



Transport  
for NSW

Concept Development Application and First  
Stage of Development  
65 Glendale Drive, Glendale

## Vegetation Management Plan Framework

20.12.2024

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## **EXECUTIVE SUMMARY**

This report is submitted to Lake Macquarie City Council in support of a Concept Development Application (DA) and first stage of development relating to 65 Glendale Drive, Glendale. The subject site is legally described as Lot 1 in DP 1286424 and has a total site area of 35.85 hectares. The site is zoned MU1, E2 and C2, located northeast of the Stockland Shopping Centre and has frontages to Glendale Drive and Stockland Drive, with Main Road bounding the site to the north.

The Concept DA will facilitate the future development of the site generally in line with Lake Macquarie Council's Development Control Plan for the Glendale Town Centre through definition of development parcels and associated uses that will support the delivery of Council's North West Growth Strategy. The first stage of development includes a subdivision that will establish the greater lots, to be further subdivided in the future in accordance with the Concept DA. The first stage of development also includes site works that facilitate the subdivision.

This Vegetation Management Plan (VMP) Framework has been prepared by Terras Landscape Architects for TfNSW to provide a framework for stepping into the preparation of detailed Vegetation Management Plans that are to be developed at Development Application (DA) or Construction Certificate (CC) stage as per LMCC Draft Natural Areas Management Guidelines.

The document aims to establish management objectives specific to the site that are to be developed and addressed in detail in subsequent VMP's including general management actions. As the design of the proposed subdivision evolves the extent of work and impact to the vegetation on site will be established. This in conjunction with the objectives established in this report will assist in developing a schedule of works detailing the implementation of the plan, the duration and priority. The plan is to be supported by maps, diagrams and plant species lists to describe the existing vegetation, management zones, constraints, vegetation and natural features to be retained, proposed vegetation, minor sediment and erosion control and stabilisation works to be undertaken.



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## 1. INTRODUCTION AND BACKGROUND

This report is submitted to Lake Macquarie City Council in support of a Concept Development Application (DA) and firsts stage of development relating to 65 Glendale Drive, Glendale. The subject site is legally described as Lot 1 in DP 1286424 and has a total site area of 35.85 hectares.

The subject site (shown in Figure 1 below) is owned by the Transport Asset Holding Entity (TAHE). The site is largely vacant, except for a small portion of land to the south, which is being used by Sydney Trains for project operations and will be retained for this purpose. It is legally described as Lot 1, DP 1286424 and is currently zoned as E2 commercial centre, MU1 mixed use, C2 environmental conservation .



**Figure 1.** 65 Glendale Drive – Development application Site Boundary and Aerial Overlay (Ethos Urban, 2024)

### Proposal

Specifically, the development application comprises the following elements:

- A Concept DA under s4.22 of the EP&A Act with proposed arrangement comprising:
- internal vehicular and active transport network;
- connections and alterations to the adjacent street network;
- civil and stormwater arrangement;
- bulk earthworks arrangement;
- landscaped and public open space areas;
- bush fire management arrangement;
- ecological management arrangement;
- heritage management arrangement;
- future development parcels; and
- land use and development envelope associated with each parcel.



- cycleways and pedestrian links
- Stormwater basins and associated stormwater works.
- Batters associated with road works.

A first stage of development, which includes subdivision comprising two phases:

- Phase 1: Three (3) lots (north and south of Glendale Drive); and
- Phase 2: Subdivision of Lot 3 created at Phase One into seven (7) lots, including one (1) proposed road reserve lot. Works to facilitate the second subdivision phase, including (but not limited to):
  - bulk earthworks;
  - civil (stormwater and road) infrastructure; and
  - servicing infrastructure.

The Concept DA proposes the following uses for each lot:

- Lot 1 (north of Glendale Drive)
  - development parcels comprising:
    - mixed use buildings;
    - residential flat buildings;
    - multi dwelling housing; and
    - commercial
  - public open space;
- Lot 2 (north of Winding Creek and east of Glendale Drive)
  - a development parcel comprising residential flat buildings
- Lot 3 (south of Glendale Drive)
  - subdivision at Phase 2 into seven lots comprising:
    - three lots with a permissible use (Lot 31, Lot 32 and Lot 33);
    - three lots to be retained by TAHE for existing transport operational purposes (Lot 34, Lot 35 and Lot 36); and
    - one lot for dedication as road reserve (Lot 37).

