

ANNUAL BIODIVERSITY MONITORING REPORT 2019

Prepared for Hodgson Quarries and Plant Hire Pty Ltd

August 2019 V.1



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Annual Biodiversity Monitoring Report 2019

**Hodgson Quarries and Plant Hire Pty Ltd
Roberts Road Maroota NSW**

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South East Environmental

August 2019 V.1

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Abbreviations

Abbreviation	Description
BC Act	<i>Biodiversity Conservation Act 2016</i>
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
HTW	High Threat Weed
KPI	Key Performance Indicators
KTP	Key Threatening Processes
LEP	Local Environmental Plan
NSW OEH	New South Wales Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
ONR	Old Northern Road
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
THSC	The Hills Shire Council
VIS	Vegetation Information System
WoNS	Weeds of National Significance

1 INTRODUCTION

This Annual Biodiversity Monitoring Report presents the findings of the annual monitoring of the biodiversity value within the Hodgson Quarries operation at Roberts Road Maroota.

1.1 BACKGROUND

Hodgson Quarries and Plant Hire Pty Ltd operates a sand extraction and processing operation on a 28 hectare site including Lot 1 and 2 of DP228308 and Lot 2 of DP312327 Roberts Road Maroota. The quarry operates in compliance to Development Consent File No. S98/00772 issued by the Minister for Urban Affairs and Planning in 2000.

Several modifications have been made to the Development Consent, the most recent being approved in 2016. The most recent approval triggered a review of the Operational Environmental Management Plan (OEMP) which included the update of a Flora and Fauna Management Plan. A requirement of the Flora and Fauna Management Plan as addressed in Schedule 2 Condition 55 of the consent is to develop an ongoing monitoring program for existing vegetated areas to assess their floristic structure and diversity, resilience and robustness to disturbance, and fauna species diversity.

1.2 OBJECTIVES

The objectives of this Annual Biodiversity Monitoring Report is to describe the current condition of the vegetation found throughout the site and to advise Hodgson Quarries on the appropriate management measures that should be implemented to meet the expectations of the Flora and Fauna Management Plan (2016) prepared by VGT Pty Ltd.

This report will:

- identify native flora and fauna species, populations and ecological communities known to or likely to occur within the site;
- describe the native vegetation and habitats within the site;
- describe the current condition of the threatened flora and its habitat found within the site;
- determine the legislative and conservation significance of species, populations and ecological communities known or likely to occur within the site with reference to the Commonwealth *EPBC Act 1999* and the *NSW BC Act 2016*;
- recommend appropriate biodiversity and environmental management measures that should be implemented to reach criteria for monitoring success set by the Flora and Fauna Management Plan for the Sand Quarry, Roberts Road Maroota, NSW (2016);
- provide an independent monitoring report for inclusion as part of the external reporting for the quarry Annual Review.

2 METHODOLOGY

2.1 SITE HISTORY

2.1.1 Agricultural use

Much of the undisturbed area on the Roberts Road quarry site is agricultural land which currently supports beef cattle. Approximately 9 hectares is currently in use for this purpose, with approximately 0.5 hectares currently under active rehabilitation within the agricultural land area as will be discussed further in this report.

The remaining vegetation within the agricultural land area has had ongoing disturbance over many years which has including timber removal, livestock grazing and fruit orchards. As a result, exotic weed species are prolific and at times dominate the landscape. Farm dams have been dug which once provided irrigation to the fruit orchards and now provide water to livestock. They also provide a water source for native and exotic species that occur in the immediate area.

2.1.2 Remnant native vegetation

An area immediately north of the entrance gate along Roberts Road contains remnant native vegetation which has been excluded from the sand extraction operational area. Although this area shows signs of past disturbance, it remains relatively intact and appears to be supporting a reasonable diversity of native flora and fauna given its small size of approximately 1 hectare.

The remnant native vegetation consists of a Sandstone Gully Forest type which was most likely once a moist open forest at the head of the catchment for Coopers Creek further to the north. This vegetation type would have supported several species of canopy tree which were likely to have been harvested for fence post timber in the early European settlement era. Remaining canopy species are most likely regrowth from a clearing event in the early 1900's and provide ample protection for the lower stratum. Fencing to exclude livestock has improved the ability for native species, particularly the ground cover stratum, to flourish.

