



**July 2023**

**Flora and Fauna Management Plan  
for  
Hodgson Quarries and Plant Pty Ltd  
Roberts Road Quarry, Maroota NSW**



Summary Table	
<b>Consent Number</b>	267-11-99
<b>Name of Quarry</b>	Robert Road Quarry
<b>Name of Quarry Operator (s)</b>	Hodgson Quarries and Plant Pty Ltd
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#### Revision Table

Date	Version	Author	Reviewed	Approved
<b>1/06/2016</b>	R0 LT Draft for Client Review	LT	MH/SR	LT
<b>20/06/2016</b>	R1 Incorporating client changes	LT	MH/SR	LT
<b>22/11/2016</b>	R2 Incorporating DPI changes	LT	MH/SR	H. Reed, Director Resource Assessments. 9/12/16
<b>14/12/2017</b>	R3 Updated for OEMP 2017	LT	MH/SR	Minor changes not requiring Secretary approval
<b>26/07/2018</b>	R3- review following Annual Review 2017 acceptance. No changes	LT		
<b>July 2019</b>	R3- Reviewed, no changes			
<b>July 2020</b>	R3- Reviewed, no changes			
<b>July 2021</b>	R3- Reviewed, no changes			
<b>July 2022</b>	R3- Reviewed, no changes			
<b>21/07/2023</b>	R4 Updated due to Mod 4 approval and IEA	LT/TO	Draft for client review	

**NOTE** – This is a tracked version – with changes from version R3 given in **blue text**.

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# Contents

1	Introduction	1
1.1	Site Description	1
1.2	Activities	1
1.3	Scope	1
2	Objectives	2
3	Targets	2
4	Statutory Requirements	2
4.1.1	Department of Planning and Environment	2
4.2	Consultation and Review	5
5	Existing Baseline	6
5.1	Flora	6
5.2	Fauna	7
6	Proposed Final Land Uses	7
7	Management and Mitigation Measures	7
7.1	Flora Management	7
7.2	Fauna Management	7
8	Performance and Completion Criteria	7
9	Monitoring	9
9.1	Monitoring Approach	9
10	Emergency Response	12
11	Reporting	12
11.1	Incidents and Non-Compliances	12
11.2	Complaints	12
12	Review	13
13	Responsibility	13
14	References	14

## Tables

Table 1.	Relevant Consent Conditions	2
Table 2.	Flora and Fauna Management Plan Consultation	5
Table 3.	DPE 2021 Rehabilitation Inspection Actions	6
Table 4.	Performance and Completion Criteria and Triggers to Assess the Effectiveness of Flora and Fauna Management Measures	8
Table 5.	Monitoring of flora and fauna management measures timing, frequency and methodology	10

## Appendices

Appendix A	Consultation and Approvals
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# 1 Introduction

Hodgson Quarries and Plant Pty Ltd are obliged to prevent and minimise harm to the environment throughout the life of the project. All practicable measures will be taken to prevent and minimise harm that may result from the construction, operation and decommissioning of the development.

All activities on the site, including those undertaken by contractors and sub-contractors will be carried out generally in accordance with the EIS, Modifications 1 to 4 and the conditions of the development consent. This plan will be implemented to ensure that all activities on the premises will be carried out in a manner that will minimise disturbance and maximise rehabilitation at the premises.

## 1.1 SITE DESCRIPTION

Hodgson Quarries and Plant Pty Ltd (the client) operate a sand quarry on Roberts Road at Maroota, NSW. The site comprises lots 1 and 2 DP 228308 and lot 2 DP 312327 in The Hills Shire Council (see Figure One in the OEMP). The development application number 267-11-99 was for extraction and on-site processing of sand, clay, and pebble; and construction of a bund wall.

The development has been in operation continuously since the 1970's. [This Flora and Fauna Management Plan is intended to be included in, and read in conjunction with, the OEMP.](#) ~~A modification to the consent approved in March 2016 has triggered a review of the Operational Environmental Management Plan, and all management sub-plans included within the OEMP~~

## 1.2 ACTIVITIES

The site has been operational since the 1990's and construction of a water supply dam commenced in or around the 1970's. The site was formerly known as Sun-A-Rise Quarry, where construction of a water supply dam commenced around 1970. Consent from the Minister for Urban Affairs and Planning was granted for extraction and processing of sand, clay and pebble material in 2000 and the continued construction of the dam which is located on the northern boundary of the site. The original consent was modified in November 2000, August 2015, ~~and March 2016~~ [and August 2021](#). Hodgson Quarry and Plant Pty Ltd (the client) took over operations on the site in 2004. The site has consent to extract until [31 May 2030 under the Mod 4 Consent](#). ~~31st May 2025~~ with rehabilitation to be completed within six months of completion of extraction.