This VMP provides the background information for vegetation management with regards to the issues outlined below:

- Extent of existing vegetation to be retained and protected.
- Undesirable plant species and removal techniques to be employed to enhance remnants of existing vegetation.
- Native plant species proposed to be used for revegetation works.
- Vegetation maintenance, establishment, monitoring and reporting.

The VMP Framework has been prepared with due reference to the NSW Department of Primary Industries (NSW DPI) Guidelines for Vegetation Management Plans on Waterfront Land (2012) and LMCC Draft Natural Areas Management Guidelines. It describes the strategic and management objectives required with respect to the natural resources available. It details the management guidelines in relation to a list of issues applicable to the land, e.g. biodiversity conservation, vegetation and weeds, fauna, bushfire, streams and stormwater management, recreation, works and infrastructure, pollution control and education and community involvement.

The implementation of the VMP works shall commence on the date of any construction works commencing and shall be integrated as much as possible with the development / subdivision process. It is acknowledged however, that staging these works with the subdivision works may not lead to the best outcomes.



### **Terminology**

Asset Protection Zone (APZ): a fuel reduced set back area surrounding a building or an item of value.

Local Provenance: Based on the idea that local vegetation is genetically adapted to local environmental conditions.

Riparian: the interface between land and a river or stream, ie: situated on the bank of a creek, river or other water body.

Study Area: refers to the parcel of land being the subject of this report. Specifically, the riparian zone along the site's southern boundary.

Subject Site: refers to the entire site.

### **Qualifications and Contracting**

Works must be undertaken by a suitably qualified and AABR accredited bush regenerator. The staffing ratio shall not be less than 1:5:2 (supervisor: qualified regenerator: trainee).

Requirements for personnel working within bushland in the Lake Macquarie City:

- Preferred – Australian Association of Bush Regenerators (AABR) accredited bush regenerators and companies.
- Bush regeneration contractors not accredited under AABR but have relevant on-ground experience of 10 years or more in bush regeneration and rehabilitation may be considered.
- Other companies not accredited under AABR with less than ten years on-ground experience in bush regeneration and rehabilitation may be considered.

Qualifications of the above are to be submitted to Council for approval.

### **Supervisor**

It is preferred that the Site Supervisor holds a current AQF3 or higher qualification and have a demonstrated minimum of two years' experience as a supervisor in the bush regeneration or related field, including experience at a supervisory level in providing training, supervision and technical advice to staff, clients, volunteers and members of the public.

Site Supervisor qualifications are to include the following:

- Minimum qualifications of bush regeneration Certificate IV or equivalent, plus AABR accreditation.
- diploma or degree in a field relating to natural resource management, or have at least three years' experience relevant to the position.

Those who predominantly undertake landscaping works are not regarded as possessing acceptable expertise to implement vegetation management plans unless it has been demonstrated in the submitted qualifications that bush regeneration works have been undertaken by the individual for a minimum 10-year period prior to and/or concurrently with landscaping.

### **Qualified Regenerator**

Must have a demonstrated minimum of 1000 hours experience in bush regeneration over a period of at least six months or two years under supervision.



- Minimum qualifications of workers Bush Regeneration Certificate II or equivalent.
- Preferably hold a current AQF3 qualification.

#### **Trainee**

- Minimum qualifications of workers Bush Regeneration Certificate II or equivalent or undertaking Certificate II.

General tasks such as rubbish removal may be undertaken by unqualified personnel.

It is recommended that the contractor refer to *Bush Regeneration: A Practical Guide to Contract Management* (Davies & Dixon, 2003) which outlines issues for consideration.

