



VEGETATION MANAGEMENT PLAN
FOR PROPOSED
RESIDENTIAL SUBDIVISION
AT
21-33 OWLPEN LANE,
FARLEY NSW 2320

Prepared by:

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Prepared for:	The Bathla Group
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Preface

This Vegetation Management Plan provides background information and identifies management actions to guide the future management of any areas on the site, where vegetation is to be retained and enhanced, to promote flora and fauna conservation and the long-term ecological sustainability of the site.

Qualifications

This report was written by Sarah Jones. The academic qualifications and professional experience of consultants involved in the project are documented in Appendix A.

Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence SL100533;
- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.



ABBREVIATIONS

Abbreviation	Meaning
APZ	Asset Protection Zone
BC Act	<i>Biodiversity Conservation Act 2015</i>
CCC	Central Coast Council
DCP	Development Control Plan
DPI	Department of Primary Industries
EEC	Endangered Ecological Community
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
Ha	Hectare
HCCREMS	Hunter & Central Coast Regional Environmental Management Strategy
LEP	Local Environment Plan
LGA	Local Government Area
MU	Map Unit
OEH	Office of Environment and Heritage
RF Act	<i>Rural Fires Act 1997</i>
VMP	Vegetation Management Plan
VRZ	Vegetated Riparian Zone
WM Act	<i>Water Management Act 2000</i>
WONS	Weeds of National Significance



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I INTRODUCTION

I.1 Purpose

Firebird ecoSultants Pty Ltd has been engaged by The Bathla Group, to prepare a Vegetation Management Plan (VMP) at 21-33 Owlpen Lane, Farley NSW 2320 (Lot 1 DP 983691), (Lot 10 DP 1229964), (Lot 11 DP 1229964), (Lot B DP 348463), (Lot C DP 348463) ('the site' or 'the subject site'). See Figure 1-1 for the site locality. (see Appendix B for the approved site plans).

The purpose of this VMP is to provide a plan for the protection, rehabilitation and management of the specified areas within the lot, where vegetation is to be retained (see Figure 1-2 for the boundaries of the area to which this VMP applies). The vegetation within this area has been classified as Hunter-Macleay Dry Sclerophyll Forests and is dominated by Red Ironbark - Spotted Gum - Prickly-leaved Paperbark shrubby open forest of the Lower Hunter

The Vegetation Management Plan aims to:

- Integrate with other relevant plans e.g., Landscape Plans, Erosion and Sediment Control Plans.
- Recommend management actions to be undertaken during clearing, construction works and post construction.
- Clearly stage management actions to identify works required prior to commencement of construction works, during works, prior to subdivision certificate and ongoing.
- Include a protocol to prevent the transfer of weeds or pathogens onto or off the site.
- Detail ongoing reporting requirements.
- Be prepared by a suitably qualified and experienced restoration ecologist.
- Be implemented for no less than three years.
- Detail the measures to be implemented to ensure there is no loss of biodiversity value through indirect impacts of the approved industrial development.

The primary objective of the Plan is the protection and management of the ecological integrity of the Biodiversity Values mapped area within the north-western extent of the subject property

I.2 Land Ownership, Responsibility and Duration

Implementation of this VMP and the long-term management and protection of the riparian area is the responsibility of the owner of Lot (Lot 1 DP 983691, Lot 10 DP 1229964, Lot 11 DP 1229964, Lot B DP 348463, Lot C DP 348463). Where necessary, the strategies outlined in the VMP will be undertaken by suitably



experienced and qualified persons or companies engaged by the proprietor of this site.