2.1.3 Threatened flora habitat

An area in the north eastern corner of the site contains a threatened flora species which has previously been identified and monitored. The area where this species has been located has had severe disturbance in the past from clearing, grazing and most recently the sand quarry operations.

The area immediately surrounding the threatened species consists of pushed up crushed sandstone material which has resulted in an extremely compacted ground surface. Native shrubs from the soil seed bank and surrounding areas are becoming established despite the harsh growing conditions. It is expected that over time without intervention this area will establish as an extension of the remnant native vegetation adjacent although the plant community type may remain different indefinitely.

2.2 FIELD SURVEY

Botanical surveys of the study area were conducted during July 2019. The survey consisted of a random meander throughout the areas of the property not in current use by quarry operations.

A targeted threatened flora survey was undertaken to locate *Acacia bynoeana* onsite. All flora species recorded are listed in Appendix A of this report.

Opportunistic sightings were also undertaken for indirect evidence of native fauna, including scratches, scats, nests, hollows in use, camps, roosts, den sites etc. Opportunistic sightings of all fauna species were recorded throughout the survey period.

No previous records of threatened fauna have been located onsite therefore no targeted threatened fauna survey was undertaken for this report.

2.3 CRITERIA TO MONITOR SUCCESS

VGT Pty Ltd 2016 have outlined the Key Performance Indicators (KPI) to measure success of the biodiversity and rehabilitation effort of the flora and fauna management within the Roberts Road quarry site. The following tables depict the performance and completion criteria for the site.

Table 1. Performance and completion criteria for Roberts Road quarry (taken from VGT Pty Ltd 2016)

<i>Performance Criteria being monitored</i>	
<i>Native Vegetation monitoring</i>	Demonstrated use of native plant species naturally occurring in the Maroota area used in all progressive revegetated and rehabilitated areas.
	Low mortality of plants used in progressive revegetation with 75% becoming established 3 years after planting.
	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.
	Fencing surrounding revegetated and rehabilitated areas are maintained in working condition.
	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.
	Vegetation is retained.
	Low evidence of native vegetation disturbance surrounding the bund walls at the corner of Old Northern Road and Roberts Road.
<i>Fauna Monitoring</i>	Weeds, pests and feral animals are to be controlled.
	Weeds, pests and feral animals are to be controlled.
	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.
	Evidence of varying sized rocks between 20mm and greater than 200mm spread over rehabilitated areas.
	Evidence of logs and other fallen timber spread over rehabilitated areas.
	Ground dwelling fauna species of similar diversity to adjacent areas of similar habitat.
	On completion of the rehabilitation, a suitably qualified ecologist has determined the requirement on whether nest boxes are required. If nest boxed required to be installed a nest box management plan has been prepared.

2.4 SURVEY LIMITATIONS

The survey was conducted within a short timeframe during winter. Therefore some plant species may not have been identified due to the survey being performed when not in flower, or when dormant. It is noted that some flora species are seasonal, and may not have been visible at the time of the surveys. In addition to this, extreme dry weather conditions have been persistent for more than 18 months leading up to the survey period. Some species may therefore appear to be dead or dormant when they otherwise would not.

The survey limitations have been addressed through:

- consideration of flora and fauna species known to occur in the locality (including number of records from BioNet);
- consideration of habitat suitability present within the study areas and connectivity to other areas of habitat in the local landscape;
- consideration of current weather conditions;
- A conservative approach in assuming the presence of a species that could potentially be present in the study areas.

Where the study area contains potential habitat for threatened fauna species known to occur in the locality, and where survey areas support a likelihood of occurrence, it has been assumed on a conservative approach that such species may occur in the study area.

3 RESULTS

Results from the field surveys conducted over July 2019 have been separated into three distinct areas to enable quantification of condition for each specific location and its monitoring objectives.

3.1 REMNANT NATIVE VEGETATION

The remnant native vegetation is a disturbed patch of native dominant species located in the north eastern corner of the property. The condition of the remnant area can be further divided into two separate areas as determined by disturbance level and the current soil profile available for flora species.

3.1.1 Immediately north of Roberts Road site entry gate

The remnant native vegetation within this area has a mature canopy of Eucalyptus and Angophora species. Lower stratum are present including midstorey canopy, shrubs and ground cover. The exclusion of livestock grazing within this area has resulted in an increase of native ground cover species which over time will contribute to a much richer biodiversity value.

