

Biodiversity Management Plan – 8 Forest Road, Warriewood, NSW

Prepared for: Kuatro Build Pty Ltd

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Left and above: Sections of the Narrabeen Creek and adjacent vegetation.

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1.0 Introduction

At the request of Kuatro Pty Ltd (the Client), Anderson Environment & Planning (AEP) have undertaken investigations to inform the production of a Biodiversity Management Plan (BMP) to schedule maintenance of landscaping and hardscape measures associated with an approved proposed residential subdivision at 8 Forest Road, Warriewood, NSW (the Site) (the Development).

The BMP schedules measures to mitigate impacts of clearing upon native fauna and regeneration works for the riparian zone of the first-order watercourse known as Narrabeen Creek. The Site location is shown in **Figure 1**).

The BMP addresses Condition 25 of C. Matters to be satisfied prior to the issue of the Construction Certificate in Northern Beaches Council "Modification of Development Consent No NO440/15" under the EP&A Act 1979, namely:

25. A Vegetation Management Plan (VMP) is to be prepared and submitted to Council that is in accordance with the VMP guidelines prepared by DPI (Water) outlines the technique and frequency of maintenance tasks during the establishment of the landscaping within the inner creek line corridor to be dedicated to Council. The VMP is to be implemented for a period of 24 months immediately following the completion of landscape and hardscape on site. The VMP is to incorporate maintenance and care of hardscape elements (e.g. paving, retaining wall, secured pedestrian access paths), weeding, watering, mowing, consideration of other endemic species where plantings do not respond to the conditions as expected and a procedure for the replacement of failed plantings.

1.1 Information Sources

The following reports and guidelines informed this BMP:

- Site Design Studios (2022). *Drawing 15-826, Sheet L-05, Riparian Planting Schedule for Warriewood Vale Development*, 8 Forest Road, Warriewood;
- SERA (2018), *National Standards for the practice of ecological restoration in Australia*;
- AEP (October, 2020), *Ecological Assessment Report for Residential Development at 8 Forest Road Warriewood, NSW, Rev. 1*, Unpublished report for Jackson Teece;
- Natural Resources Access Regulator (2018), *Guidelines for controlled activities on waterfront land Riparian corridors*. NSW Department of Industry NT19/15607; and
- Northern Beaches Council (2018), *Warriewood Valley Landscape, Masterplan and Design Guidelines*, (Public Domain).

1.2 Biodiversity Management Plan Objectives

The BMP aims to schedule primary rehabilitation of riparian lands utilising best practice management and maintenance of vegetation and fauna over the two (2) year implementation of the BMP.

Plantings for the Site are scheduled in the *Riparian Planting Schedule* of Landscape Plans for the Development by Site Design + Studios (SDS), (2022) and *Warriewood Valley Landscape Masterplan and Design Guidelines (Public Domain) 2018, Northern Beaches Council*.

1.2.1 Narrabeen Creek Riparian Zone

- A natural channel of Narrabeen Creek using natural channel design, exhibiting both ecological and hydraulic function, improving downstream water quality and aquatic habitat;
- Implement weeding plans to reduce weed loads;
- Planting schedule as per SDS 2022;
- Provide habitat for native flora and fauna, including locally occurring threatened species; and
- Establish an area where, with further assisted works, a pocket of native biota results requiring nominal ongoing maintenance.

1.2.2 Hardscape Maintenance

Annual inspections of constructed pathways to monitor accumulation of rubbish, algal growth and vandalism.

1.2.3 Mitigating Impacts on Native Fauna

Regeneration practitioners should ensure that all reasonable measures are taken to mitigate the potential impacts on native fauna on the subject site.

EAR p46-47 "Required clearing of any vegetation on site should be undertaken in the presence of a suitably experienced fauna handler to ensure any displaced native fauna can be taken into care and dealt with appropriately, and

Felled vegetation (trees) should be left in situ for at least 24 hours following felling to allow any unobserved fauna time to vacate the area during the next nocturnal period;

1.3 BMP Lands

The BMP lands comprise 0.45ha with 0.04ha associated with the aquatic zone and 0.41ha of riparian vegetation within Narrabeen Creek. Narrabeen Creek is located within the Narrabeen Lagoon Catchment.

In accordance with Section 201 of the *Fisheries Management Act 1994* (FM ACT), a Controlled Activity Approval (CAA) is required to undertake the proposed works within the second order stream Narrabeen Creek within the Site.

1.4 Existing Site Conditions

The C3 zone land was inspected and floristic surveys were undertaken by AEP in May 2022. Site assessment for Narrabeen Creek (C2 and R5 zoned land) was undertaken on 21 September 2022. The inspection included general site reconnaissance and traversal to verify previously mapped vegetation communities and determine vegetation / flora / fauna assemblages, location of modified channel, erosion and deposition of the BMP lands as well as the broader site.

Existing plant community types include;

- PCT 1828 - Coastal Sandstone Gallery Rainforest;
- PCT 1841 - Coastal Enriched Sandstone Moist Forest;
- Exotic Dominated Riparian Vegetation.

Figure 2 shows ground-truthed vegetation boundaries. **Figure 3** outlines the proposed management zones and areas impacted by the development.

2.0 Regeneration Approach

The BMP schedules differing ecological approaches to the regeneration of the BMP Lands by implementing the principles of the Society for Ecological Restoration Australasia *National standards for the practice of ecological restoration in Australia* (SERA 2021, ed. 2.2). This approach utilises three integrated restoration techniques to achieve the end goal of Natural Regeneration. Approaches have been assigned to BMP Land areas based on their history of disturbance:

1. Reconstruction Approach – this approach is where a site is highly degraded and has limited to no ability to regenerate naturally.
2. Facilitated Regeneration Approach – this approach is when a site is in moderate condition, and will naturally regenerate with minimal plantings and weed management.
3. Natural Regeneration - this approach is where damage is relatively low, and pre-existing biota should be able to recover after cessation of degrading practices. It requires limited to no intervention, with weeding being the only task undertaken to encourage continual natural regeneration.

This approach is the overall aim for the entirety of the BMP lands to achieve natural regeneration within two (2) years.

This is based on general condition at the point of assessment, where the Ecologist determines the most appropriate level of regeneration based on the Biodiversity Assessment and random meander of the Subject Site.

The National Guidelines also require that at commencement of approved regeneration works the first step is to gather baseline data. It is undertaken at the commencement of the BMP to ensure the most appropriate measures are used to ensure regeneration can occur. Natural events such as drought high rainfall, fire, floods, etc can all have significant impact on the condition of vegetation within a site. Hence the guidelines require

regeneration areas be broken into the three categories and detailed baseline data be collected at commencement

3.0 Narrabeen Creek

Narrabeen Creek is mapped as a Stream Order two (2). The creek is highly degraded, eroded and modified by past and present agricultural uses. The Vegetated Riparian Zone (VRZ) will provide suitable aquatic habitat and riparian vegetation to assist to maintain and enhance the water quality.

Narrabeen Creek does show many of the key features of a healthy river system:

- Defined bed and bank;
- Meanders;
- Pools;
- Riffles; and
- Aquatic vegetation.

Plate 1 shows a cross section of a watercourse to assist with the location of each zone.