#### **Riparian Corridors**

Riparian corridors provide transition zones between the land and the aquatic environment. The role of the riparian zone includes:

- Provide bed and bank stability to reduce bank and channel erosion.
- Protect water quality by protecting sediment and contaminants.
- Provide habitat diversity for terrestrial, riparian and aquatic flora and fauna.
- Provide connectivity between wildlife habitats.
- Conveying and controlling flood flows.
- Provide an interface / buffer between development and the waterway.
- Provide passive recreational area (Department of Primary Industries, 2012).

#### **SITE CHARACTERISTICS**

The subject site is located at 65 Glendale Drive, Glendale. The study area is approximately 35.85 ha and is defined by a associated with Winding Creek. Existing sporting fields and commercial / industrial development exists to the south and east with the proposed construction zone to the north and west.

The site is located on the southern side of Main Rd Road and extends further southward towards Glendale Drive. Winding Creek intersects the site and also extends east towards the rail corridor, adjacent to the Downer maintenance facility. The creek drains from Hillsborough and through Cardiff in highly modified conditions. A significant amount of Winding Creek has been converted into a concrete drain and reverts back to a modified natural waterway at the eastern end of the subject site.

The eastern end of the site is characterised by existing remnant vegetation on the southern side of the creek with residential development to the north. In a number of locations the residential development encroaches within the 30m creek line offset. A number of the creek embankments in this location have been replaced with rock rip rap likely due to erosion concerns adjacent to residences. As the creek separates from residences embankments become quite steep (approx. 1:2 in some locations) retained by existing trees and vegetation.



West of Glendale Dr Winding Creek is largely in its natural form, however there are also some areas with significant erosion and clearing. The Athletics track development including car parking on the southern side is in close proximity to the creek.

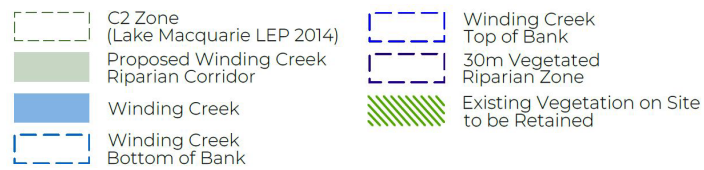
Part of the study area is zoned C2 (Environmental Conservation) under LMCC Local Environmental Plan 2014. The objectives of this zone include:

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To conserve, enhance and manage corridors to facilitate species movement, dispersal and interchange of genetic material. This will include the installation of glider poles and rope bridges as per the Biodiversity Development Assessment Report, ERM 2025
- To encourage activities that meet conservation objectives.
- To enhance and manage areas affected by coastal processes.

The subject site is classified as bushfire prone land under the bushfire maps adopted by LMCC and a Bushfire Threat Assessment was prepared by BEMC (08.2022). The report concluded an Asset Protection Zone (APZ) be created adjacent outside of the VMP study area. This means that the species selection, planting densities and ongoing maintenance of the area is not affected by the classification.

Access to the site is available from a number locations including Main Rd, Glendale Drive and from the car park associated with the athletics track. Pending confirmation from LMCC implementation of this VMP will likely be required to commence at the start of any construction works, at which point access must be provided to the study area.





**Figure 2.** Site location C2 area - 65 Glendale Drive - Concept Envelope Plan (Ethos Urban, 2024)



GLIDER POLES AND ROPE BRIDGE



**Figure 3.** Glider pole / rope bridge locations

## VEGETATION

As a result of previous land use the site is highly disturbed areas as well as large stands of remnant vegetation, however, the site contains a significant amount of Privet and Lantana throughout. The majority of the VMP site are vegetation presents dense remnant vegetation of the following vegetation types (ERM, 2022)

### PCT 1718 Swamp Mahogany – Flax leaved Paperbark swamp forest (PCT)

Species present include, but are not limited to:

- Canopy Species: Eucalyptus saligna , E. paniculata, E. robusta, E. acmenoides, Angophora floribunda, E. tereticornis, E. piperita and occasionally A. costata and Corymbia gummifera.
- Mid Stratum: Melaleuca linariifolia, M. styphelioides, Callistemon salignus, Pittosporum undulatum, Glochidion ferdinandi, Acacia longifolia
- Ground-Stratum: Impertia cylindrica, Lomandra Longifolia, Entalasia maginata, Ghania clarkei Baumea juncea, Carex apressa, Isolepis inundata, Baumea articulata,