Biodiversity functional attributes such as size class of canopy species, litter cover, fallen timber and natural regeneration of species occurring is present within the area. Such attributes are likely to increase over time providing disturbance remains excluded within the area.



Figure 1. Remnant vegetation located immediately north of Roberts Road site entry gate.

3.1.2 North eastern corner

The remnant vegetation within the area of the far north eastern corner of the site has undergone past disturbance which has left the canopy broken. Eucalyptus and Angophora species are recovering throughout much of the area however the mature specimens are spaced apart providing little in canopy protection to the stratum below. The shrub stratum in this area is dominant and in some areas almost impenetrable. In other areas the shrub stratum is sparse and bare ground occurs.

Leaf litter is abundant throughout most of this area however fallen timber and size class of canopy species is limited.



Figure 2. Remnant vegetation located in the north eastern corner of the site.

3.2 AGRICULTURAL LAND

3.2.1 Roberts Road Boundary

Exotic grasses dominate the agricultural land along Roberts Road. Perhaps due to the large bund wall which provides protection from the hot westerly sun, some native grass species are present including Three-awned Speargrass *Aristida vagans*, Slender Rat's Tail Grass *Sporobolus creber* and Weeping Grass *Microlaena stipoides*. Agricultural weeds occur within the area although they are not considered to be dominant within the landscape. No Weeds of National Significance (WoNS) were identified to occur.

Native species have been planted on a bund wall bordering Roberts Road and Old Northern Road within this area.



Figure 3. Agricultural land between Roberts Road and extraction area.

3.2.2 Old Northern Road Boundary

This area of agricultural land is dominated by exotic grass species suitable for livestock grazing. Some agricultural weed species occur although they do not dominate the landscape. A WoNS species, Fireweed *Senecio madagascariensis*, was observed in low density within this area. The Common Eastern Toadlet *Crinia signifera* was heard calling from the large dam adjacent to Old Northern Road along the western boundary.



Figure 4. Agricultural land adjacent to Old Northern Road

3.2.3 North western corner

A plant nursery is established in the far north western corner of the site. The nursery makes use of water in the farm dams located on site. The agricultural land directly to the east of the nursery site is dominated by exotic grass species suitable for livestock grazing. No WoNS were identified to occur in this location although it may be possible that Fireweed *Senecio madagascariensis* occurs. The Common Eastern Toadlet *Crinia signifera* was heard calling along the neighboring property fence line to the north.



Figure 5. Agricultural land towards the north western corner. Nursery can be seen in rear of photo

3.3 PLANTED NATIVE VEGETATION

3.3.1 North of Roberts Road entrance gate

Bottlebrush *Callistemon* species have been planted along the eastern boundary of the property adjacent to the existing native vegetation. These shrubs are well established and provide a screen to Roberts Road. The shrubs provide habitat for small birds and food resources for a range of mammals, birds and invertebrate.



Figure 6. Bund wall immediately north of Roberts Road site entrance

3.3.2 Old Northern Road

The southeastern corner and southern boundary of the site has small bund walls with planted native trees and shrubs. The trees along Old Northern Road have required pruning due to their close proximity to electrical power lines. As a result some of the trees have perished. There is no fencing excluding livestock from these areas which may have impacted upon the success of the planting and the lack of vigor demonstrated by the remaining plants.



Figure 7. Planted native vegetation along Old Northern Road

3.3.3 Northern Boundary

A variety of Bottlebrush *Callistemon* species have been planted in two locations along the northern boundary of the property. This planting appears to have been undertaken in the past 12 months. Exclusion fencing has been undertaken and success to date appears to be high. There were two WoNS species present along the fence line of the neighboring property, Lantana *Lantana camara* and Blackberry *Rubus fruticosus sp. aggregate*.



Figure 8. Planted native vegetation along northern property boundary

3.4 THREATENED FLORA

A single threatened flora species was previously identified within the property boundary. During the site survey in July 2019 the *Acacia bynoeana* was located and identified onsite within the verge of the remnant native vegetation area and the sand quarry operational area. The plant was approximately 250mm high, 300mm in diameter with multi-stems which were all healthy and had ample foliage. There were no flowers on the plant however carpels from last season's fruit were located beneath the plant indicating the plant has reached reproductive maturity. The location of the plant is marked with permanent posts nearby. Livestock are excluded from the area by electric fencing.