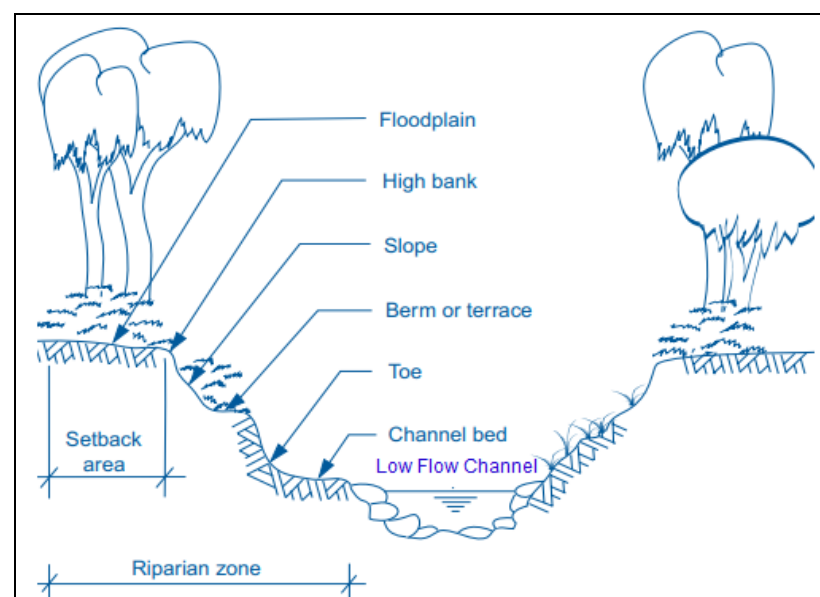


Plate 1 - Cross Section of Stream (Brisbane City Council, 2003).

3.1 Management Zone Activities

The BMP lands will be managed in Management Zones (MZs) to clearly identify of objectives and targets **Figure 3** shows the MZs.

Reconstruction regeneration management approaches will be utilised in respective zones. As stated, the Reconstruction Approach requires active interventions, the tasks of which will be determined by the Bush Regeneration Contractor (BRC) and may involve the following tasks:

- Planting;

- Installation of snags (MZ1);
- Weeding;
- Watering;
- Mulching (if required); and
- Replacement of dead plants (1:1).

3.1.1 Zone 1: Reconstruction – Aquatic Zone

This zone is located in the low flow channel to top of toe, consisting of a width of 1m – 2m; it will include the reinstating of aquatic vegetation and habitat such as snags.

The Reconstruction Approach is being utilised in MZ1 due to the high weed loads, erosion and lack of native vegetation within this zone. Therefore, planting of native species will assist with meeting the Targets outlined in **Section 4**.

Weeding as defined in **Table 2**, (effectively control priority species and areas through appropriate methods to eliminate highly competitive weeds from an area).

All works should be undertaken to ensure bed and bank stability, provisions of aquatic habitat for both flora and fauna (approx. 0.04ha).

The BMP aims to move into Natural Regeneration Approach by the end of Year 2.

3.1.2 Zone 2: Reconstruction

MZ2 is located from the top of toe to the top the high bank approximately 2m either side of MZ1 (approx. 0.04ha). MZ2 will be planted out with PCT 1828 (approx. 0.45ha).

The Reconstruction Approach is being utilised in this section due to the high weed loads and lack of native vegetation within this zone. Therefore, planting of native species from PCT 1828 will assist with meeting the Targets outlined in **Section 4**.

Weeding as defined in **Table 2** (effectively control priority species and areas through appropriate methods to eliminate highly competitive weeds from an area).

All works should be undertaken to ensure bed and bank stability, provisions of terrestrial habitat for both flora and fauna.

Signage is to be installed along the high bank providing information on the community and fauna species likely to use the banks and aquatic vegetation.

Planting list in **Appendix A** is sourced from *Warriewood Valley Landscape Masterplan and Design Guidelines (Public Domain) 2018, Northern Beaches Council*.

The BMP aims to move into Natural Regeneration Approach by the end of Year 2.

4.0 Regeneration Targets

The Integrated Regeneration Approach will be used across the entire BMP Lands and the following targets have been designed to be measurable, providing both quantitative and qualitative data on species abundance and cover for the vegetation communities within the BMP Lands.

To achieve a Natural Regeneration throughout the entire BMP lands within 2 years, targets have been set within **Table 1**. **Tables 3** also summarises the works schedule required to achieve the targets.

Table 1 – Summary of Regeneration Targets

Year	Abundance of Natives (%)	Cover of Natives (%)	Cover of Biosecurity Weeds (%)
1	40	45	<50
2	65	65	<20

5.0 Regeneration Management

5.1 Site Preparation

Prior to the commencement of regeneration, the BMP Lands must be prepared. The following works have been recommended to assist in site preparation:

- Establishment of pathogen and disease controls. Diseases which could affect the site include Myrtle rust (*Puccinia psidii*), affecting Myrtaceous plants, including *Melaleuca* species, and Amphibian Chytrid fungus disease, Chytridiomycosis, caused by Chytrid fungus (*Batrachochytrium dendrobatidis*). Appropriate hygiene controls are to be employed to minimise the chances of any such introduction occurring. This may include a hygiene station equipped with sterilizing agents and cleaning equipment to clean boots, tools and machinery. Response plans are needed to be designed and implemented to mitigate impacts in the event of disease or pathogen outbreaks;
- All extant rubbish/waste is to be removed from BMP lands. The need to remove such material should be assessed on a case-by-case basis as in some instances the material is inert, such as concrete, rocks and timber posts, etc. Such material may inadvertently provide geomorphic stability;
- Clearly mark native vegetation for retention and approved removal;
- Install temporary fence around the BMP Lands, and clearly mark as a “No Go Area” prior to commencement of civil works;
- Fencing should have clearly visible signage erected at key entry points to BMP;
- Implement erosion and sediment control measures in accordance with specifications set out in the latest edition of the Landcom publication “Soils and Constructions – Volume 1” (The Blue Book);
- Construction of the natural channel;
- Establish monitoring and photo points;

- Installation of nest boxes;
- Vegetation clearing;
- Determine baseline data;
- Primary weed removal;
- Installation of ground habitat;
- Planting of Vegetation (see **Appendix A** for a detailed species list). All plant stock must be provenance specific seed/ material collected from locally endemic species, grown by suitably experienced and qualified nurseries, and hardened-off before planting. This will ensure the structure and composition of these communities will meet the targets set; and
- Mulching and watering.

5.2 Baseline Data

Indicative monitoring points have been identified within the BMP Lands (refer **Figure 3**). The final location of the monitoring points is to be determined when commencing works, as environmental conditions change over time and the indicative locations may not be reflective of the communities at the time of commencement.

Baseline data will cover:

- Species diversity (both native and exotic);
- Species Abundance (both native and exotic);
- Overall health of the BMP Lands;
- Photos in north, east, south and west aspects; and
- Record incidental fauna.

The Monitoring Points established for the baseline surveys will then be monitored on a biannual basis, as per **6.1 Monitoring**.

5.3 Nest Box Installation

It is recommended that Nest boxes be installed within the MZ2 to enhance habitat within the Subject Site. Nest boxes must be constructed of external grade plywood with a minimum thickness of 18mm utilising stainless steel or the “highest grade” of galvanised fittings, looped and covered with hose as per the Habisure method, to protect, and allow for the uninhibited growth of trees. Box bases will have three drainage holes no more than 10mm in diameter.

Nest boxes will be orientated for species suitability such as; Microbat nest boxes shall be orientated at a north to north-westerly aspect, while bird and mammal nest boxes shall be orientated at an east facing aspect. A layer of leaf litter will be placed into nest boxes to provide insulation and building materials for fauna.

5.4 Weed Management

Weed Control works within each Management Zone are to be undertaken by a qualified bushland regeneration team using industry standards (summary provided in **Table 2**). Weeds have a significant impact on structural integrity of vegetation communities. Flora surveys identified 44 exotic species, with the following list being the most prevalent within the vegetation communities on site;

Lantana (*Lantana camara*), Camphor Laurel (*Cinnamomum camphora*), Small-leaved privet (*Ligustrum sinense*), Blackberry (*Rubus fruticosus*) Black Nightshade (*Solanum nigrum*), Cobbler’s Peg (*Bidens pilosa*) and Asparagus Fern (*Asparagus aethiophiticus*).

Exotic grasses comprise *Paspalum dilatatum* and Narrow-leaf carpet grass (*Axonopus fissifolius*).