### PCT 1619 Smooth Barked Apple – Red Bloodwood – Brown Stringybark (PCT 3581)

Species present include, but are not limited to:

- Canopy Species:Eucalyptus piperita, Corymbia gummifera, Angophora costata, E. paniculata, E. acmenoides, E. resinifera and E. capitellata.
- Mid Stratum:Pittosporum undulatum, Callistemon salignus and Glochidion ferdinandi .
- Ground Stratum :Lomandra longifolia, L. multiflora, Dianella caerulea, Pratia purpurascens and Dichondra repens

### PCT 1636 Scribbly Gum – Red Bloodwood – Angophora inopina Woodland (PCT 3583)

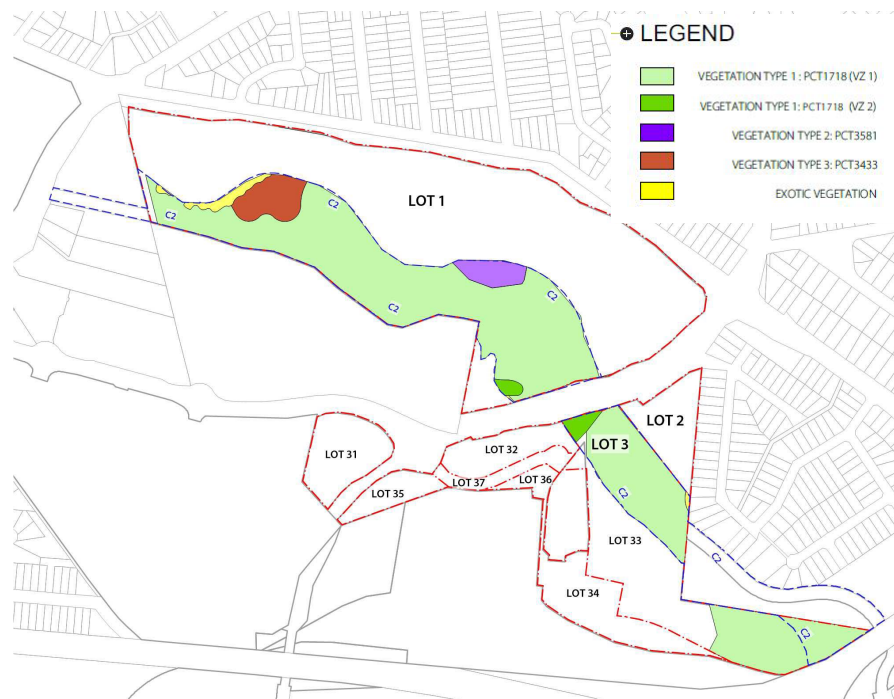
Species present include, but are not limited to:

- Canopy Species: Eucalyptus haemastoma, Corymbia gummifera, Angophora costata and Eucalyptus resinifera.
- Mid-Stratum: Acacia falcata, A. longifolia, Grevilia parviflora subsp parviflora, and Banksia spinulosa , with scattered Acacia myrtifolia, Allocasuarina littoralis, Leptospermum trinervium, Persoonia levis, and Lambertia formosa.
- Ground-Stratum: Themeda triandra, Imperata Cylindrica , and Xanthorrhoea sp, Dianella cerulea , Gonocarpus sp. and Phyllanthus hirtellus.

### PCT 1590 Spotted Gum – Broad Leaved Mahogany Red Ironbark (PCT 3433)

Species present include, but are not limited to:

- Canopy Species: Corymbia maculata, Eucalyptus acmenoides, and E. paniculata.
- Mid-Stratum: Callistemon salignus, Breynia oblongifolia, Pittosporum undulatum, Glochidion ferdinandi and Dodonaea triquetra
- Ground-Stratum: Lomandra longifolia, L. multiflora, Pratia purpurascens, Dianella caerulea and Dichondra repens.