NSW OEH plant profile describe the habitat for the *Acacia bynoeana* as:

- Occurs in heath or dry sclerophyll forest on sandy soils;
- Seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches; and
- Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple.

The location in which this plant occurs is a spoil mound pushed up from the silt pond adjacent. There is no canopy nearby which can be associated with the habitat.



Figure 9. *Acacia bynoeana* identified and located onsite

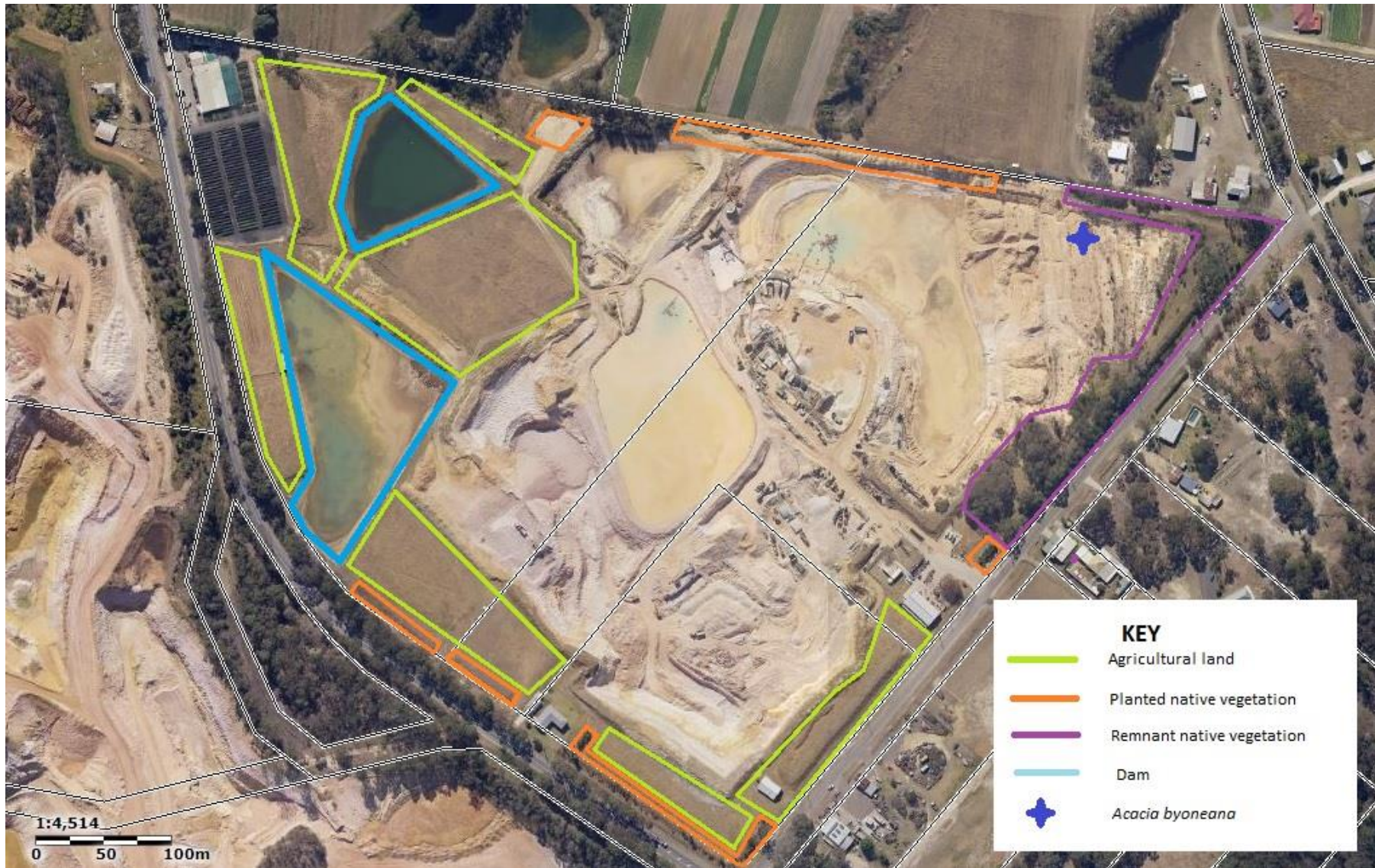


Figure 10. Location of vegetation zones within the Hodgson Quarries Roberts Road site

3.5 NATIVE FAUNA

There was no dedicated native fauna survey undertaken for this report. No threatened fauna species have been previously identified within the property and limited resources would suggest there is a low possibility of threatened fauna species residing within the property boundary.