Any reproductive material of weeds, including weeds that can spread vegetatively or seeds, must be taken off site to be disposed of at an appropriate local waste collection service. No weed material with the potential of spreading may be stockpiled within the Subject Site, or the BMP Lands.

The *Biosecurity Act 2015* outlines several ‘duties’; the general biosecurity duty, and additional duties under mandatory measures, regional measures, prohibited matter or biosecurity zone. Specific actions for these measures may be required. Weed control is required to occur in the following sequence:

1. **Primary Weeding** – this is where weeds are removed from Management Zones.
2. **Consolidation** – over the next few months, the weed control zones will require monthly visits to remove weeds that are regenerating and/or have grown in response to the disturbance and are competing with planted and regenerating native plants. These visits are essential, otherwise the weeds will recolonise, dominate and inhibit the regeneration of native species.
3. **Maintenance Weeding** – After the sixth-month and will continue on a monthly basis, due to woody weeds, and other annual weeds being problematic within the locality.

This interval will be evaluated based on site condition during each monitoring period. Weed control works across the site are to be undertaken over the maintenance period of two (2) years, however given the adaptive management approach, this time-frame is flexible, and may need to be extended based on changing site conditions and results indicating management zones have reached targets set out in this BMP.

5.5 Fauna Management

Macropods and possums were recorded as occurring onsite and in the local area. Therefore, protection guards should be placed around plantings so that revegetation efforts within BMP lands are not compromised by grazing. If monitoring within management zones indicates pest species pose notable impediments to achieving the aims of the BMP (i.e., through

excessive browsing, etc.), then management actions will be reviewed to address these issues.

Incidental fauna records are to be undertaken during monitoring surveys and reported.

6.0 Project Management

Establishment of monitoring points and compliance checking of other aspects within this BMP will be the responsibility of the Project Ecologist working with the Civil Contractor.

The client will be responsible for the engagement of a suitably qualified Bush Regeneration Contractor to undertake weed control and planting works outlined in this BMP.

Bush Regenerator(s) or company(s) shall have the following qualifications;

- Australian Association of Bush Regenerators (AABR) Accreditation. The Bush Regenerators shall hold a current AQF3 qualification.
- Site Supervisor must have demonstrated minimum of 2 years’ experience in the bush regeneration or related field and must have experience at a supervisory level in providing training, supervision and technical advice to staff, clients, volunteers and members of the public.
- The Site Supervisor must hold a current AQF 3 qualification or higher and must have completed the Bush Regeneration Level IV Certificate or have a diploma or degree in a field related to natural resource management.

The Project Ecologist will be responsible for the establishment of monitoring points within the BMP lands along with collection of baseline data that will be monitored against this over the three-year period of this BMP with the overall targets. The Project Ecologist will be responsible for monitoring and reporting on weed management, and Regeneration Approach success.

6.1 Monitoring

Monitoring will occur at commencement and biannual basis at the proposed monitoring points (refer **Figure 3**).

6.1.1 Baseline Data

Baseline data is collected at commencement of the BMP refer **Section 5.2**.

6.1.2 Biannual Monitoring

This is to occur every six months from commencements or reaching of targets (which every is the latter);

- Weed species, coverage and location;
- Native species, coverage and location;
- Effectiveness of weed control methods;
- Photo records at monitoring points at each aspect (North, east, south, west);

- General health of each Management Zone;
- Incidental fauna use of site; and

Evaluation of management effectiveness.

6.2 Reporting

A baseline report is prepared at commencement of the BMP and submitted to Council.

A report is to be prepared annually and delivered to the consent authority for the life of the BMP with a final report prepared at the end of the BMP outlining how the conditions of the BMP have been met.

Biannual monitoring will inform the evaluation of management effectiveness, until the Regeneration Benchmark Targets are met.

As part of adaptive management, the reports will include evaluations and recommendations relating to all areas covered in the monitoring schedule and also address any other problems or deficiencies found during monitoring. If required the report should also outline any changes that are required to planned works to ensure better ecological outcomes.

As the BMP lands will then be in a state of Natural Regeneration, management of the site after targets have been achieved will be undertaken in accordance with the *Biosecurity Act 2015* & *Biosecurity Regulations 2017*.

Table 2 – Control Activities

Activity	Minimum Requirement
Pre-works	Undertake baseline surveys to identify priority weeds present on site to be the focus of weed management activities. Priority weeds based on listings under the <i>Biosecurity Act 2015</i> , and notably problematic weeds on site have been identified, and listed in Section 5.4 .
Primary Works	Effectively control priority species and areas through appropriate methods to eliminate highly competitive weeds from an area. Include high disturbance activities that could negatively impact later regeneration such as high-volume herbicide application, and physical removal of large trees which would pose safety hazards to the public or others if left to perish <i>in-situ</i> .
Secondary Works	Treat any regrowth from primary weed control and expand on control measures by targeting priority species and expanding the primary control boundaries where desirable. Retain thin weeds to increase light penetration where appropriate. Generally, expand on and solidify primary work.
Maintenance Works	Maintain exclusion of weeds controlled during Primary and Secondary works. Prevent reinfestation of weeds progressively, and others as time permits.
Woody Trees & Shrubs	Where appropriate, remove trees via mechanical means (i.e., chainsaw or handsaw) and apply chemical to the cut stump. Material may be retained on-Site or disposed of appropriately off-Site. Retained material should be situated to provide additional ground habitat and slope stability but should not be left in such a way that would hamper natural regeneration or existing native plants. Care should be taken with species which have the capacity to regrow vegetatively such as <i>Erythrina x sykesii</i> (Coral Tree). Alternatively, trees and shrubs may be treated via frill or drill application of herbicide and left to perish <i>in-situ</i> as habitat.
Woody Thickets	Treat via cut or scrape and paint or high-concentration low-volume foliar herbicide control (i.e., splatter application). Material may be left <i>in-situ</i> (particularly after spraying) or broken up and rafted off the ground to perish (taking care to remove from expected high flow areas of the dam). Do not manually remove root stock in a manner that will encourage soil instability or erosion. Once dead, standing material may be broken down and left on the ground as mulch. Mechanical removal (i.e., brush cutter equipped with mulching blade or similar) may be used where practical and regrowth treated with foliar application of herbicide.
Vines and Creepers	Skirt from trees and vegetation to prevent smothering and leave material to perish <i>in-situ</i> . Cut or scrape and paint stems or runners. Foliar herbicide control where appropriate. Do not unduly expose soil via manual removal of plants where they may be providing soil stabilisation. Isolated manual removal as appropriate.
Ground Cover	Retain exotic species where they are providing ground stabilisation or habitat until such time as they hinder native species establishment or are no longer necessary. Relevant examples include retaining <i>Tradescantia fluminensis</i> (Trad) along drainage lines where removal would expose bare soil to erosion. Weed control is to focus on the patch removal of such weeds from around native regeneration or planting, with progressive removal of larger patches over time.
Retention of forage/habitat	Retain trees and shrubs that have evidence of occupation i.e., bird nest/possum dreys, until such time as other suitable habitat is available or the nest is abandoned. Retain manageable clumps of vegetation that can be easily removed at a later date for intermediate food and habitat supply within the semi-cleared and disturbed landscape, which will emerge between weed control and establishment of native plants.
	These retained features can be removed as they become redundant at the discretion of the Bush Regeneration Contractor (BRC).

Disclaimer: While 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.