Sand and sandstone are extracted using excavators and/or dozers. The material is then washed, stockpiled and transported. The hours of operation are:

- Construction: 7:00am to 6:00pm Monday to Friday
- Extraction and Processing: 7:00am to 6:00pm Monday to Friday and 7:00am to 1:00pm Saturdays
- Vehicle loading: 6:00am to 6:00pm, Monday to Friday and 6:00am to 1:00pm on Saturdays.

No works occur on Sundays or Public Holidays. Truck movements are limited to [70 outbound and 70 inbound per day and does not exceed 10 outbound and 10 inbound per hour \(Condition 52 Mod 4\)](#). ~~100 movements per day (50 laden truck movements) and 20 movements per hour (10 laden truck movements).~~

## 1.3 SCOPE

This Flora and Fauna Management Plan has been prepared by VGT Pty Ltd in conjunction with NGH Environmental Pty Ltd as part of the Operational Environmental Management Plan (OEMP) for the site.

[The current Mod 4 consent was approved 13<sup>th</sup> August 2021 and this plan has been updated to comply with the new conditions.](#)

~~This version has been updated for inclusion in the 2017 OEMP.~~

## 2 Objectives

To protect known threatened flora species on the site and ensure correct procedures are applied in the event of other threatened flora or fauna species being located on the site.

## 3 Targets

- Inspections of site flora and fauna to show minimal impacts from operations.
- Consider the post extraction land use in the management and maintenance of conserved and rehabilitated vegetation.

## 4 Statutory Requirements

### 4.1.1 Department of Planning and Environment

Development consent issued by Minister for Urban Affairs and Planning (File No. S98/00772) issued 31 May, 2000, as modified 29/11/2000, 18/8/2015, ~~and~~ 18/3/2016 and 13/8/2021. The full consent is given in Appendix A of the EMS.

In particular, this report will address the following conditions from Schedule 2:

*Table 1. [Relevant Consent Conditions](#)*

Consent Condition	Where Addressed
<b>Flora and Fauna</b>	-
55. The applicant shall not clear the strip of remnant vegetation along the southern fence line (Old Northern Road) and the vegetation to the north of the site entrance (Roberts Road) containing Blue Mountains Mahogany ( <i>Eucalyptus notabilis</i> ). This area shall be fenced off to prevent vehicles entering the area.	Section 5.1
56. In construction of the bundwalls at the corner of Roberts Road and Old Northern Road, the applicant shall minimise disturbance to the existing native vegetation.	Section 6.1
<b>Flora and Fauna Management Plan</b>	
57. The Applicant shall prepare a Flora and Fauna Management Plan as part of the EMP. The Plan shall be prepared in consultation with National Parks and Wildlife Service and Council, and shall:	This Plan
(a) describe the characteristics and location of species, populations and communities that the proposal may impact upon;	Section 5
(b) consider the feasibility and practicality of salvaging trees removed for the development for relocation to conserved or rehabilitated areas, for the purposes of reconstructing habitat for ground fauna;	Section 5.1
(c) contain a program for the active management and maintenance of all conserved and rehabilitated vegetation (as detailed in the EIS and required under this Consent) including consideration of:	Section 6, Section 7, Section 8
<ul style="list-style-type: none"> <li>• post-extraction land use objectives for the site;</li> </ul>	See the Landscape and Rehabilitation Management Plan & Section 6

Consent Condition	Where Addressed
<ul style="list-style-type: none"> <li>• utilisation of local endemic species or species naturally occurring in the Maroota area;</li> </ul>	<p>Section 7.1</p> <p>See the Landscape and Rehabilitation Management Plan</p>
<ul style="list-style-type: none"> <li>• planting around the conservation area to further buffer this area and enhance its long-term viability as a bushland ecosystem;</li> </ul>	<p>Section 7</p>
<ul style="list-style-type: none"> <li>• connection of existing areas and future areas of revegetation to form a network of wildlife corridors throughout site and to adjoining lands to facilitate species recruitment through natural immigration;</li> </ul>	<p>Section 7</p>
<ul style="list-style-type: none"> <li>• provision of rocks of varying sizes to provide refuge and basking sites for herpetofauna;</li> </ul>	<p>Section 7</p>
<ul style="list-style-type: none"> <li>• fencing of revegetated areas to prohibit grazing by stock; and</li> </ul>	<p>Section 7</p>
<ul style="list-style-type: none"> <li>• provision of artificial nest boxes for a range of arboreal fauna.</li> </ul>	<p>Section 7</p>
<p>(d) mitigation measures to be implemented should operations compromise the significant flora and fauna communities identified in the EIS;</p>	<p>Section 7</p>
<p>(e) an ongoing monitoring program of the existing and proposed revegetated areas to assess their floristical structure and diversity, resilience and robustness to disturbance, and fauna species diversity. The information obtained from the monitoring shall be used to guide future revegetation and management efforts; and</p>	<p>Section 7, Section 8 and Section 9</p>
<p>(f) include detailed performance and completion criteria for evaluating the performance of the flora and fauna management measures and rehabilitation of the site, including triggers for any necessary remedial action. “</p>	<p>Section 8</p>
<p><b>Management Plan Requirements</b></p>	<p>-</p>
<p>65. The Applicant shall ensure that the management plans required under this Consent are prepared in accordance with any relevant guidelines, and include:</p>	<p>-</p>
<p>(a) detailed baseline data;</p>	<p>Not applicable</p>
<p>(b) a description of:</p>	<p>-</p>
<ul style="list-style-type: none"> <li>• the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> </ul>	<p>Section 2</p>
<ul style="list-style-type: none"> <li>• any relevant limits or performance measures/criteria;</li> </ul>	<p>Section 7</p>
<ul style="list-style-type: none"> <li>• 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;</li> </ul>	<p>Section 7</p>