**Figure 4:** Vegetation communities

All VMP works are proposed to occur within the subject site boundary. Whilst it cannot be expected to protect the creek from the historical and current disturbances within the wider catchment area, it is suggested that the implementation of the works proposed within this report shall go some way to having a long-term beneficial impact on the health of Winding Creek.

Species selection for the proposed revegetation works shall be determined by those natives already present on site and relevant to the vegetation communities present on site.

As there is a significant existing canopy cover present it is proposed that the primary revegetation species be selected from the mid stratum and ground stratum species. Canopy species are only to be planted in locations outside the dripline of the existing vegetation.

While the watercourse is not fixed all revegetation areas that are located in permanent water or are periodically inundated are to be planted out using wetland species.

## IMPLEMENTATION

Implementation of the VMP works shall begin immediately upon any construction work commencing and shall continue for a period of 5 years or as advised otherwise by LMCC / Office of water. It is anticipated that the 5 year maintenance be structured in the following sequence to accommodate 1 climate cycle.

### Establishment

- Initial 2 years to undertake weeding and undertake base revegetation work.



### **Maintenance**

- 1 year to undertake maintenance and replace any failed plant material or remove any additional emergent weeds.
- 2 years to work with a local landcare group to establish an ongoing maintenance routine to be implemented into the future.

At the end of the 5 year maintenance period hand over to Council is subject to an evaluation to determine if the rehabilitation has met the specific performance indicators discussed in section 3. Should the rehabilitation not meet these performance indicators the VMP will need to be reviewed and updated with another management period will be required (to be determined by Council).

The proposed vegetation management includes:

1. Removal of rubbish and debris.
2. Removal of remnant debris from the former creek crossing that is obstructing creek flow.
3. Retention of existing trees and native understorey vegetation.
4. Retention of emerging native pioneer plants.
5. Weed removal, suppression and ongoing control.
6. Application of 200mm depth imported topsoil to nominated areas and testing of existing site soil to other areas designated for planting.
7. Planting of native vegetation including trees, shrubs and grasses within the riparian zone utilising correct planting and establishment methods to ensure survival rates meet the report objectives.
8. Monitoring and maintenance of vegetation, weeds and over planting.

It is suggested that the works be undertaken in the following order:

- Install temporary protective fencing (TPF) at upper extents of works as shown on plans, if not already installed. This fence shall remain in place until the adjoining stage of construction works is completed. If removing in stages, provide adequate return to ends, so as to ensure no access to the remaining VMP area is possible.
- Commence works at eastern extents and progress west.
- Remove weeds as noted on drawings. If using herbicide ensure no spray drift occurs onto desirable native vegetation to be retained. Remove dead vegetation and provide follow up treatment as required.
- In large areas of weed removal apply 100mm imported topsoil over existing ground without impacting retained native vegetation. Taper soil depth and feather edges around existing vegetation to achieve a naturalistic effect.
- Lay jute mat and coir logs as soon as possible and pin as per manufacturer's recommendations to avoid erosion in steep areas.
- Plant with identified species as soon as practicable after weed removal.
- Remove temporary protective fencing at completion of adjoining construction works. If removing in stages, provide adequate return to ends, so as to ensure no access to the remaining VMP area is possible.
- Provide routine monitoring and maintenance as noted in noted in Section 5.



## LEGISLATION AND POLICY

**Draft Natural Areas Management Guidelines – Part 1 Vegetation Management Plan Guidelines.** Provides a guide to assist developers and land owners in the preparation of Vegetation Management Plans.

**Commonwealth Environment Protection and Biodiversity Conservation Act 1999.** Provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as matters of National Environmental Significance.

**Local Land Services Act 2013.** Proposes ways NSW landholders can manage land with native vegetation and includes a number of codes of practice.

**NSW Biodiversity Conservation Act 2016.** Aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community which is consistent with the principles of ecologically sustainable development.