Cadastre

Lot Boundary

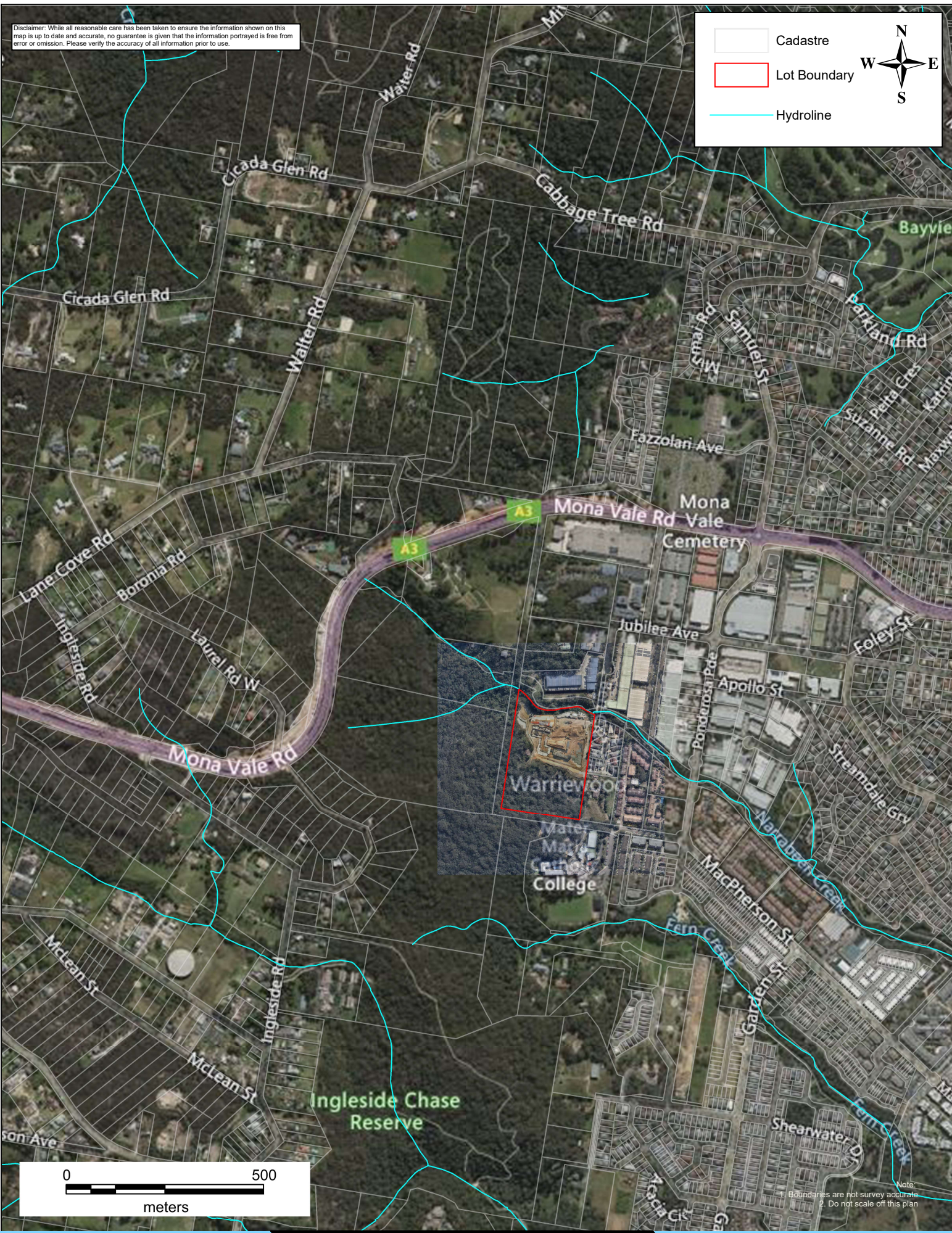
Hydroline

N

W

E

S



AEP

Title: Figure 1 - Site Location

Date: January 2024

Location: 8 Forest Road, Warriewood NSW

Client: Kuatro Pty Ltd

AEP Ref: 3006.01

Legend



Cadastral



Lot Boundary



Hydroline



Ground - truthed Vegetation



Coastal Enriched Sandstone Dry Forest (PCT 1776)



Coastal Enriched Sandstone Dry Forest (derived) (PCT 1776)



Coastal Enriched Sandstone Moist Forest (PCT 1841)



Coastal Sandstone Gallery Rainforest (PCT 1828)



Coastal Escarpment Littoral Rainforest EEC (PCT 1833)



Exotic Dominated Riparian Vegetation



Ground - truthed Creekline



Note:
1. Boundaries are not survey accurate
2. Do not scale off this plan



AEP

Title: Figure 2 - Ground - truthed Vegetation

Date: January 2024

Location: 8 Forest Road, Warriewood NSW

Client: Kuatro Pty Ltd

AEP Ref:3006.01

Disclaimer: While 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.

Legend

Lot Boundary

Cadastre

Ground-truthed Creek Line

Management Zones

Zone 1 - Reconstruction (Aquatic Zone)

Zone 2 - Reconstruction

Indicative Monitoring Points

N

W

E

S

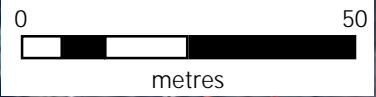


Figure 3 - Management Zones and Monitoring Points

Location: 8 Forest Road, Warriewood, NSW

Client: Kuarto Pty Ltd

Date: January 2024

AEP Ref: 3006.01



7.0 Works Schedule

Prior to commencement of the BMP the Baseline Data Report must be prepared and submitted to Council.

Table 3 – Targets and Schedule of Works

Timeframe	Works to be Undertaken	1 st Quarter of Year	2 nd Quarter of Year	3 rd Quarter of Year	4 th Quarter of Year	Targets to be reached at end of 4 th Quarter		
						Abundance of Natives (%)	Cover of Native (%)	Cover of Weeds (%)
Year 1	Installation of No-Go Zones, fencing and signs					40	45	<50
	Installation of Monitoring Points							
	Collection of baseline data							
	Installation of sediment and erosion controls							
	Installation of nest boxes							
	Installation of Ground habitat							
	Preparation of Baseline Data Report							
	Primary Weeding (Effectively control priority species and areas through appropriate methods to eliminate highly competitive weeds from an area. Include high disturbance activities that could negatively impact later regeneration such as high-volume herbicide application, and physical removal of large trees which would pose safety hazards to the public or others if left to perish <i>in-situ</i>) of all zones – focus is on Biosecurity Weeds (refer Appendix B for DPI Priority Weeds for Greater Sydney)							
	Planting within reconstruction zones (refer to Appendix A for suitable plants in each PCT)							
	Installation of tree guards for pest control if required							
	Secondary Weeding- focus is on Biosecurity Weeds (refer Appendix B for DPI Priority Weeds for the Greater Sydney)							
	Replacement dead / dying plantings							
	Biannual monitoring							
	Annual Reporting to Council							
At end of the first year the entire BMP Land will be a Facilitated Regeneration state in accordance with Society for Ecological Restoration Australasia (2018) National standards for the practice of ecological restoration in Australia.								
Year 2	Annual inspection of No-Go Zones, fencing and signs					65	65	<20
	Annual inspection of sediment and erosion controls (or after rainfall events)							
	Annual inspection of ground habitat							
	Replacing dead / dying plantings							
	Weed management as required to achieve annual targets							
	Replacement of dead or dying plants							
	Biannual monitoring of both terrestrial and aquatic environments including water quality data							
	Biannual inspection or Installation of tree guards for pest control if required							
	Annual Reporting Council							
At end of second year the entire BMP Land will be a state of Natural Regeneration in accordance with Society for Ecological Restoration Australasia (2018) National standards for the practice of ecological restoration in Australia.								