Consent Condition	Where Addressed
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	<a href="#">Section 4</a> , <a href="#">Section 5</a> , <a href="#">Section 6</a> , <a href="#">Section 8</a> , <a href="#">Section 9</a> , <a href="#">Section 11</a> and <a href="#">Section 12</a>
(d) a program to monitor and report on the:	-
<ul style="list-style-type: none"> <li>• impacts and environmental performance of the development;</li> </ul>	<a href="#">Section 8</a> and <a href="#">Section 11</a>
<ul style="list-style-type: none"> <li>• effectiveness of any management measures (see c above);</li> </ul>	<a href="#">Section 8</a> and <a href="#">Section 11</a>
(e) a contingency plan to manage any unpredicted impacts and their consequences;	<a href="#">Section 9</a>
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	<a href="#">Section 12</a>
(g) a protocol for managing and reporting any:	-
<ul style="list-style-type: none"> <li>• incidents;</li> </ul>	<a href="#">Section 11</a>
<ul style="list-style-type: none"> <li>• complaints;</li> </ul>	<a href="#">Section 11</a>
<ul style="list-style-type: none"> <li>• non-compliances with statutory requirements; and</li> </ul>	<a href="#">Section 11</a>
<ul style="list-style-type: none"> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul>	<a href="#">Section 11</a>
(h) a protocol for periodic review of the plan.	<a href="#">Section 12</a>

## 4.2 CONSULTATION AND REVIEW

The Flora and Fauna Management Plan has been prepared in consultation with National Parks and Wildlife Service (OEH) and Council. The OEH has also been consulted regarding the site and the Flora and Fauna Management Plan. A response was received in June 2016 stating that the OEH had insufficient resources to review the plan (see *Appendix A*). Hills Shire Council responded with the comments detailed in *Table 2* and included in *Appendix A*

The following summarises the consultation undertaken in preparation of this report.

**Table 2.** *Flora and Fauna Management Plan Consultation*

Date	Originator	Recipient	Description	Where addressed in this Plan
19/10/2016	VGT	The Hills Shire Council	<p>Correspondence received from the Hills Shire Council providing comment on the Flora and Fauna Management Plan as follows:</p> <ol style="list-style-type: none"> <li>1. Additional information is required to be provided on Part (c), dot point 3, in regard to planting around the conservation area.</li> <li>2. Additional information is required to be provided on Part (c), dot point 4, in regard to improving connectivity of existing and future vegetation. In this regard the information provided refers only to separation distances between vegetation and does not adequately address how areas will be linked, actions required to be undertaken such as additional planting, and on-going management.</li> <li>3. Additional information is required to be provided on Part (d) in regard to on-going management in respect to timing and frequency and monitoring methods. The monitoring should be specific in respect to timing, frequency, time spent on the site, number of persons undertaking the monitoring, how the random meander techniques will be undertaken and similar.</li> </ol>	<p>Detailed in the Landscape &amp; Rehabilitation Plan 2017</p> <p>Section 9 (monitoring program)</p>

A Rehabilitation Inspection was undertaken on the site on 2<sup>nd</sup> June 2021 by the DPE and in correspondence dated 29<sup>th</sup> of July 2021 from the DPE, the following actions were required to be undertaken in relation to flora and fauna.