**NSW Biosecurity Act 2015.** Provides regulatory controls and powers to manage noxious weeds in NSW.

**NSW Threatened Species Conservation Act 1995.** Provides for the protection and management of threatened species, populations and ecological communities listed under the schedules 1, 1A and 2 of the Act.

**Rural Fires Act 1997.** Makes provision for the prevention, mitigation and suppression of rural fires.

**NSW Water Management Act 2000.** Makes provision to manage water in a integrated and sustainable manner and establishes the approvals pathway required for waterfront land

## 2. METHODOLOGY

### Baseline monitoring

Baseline monitoring will need to be undertaken to reference point in order to develop the specific management actions required to achieve the objectives set out in this report and evaluate the success of the implementation during the ongoing monitoring and reporting stages of the project.

For the data to be relevant to site conditions the baseline data needs to be collected withing a 12month period prior to the work being undertaken to account for natural regrowth or weed infestation spreading across the site.

### Mapping



Baseline data is to be collected using methods such as transects quadrats and photo monitoring points suggested in LMCC Draft VMP Guidelines 2019. Information collected is to be used in the development of mapping that will be used to develop a program of works.

This will include the following:

- Baseline mapping
- Specific management zones
- Existing vegetation communities (outlined in this document)
- Photo monitoring points
- Fencing
- Proposed work withing the VMP management area such as trails, detention basins, viewing platforms, etc
- Weed mapping

NOTE: An onsite meeting with Council officer will be required prior to approval of a VMP

### **Reporting**

Reporting will be required every 6 months during the initial 5 years VMP period (Subject to council approval) evaluating how the work is achieving the project outcomes with measurable performance indicators documented in the report. Performance indicators have been included in section 3

Site meetings are to be coordinated with Council Officers on an annual basis.  
(LMCC 2019)

### **3. MANAGEMENT STRATEGIES**

#### **BASELINE MONITORING**

##### **Issue**

LMCC requires baseline monitoring to be undertaken prior to undertaking any management works. It assesses overall site conditions and compares specific locations for the duration of the VMP.

##### **Objectives**

Provide baseline data of the existing site conditions prior to undertaking any VMP works so as to determine whether the objectives of the VMP are achieved.

##### **Actions**

The detailed VMP preparation is to include but not limited to the following measures for establishing the baseline monitoring :

- Transect or meander data as detailed in The LMCC Draft VMP Guidelines 2019 ("the guidelines")
- mapping detailing percentages and locations (GPS co-ordinates if relevant) of native and exotic flora present within the study areas
- mapping detailing percentages and locations of vegetation type cover, including canopy layer (>5m), tall shrub layer (2 – 5m), small shrub layer (0.5 – 2m), ground cover layer (< 0.5m).
- Photo monitoring. Refer Section 4.12 for requirements.

It is recommended that the contractor use the "National Trust Method" to map weed density. Refer Section 4.1 for details.

##### **Maintenance Activities**

Refer Section 3 Maintenance and Resilience.

#### **ACCESS AND VEGETATION PROTECTION**

##### **Issue**

Access to management areas and storage of materials on site during the construction phase requires appropriate planning to ensure protection of native remnant vegetation throughout the duration of construction works.

Access issues include preventing the unnecessary movement of people and equipment through vulnerable/protected areas of the site. Access to the rehabilitated areas requires management to prevent damage to new plantings and limit the ingress of weed seeds.

##### **Objectives**

- Retain and protect remnant vegetation during construction.
- Protect new planting works.



### **Actions**

Access to the subject site during construction will be restricted as part of the site management plan. Suitable temporary protective fencing shall be erected along the top of the embankment at the southern extent of works (adjacent to the construction zone) to prevent access by machinery, etc, stockpiling of refuse and storage of construction materials. Fencing shall be self-supporting, have shall have clear signage attached, stating that the area is a "no go zone" and remain in place for the duration of the construction works.

The contractor shall notify Councils DPFF when the fencing has been installed and it shall remain in place until the adjoining stage of construction works is completed. If removing in stages, provide adequate return to ends, so as to ensure no access to the remaining VMP area is possible. The briefing of civil and building contractors is highly recommended to ensure protection of this area.