8.0 References

- Anderson Environment & Planning (2020). *Ecological Assessment Report for Residential Development at 8 Forest Road Warriewood, NSW*, Rev 1. Unpublished report for Jackson Teece, August, 2020.
- Auld, B A & Medd, R W, (1992) *Weeds, An Illustrated Botanical Guide to the Weeds of Australia*. Inkata Press, Sydney.
- Bradley, J (2002) *Bringing back the Bush: the Bradley Method of Bush Regeneration*. Lansdowne Publishing. Sydney.
- Brisbane City Council, (2003), *Natural Channel Design Guidelines* Issue B. Brisbane City Council, Brisbane, Queensland.
- Cropper, S (1993) *Management of Endangered Plants*. CSIRO Publishing, Collingwood, Victoria.
- Davies, P & Dixon, P (2003) *Bush Regeneration: A Practical Guide to Contract Management*. Environment Protection Authority (NSW).
- Department of Primary Industries (2012) *Guidelines for Vegetation Management Plans on Waterfront Land*. Office of Water (NSW)
- Harden, G (ed) (2000) *Flora of New South Wales*, Volume 1. Revised edition. UNSW, Kensington, NSW.
- Harden, G (ed) (2002) *Flora of New South Wales*, Volume 2. Revised edition. UNSW, Kensington, NSW.
- Harden, G (ed) (1992) *Flora of New South Wales*, Volume 3. UNSW, Kensington, NSW.
- Harden, G (ed) (1993) *Flora of New South Wales*, Volume 4. UNSW, Kensington, NSW.
- Landcom (2004) *Managing Urban Stormwater: Soils and Construction*. Landcom Parramatta.
- Mortlock, W (1998) *Florabank Guideline 5: Seed Collection from Woody Plants for Local Revegetation*. Florabank, ACT.
- Northern Beaches Council (2018). *Warriewood Valley Landscape, Masterplan and Design Guidelines*, (Public Domain).
- NSW Department of Primary Industry (No Date) *NSW Weedwise*. <https://weeds.dpi.nsw.gov.au/>
- OEH (2014) *Threatened Species, Populations and Ecological Communities*. (<https://www.environment.nsw.gov.au/threatenedspeciesapp/>).
- Robinson, L (1991) *Field Guide to the Native Plants of Sydney*. Revised Second Edition. Kangaroo Press.
- Site Design + Studios (SDS), (2022). *Drawing 15-826. Landscape Master Plan for Warriewood Vale Development, 8 Forest Road, Warriewood*. Unpublished report for Warriewood Vale Pty Ltd.
- Society for Ecological Restoration Australasia (SERA) (2018) *National standards for the practice of ecological restoration in Australia*. Society for Ecological Restoration Australasia.
- Strahan, R (2004) *The Mammals of Australia*. New Holland Publishers.

Appendix A – Planting Schedule and Species List

Planting List

Botanic Name	Density
Zone 1 - PCT 1828	
Canopy	
<i>Acmea smithii</i>	3 per 10sqm
<i>Ceratopetalum gummiferum</i>	3 per 10sqm
<i>Eucayptus botryoides</i>	1 per 10sqm
<i>Eucalyptus robusta</i>	1 per 10sqm
<i>Casurarina glauca</i>	1 per 10sqm
<i>Melaleuca ericifolia</i>	1 per 10sqm
<i>Livistonia australis</i>	1 per 10sqm
<i>Banksia integrifolia</i>	1 per 10sqm
<i>Eucalyptus punctate</i>	1 per 10sqm
<i>Cyathea australis</i>	1 per 10sqm
<i>Ficus rubiginosa</i>	1 per 10sqm
<i>Ficus coronata</i>	1 per 10sqm
<i>Tristaniopsis laurina</i>	1 per 10sqm
<i>Angophora floribunda</i>	1 per 10sqm
<i>Angophora costat</i>	1 per 10sqm
<i>Glochidion ferninandi</i>	1 per 10sqm
Shrubs	
<i>Acacia suaveolens</i>	3 per 10sqm
<i>Banksia spinulosa</i>	3 per 10sqm
<i>Grevillea sericea</i>	6 per 10sqm
<i>Macrozamis communis</i>	1 per 10sqm
<i>Melaleuca hypericifolia</i>	3 per 10sqm
<i>Ceratopetalum gummiferum</i>	3 per 10sqm
Groundcovers	
<i>Hibbertia scandens</i>	10 per 10sqm
<i>Baurea rubiodes</i>	10 per 10sqm
<i>Cissus hypoglauca</i>	10 per 10sqm
<i>Ghnia hypoglauca</i>	10 per 10sqm
<i>Juncua spp</i>	40 per 10sqm
<i>Lomandra longifolia</i>	15 per 10sqm
<i>Microlaena stipoides</i>	20 per 10sqm

Botanic Name	Density
Zone 1 – Aquatic Zone	
<i>Baumea articulata</i>	10 per 10sqm
<i>Baumea juncea</i>	10 per 10sqm
<i>Baumea ribignosa</i>	10 per 10sqm
<i>Bolboschoenus fluviatilis</i>	10 per 10sqm
<i>Bolboschoenus cadwelli</i>	10 per 10sqm
<i>Eleocharis sphacelate</i>	10 per 10sqm
<i>Philydrum languinosum</i>	10 per 10sqm
<i>Schenoplectur validus</i>	10 per 10sqm
<i>Triglochin procera</i>	10 per 10sqm

Appendix B – Priority Weeds of Greater Sydney

Priority Weeds of Greater Sydney

Note: this region includes the local council areas of Bayside Council, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Central Coast, City of Parramatta, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby Shire Council, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, North Sydney, Northern Beaches, Penrith, Randwick, Ryde, Strathfield, Sutherland, Sydney, The Hills , Waverley, Willoughby, Wollondilly and Woollahra.

Weed	Duty
All plants	General Biosecurity Duty. All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. 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 practicable.
Aaron's beard prickly pear <i>Opuntia leucotricha</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
African boxthorn <i>Lycium ferocissimum</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
African olive <i>Olea europaea subsp. cuspidata</i>	Regional Recommended Measure. Land managers mitigate the risk of the plant being introduced to their land. Land managers reduce impacts from the plant on priority assets. Land managers prevent spread from their land where feasible. The plant or parts of the plant are not traded, carried, grown or released into the environment
Alligator weed <i>Alternanthera philoxeroides</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Biosecurity Zone. The Alligator Weed Biosecurity Zone is established for all land within the state except land in the following regions: Greater Sydney; Hunter (but only in the local government areas of City of Lake Macquarie, City of Maitland, City of Newcastle or Port Stephens).. Within the Biosecurity Zone this weed must be eradicated where practicable, or as much of the weed destroyed as practicable, and any remaining weed suppressed. The local control authority must be notified of new infestations of this weed within the Biosecurity Zone
Anchored water hyacinth <i>Eichhornia azurea</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Arrowhead <i>Sagittaria calycina var. calycina</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Asparagus fern <i>Asparagus virgatus</i>	Regional Recommended Measure. Exclusion zone: whole of region except Newcastle and Lake Macquarie. Core infestation area: Newcastle and Lake Macquarie. Whole of region: Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Within exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Notify the Local Control Authority if found. Land managers should mitigate spread from their land. Within Core infestation: Land managers to reduce impacts from the plant on priority assets.
Athel pine <i>Tamarix aphylla</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Bellyache bush <i>Jatropha gossypifolia</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Bitou bush <i>Chrysanthemoides monilifera subsp. rotundata</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Biosecurity Zone. The Bitou Bush Biosecurity Zone is established for all land within the State except land within 10 kilometres of the mean high-water mark of the Pacific Ocean between Cape Byron in the north and Point Perpendicular in the south. Within the Biosecurity Zone this weed must be eradicated where practicable, or as much of the weed destroyed as practicable, and any remaining weed suppressed. The local control authority must be notified of any new infestations of this weed within the Biosecurity Zone
Black knapweed <i>Centaurea x moncktonii</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Black willow <i>Salix nigra</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. The plant is eradicated from the land and the land is kept free of the plant. Local Control Authority is notified if the plant is found on the land.
Blackberry <i>Rubus fruticosus species aggregate</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Rubus fruticosus</i> species aggregate have this requirement, except for the varieties Black Satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, Smooth Stem, and Thornfree
Blind cactus <i>Opuntia rufida</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Boneseed <i>Chrysanthemoides monilifera subsp. monilifera</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Control Order. Boneseed Control Zone (Whole of NSW): Owners and occupiers of land on which there is boneseed must notify the local control authority of new infestations; immediately destroy the plants; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of boneseed must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant.
Boxing glove cactus <i>Cylindropuntia fulgida var. mamillata</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Bridal creeper <i>Asparagus asparagoides</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale *this requirement also applies to the Western Cape form of bridal creeper
Bridal veil creeper <i>Asparagus declinatus</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Broomrapes <i>Orobanche sp.</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify DPI. All species of Orobanche are Prohibited Matter in NSW, except Clover broomrape, Orobanche minor and Australian broomrape, Orobanche cernua var. australiana.
Bunny ears cactus <i>Opuntia microdasys</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Cabomba <i>Cabomba caroliniana</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify authority if found.
Cane cactus <i>Austrocylindropuntia cylindrica</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the Austrocylindropuntia genus have this requirement
Cape broom <i>Genista monspessulana</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Cat's claw creeper <i>Dolichandra unguis-cati</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. The plant should not be bought, sold, grown, carried or released into the environment. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread from their land. managers to reduce impacts from the plant on priority assets.
Chicken dance cactus <i>Opuntia schickendantzii</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Chilean needle grass <i>Nassella neesiana</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Chinese knotweed <i>Persicaria chinensis</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Chinese violet <i>Asystasia gangetica subsp. micrantha</i>	Control Order. Owners and occupiers of land on which there is Chinese violet must notify the local control authority for the area if the Chinese violet is part of a new infestation on the land, destroy all Chinese violet on the land ensuring that subsequent generations of Chinese violet are destroyed; and keep the land free of Chinese violet. A person who deals with a carrier of Chinese violet must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier.