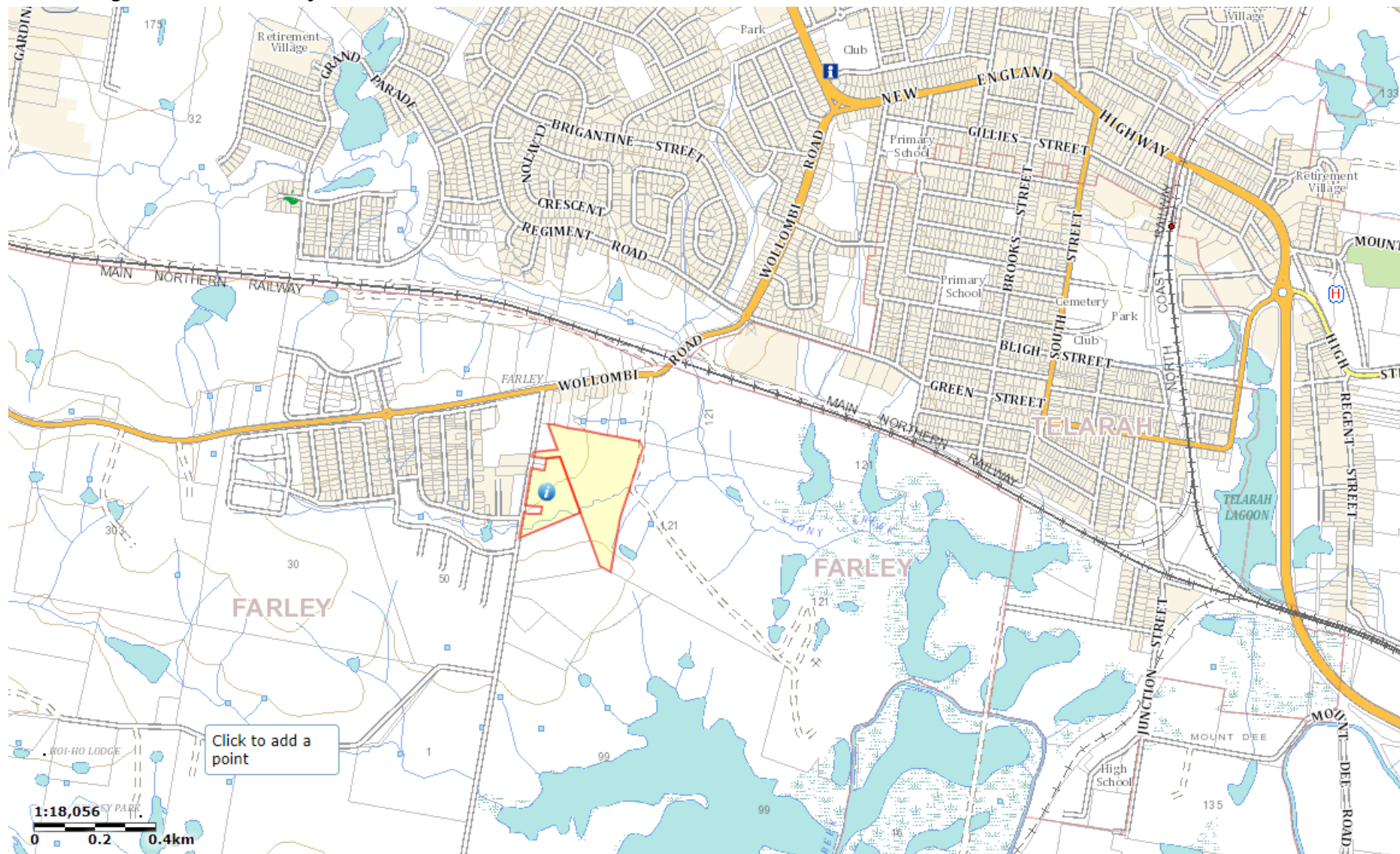
The duration of this VMP is as follows:

- Construction phase management measures will be implemented until the completion of the initial clearing, construction and development of the site.
- Weed management and revegetation works will be implemented over a period of five years.

This VMP will be adaptive and updated as required and may thus be subject to review in the future.