Table 3. DPE 2021 Rehabilitation Inspection Actions

Item	Section where Addressed
<p><b>Conduct a weed survey of the site, and provide evidence of compliance to the Department with the following:</b></p> <ul style="list-style-type: none"> <li>Section 7, Table 33 of the approved Landscape and Rehabilitation Plan (LRP) - Rehabilitation Objectives and Completion Criteria, with specific reference to weed cover and weed prevention percentages present on the site;</li> <li>Section 8.7 of the LRP - The Monitoring and Maintenance Schedule for weeds on the site;</li> <li>Section referenced: 8 Appendix, Appendix D of the Annual Biodiversity Monitoring Report 2020 (at Appendix J of the Annual Review 2020 - <i>Flora Monitoring Results</i>) which tables the recommended weed control methods for the site for each month of the year.</li> </ul> <p>The Department requests a progress update on the above issues to be submitted via the Major Projects Portal by 27 August 2021, and then an annual update in the site's Annual Review until all actions have been completed.</p>	<p>A Biodiversity Report <sup>Ref 6</sup> was first prepared in October 2021, including assessment of weeds and has been submitted to the DPE. Annual updates on the Biodiversity Report have been prepared and submitted to the DPE.</p> <p>Monthly weed surveys are undertaken and provided to the DPE in the Annual Review.</p> <p>Section 8, Section 10</p>

An independent audit was undertaken in 2023 triggered a review of all management plans. This plan was updated to reference the Mod 4 consent and Final Landform.

## 5 Existing Baseline

The impacts on Flora and Fauna were investigated for the EIS (Nexus Environmental Planning Pty Ltd, November 1999). The latest modification did not result in any additional impacts on Flora and Fauna, and therefore the original Assessment of Impacts on Flora and Fauna, prepared in August 1999 remains the baseline study, and describes the characteristics and locations of species, populations and communities that may be impacted on. The 1999 report identified *Acacia bynoeana* on the site, which have since been accepted as unlikely to be present. Conditions regarding this species have therefore been removed in this version of the Flora and Fauna Management Plan.

### 5.1 FLORA

A strip of trees occurs along the southern fence line including White Stringybark, Grey Gum, Blue Mountains Mahogany, Red Bloodwood, Rough-barker Apple and Black She-oak. Blue Mountains Mahogany has regional conservation significance.

North of the site entrance is a stand of White Stringybark, White Mahogany and a few Blue Mountains Mahogany species.

A scrubby area north of the site entrance and the stand of trees contains Yellow Tea-tree, Tick Bush, Scale-rush, Kikuyu and Whisky Grass.

The rest of the quarry site is cleared with introduced pasture and herbs.

The remnant vegetation along the southern fence line (Old Northern Road) and to the north of the site entrance (Roberts Road) will be fenced or otherwise marked to prevent vehicle access.

Condition 55 b) of schedule 2 states that the feasibility and practicality of salvaging trees removed for the development for relocation to conserved or rehabilitated areas, for the purpose of reconstructing habitat for ground fauna should be considered. As shown in *Figure 2* of the EMS, there are no trees within the property that are to be removed for development purposes. The only trees within the site are located within the remnant vegetation conservation area therefore this will not occur on the site.

## 5.2 FAUNA

Suitable habitat for native fauna is very limited on the site. There are no suitable tree hollows for bats, birds and arboreal mammals. The farm dams provide some habitat for waterfowl and frogs.

## 6 Proposed Final Land Uses

As the Quarry is rehabilitated in accordance with the modified final landform (Mod 4), the Proposed Modification is likely to provide for a beneficial impact on the final land use of the Quarry Site by leaving a landform more conducive to a continuation of agricultural and horticultural activities. Furthermore, by creating a free draining landform, the availability of water to land downstream of the Quarry Site would be improved which would generate a beneficial effect on land uses downstream.

## 7 Management and Mitigation Measures

It should be noted that a program for the active management of post extraction land use objectives and planting around the conservation area is discussed in the Landscape and Rehabilitation Management Plan.

### 7.1 FLORA MANAGEMENT

- Native plant species naturally occurring in the Maroota area are to be used in rehabilitation (refer to *Landscape and Rehabilitation Management Plan*).
- Revegetated areas are to be fenced off to prevent stock entering. Fences are to be maintained and repaired when necessary.
- Existing vegetation along the southern fence line (Old Northern Road) and to the north of the site entrance (Roberts Road) is not to be cleared.
- Disturbance to existing native vegetation is to be minimised during the construction of the bund walls at the corner of Old Northern Road and Roberts Road.

### 7.2 FAUNA MANAGEMENT

- Weeds, pests and feral animals are to be controlled.
- Rehabilitated areas are to be linked to existing and future areas of vegetation where possible to form a network of wildlife corridors (refer to *Landscape and Rehabilitation Management Plan*).
- Rocks of varying sizes are to be spread over rehabilitated areas to provide ground fauna habitat and refuge.
- Branches and logs of any trees cleared on the site are to be spread within the rehabilitation areas to provide habitat for ground fauna.
- Consideration to the provision of artificial nest boxes for a range of arboreal fauna will be given during the establishment of final rehabilitation areas.

## 8 Performance and Completion Criteria

This section of the report was prepared by NGH Environmental [and is reproduced here](#). For details regarding planting and post-extraction land uses see the *Landscape and Rehabilitation Management Plan*.