During the botanical survey in July 2019 opportunistic sightings of native fauna were recorded. In total 15 native species were recorded onsite and one nest, most likely that of an Australian Magpie. No threatened fauna species were identified or recorded. Complete list of fauna observed can be found in Appendix C.

Overall the condition of habitat for native fauna species within the property is considered to be low in its current state. The remnant native vegetation areas currently have the most habitat value to support a range of native fauna species however this area is small and not likely to be large enough to support any viable population. Connectivity to native vegetation in all directions is broken due to road easements or surrounding agricultural land use.

4 DISCUSSION AND RECOMMENDATIONS

This is the second Annual Biodiversity Monitoring Report produced for Hodgson Quarries Roberts Road Maroota. Rehabilitation work is in the early stages and will increase with both intensity and measurable criteria in the years that follow, particularly as the quarry operations come to an end.

Due to the ongoing dry weather conditions which have persisted from mid 2017, throughout 2018 and into 2019 a reduction in ground cover herbaceous flora is thought likely to have occurred throughout all native vegetation sites monitored. Forbs and ferns were not well represented, even in plant communities in which they would normally occur in higher density, such as the remnant native vegetation immediately north of the Roberts Road site entrance. It is therefore expected following a return to average weather conditions this stratum layer will demonstrate the biggest increase in density and diversity. If dry conditions continue through to the following annual reporting period it may be expected that this layer could almost completely disappear in some areas and a reduction in shrub diversity and density could also take place.

However, it would appear that some natural native regeneration from the soil seed bank is occurring throughout much of the remnant native vegetation areas. Fencing to exclude livestock has occurred which has most likely assisted in the ability for natural regeneration to occur undisturbed. Fencing has also taken place in planted areas along the northern property boundary where planting success, at least for the moment, is high.

Weeds are present within the remnant native vegetation with WoNS occurring in low density. High Threat Weeds (HTW), as determined by the OEH BAM Calculator, are also present although most of these weeds can be found within the agricultural land area. It is highly recommended these weeds are managed before the return to average rainfall conditions so as to maintain control of their growth and spread. Furthermore, Fireweed which is a common agricultural weed throughout the Sydney basin and surrounding areas was identified within the agricultural land areas. Regular sweeps for Fireweed is recommended throughout the year to minimise the further spread and density of this weed throughout the property. Recommended weed control methods suitable for use throughout the year is supplied in Appendix D.

5 LIMITATIONS AND ASSUMPTIONS

This study was limited by the timing and frequency of the survey. There may be flora and/or fauna species present at the site that were not recorded due to their seasonal, territorial or cryptic nature.

It can never be proven that threatened species have not, do not or will not use the site as habitat. The conclusions drawn in this report are a result of testing, observation and experience.

This report describes the habitat and vegetation of the site at the time of the field survey. Vegetation and habitat will change over time and therefore the findings of this report are only relevant for the current proposal and for the duration of the application.

6 QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR AND FIELD ECOLOGIST

The Author and Field Ecologist, Melissa Mass, has formal qualifications including a Bachelor of Applied Science (B. App. Sc.), majoring in Ecology, and a Certificate 3 in Horticulture. Her current Scientific Licence number issued from the NSW OEH is SL101441 with expiry date 31st Oct 2018. Furthermore an Animal Research Authority issued by the NSW Animal Care and Ethics Committee is current to undertake general survey work in THSC local government area with expiry date 23rd Mar 2021. Melissa is an accredited Biodiversity Assessor conforming to the requirements as imposed by OEH with Accreditation number being BAAS18053.

Melissa has been working as an Ecologist for 11 years. Her work has included targeted threatened species assessment and management, reviews of environmental factors, bush regeneration, environmental impact assessments, and environmental survey and monitoring.

Melissa has a strong focus on threatened species ecology and has actively contributed to the Long-nosed Potoroo National Recovery Plan.