### **Maintenance Activities**

The maintenance schedule includes but is not limited to the prescribed instructions. The contractor shall perform additional tasks that would reasonably be accepted as part of maintenance tasks, should they be required.

- Monitor temporary protective fencing (TPF) for unauthorised breaches and reinstate if required.
- TPF must not be removed prior to completion of adjoining staged construction works. If removing in stages, provide adequate return to ends, so as to ensure no access to the remaining VMP area is possible.

### **Performance indicators**

Establishment

- Fencing and no go signage to be erected.

Maintenance

- Ensure fencing and no go signage to maintained during the construction period.

### **WEEDS**

#### **Issue**

Within the remnant vegetation the study area consists of a large amount of understorey and mid storey weeds. Dominant species include Privet and Lantana.

Some areas of the creek line itself are inaccessible due to the density of weeds. It is assumed however that due to the weed density, there is minimal native understorey present.

The main weed species identified as occurring on site are outlined in Table 1. The removal and monitoring of these species is essential to enable the long term viability of the proposed vegetation and prevention of further infestation. Follow-up weed control will be required during the maintenance period to ensure the complete eradication of weed species and will occur at regular intervals as specified in this report.

All weed control will be carried out using minimal disturbance techniques. Details of weed control techniques to be used are provided in Section 4.2. The use of these best





management practice techniques will aim to maintain and enhance the integrity of the existing native vegetation.

### Objectives

- Remove weeds from site to allow native species to generate

### Actions

Undertake primary, secondary and maintenance weeding as detailed in this section and Section 4.2 of this report. Where feasible, weeding activities to be suitably timed at bud-set or early flowering (where applicable to facilitate accurate plant identification), prior to the onset of seed or fruit.

Consider staging of weed control and planting works. Refer Section 4.10 Rehabilitate Native Vegetation.

### Performance indicators

#### Establishment

- Initial weed removal (year 1) – Less than 25% weed cover.
- Secondary weed removal (year 2) – Less than 10%.

#### Maintenance

- Ongoing maintenance (2+ years) – Less than 5%

### Table 1: Main Weed Species Identified On-Site to be Removed.

Note: This list is not comprehensive of all weeds present within the study area. All weeds including those not included in the following list shall be removed and controlled as part of the vegetation management works.

SCIENTIFIC NAME	COMMON NAME	WEED CLASS
<i>Phoenix dactylifera</i>	Date Palm	
<i>Syagrus romanzoffiana</i>	Cocos Palm	
<i>Chlorophytum</i>	Spider Plant	
<i>Yucca sp</i>		
<i>Ageratina adenophora</i>	Crofton Weed	Species of Concern
<i>Senecio madagascariensis</i>	Fireweed	State Priority Weed
<i>Anredera cordifolia</i>	Madeira vine	State Priority Weed
<i>Tradescantia fluminensis</i>	Trad	
<i>Senna pendula var. glabrata</i>	Easter Cassia	
<i>Cinnamomum camphora</i>	Camphor Laurel	Species of Concern
<i>Nephrolepis cordifolia</i>	Fishbone Fern	
<i>Ochna serrulata</i>	Ochna	
<i>Ligustrum lucidum</i>	Privet - Broad-leaf	
<i>Ligustrum sinense</i>	Privet - Small Leaf	
<i>Plantago lanceolata</i>	Ribwort Plantain	
<i>Cortaderia sp</i>	Pampas Grass	
<i>Paspalum urvillei</i>	Giant Paspalum	
<i>Setaria faberi</i>	Giant Fox Tail	
<i>Stenotaphrum secundatum</i>	Buffalo Grass	
<i>Polygala myrtifolia</i>	Butterfly-bush	

<i>Rubus fruticosus</i>	Blackberry	State Priority Weed
<i>Solanum mauritianum</i>	Wild Tobacco	
<i>Solanum nigrum</i>	Blackberry Nightshade	
<i>Lantana camara</i>	Lantana	State Priority Weed
<i>Verbena bonariensis</i>	Purple Top	

DEFINITIONS
<b>General Biosecurity Duty</b>
All weeds 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.
<b>WONS / Weeds of National Significance</b>
The most problematic plant species in Australia as determined by the federal government.
<b>Regional Recommended Measure</b>
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
<b>Prohibition on Dealings</b>
Must not be imported into the state or sold.