The performance and completion criteria outlined below will assist in:

- Identifying whether the management measures are being successfully implemented
- Identifying triggers when remedial actions would be required.

The nominated performance and completion criteria and triggers that will be used to assess the effectiveness of the management measures implemented are provided in *Table 4*.

Table 4. Performance and Completion Criteria and Triggers to Assess the Effectiveness of Flora and Fauna Management Measures

Management Requirement	Management Measures	Performance/ Completion Criteria	Triggers for Remedial Action
<b>Flora Management</b>	1. Native plant species naturally occurring in the Maroota area are to be used in rehabilitation.	1.1 Demonstrated use of native plant species naturally occurring in the Maroota used in all progressive revegetated and rehabilitated areas. 1.2 Low mortality of plants used in progressive revegetation with 75% becoming established 3 years.	1.3 Vegetation includes non-native species. 1.4 Vegetation includes non-local species. 1.5 High mortality rate of plants used in rehabilitated area with less than 75% becoming established 3 years after planting.
	2. Revegetated areas to be fenced off to prevent stock entering.	2.1 Installation of high durability fencing, with low maintenance requirements and suitable for excluding cattle and other livestock, to be installed prior to the completion of revegetation work areas.	2.2 Adequate fence has not been installed in a timely manner.
	3. Fences are to be maintained and repaired when necessary.	3.1 Fencing surrounding revegetated and rehabilitated areas are maintained in working condition.	3.2 Fences are in disrepair and not functioning.
	4. Existing vegetation along the southern fence line (Old Northern Road) and to the north of the site entrance (Roberts Road) is not to be cleared and is to be fenced off to prevent vehicle damage.	4.1 Installation of fencing along the southern fence line and to the north of the site entrance completed during dewatering of the fines ponds and prior to the construction of the new access track. 4.2 Vegetation is retained.	4.3 Fence has not been installed to protect the native vegetation. 4.4 Clearing of native vegetation has been recorded during monitoring.
	5. Disturbance to existing native vegetation is to be minimised during the construction of the bund walls at the corner of Old Northern Road and Roberts Road.	5.1 Low evidence of native vegetation disturbance surrounding the bund walls at the corner of Old Northern Road and Roberts Road.	5.2 Disturbance of native vegetation is recorded during construction of the bund walls.
<b>Fauna Management</b>	6. Weeds, pests and feral animals are to be controlled.	6.1 Low evidence of introduction or spread of weed invasion or spread to adjacent areas. 6.2 Low evidence of pests and feral animals in and surrounding the site.	6.3 Weed cover more than 25% over a 3 year monitoring period within any given areas where revegetation has occurred. Note that non-native species purposefully planted to control erosion are excluded from this target. 6.4 Detection of an increase in the number of new pests and feral animal species within and surrounding the site.
	7. Rehabilitated areas to be linked to existing and future areas of vegetation where possible to form a network of wildlife corridors (refer <a href="#">Landscape and Rehabilitation Management Plan</a> ).	7.1 Connectivity between current and future rehabilitated areas are established adjacent to existing and future areas of vegetation. Patches are not be separated by more than 10 metres.	7.2 Distance between rehabilitated areas and existing and future vegetation patches is greater than 10 m.
	8. Rocks of varying sizes are to be spread over rehabilitated areas to provide ground fauna habitat and refuge.	8.1 Evidence of varying sized rocks between 20 mm and greater than 200 mm spread over rehabilitated areas. 8.2 Ground dwelling fauna species of similar diversity to adjacent areas of similar habitat.	8.3 No varying sized rocks between 20 mm and greater than 200 mm spread over rehabilitated areas. 8.4 Less ground dwelling fauna similar diversity compared to adjacent areas of similar habitat.
	9. Branches and logs of any trees cleared on the site are to be spread within the rehabilitation areas to provide habitat for ground fauna	9.1 Evidence of logs and other fallen timber spread over re rehabilitated areas. 9.2 Ground fauna species of similar diversity to adjacent areas of similar habitat.	9.3 No logs or any other fallen timber spread over re rehabilitated areas. 9.4 Less ground dwelling fauna similar diversity compared to adjacent areas of similar habitat.
	10. Consideration to the provision of nest boxes for a range of arboreal fauna to be installed during the establishment of final rehabilitation areas	10.1 On completion of the rehabilitation, a suitably qualified ecologist has determined the requirement on whether nest boxes are required. If nest boxes are required to be installed a nest box management plan has been prepared.	10.2 The final monitoring report on completion of the rehabilitation does not include advice on nest boxes.

