primarily interacts with the Biodiversity and Rehabilitation Management Plan (BRMP) as it will involve vegetation removal and soil disturbance within the Stage 8 restoration area. The AHMP will also apply to any other ground disturbance proposed under other plans if such activities have the potential to harm Aboriginal objects.</p> <p>Note that management plans that detail ground disturbance in the Stage 8 extraction area require to adhere to unexpected finds protocols.</p>

AHMP section	Issue/ Comment	Action required	Response
	that may be required to be undertaken for these plans?		Note that management plans that detail ground disturbance in the Stage 8 restoration area must consider whether the additional survey requirements and active management measures have been completed prior to that activity proceeding.
Consultation letter from Cubbitch Barta and EMM response	We note the concerns raised by Cubbitch Barta and the response from EMM.	Recommend other considerations be made to record oral history and cultural values of the area during future assessments. Can RAPs be involved in the rehabilitation works for the site as part of caring for country?	Refer to comment against 4.2 in this table regarding consulting with Cubbitch Barta about the identified place of significance that may be suitable for an Aboriginal place nomination. If Cubbitch Barta determine the identified place is appropriate to be nominated as a declared Aboriginal place, then Menangle Sand and Soil may seek to record oral histories as part of this application process. The quarry will employ a full-time rehabilitation specialist who will undertake most of the rehabilitation work. It is not possible to determine whether contractors (including RAPs) may be required for rehabilitation works at this stage.



Appendix D

Plan approval





Mr Mark Hutcheson
Operations Planning Support Manager
Benedict Recycling Pty Ltd
11 Narabang Way
Belrose NSW 2085

22/04/2021

Dear Mr Hutcheson

**Menangle Sand and Soil Quarry (DA85/2865)
Aboriginal Cultural Heritage Management Plan**

I refer to the Aboriginal Cultural Heritage Management Plan which was submitted in accordance with condition B62 of Schedule 2 of the development consent for the Menangle Sand and Soil Quarry (DA85/2865).

The Department has carefully reviewed the document and is satisfied that it is consistent with the relevant conditions of consent.

Accordingly, the Planning Secretary has approved the Aboriginal Cultural Heritage Management Plan (Revision 2, dated 20 April 2021). Please ensure that the approved plan is placed on the project website at your earliest convenience.

If you wish to discuss the matter further, please contact Callum Firth at callum.firth@dpie.nsw.gov.au.

Yours sincerely

A handwritten signature in blue ink, appearing to be 'LE', written over a light blue horizontal line.

Lauren Evans
A/Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary