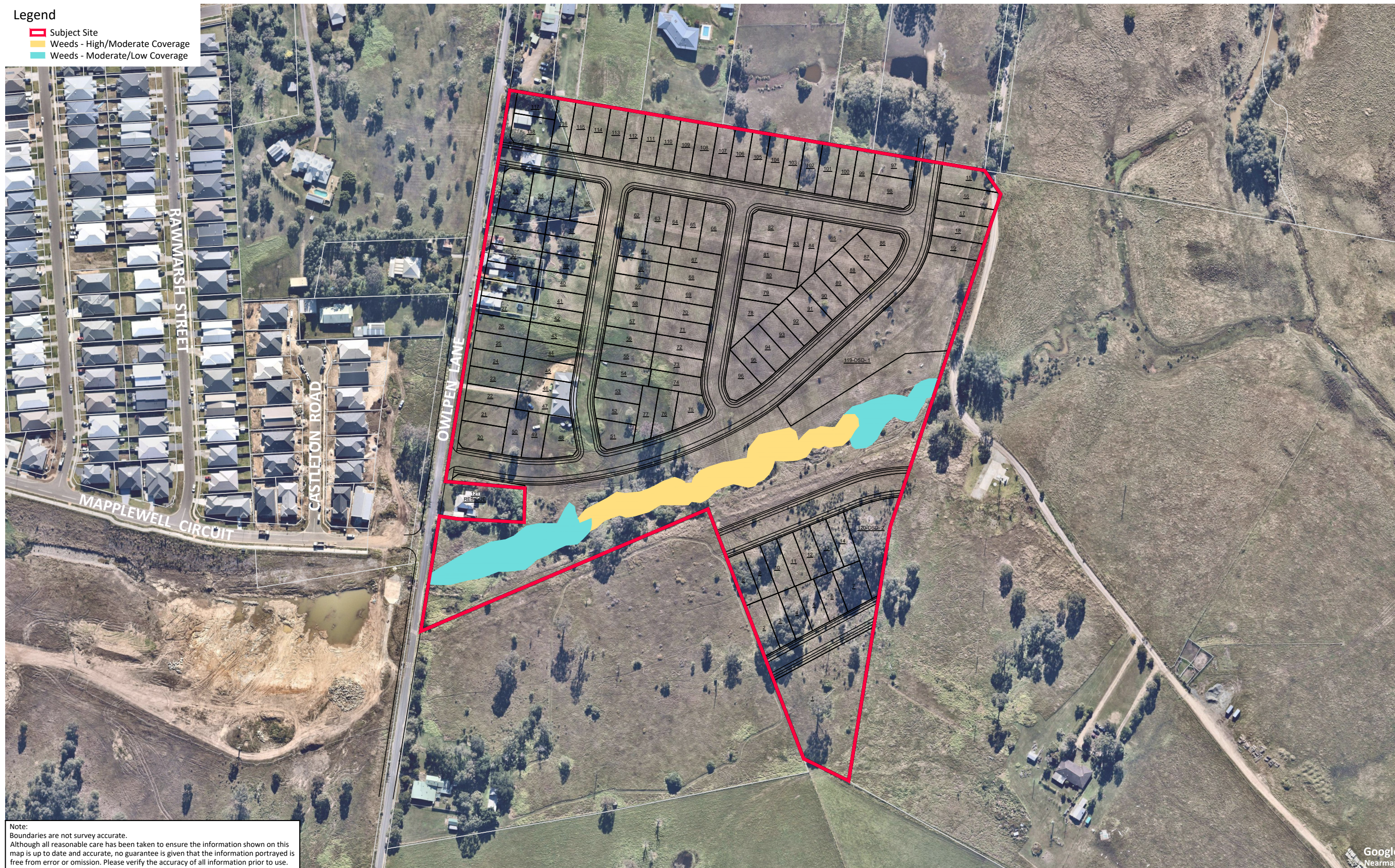


Figure 1-1: Site Locality



Legend

- ▭ Subject Site
- ▭ Weeds - High/Moderate Coverage
- ▭ Weeds - Moderate/Low Coverage



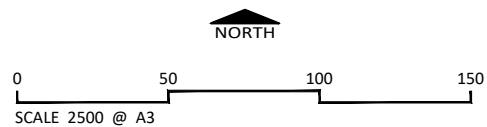
Google
Nearmap

FIGURE X-X: WEED COVERAGE MAP

Ref No 3133 BDAR B

SITE DETAILS
DATE

No.21-33 Owlpen Lane Farley
5 September 2022



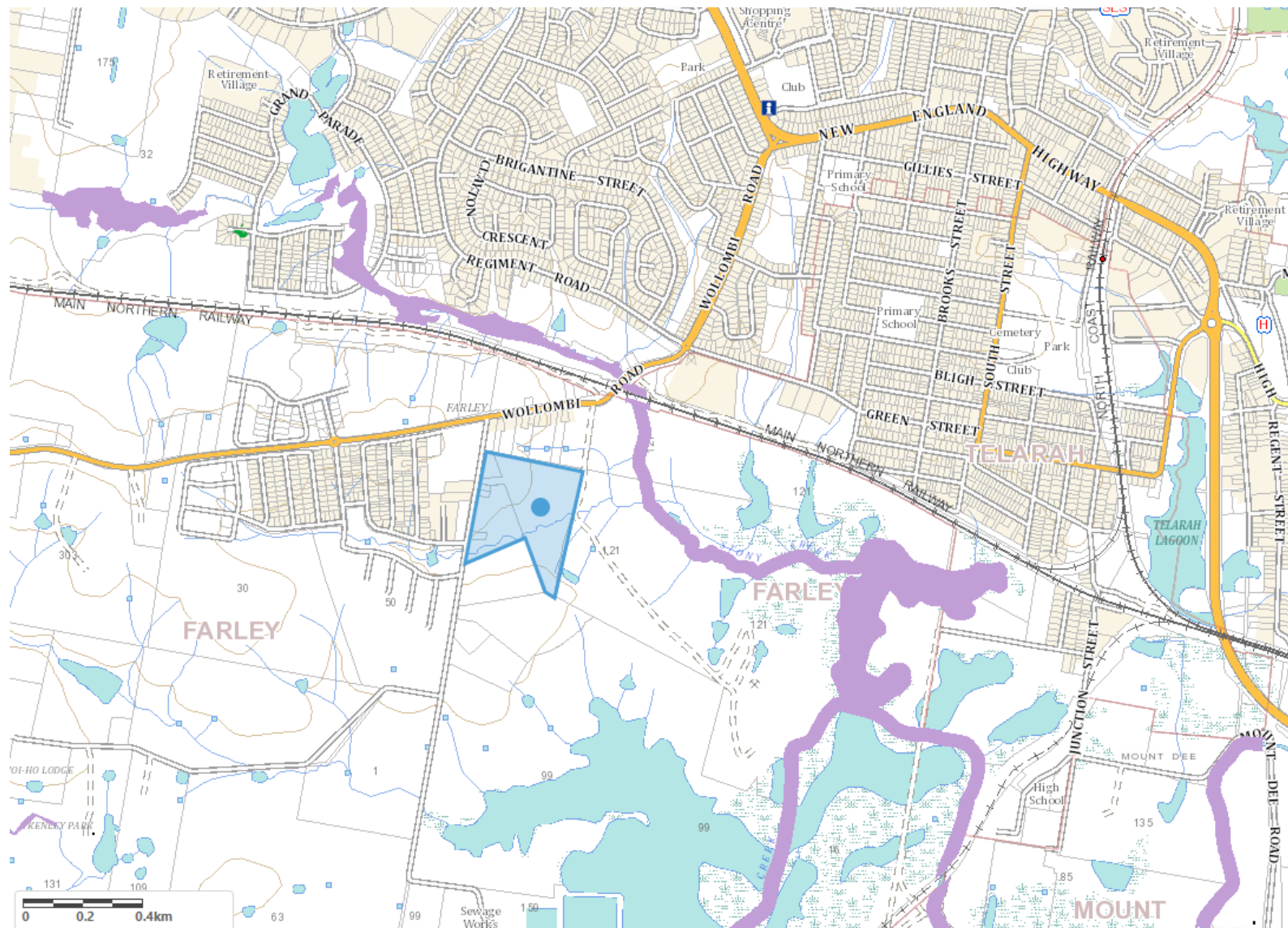
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Figure 1-3 BV Map