## 9 Monitoring

A detailed assessment of rehabilitated areas is to be undertaken by a qualified ecologist annually to assess floristic structure and diversity, robustness and fauna species diversity. This flora and fauna monitoring program outlines the assessment and monitoring of rehabilitated areas that would be conducted to assess the performance of the management measures implemented to minimise impacts from operations. [An Annual Biodiversity Monitoring Report, based on a field survey, will be prepared and submitted to the DPE. Monthly weed management activities will also be undertaken as described in the annual monitoring report.](#)

Ecological monitoring of the management measures implemented as part of the Conditions of Approval will be conducted [by a suitably qualified person/s](#) and reported on annually for the first 3 years in areas of permanent rehabilitation [and in the flora protection areas along Roberts Road](#). After this period the monitoring program will be reviewed.

Additional ecological monitoring would also be required if monitoring results detect unforeseen issues (e.g. unexpected threatened species finds) that would require additional management measures to be implemented. Any additional monitoring would assess the performance and effectiveness of these additional management measures until such time as they are demonstrated to be effective. In this circumstance the duration and ecological monitoring methods would be determined in agreement with DPE, National Parks and Wildlife Service and Council.

*Table 5* provides the detailed ecological monitoring methodology, timing, frequency, surveys effort and data that will be collected and assessed.

### 9.1 MONITORING APPROACH

The monitoring parameters that would be collected and analysed as part of the FFMP are outlined below in *Table 5* and are specifically designed to measure the performance of the management measures outlined in *Table 4*. Data analysis will be qualitative and quantitative, comparing direct results over time and also identifying trends over time.

Table 5. Monitoring of flora and fauna management measures timing, frequency and methodology

Survey type	Performance criteria being monitored	Timing and frequency	Monitoring methods	Data to be collected
<b>Native vegetation monitoring</b>	<p>Demonstrated use of native plant species naturally occurring in the Maroota used in all progressive revegetated and rehabilitated areas.</p> <p>Low mortality of plants used in progressive revegetation with 75% becoming established 3 years after planting.</p> <p>Installation of high durability fencing, with low maintenance requirements and suitable for excluding cattle and other livestock, to be installed prior to the completion of revegetation work areas, where cattle or livestock can have access.</p> <p>Fencing surrounding revegetated and rehabilitated areas are maintained in working condition.</p> <p>Installation of fencing along the southern fence line and to the north of the site entrance completed during dewatering of the fines ponds and prior to the construction of the new access track.</p> <p>Vegetation is retained</p> <p>Low evidence of native vegetation disturbance surrounding the bund walls at the corner of Old Northern Road and Roberts Road.</p> <p>Weeds, pests and feral animals are to be controlled.</p>	<p><u>During Operations-</u> An Annual Biodiversity Monitoring Report will be prepared encompassing the whole site.</p> <p>Monthly control of weeds as detailed in the Annual Biodiversity Monitoring Report.</p> <p><u>Post Rehabilitation Works-</u> Annual spring or summer monitoring throughout the rehabilitation areas for the first 3 years in areas of permanent rehabilitation. The first monitoring session would occur in the first spring or summer season immediately after the first area of the quarry has been rehabilitated.</p>	<p><u>During Operations-</u></p> <ul style="list-style-type: none"> <li>A suitably qualified ecologist will prepare an Annual Biodiversity Monitoring Report based on a field survey.</li> <li>Weed management control measures included in the Annual Biodiversity Monitoring Report, and activities are undertaken as specified with records including date and location of activities. These reports are included in the Annual Review</li> </ul> <p><u>Post Rehabilitation Works-</u> A suitably qualified ecologist would conduct a site inspection of rehabilitated areas.</p> <ul style="list-style-type: none"> <li>The ecologist would conduct comprehensive and through surveys using the “random meander” method (Cropper 1993) to describe the existing vegetation.</li> <li>The random meander surveys would involve traversing all areas of rehabilitation to also quantify the extent of disturbance and noxious and environmental weed species present.</li> </ul>	<p>On visual inspection of each rehabilitated area, the following data would be collected:</p> <ul style="list-style-type: none"> <li>Identity and abundances of all native species present in rehabilitated areas</li> <li>Identify the extent and quantify any disturbance and /or damage to native vegetation in rehabilitated areas</li> <li>Identification and abundance of diseased, infected or mortality of native plant species in rehabilitated areas</li> </ul> <p>A visual inspection of fencing surrounding rehabilitated areas would be conducted with the following data to be recorded:</p> <ul style="list-style-type: none"> <li>Date of inspection</li> <li>Location</li> <li>The presence and / or extent of any damage to fencing that requires repair</li> <li>Detail and date that fencing repair took place (if relevant)</li> </ul> <p>Conduct visual inspection of rehabilitated areas to identify the presence and extent of noxious and environmental weed infestations with the following data to be recorded:</p> <ul style="list-style-type: none"> <li>Species of weeds identified</li> <li>Extent of infestations, % cover and abundance</li> <li>Extent of previously identified weed infestations – map if possible.</li> <li>Weed control undertaken.</li> </ul>