7 BIBLIOGRAPHY

Australian Government Com Law. 2014. *Environment Protection and Biodiversity Conservation Act 1999*. [ONLINE] Available at: <http://www.comlaw.gov.au/Details/C2014C00506> [Accessed 15th July 2019].

Australian National Herbarium. 2012. Australia's Virtual Herbarium. [ONLINE] Available at: <http://avh.chah.org.au/> [Accessed on 16th July 2019].

Department of Environment and Climate Change NSW. 2008. Recovery Plan for the Koala (*Phascolarctos cinereus*). [ONLINE] Available at: <http://www.environment.nsw.gov.au/resources/threatenedspecies/08450krp.pdf> [Accessed 16th July 2019].

Department of Lands Spatial Information Exchange. 2014. SIX Maps. [ONLINE] Available at: <http://maps.six.nsw.gov.au/> [Accessed 14th July 2019].

Menkhorst P. & Knight F. 2004. A Field Guide to the Mammals of Australia, 2nd Edition. Oxford University Press, South Melbourne Vic.

New South Wales Consolidated Acts. 2017. *Biodiversity Conservation Act 2016*. [ONLINE] Available at: [https://www.legislation.nsw.gov.au/~view/act/2016/63](https://www.legislation.nsw.gov.au/~/view/act/2016/63) [Accessed 16th July 2019].

NSW Office of Environment and Heritage. 2018. *NSW BioNet*. [ONLINE] Available at: <http://www.bionet.nsw.gov.au/> [Accessed 16th July 2019].

NSW Office of Environment and Heritage. 2018. *NSW BioNet Vegetation Classification*. [ONLINE] Available at: <https://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx> [Accessed 26th July 2019].

New South Wales Office of Environment and Heritage 2018. *NSW Threatened Species Profiles*. [ONLINE] Available at: <http://www.environment.nsw.gov.au/threatenedspecies/> [Last accessed 26th July 2019].

New South Wales National Parks and Wildlife Service (2002) Interpretation Guidelines for the Native Vegetation Maps of the Cumberland Plain, Western Sydney, Final Edition NSW NPWS, Hurstville.

PlantNet. 2018. Royal Botanic Gardens and Domain Trust, Sydney. [ONLINE] Available at: <http://plantnet.rbgsyd.nsw.gov.au> [Last accessed 16th July 2019].

Readers Digest. 1998. Readers Digest Complete Book of Australian Birds, 2nd Edition. Readers Digest, Surry Hills NSW.

Simpson K., Day N. & Trusler P. 2004. Field Guide to the Birds of Australia, 7th Edition. Penguin Group, Camberwell Vic.

Strahan R. 1996. A Photographic Guide to Mammals of Australia. New Holland Publishers, Frenchs Forest NSW

The Hills Shire Council (2014) *The Hills Local Environmental Plan 2012*. [ONLINE] Available at <http://www.thehills.nsw.gov.au/IGNITIONSuite/uploads/docs/LEP%202012%20document.pdf> [Last accessed 16th July 2019].

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, and Cox S. 2010. *Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands*. *Cunninghamia* (2010) 11(3): 359-406

VGT Environmental Compliance Solutions Pty Ltd. 2018. Landscape and Rehabilitation Plan for the Sand Quarry, Roberts Rd Maroota, NSW. Unpublished Report.

VGT Environmental Compliance Solutions Pty Ltd. 2018. Operational Environmental Management Plan for the Sand Quarry, Roberts Rd Maroota, NSW. Unpublished Report.

VGT Pty Ltd & NGH Environmental. 2016. Flora and Fauna Management Plan for the Sand Quarry, Roberts Rd Maroota, NSW. Unpublished Report.