2 BACKGROUND

2.1 Site details

The site is located within the Maitland City Council (MCC). The site in total has an area of ~11.5 ha whilst the riparian zone which is to be main focus area for this VMP totals an area of ~0.7 ha. As indicated in previous Figure 1-2, and Figure 1-3 of this VMP applies to the site's entire riparian zone that has been cleared in the past and is currently exposed to exotic weed growth this area is referred to, in this VMP, as 'Riparian Zone.'

2.2 Existing Environment

The site itself is predominantly cleared with pasture grasses and exotic species encompassing most of the landscape, the riparian zone divides the site into a south eastern portion of development and a northern portion of development.



3 MANAGEMENT GUIDELINES

3.1 Defining Zone Borders

Tape or signage should be erected so that the Riparian Vegetation Area of vegetation addressed in this VMP is clearly defined for clarity with on-ground works.

Erosion and Sediment Controls

The control of erosion and the prevention of silt discharge into drainage systems and waterways will adhere with Council's *Engineering Requirements for Development* and Landcom's *Soils and Construction Manual – April 2004*.

Erosion control measures are to be implemented prior to the commencement of any clearing and earthworks and shall be maintained until satisfactory completion and restoration of earthworks, including revegetation of all exposed areas.

4 VEGETATION PROTECTION MEASURES

4.1 Management of Weeds:

The *Biosecurity Act 2015* places a General Biosecurity Duty on any weed determined by the regional planning of Weed Management Committees (through Regional Strategic Weed Management Plans (RSWMP)). A General Biosecurity Duty determines that; *any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably*

The *Hunter Regional Strategic Weed Management Plan (2017-2022) (HRSWMP)* is the relevant RSWMP for the site. Some weed species identified in the EPBC Act Protected Matters Report are listed by this RSWMP (see Table 2-4).

Weed densities have been measured in accordance with the National Trust Method detailed in Appendix D of this report.

Table 2-4: Weeds Present at Site

Species	Common Name	Category in <i>Hunter Regional Strategic Weed Management Plan 2017-2022</i>
<i>Axonopus compressus</i>	Broad-leaved Carpet Grass	Not Listed
<i>Briza subaristata</i>	-	Not listed
<i>Sida rhombifolia</i>	Paddy's Lucerne	Not Listed
<i>Bidens pilosa</i>	Cobbler's Pegs	Not listed
<i>Pennisetum clandestinum</i>	Kikuyu Grass	Not listed
<i>Rumex crispus</i>	Curled Dock	Not listed
<i>Verbena bonariensis</i>	Purpletop	Not listed
<i>Juncus cognatus</i>	-	Not listed
<i>Juncus acutiflorus</i>	-	Not listed
<i>Cyperus brevifolius</i>	-	Not listed
<i>Paspalum dilatatum</i>	Paspalum	Not listed
<i>Senecio madagascariensis</i>	Fireweed	Appendix 1.1 State Priority Weed Objective – ASSET PROTECTION and Appendix 2.1 Additional Species of Concern
<i>Lantana camara</i>	Lantana	Appendix 1.1 State Priority Weed Objective – ASSET

Species	Common Name	Category in <i>Hunter Regional Strategic Weed Management Plan 2017-2022</i>
		PROTECTION
Olea africana		Not listed
Solanum sisymbriifolium		Not listed
Ligustrum sinense	Small-leaved Privet	Not listed
Chloris gayana	Rhodes Grass	Not listed
Conyza spp.		Not listed
Hypochoeris radicata	Catsear	Not listed

4.1.1 Core Weed Control Works

Weed control works are to be undertaken by the land owner to the requirements as listed here, and in consultation with a qualified ecologist.

Weeds compete with newly established plants for moisture. Many weed species are more efficient at drawing moisture from the soil than new seedlings, typically resulting in reduced growth of native seedlings. Primary weed removal should be undertaken prior to revegetation and in accordance with the Biosecurity Act 2016.