Survey type	Performance criteria being monitored	Timing and frequency	Monitoring methods	Data to be collected
<b>Fauna monitoring</b>	<p>Weeds, pests and feral animals are to be controlled.</p> <p>Connectivity between current and future rehabilitated areas are established adjacent to existing and future areas of vegetation. Patches are not to be separated by more than 10 metres.</p> <p>Evidence of varying sized rocks between 20 mm and greater than 200 mm spread over rehabilitated areas.</p> <p>Evidence of logs and other fallen timber spread over rehabilitated areas.</p> <p>Ground dwelling fauna species of similar diversity to adjacent areas of similar habitat.</p> <p>On completion of the rehabilitation, a suitably qualified ecologist has determined the requirement on whether nest boxes are required. If nest boxes are required to be installed a nest box management plan has been prepared.</p>	<p>Annual spring or summer-monitoring to occur throughout the full extent of the study area.</p> <p>The first monitoring session would occur in the first spring or summer season immediately after the first area of the quarry has been rehabilitated.</p>	<p>A suitably qualified ecologist would conduct site inspection of rehabilitated areas / adjacent areas of similar habitat using random meander techniques.</p> <p>The ecologist would conduct comprehensive and through surveys using the "random meander" method (Cropper 1993) to describe the habitat value of the vegetation for fauna.</p> <p>The random meander surveys would involve traversing all areas of rehabilitation to identify and quantify the extent of potential fauna habitat. e.g. dreys, dens, burrows, stick nests etc.</p> <p>If dusk or nocturnal surveys are required to determine if rehabilitated areas are used by nocturnal fauna, surveys would be conducted by two suitably qualified ecologists.</p>	<p>Searches will be conducted for signs of animal activity along each transect and would include searches of:</p> <ul style="list-style-type: none"> <li>• The base of trees for scats</li> <li>• The groundlayer and soil surface for scats and or diggings of foxes and rabbits etc.</li> <li>• Sandy and muddy areas for animal tracks</li> </ul> <p>Conduct site inspection of rehabilitated and surrounding vegetated areas to identify habitat connectivity between existing and rehabilitated vegetation patches with the following data to be recorded:</p> <ul style="list-style-type: none"> <li>• Size of rehabilitated vegetation patch</li> <li>• Distance to the nearest existing vegetation patch</li> <li>• Results would be mapped</li> </ul> <p>Conduct site survey of rehabilitated areas to identify types and abundance of habitats present, with a particular focus on rock and log habitat. Active searches for ground dwelling fauna would involve looking for active specimens within suitable rock and woody debris habitat within the rehabilitated areas and in adjacent areas of similar habitat. The survey would include:</p> <ul style="list-style-type: none"> <li>• active or basking reptiles in sunlit areas</li> <li>• sheltering fauna underneath logs and rocks, in rock crevices, under decorticating bark on trees and amongst leaf litter</li> <li>• searches of the soil surface for characteristic diggings of terrestrial mammals (e.g. echidna) and scats</li> </ul> <p>At the end of the rehabilitation period, an ecologist would survey the rehabilitated areas and determine whether or not nest boxes would be efficient at improving the habitat value of the site. This would be determined by recording and taking into account:</p> <ul style="list-style-type: none"> <li>• Abundance and size of hollows currently present within and outside rehabilitated areas</li> </ul>

## 10 Emergency Response

Should any works uncover objects they may be potentially significant to either Aboriginal or European heritage, work will cease immediately and the relevant government department (NPWS, the Heritage Office and the Local Aboriginal Land Council) will be contacted.

Should significant flora and fauna be compromised by the site operations, mitigation measures may include;

- Establishment of a buffer area around the flora/fauna species or habitat.
- Inclusion of Blue Mountain Mahogany and other Shale-Sandstone Transition Forest species in any landscape/rehabilitation planting of the site.

## 11 Reporting

Annual reporting ([Condition 66](#)) will be completed and detail the results of the monitoring. The annual report will be provided to ~~DPL~~DPE with the annual review and conditions compliance report ([Condition 6](#)) for the first 3 years.

Annual reports that assess the effectiveness of the performance and completion criteria will include the following information:

- Introduction – background description of the monitoring sessions
- Methodology – description of methodology undertaken including site location and specific survey site locations
- Results and discussion – description of monitoring results ([including weed control activities](#)) and comparison of results to performance and completion criteria over time
- Review of management measures – the effectiveness of each management measure will be reviewed (where appropriate) at the end of the monitoring period based on the whether the performance/completion have been met and whether any remedial actions have been triggered.
- Recommendations – suggestion of adaptive responses and any additional measures potentially required (where appropriate) based on the results of the monitoring session.