Priority Weeds of Greater Sydney

Note: this region includes the local council areas of Bayside Council, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Central Coast, City of Parramatta, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby Shire Council, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, North Sydney, Northern Beaches, Penrith, Randwick, Ryde, Strathfield, Sutherland, Sydney, The Hills , Waverley, Willoughby, Wollondilly and Woollahra.

Weed	Duty
Climbing asparagus <i>Asparagus africanus</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Common pear <i>Opuntia stricta</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Cora Creeper <i>Barleria repens</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
East Indian hygrophila <i>Hygrophila polysperma</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Eurasian water milfoil <i>Myriophyllum spicatum</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Eve's needle cactus <i>Austrocylindropuntia subulata</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Austrocylindropuntia</i> genus have this requirement
Fireweed <i>Senecio madagascariensis</i>	Prohibition on certain dealings Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Flax-leaf broom <i>Genista linifolia</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Foxtail fern <i>Asparagus densiflorus</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Frogbit <i>Limnobium laevigatum</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI. All species of <i>Limnobium</i> are Prohibited Matter
Gamba grass <i>Andropogon gayanus</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Giant devil's fig <i>Solanum chrysotrichum</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Giant Reed <i>Arundo donax</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.
Giant rat's tail grass <i>Sporobolus pyramidalis</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Glory lily <i>Gloriosa superba</i>	Regional Recommended Measure. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Gorse <i>Ulex europaeus</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Exclusion zone: Blue Mountains City Council area. Core infestation area: rest of region. Whole region: Land managers should mitigate the risk of new weeds being introduced to their land. The plant or parts of the plant should not be traded, carried, grown or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Core infestation area: Land managers should mitigate spread from their land.
Green cestrum <i>Cestrum parqui</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Grey willow <i>Salix cinerea</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Ground asparagus <i>Asparagus aethiopicus</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Groundsel bush <i>Baccharis halimifolia</i>	Regional Recommended Measure The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Hawkweeds <i>Pilosella species</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify DPI. All species in the genera <i>Pilosella</i> and <i>Hieracium</i> are Prohibited Matter except for <i>Hieracium murorum</i> .
Holly leaved senecio <i>Senecio glastifolius</i>	Regional Recommended Measure. Exclusion zone: whole region except for the core infestation area of the Royal National Park. Whole region: Land managers mitigate the risk of the plant being introduced to their land. The plant or parts of the plant are not traded, carried, grown or released into the environment. The Local Control Authority should be notified if the plant is found. Exclusion zone: The plant is eradicated and the land kept free of the plant. Core infestation area: Land managers prevent spread from their land where feasible. Land managers reduce impacts from the plant on priority assets.
Horsetails <i>Equisetum species</i>	Regional Recommended Measure. Exclusion zone: whole of region except Northern Beaches local government area. The Northern Beaches local government area is the core area. Whole region: Land managers mitigate the risk of the plant being introduced to their land. Local Control Authority is notified if the plant is found on the land. The plant or parts of the plant are not traded, carried, grown or released into the environment. Exclusion zone: The plant is eradicated from the land and the land is kept free of the plant. Core area: Land managers prevent spread from their land where feasible.
Hudson pear <i>Cylindropuntia pallida</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Hydrocotyl <i>Hydrocotyle ranunculoides</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Hygrophila <i>Hygrophila costata</i>	Regional Recommended Measure. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Hymenachne <i>Hymenachne amplexicaulis</i> and hybrids	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify authority if found.
Karoo acacia <i>Vachellia karroo</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Kidney-leaf mud plantain <i>Heteranthera reniformis</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.

Priority Weeds of Greater Sydney

Note: this region includes the local council areas of Bayside Council, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Central Coast, City of Parramatta, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby Shire Council, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, North Sydney, Northern Beaches, Penrith, Randwick, Ryde, Strathfield, Sutherland, Sydney, The Hills , Waverley, Willoughby, Wollondilly and Woollahra.

Weed	Duty
Kochia <i>Bassia scoparia</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI. Excluding the subspecies <i>trichophylla</i>
Koster's curse <i>Clidemia hirta</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Kudzu <i>Pueraria lobata</i>	Regional Recommended Measure. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Lagarosiphon <i>Lagarosiphon major</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Lantana <i>Lantana camara</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Leaf cactus <i>Pereskia aculeata</i>	Regional Recommended Measure. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Ludwigia <i>Ludwigia peruviana</i>	Regional Recommended Measure. Land managers mitigate the risk of the plant being introduced to their land. Land managers prevent spread from their land where feasible. Land managers reduce the impact on priority assets. The plant should not be bought, sold, grown, carried or released into the environment. Local Control Authority is notified if the plant is found on the land.
Madeira vine <i>Anredera cordifolia</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Mesquite <i>Prosopis</i> species	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the genus <i>Prosopis</i> have this requirement
Mexican feather grass <i>Nassella tenuissima</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Miconia <i>Miconia</i> species	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI. All species of <i>Miconia</i> are Prohibited Matter in NSW
Mikania vine <i>Mikania micrantha</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI. *all species in the genus <i>Mikania</i> are Prohibited Matter in NSW
Mimosa <i>Mimosa pigra</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Ming asparagus fern <i>Asparagus macowanii</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Mysore thorn <i>Caesalpinia decapetala</i>	Regional Recommended Measure. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment.
Nodding thistle <i>Carduus nutans</i> subsp. <i>nutans</i>	Regional Recommended Measure. <i>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.</i>
Pampas grass <i>Cortaderia</i> species	Regional Recommended Measure. Exclusion zone: Upper Hunter local government area. Core infestation area: Port Stephens, Maitland, Cessnock, Lack Macquarie, Newcastle and MidCoast local government areas. Whole region: The plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Land managers should mitigate the risk of the plant being introduced to their land. Core infestation area: Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.
Parkinsonia <i>Parkinsonia aculeata</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Control Order. Parkinsonia Control Zone: Whole of NSW. Parkinsonia Control Zone (Whole of NSW): Owners and occupiers of land on which there is parkinsonia must notify the local control authority of new infestations; immediately destroy the plants; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of parkinsonia must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant.
Parthenium weed <i>Parthenium hysterophorus</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI. Prohibition on certain dealings. The following equipment must not be imported into NSW from Queensland: grain harvesters (including the comb or front), comb trailers (including the comb or front), bins used for holding grain during harvest operations, augers or similar for moving grain, vehicles used to transport grain harvesters, support vehicles driven in paddocks during harvest operations, mineral exploration drilling rigs and vehicles used to transport those rigs, unless set out as an exception in Division 5, Part 2 of the Biosecurity Order (Permitted Activities) 2017
Paterson's curse <i>Echium plantagineum</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Pond apple <i>Annona glabra</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter immediately notify DPI
Prickly acacia <i>Vachellia nilotica</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter immediately notify DPI
Prickly pears - <i>Austrocylindropuntias</i> species	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Austrocylindropuntia</i> genus have this requirement
Prickly pears - <i>Cylindropuntias</i> <i>Cylindropuntia</i> species	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Cylindropuntia</i> genus have this requirement
Prickly pears - <i>Opuntias</i> <i>Opuntia</i> species	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. For all <i>Opuntia</i> species except for <i>Opuntia ficus-indica</i> (Indian fig).
Rattlepod <i>Crotalaria beddomeana</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Rope pear <i>Cylindropuntia imbricata</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Cylindropuntia</i> genus have this requirement
Rubber vine <i>Cryptostegia grandiflora</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Sagittaria <i>Sagittaria platyphylla</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Salvinia <i>Salvinia molesta</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets. This Regional Recommended Measure applies to <i>Salvinia molesta</i> and <i>Salvinia minima</i>