Initial focus should primarily be fixed on removing mature individuals. Priority should be given to the WONS and the State and Regional Priority Weeds, as well as the Species of Additional Concern, as listed within the HRSWMP. This should be done before the situation deteriorates further.

All primary weed control must be undertaken in the first year following commencement of the VMP, with secondary weed control undertaken in the second year following commencement of the VMP.

The aim of ongoing maintenance is to diminish the soil seed bank of weeds; weed plants should not be allowed to achieve a reproductive stage in their life cycles.

4.1.2 Weed Control Techniques

Weed management should integrate a variety of control techniques, considering knowledge of the specific biological and ecological characteristics of the weed species present.

Further weed control measures to be implemented include:



- All weeds removed from the site must be transported in a sealed container or bag and disposed at a waste management facility licenced to accept green waste.
- Vehicles, machinery and equipment must be free from weed material (including seeds) before entering the offset area.

Note that, under the Pesticides Act 1999, there can be legal restrictions and permit requirements for use of specific herbicides for specific plants; chemical labels and permit requirements always need to be researched prior to herbicide application. Some control methods will require a permit from the Australian Pesticides and Veterinary Management Authority.



5 REVEGETATION

5.1 Revegetation Strategy

The Vegetation Restoration Strategy comprises an integrated plan aimed at controlling and managing weeds and facilitating the regeneration of native flora species. It will be implemented for a minimum period of five (5) years. If natural regeneration does not occur in affected areas, a revegetation management plan will be created. A suitably qualified and experienced professional bush regeneration contractor must be engaged to carry out any revegetation planting, restoration and maintenance weed control specified in the VMP. The minimum qualifications and experience required for the bush regeneration contractor are a TAFE Certificate IV in Conservation and Land Management (or equivalent) and three years demonstrated experience (for site supervisor) and a TAFE Certificate 2 in Conservation and Land Management and one year demonstrated experience (for other personnel).



6 AIMS, OBJECTIVES AND STRATEGIES

The aims of this VMP are to:

- Ensure that appropriate protection measures for retained vegetation (in conservation area) are implemented during clearing and construction works;
- Enhance biodiversity on the site through reduction of weeds, planting of indigenous flora species (where necessary);
- Prescribe legislative measures to ensure that the site's retained and enhanced areas of vegetation within the site are protected in perpetuity; and
- Outline maintenance, monitoring and reporting strategies.

The specific objectives of this VMP are to:

- Describe the site's existing vegetation;
- Outline the vegetation to be cleared and the areas proposed to be retained and enhanced;
- Prescribe appropriate protocol to be followed during clearing / construction works, in order to protect fauna, riparian zones and retained vegetation;
- Provide details on target weed species and weed control measures;
- Provide details on revegetation measures, including plant species composition, planting layout / densities and planting methods;
- Outline maintenance requirements for all retained and enhanced areas of vegetation / habitat on the site; and
- Describe monitoring methodology, performance evaluation and reporting requirements.

The VMP is composed of the following management strategies:

- Site establishment (including defining borders and installing photo reference points);
- Protection measures during clearing and construction;
- Weed management strategy;
- Revegetation strategy;
- Protection in perpetuity; and
- Monitoring and reporting.



7 MANAGEMENT GUIDELINES

7.1 Site establishment

7.1.1 Defining Borders

Permanent fencing and conservation signage shall be erected so that the areas of vegetation to be retained and enhanced are clearly defined from the areas to be developed and maintained. The conservation signage should say, for example: no rubbish dumping.

7.1.2 Rubbish Removal

Existing dumped rubbish will be removed from the site, either prior to or immediately following the completion of clearing / construction works.

7.1.3 Erosion and Sediment Controls

The control of erosion and the prevention of silt discharge into drainage systems and waterways will adhere with Council's Engineering Requirements for Development. Erosion control measures are to be implemented prior to the commencement of any clearing and earthworks and shall be maintained until satisfactory completion.

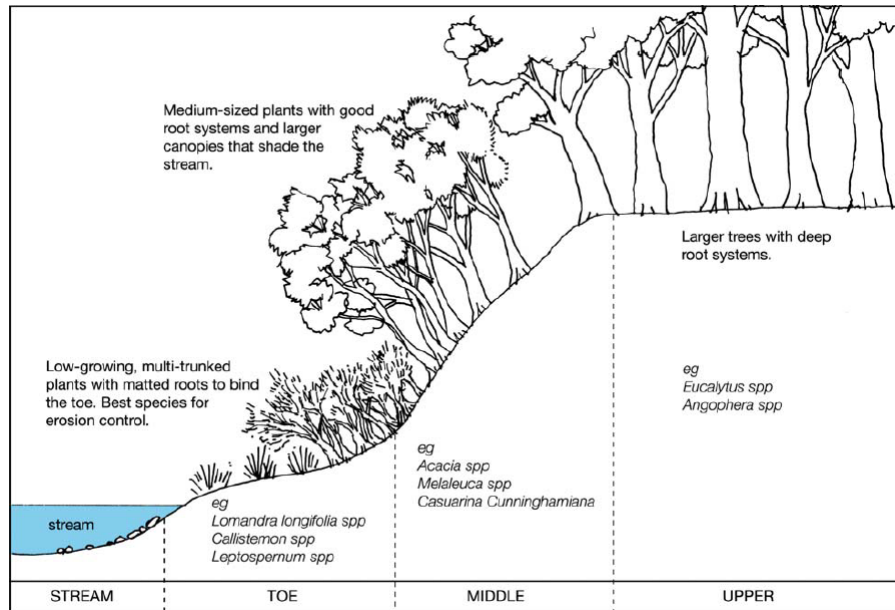
7.1.4 Riparian Conservation Area

The principles of this section will be applied to the maintenance of any on-site waterway/creek line.