[An Annual Biodiversity Monitoring Report will be prepared by a suitably qualified ecologist and submitted to the DPE in the Annual Review.](#)

[Copies of this management plan, along with the complete Environmental Management Plan, will be available to Council, EPA, DPE Water and on a publicly available website within 14 days of approval by the Secretary.](#)

### 11.1 INCIDENTS AND NON-COMPLIANCES

[Any incidents, complaints, non-compliances or exceedances will be managed and reported according to the procedures outlined in the OEMP and the Pollution Incident Response Management Plan \(PIRMP\) required by the EPA and includes the following:](#)

- **Incident Notification-** [The DPE will be immediately notified and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the DA and name and set out the location and nature of the incident.](#)
- **Non- Compliance Notification-** [Within 7 days of becoming aware of a non-compliance, the DPE will be notified. The notification must be in writing via the Major Projects Website and identify the DA and name and set out the consent that the site is not compliant with, the way on 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.](#)

### 11.2 COMPLAINTS

[All complaints will be recorded in a logbook and managed in accordance with the EMP Complaints Management and Incident Response section.](#)

## 12 Review

A Flora and Fauna Management Plan (this report) has been prepared to satisfy Schedule 2 Condition 57, including a program to monitor assess their floristical structure and diversity, resilience and robustness to disturbance, and fauna species diversity and report on the effectiveness of measures developed to ensure compliance with the rehabilitation objectives, and progress towards the completion criteria.

The plan will be updated as required by Condition 67:

### ***Revision of Strategies, Plans and Programs***

*67. Within 3 months of the submission of:*

*(a) an annual review under Condition 66 above;*

*(b) an incident report under Condition 68 below;*

*(c) an audit report under Condition 70 below; or*

*(d) any modification to the conditions of this Consent (unless the conditions require otherwise),*

*The Applicant shall review, and if necessary, revise, the strategies, plans, and programs required under this Consent to the satisfaction of the Secretary.*

*Where this review leads to revisions in any such document, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised document must be submitted to the Secretary for approval.*

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

## 13 Responsibility

Plant Manager - for organising ecology/rehabilitation surveys and ensuring continued protection of threatened plant species.

Environmental Manager for ensuring the Management Plan is reviewed and updated as required.

All site staff - for undertaking activities with minimal disturbance to tree species and rehabilitated areas

## 14 References

- Ref 1 Nexus Environmental Planning Pty Ltd. (May 2015). Environmental Assessment Section 75W Mod 3.
- Ref 2 Nexus Environmental Planning Pty Ltd. (November 1999). Environmental Impact Statement.
- Ref 3 Nexus Environmental Planning Pty Ltd. (September 2015). Environmental Assessment Section 75W Mod 2.
- Ref 4 NSW Department of Planning and Environment. DA 267-11-99.
- Ref 5 NSW EPA. Environment Protection Licence 6535.
- Ref 6 [Umwelt Pty Ltd. \(December 2019\) Modification 4 Statement of Environmental Effects.](#)
- Ref 7 [South East Environmental \(October 2021 and October 2022\) Biodiversity Monitoring Report](#)
- Ref 8 VGT Environmental Compliance Solutions Pty Ltd (June 2022) Surface Water Management Plan

# Appendix A Consultation and Approvals



Lisa Thomson  
Principal Environmental Consultant  
Vgt Environmental Compliance Solutions  
PO Box 2335  
GREENHILLS NSW 2323

Dear Ms Thomson

**Roberts Road Sand Quarry (DA 267-11-99)  
Management Plans**

I refer to your email dated 25 November 2016 submitting revised management plans for the Roberts Road Sand Quarry including the:

- Noise Management Plan, dated November 2016 (condition 46, Schedule 2);
- Air Quality Management Plan, dated November 2016 (condition 29, Schedule 2);
- Construction Environmental Management Plan, dated July 2016 (condition 18, Schedule 2);
- Road Noise Management Plan, dated November 2016 (condition 48, Schedule 2);
- Flora and Fauna Management Plan, dated November 2016 (condition 55, Schedule 2);  
and
- Environmental Management Strategy, dated July 2016 (condition 63, Schedule 2).

The Department has reviewed these plans and considers that they meet the conditions of consent. As such, the Secretary has approved these plans.

The Department notes that you have also submitted the Operations Environmental Management Plan (condition 19, Schedule 5). This plan is required to include the Water Management Plan (WMP) and Rehabilitation Management Plan (RMP), which have not yet been approved by the Secretary. Consequently, the Department will await the approval of the WMP and RMP before approving this plan.

If you have any enquiries about this matter, please contact Genevieve Seed.

Yours sincerely

Howard Reed  
**Director**

9.12.16

**Resource Assessments**  
As nominee of the Secretary



## *Beyond Compliance*

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