8 APPENDIX

Appendix A – Native Flora identified and recorded as present onsite July 2019

Scientific Name	Common Name	Status
<i>Acacia bynoeana</i>	Bynoe's Wattle	BC Act – Endangered EPBC Act – Vulnerable
<i>Acacia linifolia</i>	White Wattle	
<i>Acacia myrtifolia</i>	Red-stemmed Wattle	
<i>Acacia parramattensis</i>	Parramatta Wattle	
<i>Acacia suaveolens</i>	Sweet Wattle	
<i>Acacia ulicifolia</i>	Prickly Moses	
<i>Allocasuarina paludosa</i>	Swamp She-oak	
<i>Allocasuarina torulosa</i>	Forest Oak	
<i>Amyema congener</i>	Variable Mistletoe	
<i>Angophora bakeri</i>	Narrow Leaved Apple	
<i>Angophora costata</i>	Smooth Barked Apple	
<i>Anisopogon avenaceus</i>	Oat Speargrass	
<i>Aristida vagans</i>	Three-awn Speargrass	
<i>Aristida warburgii</i>	Fine leafed wire grass	
<i>Blechnum cartilagineum</i>	Gristle Fern	
<i>Breynia oblongifolia</i>	Coffee Bush	
<i>Callistemon citrinus</i>	Crimson Bottlebrush	
<i>Cassytha pubescens</i>	Devils Twine	
<i>Cyathea australis</i>	Rough Tree Fern	
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	
<i>Dianella caerulea</i>	Blue Flax-lily	
<i>Dichelachne micrantha</i>	Shorthair Plumegrass	
<i>Dodonaea triquetra</i>	Large Leaf Hop Bush	
<i>Einadia hastata</i>	Berry Saltbush	
<i>Eucalyptus acmenoides</i>	White Mahogany	
<i>Eucalyptus eugeniodides</i>	Thin Leaved Stringybark	
<i>Eucalyptus notabilis</i>	Mountain Mahogany	
<i>Eucalyptus tereticornis</i>	Forest Red Gum	
<i>Eucalyptus umbra</i>	Broad-leaved White Mahogany	
<i>Euchiton sphaericus</i>	Star Cudweed	
<i>Gleichenia dicarpa</i>	Pouched Coral Fern	
<i>Grevillea buxifolia</i>	Grey Spider Flower	
<i>Grevillea speciosa</i>	Red Spider Flower	
<i>Hakea teretifolia</i>	Needlebush	
<i>Juncus usitatus</i>	Common Rush	
<i>Kunzea ambigua</i>	Tick Bush	
<i>Leptospermum polygalifolium</i>	Tantoon	
<i>Lindsaea microphylla</i>	Lacy Wedge Fern	
<i>Lomandra longifolia</i>	Spiny head Mat-rush	
<i>Microlaena stipoides</i>	Weeping grass	
<i>Notelaea longifolia</i>	Large Mock Olive	
<i>Parsonsia straminea</i>	Common Silkpod	

<i>Petrophile pulchella</i>	Conesticks	
<i>Phyllota phylloides</i>	Heath Phyllota	
<i>Pittosporum undulatum</i>	Sweet pittosporum	
<i>Pteridium esculentum</i>	Bracken Fern	
<i>Senecio linearifolius</i>	Fireweed Groundsel	
<i>Sporobolus creber</i>	Slender Rat's Tail Grass	
<i>Themeda triandra</i>	Kangaroo Grass	

Appendix B – Exotic flora identified and recorded as present onsite July 2019

Scientific Name	Common Name	Status
<i>Agapanthus spp.</i>	Agapantha	
<i>Ageratina adenophora</i>	Crofton Weed	High Threat Weed (HTW)
<i>Andropogon virginicus</i>	Whisky Grass	HTW
<i>Bidens pilosa</i>	Cobblers pegs	HTW
<i>Briza minor</i>	Shivery Grass	
<i>Cestrum parqui</i>	Green Cestrum	HTW
<i>Chloris gayana</i>	Rhodes Grass	
<i>Cirsium vulgare</i>	Spear Thistle	
<i>Conyza bonariensis</i>	Flax-leaf fleabane	
<i>Cotoneaster glaucophyllus</i>	Cotoneaster	HTW
<i>Cynodon dactylon</i>	Couch Grass	
<i>Eragrostis curvula</i>	African Lovegrass	HTW
<i>Hypochaeris radicata</i>	Catsear	
<i>Lantana camara</i>	Lantana	WoNS, HTW
<i>Oxalis corniculata</i>	Creeping Woodsorrel	
<i>Paspalum dilatatum</i>	Paspalum	HTW
<i>Paspalum urvillei</i>	Vasey's Grass	
<i>Pennisetum clandestinum</i>	Kikuyu Grass	
<i>Phytolacca octandra</i>	Inkweed	
<i>Plantago lanceolata</i>	Lambs Tongues	
<i>Poa annua</i>	Winter Grass	
<i>Rubus fruticosus sp. agg.</i>	Blackberry	WoNS, HTW
<i>Senecio madagascariensis</i>	Fireweed	WoNS, HTW
<i>Setaria parviflora</i>	Slender Pigeon Grass	
<i>Sida rhombifolia</i>	Paddy's Lucerne	
<i>Solanum mauritianum</i>	Wild Tobacco Bush	
<i>Solanum pseudocapsicum</i>	Madeira Winter	
<i>Solanum sisymbriifolium</i>	Sticky Nightshade	
<i>Taraxacum officinale</i>	Dandelion	
<i>Trifolium repens</i>	White Clover	
<i>Verbena bonariensis</i>	Purpletop	
<i>Vicia sativa</i>	Common Vetch	