Controlled activities carried out in, on or under waterfront land are regulated by the *Water Management Act 2000* (WM Act). The NSW Department of Planning, Industry and Environment administers the Water Management Act and is required to assess the impact of any proposed controlled activity to ensure that no more than minimal harm will be done to waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 m of the highest bank of the river, lake or estuary.

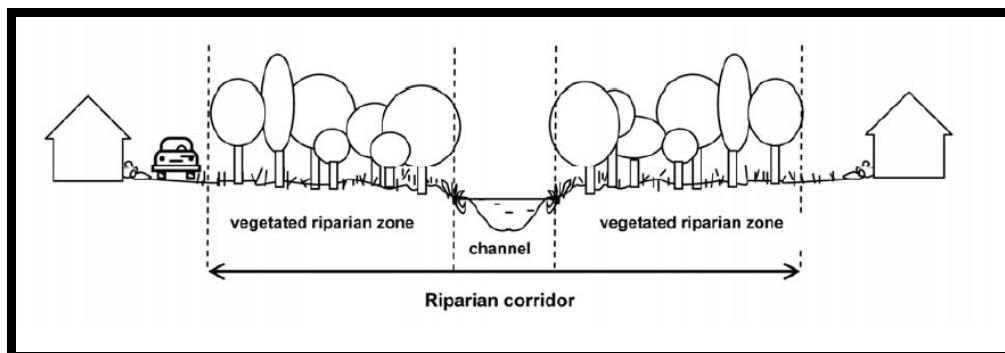
When a proposed controlled activity disturbs or substantially modifies the riparian corridor, its restoration or rehabilitation will be a requirement of the controlled activity approval.

- **Figure 3-1: Office of Water example of vegetation management on waterfront land**



A riparian corridor (RC) forms a transition zone between the land, also known as the terrestrial environment, and the river or watercourse or aquatic environment. Riparian corridors perform a range of important environmental functions such as:

- providing bed and bank stability and reducing bank and channel erosion.
 - protecting water quality by trapping sediment, nutrients and other contaminants.
 - providing diversity of habitat for terrestrial, riparian and aquatic plants (flora) and animals (fauna).
 - providing connectivity between wildlife habitats.
 - conveying flood flows and controlling the direction of flood flows.
 - providing an interface or buffer between developments and waterways.
 - providing passive recreational uses.
- **Figure 3-2: Intent and outcome of Riparian Conservation Area**





The overarching objective of the controlled activities provisions of the WM Act is to establish and preserve the integrity of riparian corridors. Ideally the environmental functions of riparian corridors should be maintained or rehabilitated by applying the following principles (“Vegetation Riparian Zone/Riparian Corridor” = “Riparian Conservation Area” within this VMP):

- Identify whether or not there is a watercourse present and determine its order in accordance with the Strahler System;
- Seek to maintain or rehabilitate a RC/VRZ with fully structured native vegetation in accordance with Table 3-1;
- Seek to minimise disturbance and harm to the recommended RC/VRZ;
- Treat stormwater run-off before discharging into the RC/VRZ.



7.2 Protection Measures during Clearing and Construction

7.2.1 Protection of Retained Vegetation during Construction

Vegetation may only be removed from the approved development footprint, which is indicated in the approved site plans in Appendix B. Measures to protect all other vegetation on the site and on adjoining lands from damage during construction will include the following:

- Clearing limits must be identified on all design, construction and operational drawings.
- The retaining wall will provide a barrier between the approved development and the vegetation to be retained.
- The areas of retained vegetation within the exclusion fencing shall be marked as 'No-Go' zones. All vehicles, construction materials and refuse will be prohibited from these areas.
- During site inductions, all contractors, sub-contractors, and personnel must be notified of these vegetation protection requirements.

7.2.2 Protection of the Retained Vegetation

The boundaries of the site's Retained Vegetation is indicated in previous Figures 1-3). The following measures are designed to protect the site's VRZs during any clearing and construction works.

- Appropriate sediment and erosion controls will be implemented during the initial stages of construction. This may include sediment fencing, diversion drains and the use of geotextile fabric.
- Emergency response protocols, to address any potential contaminant spill or leak, will be clearly articulated in construction and operational plans.
- Earthworks (and all works in the vicinity of drainage lines) will be undertaken during dry weather conditions, where possible. Clearing of vegetation should not be undertaken during overland flow events.