Priority Weeds of Greater Sydney

Note: this region includes the local council areas of Bayside Council, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Central Coast, City of Parramatta, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby Shire Council, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, North Sydney, Northern Beaches, Penrith, Randwick, Ryde, Strathfield, Sutherland, Sydney, The Hills , Waverley, Willoughby, Wollondilly and Woollahra.

Weed	Duty
Scotch broom <i>Cytisus scoparius subsp. scoparius</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Exclusion zone: whole region except for the core infestation area of the Upper Hunter (Barrington Tops). Whole region: The plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Land managers should mitigate the risk of the plant being introduced to their land. Core infestation area: Land managers to reduce impacts from the plant on priority assets.
Sea spurge <i>Euphorbia paralias</i>	Regional Recommended Measure. Exclusion zone: whole region except for the core infestation area of Yaccaba Peninsula, Hawks Nest. Whole region: The plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Land managers should mitigate the risk of the plant being introduced to their land. Core infestation area: Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.
Senegal tea plant <i>Gymnocoronis spilanthoides</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Serrated tussock <i>Nassella trichotoma</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Siam weed <i>Chromolaena odorata</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Sicilian sea lavender <i>Limonium hyblaenum</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Sicklethorn <i>Asparagus falcatus</i>	Regional Recommended Measure Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Silverleaf nightshade <i>Solanum elaeagnifolium</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Smooth tree pear <i>Opuntia monacantha</i>	Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Snakefeather <i>Asparagus scandens</i>	Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Exclusion zone: Hunter region except Cessnock and Lake Macquarie. Core infestation area: Cessnock and Lake Macquarie. Whole of region: Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Exclusion Zone: The plant should be eradicated from the land and the land kept free of the plant. Notify the Local Control Authority if found. Within Core infestation: Land managers to reduce impacts from the plant on priority assets.
Spongeplant <i>Limnobium spongia</i>	Prohibited Matter A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify DPI. All species of <i>Limnobium</i> are Prohibited Matter
Spotted knapweed <i>Centaurea stoebe subsp. micranthos</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware or suspects the presence of prohibited matter must notify DPI
Tiger pear <i>Opuntia aurantiaca</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Tropical soda apple <i>Solanum viarum</i>	Control Order. Tropical Soda Apple Control Zone: Whole of NSW. Tropical Soda Apple Control Zone (Whole of NSW): Owners and occupiers of land on which there is tropical soda apple must notify the local control authority of new infestations; destroy the plants including the fruit; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of tropical soda apple must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier.
Velvety tree pear <i>Opuntia tomentosa</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
Water caltrop <i>Trapa</i> species	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify DPI. All species in the <i>Trapa</i> genus are Prohibited Matter in NSW
Water hyacinth <i>Eichhornia crassipes</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale Biosecurity Zone. The Water Hyacinth Biosecurity Zone applies to all land within the State, except for the following regions: Greater Sydney or North Coast, North West (but only the local government area of Moree Plains), Hunter (but only in the local government areas of City of Cessnock, City of Lake Macquarie, MidCoast, City of Maitland, City of Newcastle or Port Stephens), South East (but only in the local government areas of Eurobodalla, Kiama, City of Shellharbour, City of Shoalhaven or City of Wollongong). Within the Biosecurity Zone this weed must be eradicated where practicable, or as much of the weed destroyed as practicable, and any remaining weed suppressed. The local control authority must be notified of any new infestations of this weed within the Biosecurity Zone
Water lettuce <i>Pistia stratiotes</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Water soldier <i>Stratiotes aloides</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI
Water star grass <i>Heteranthera zosterifolia</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Wheel cactus <i>Opuntia robusta</i>	Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale.
White blackberry <i>Rubus niveus</i>	Regional Recommended Measure. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
Willows <i>Salix</i> species	Prohibition on certain dealings Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the <i>Salix</i> genus have this requirement, except <i>Salix babylonica</i> (weeping willows), <i>Salix x calodendron</i> (pussy willow) and <i>Salix x reichardtii</i> (sterile pussy willow)
Witchweeds <i>Striga</i> species	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify DPI. All species in the <i>Striga</i> genus are Prohibited Matter in NSW, except the native <i>Striga parviflora</i>
Yellow burrhead <i>Limncharis flava</i>	Prohibited Matter. A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must notify DPI

Appendix C – VMP Lands Signage

NO UNAUTHORISED ENTRY

This is a Vegetation Rehabilitation Area

- **NO DUMPING or WASTE DISPOSAL**
- **NO ANIMALS, VEHICLES or
MACHINERY**

For information – contact Site Manager

Appendix D – Authors’ CVs

Personnel	Title & Qualification	Tasks
Natalie Black	Senior Environmental Manager BSc (Hons), Master Planning, Cert IV (TA) BAAS: 19076	Report Reviewer
Tim Mouton	Senior Botanist BEnvSc BAAS: 19083	Field Surveys
Sarah Currie	Ecologist BAppSc Wildlife Science	Field Surveys Mapping
Dennis Neader	Senior Ecologist BSc EnvGeo	Author

Dennis Neader Curriculum Vitae

Dennis works with AEP in the role of senior ecologist. He is an experienced bird watcher and a regular participant in Hunter Bird Observers' Club (HBOC) Bird Surveys in the wider Hunter Valley. Dennis has previously had a varied career as an environmental scientist, contaminated land consultant and bush regenerator with local firms. His background in birdwatching, post-approval project management and bush regeneration, combined with his ecological knowledge is utilised in a diverse array of applications in his current role.

Qualifications

Bachelor of Science (Environmental Geoscience) University of Newcastle (2011).

Further Education & Accreditations

- NSW Class HR Driver's Licence, experienced 4WD operator.
- Current Senior First Aid, ChemCert, EWP, Rigging, Chainsaw Operation and Maintenance, Light Forklift Truck.
- Open Water PADI Dive Certificate.
- Non-Friable Asbestos Removal.

Fields of Competence

- Ecological field survey, covering terrestrial and aquatic flora and fauna.
- Avifauna surveys, including challenging wetland and bushland environs.
- Native plant ID and seed collection.
- Field transects survey for cryptic flora species, Native plant ID and seed collection.
- Field survey for terrestrial fauna species including bird and reptile survey, koala habitat and SAT assessment, microbat, mammal track, scat identification and herpetological survey.
- Spotlighting, call playback, and stag watch for arboreal mammal species, including Forest Owls, Squirrel Glider and Koala.
- Trapping and translocation work with mammals, reptiles and amphibians.
- Remote trapping including SongMeter and camera trapping emplacement and analysis.
- Post-approval Project management including Fauna Welfare.
- Bush regeneration.
- Contaminated Land – Asbestos Identification and Removal.