Appendix C – Fauna identified and recorded as present onsite July 2019

Scientific Name	Common Name	Observation Type
Bird		
<i>Anthochaera chrysoptera</i>	Little Wattlebird	Observed
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	Observed
<i>Corvus coronoides</i>	Australian Raven	Observed
<i>Cracticus tibicen</i>	Australian Magpie	Observed
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Observed
<i>Eopsaltria australis</i>	Eastern Yellow Robin	Observed
<i>Falco cenchroides</i>	Australian Kestrel	Observed
<i>Malurus cyaneus</i>	Superb Fairy Wren	Observed
* <i>Manorina melanocephala</i>	Noisy Minor	Observed
<i>Meliphaga lewinii</i>	Lewin's Honeyeater	Observed
<i>Sericornis frontalis</i>	White-browed scrubwren	Observed
<i>Strepera graculina</i>	Pied Currawong	Observed
Mammal		
* <i>Bos taurus</i>	Cattle	Observed
* <i>Oryctolagus cuniculus</i>	European Rabbit	Scat and digs
<i>Trichosurus vulpecula</i>	Brush-tailed Possum	Scat
* <i>Vulpes vulpes</i>	European Red Fox	Scat
<i>Wallabia bicolor</i>	Swamp Wallaby	Scat
Reptile		
<i>Lampropholis guichenoti</i>	Common Skink	Observed
Amphibian		
<i>Crinia signifera</i>	Common Eastern Toadlet	Heard call

*Pest species

Appendix D – Recommended weed control for each month of the year (WoNS and HTW only)

	Jan	Feb	Mar	Apr	May	Jun	JuL	Aug	Sep	Oct	Nov	Dec
African Lovegrass	Herbicide	Herbicide	Slashing	Slashing	Slashing				Herbicide	Herbicide	Herbicide	Herbicide
Blackberry	Herbicide	Herbicide	Herbicide						Herbicide	Herbicide	Herbicide	Herbicide
Cobblers Pegs	Hand removal	Hand removal	Hand removal	Hand removal					Herbicide	Herbicide	Herbicide	Hand removal
Cotoneaster									Herbicide*			
Crofton Weed	Slashing	Herbicide	Herbicide	Herbicide	Herbicide				Slashing	Slashing	Slashing	Slashing
Fireweed	Hand removal	Hand removal	Hand removal	Slashing	Slashing	Slashing	Slashing	Slashing	Slashing	Hand removal	Hand removal	Hand removal
Green Cestrum									Herbicide*			
Lantana	Herbicide	Herbicide	Herbicide	Herbicide	Herbicide				Herbicide	Herbicide	Herbicide	Herbicide
Paspalum	Slashing	Slashing	Slashing	Herbicide	Herbicide	Herbicide			Slashing	Slashing	Slashing	Slashing
Whiskey Grass	Hand removal	Hand removal	Hand removal	Hand removal	Hand removal	Hand removal	Hand removal	Hand removal	Herbicide	Herbicide	Herbicide	Hand removal

Herbicide – Foliar spray with an appropriate product as per the instructions on the label. Foliar spray should be carried out during active growing season.

Slashing - Slashing within agricultural land areas only. Slashing is only effective if the targeted species has not yet reached flowering maturity.

Hand removal – Necessary when targeted species have reached flowering maturity. Entire plant can be removed or flowering heads may be cut. Removed material should be immediately bagged to prevent spread of seed and appropriately disposed of.

Herbicide* – Treatment via either cut and paint or drill and inject methods.

This table should be considered a guide for appropriate treatment during different months of the year. It does not indicate a specified work schedule.