8 MONITORING AND REPORTING

8.1 Baseline Monitoring

The recording of site conditions before any restoration or rehabilitation works are conducted is critical in measuring if the aims/outcomes of an VMP are being achieved. It is recommended that baseline monitoring to be undertaken prior to commencement of works to provide a basis for ongoing monitoring, future reporting and for all parties (including Council) to assess whether the on-ground works are achieving the aims/objectives of the VMP.

Transect or meander data is to provide an indication of all flora species present and indicate the percent cover of all species with a focus on exotic species. This will provide Council with a gauge of the disturbance and level of management required.

Baseline Monitoring Report

- A Baseline Monitoring Report will be provided with results and maps based on the initial monitoring surveys which will be undertaken using the methodology as described below

Annual monitoring and reporting

- Replication of baseline annually for life of VMP (5 years). Annual monitoring reports are to be conducted annually and submitted by 30th June.

8.2 Methodology

Transects

- Due to the length of the site a 90m transect or meander through the site will be undertaken.
- Record all species >1m in height along transect, recording location on transect, height, species, canopy distance
- Provide a vegetation profile (schematic) of the transect data
- Place a 1 x 1m quadrat every 10 meters (starting at the 0 point) on alternating sides along the transect recording all species < 1m in height. Record % canopy cover at each of these points using Specht.
- Record location of transect with GPS
- 20mx20m plots
- Place quadrat(s) where highest density of weeds occurs



- Record location of quadrats using GPS
- Record densities of all plant species (including weeds) in each distinct layer present within the quadrat. Treat each vegetation layer (if present) as follows:
 - Canopy layer > 5m –Record all the canopy species within the 20x20m quadrat and estimate the relative density/percentage cover
 - Tall shrub layer 2 -5m - Record all the tall shrub layer species within the 20x20m quadrat and estimate the relative density/percentage cover
 - Small shrub layer 0.5m – 2m - Record all small shrub layer species within the 20x20m quadrat and estimate the relative density/percentage
 - Ground cover layer < 0.5 m - Record all ground cover layer species within the 20x20m quadrat and estimate the relative density percentage

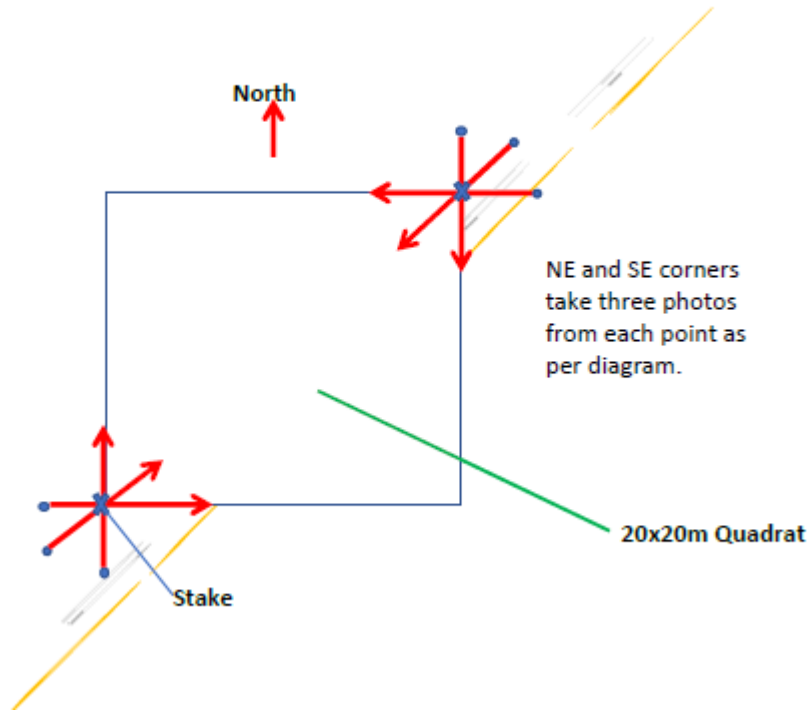
Photo monitoring

Using NE and SE corners of the quadrat take three photos as detailed in Photo Monitoring Point Setup diagram below.

- As per diagram, photos to be taken setback at a minimum or 2m from stake.
- Yellow safety caps to be placed on star pickets.
- Photo to include photo point number. e.g. NE - PP1a, PP1b, PP1c, etc.
- Photos taken at a consistent height using the established reference point.
- Record photo point location with GPS.
- Show location on Monitoring Locations Map.
- Photo monitoring points are to be established prior to any VMP works being carried out. Monitoring will be continued bi-annually in spring and autumn for the duration of the VMP.



Photo Monitoring Point Setup Diagram





9 IMPLEMENTATION

Implementation of this VMP will adhere to the Works Schedule provided in Table 5-1.