Relevant Employment History

- 2016 – Present Senior Ecologist, Anderson Environment & Planning
- 2014 - 2016 Env. Scientist, JM Environments, Newcastle
- 2010 - 2014 Env. Technician, AECOM, GIS Technician, Geodata, Newcastle
- 2006 – 2010 Coal Superintending, ALS & SGS Newcastle

Relevant Ecological Experience

- Bird Surveys Hunter Bird Observers Club. Avifauna Baseline Surveys Broughton Is, targeted surveys.
- NPWS - Population Surveys Gould's Petrel Cabbage Tree Island Port Stephens.
- Bush Regeneration, Plant ID and Seed Collection, Dune Care, Coral Reef Research Lady Elliot Island

Professional Affiliations / Memberships

- Birdlife Australia, Society for Growing Australian Plants, Australian Assoc. of Bush Regenerators.

Natalie Black

Curriculum Vitae

Natalie works with AEP in the role of Senior Environmental Manager. She has extensive knowledge in environmental management, environmental planning, and report writing and assessment. With a detail understanding of planning, catchment management, coastal management and rehabilitation. Natalie has had a successful career with both state and local government in conservation, planning and field investigation roles. Natalie has also gained extensive communication skills and project management through her previous career in lecturing. Her background and experience in the ecological and planning fields is utilised in a diverse array of application in her current role.

Qualifications

- B.Sc (Hons), University of Newcastle, 2002 Sustainable Resource Management and Marine Science.
- Master Planning, University of Technology Sydney 2007.
- Certificate IV Training and Assessment at NSW TAFE 2012.
- BAM Assessor; accreditation number: BAAS19076.

Further Education & Training

- Evidence Gathering and Legal Process (Australian Institute of Environmental Health).
- Conflict Resolution Course (LGSA).
- Report Writing Course (LGSA).
- Powerful Presentation (LGSA).
- NSW Rural Fire Services Bush Fire Assessment
- Relocation of Threatened Species (Botanical Gardens Sydney).
- Sustainable Home Assessment Reduction Revolution.
- Flora and Fauna Survey Assessments Niche Environment and Heritage.
- First Aid TAFE.

Fields of Competence

- Environmental Planning
- Environmental Management and rehabilitation of catchments coastal waterways. Statement of Environmental Effects (preparation and assessing).
- Fish Passage
- Marine ecosystems including; mangroves, seagrasses, algae, Fauna and habitat assessment.
- vegetation.
- Communicating with a wide range of stakeholders.
- Development Application.
- Education in both Environmental and Planning industries.
- Koala Plans of Management.
- Policy Development.

Relevant Employment History

2019 – Present	Senior Environmental Manager Anderson Environment & Planning, Newcastle
2010 - 2019	Principal Environmental Planner Black Earth
2003-2010	Natural Resource Manager and Development Assessment Officer Lismore City
2002- 2003	Jervis Bay Indigenous Fishing Strategy

SARAH CURRIE

Curriculum Vitae

Sarah works with AEP in the role of Ecologist. She is a graduate of environmental science and management, she conducted ecological field studies as a requirement of her degree courses gaining experience in the field. Her ecological knowledge and experience is utilised in a diverse array of applications in her current role.

Qualifications

- Bachelor Environmental Science & Management (Marine) University of Newcastle (2020)

Further Education & Training

- NSW Class C Driver's Licence

Fields of Competence

- Ecological field survey, covering terrestrial flora and fauna
- Growing proficiency at botanical surveys

Relevant Employment History

2020-present

Ecologist

Anderson Environment & Planning, Newcastle

Currently employed by Anderson Environment & Planning to assist in the provision of consulting services to land, property, legal and government sectors. Covering ecological, project management, environmental, planning services, advices, strategy and representation. Expanding knowledge of field survey methodology, report writing, mapping and data manipulation.

Tim Moulton

Curriculum Vitae

Tim works with AEP in the role of Ecologist. Tim has over 10 years of professional experience managing projects in the fields of ecology, natural area restoration, biodiversity conservation, community education, and construction environmental management. Tim also has 5 years experience working in the field as a bush regenerator.

Qualifications

- Bachelor of Environmental Science University of Newcastle (2001)
- Conservation Land Management Certificate II Tafe (2003)
- Master of Environmental Science Southern Cross University (2008)

Further Education & Training

- Biodiversity Assessment Methodology (BAM) Accredited Assessor (BAAS: 19083)
- NSW Class C Driver's Licence. Experienced 4WD operator.
- OH&S NSW White Card
- Erosion & Sediment Control Training (4 day Blue Book course / CPESC)
- Feral Animal Control training (1080 & Pindone baiting)
- Certificate 3 in Chemical Application (AQF3)

Fields of Competence

- Ecological field survey, covering terrestrial and aquatic flora and fauna
- Highly proficient at botanical surveys and establishing monitoring programs
- Project Management and auditing
- Restoration Science

Relevant Employment History

2019 - present

Ecologist

Anderson Environment & Planning, Newcastle

Currently employed by Anderson Environment & Planning to assist in the provision of consulting services to land, property, mining industry, legal and government sectors. Covering ecological, project management, environmental, planning services, advices, strategy and representation.

2015 - 2018

Senior Project Officer / Ecologist

Conservation Volunteers Australia / WetlandCare Australia

- Project managing on-ground restoration works including revegetation, site stabilisation, weed control and bush regeneration.
- Facilitating community engagement events, and supervision of volunteers.

- Undertaking site assessments, ecological surveys, and preparing plans of management.
- Scoping and preparing grant applications, managing all aspects of grant delivery, budgets, and reporting.

2009 - 2015

Senior Ecologist / Environmental Scientist

Onsite Environmental Management

- Undertaking and project managing detailed environmental assessments including flora and fauna surveys, threatened species assessments, management plans and monitoring reports.
- Environmental site management, monitoring and compliance auditing on large scale infrastructure projects and extractive industries.

2008 - 2009

Bush Regenerator / Leading Hand

Lane Cove Council, Australian Wetlands

- Undertaking bush regeneration activities including removal of environmental/noxious weeds, track construction and maintenance, native seed collection and propagation, fire assisted regeneration, feral animal control and supervision and training of volunteers.
- Supervising bush regeneration and weed management teams.
- Undertaking large scale revegetation works on infrastructure projects involving mass tubestock planting, site stabilisation and maintenance weeding.

2006 - 2007

Ecologist / Environmental Scientist

GeoLINK Consulting

- Undertaking and project managing detailed environmental assessments including flora and fauna surveys, threatened species assessments, management plans and monitoring reports.
- Monitoring and analysis of wetland, groundwater, and domestic wastewater systems.

2002 - 2006

Bush Regenerator / Leading Hand

Gondwana Bush Restoration, Willoughby City Council

- Undertaking bush regeneration activities including removal of environmental/noxious weeds, track construction and maintenance, native seed collection and propagation, fire assisted regeneration, feral animal control and translocation of vegetation.
- Supervision and training of bush regeneration teams and volunteers.

2001 - 2002

John Holland Construction

Environmental Officer

- Environmental site management and monitoring and reporting on large scale infrastructure projects.

Relevant Volunteer Experience

2014 - Current Burwood Beach Coastcare - Facilitator (Volunteer)

Supporting and managing volunteers, on-ground works, promotion and funding opportunities on a monthly basis, to undertake conservation and restoration activities within Glenrock State Conservation Area (NPWS estate).

2013 - 2016 Humane Society International – EPBC Act Nomination Support

Preparation of Threatened Ecological Community (TEC) nominations under the Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act).