Table 5-1: Works Schedule

Action	Responsibility	Performance Criteria	Timing
Site Establishment			
Permanent fencing and conservation signage shall be erected, in accordance with Section 4.1.1 of the VMP.	Property owner or subcontractor.	Completed installation of permanent fencing and conservation signage at the interface between residential and retained vegetation	Either prior to or immediately after clearing / construction operations.
Dumped rubbish will be removed from the site.	Property owner or subcontractor.	No rubbish remaining on the site.	Either prior to or immediately after clearing / construction operations.
Native Vegetation Restoration Strategy			
Primary weed control visits to be conducted in accordance with the techniques for Management Zone, outlined in Section 4.4.2 of the VMP.	Bush Regeneration Contractor.	Aiming to achieve the following outcomes by year 5 being: 1. Less than 2% woody weed cover in any 1000m ² of the subject site; 2. Less than 20% exotic ground cover in any 1000m ² of the subject site;	Immediately upon commencement of the VMP and immediately prior to the commencement of plantings. Note , effort must also be made to carry out weed control in winter or early spring followed immediately by planting as this will give native species a whole growing season's advantage over many weeds.
Planting of native revegetation species to be conducted in accordance with the plant selection, density, timing and	Bush Regeneration Contractor.	Minimum 95% cover of native groundcover Minimum 90% survivorship of plantings to the	Immediately following initial weed control. Note , effort must also be made to time plantings for



Action	Responsibility	Performance Criteria	Timing
techniques etc., outlined in Sections 4.4.3, 4.4.4, 4.4.5 and 4.4.6 of the VMP.		standard nominated in Table 4.2 Planting Density Guide in the VMP.	when plants are entering their period of maximum growth (which is spring and summer for many species). To be conducted if native planting is needed on the site.
Ongoing weed management and maintenance of plantings, to be conducted in accordance with Section 4.4.7 of the VMP.	Bush Regeneration Contractor.	Aiming to achieve the following outcomes by year 5 being: 1. Less than 2% woody weed cover in any 1000m ² of the subject site; 2. Less than 20% exotic ground cover in any 1000m ² of the subject site;	For a period of 5 years.
Monitoring and Reporting			
Assessment of the success of weed management and revegetation efforts is to be undertaken in accordance with Section 4.7.1 of the VMP. A report will be submitted to CCC in digital format.	Project Ecologist	Report submitted to CCC accordingly.	Annually, by the 30 th June for the total of the VMP's lifespan (5 years).



10 REPORTING

Reporting will consist of the following components:

- Progress reports are to be submitted to Council's Ecologist by the 30th of June each year for a minimum of 5 years. These reports regarding the native vegetation restoration and regeneration strategies and all other relevant components of this VMP.
- Recommendations for corrective measures and/or vegetation management will also be reported upon.
- A final summary report will be submitted to Council for approval; this will certify completion of the works and/or recommendations for further management requirements.
- The owner/site manager/bushland regeneration contractor must report any evidence of plant or animal disease on the site to the relevant NSW Government Department as soon as practicable.



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APPENDIX A QUALIFICATIONS, LICENSING AND CERTIFICATION

Qualifications

Fieldwork for this project was undertaken by Logan Shea and Ollie Broun. Report writing for this project was undertaken by Logan Shea and Ollie Broun with editing and review by Sarah Jones. Qualifications are provided in the table below.

Sarah Jones	<i>Ecologist / Bushfire Planning Consultant</i> B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas) <i>BAAS 18020 Accredited Assessor, as required by the Biodiversity Conservation Regulation 2017 and accredited to apply the BAM</i> Member of the Ecological Consultants Association of NSW
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Licensing

Research was conducted under the following licences:

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- Animal Research Authority (Trim File No: TRIM 11/5655) issued by NSW Department of Primary Industries; and
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: TRIM 11/5655) issued by Department of Primary Industries.

Certification

As the project certifier, I, Sarah Jones make the following certification:

- This Biodiversity Development Assessment Report has been prepared in accordance with the Biodiversity Assessment Method established under the NSW Biodiversity Conservation Act 2016.
- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- Commonwealth, state and local government policies and guidelines formed the basis of project surveying methodology, or where the survey work has been undertaken with specified departures from industry standard guidelines, details of which are discussed and justified in Section 2;

- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995*, *National Parks and Wildlife Act 1974* and the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*.

Signature of Certifier:



Sarah Jones

B.Env.Sc., G.DIP.DBPA (Design for Bushfire Prone Areas)

Ecologist / Bushfire Planner

BAAS 18020 Accredited Assessor



APPENDIX B SITE PLANS



Note:
 Boundaries are not survey accurate.
 Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

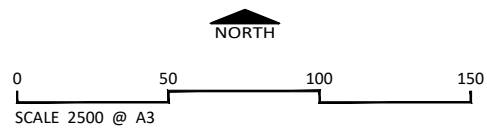
Google
 Nearmap

FIGURE 1-2: SITE MAP

CLIENT Hunter Land
 SITE DETAILS No.21-33 Owlpen Lane Farley
 DATE 29 June 2022

Legend

Subject Site



Firebird ecoSultants Pty Ltd
 ABN - 16 105 985 993
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 P O Box 354 Newcastle NSW 2300



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