Whilst minimal use of herbicides is preferred, it is accepted that this is not feasible in all situations. Weed control shall therefore include:

- the use of herbicides;
- mechanical removal and clearing;
- mulching, weed matting / jute mat; and,
- increasing the density of surrounding native vegetation.

#### Primary Weed Removal

While all weeds as identified in Table 1 shall be removed within the study areas, the primary focus shall be the removal of those listed as having a General Biosecurity Duty and WONS due to their classification and potential to spread through the landscape.

An integrated weed management approach utilising a variety of control methods is desirable to eradicate most weed species. The following techniques have been selected for application in this situation due to suitability to this site. The points mentioned below shall be taken into consideration by the bush regeneration contractor at all times when undertaking weed removal:

- Weed removal and associated techniques are undertaken at the correct times of the year to ensure optimum results are achieved. Correct timing reduces cost and effort in the long term and improves eradication results dramatically. Where this cannot be done, additional visits may be required to remove regrowth.



- The revegetation team shall take all due care to minimise disturbance to existing desirable vegetation and surrounding land.
- Appropriate herbicide training shall be undertaken ensuring all safety precautions are adhered to at all times.
- The contractor shall keep records of all herbicide applications and use only registered and accepted herbicides.
- The contractor shall ensure any spray drift is kept to an absolute minimum.
- Herbicide control shall be undertaken when weeds are actively growing.
- The contractor shall take all care not to poison existing desirable vegetation when undertaking herbicide control methods.
- If required, the contractor shall be required to make good in areas where spray drift and/or wrong applications have resulted in the loss of desirable vegetation.
- The correct herbicide shall be selected and used appropriately to ensure effective results on all weeds.
- Do not undertake herbicide control when weed species are under stress, e.g. periods of extreme hot or cold weather.
- Weed removal shall be carried out as outlined in Section 7.1 of this report.
- Should the contractor feel that techniques selected in this report will prove un-effective or inefficient; the contractor shall notify the client's agent nominating alternative procedures for review and discussion. Approved changes shall be issued in writing by the client's agent to the contractor.

### **Maintenance Activities**

The maintenance schedule includes but is not limited to the prescribed instructions. The contractor shall perform additional tasks that would reasonably be accepted as part of maintenance tasks, should they be required.

Ongoing monitoring, maintenance and weed control shall be undertaken in accordance with this plan and as required to further reduce and eradicate weed populations in the nominated areas. Newly exposed or disturbed areas (due to initial weed removal, removal of rubbish or decompaction of soil) will be subject to new weed growth and shall require continued weed removal procedures, monitoring and maintenance throughout this period. Replenishment of mulch until plants have sufficiently established to cover exposed soil may also be required to further reduce the possibility of weed re-infestation.

The contractor shall undertake weed removal as required on a regular basis in order to maintain a weed free environment. Weeds shall be disposed off-site in a legal and appropriate manner.

If controlling Lantana regrowth with herbicide, plants should be actively growing and approximately 300mm in height for greatest efficiency.

Industry standard weed removal techniques are provided by the [NPWS] National Trust, NSW National Parks and Wildlife Service and Australian Association of Bush Regenerators. Refer Section 4.1 for details.

The contractor must keep records of each chemical application. Details are to include



location, target identification, operators name, treatment date and time, risk assessment including prevailing conditions and product and equipment used and application rates.

## **REHABILITATE NATIVE VEGETATION**

### **Issue**

Revegetation using competitive native species that will maintain sufficient ground cover will assist in preventing the return and establishment of problem weed species.

The toe of the embankment constitutes the inner riparian zone and shall be intensely planted with resilient low growing, multi-trunked native species, as per the Department of Primary Industry (DPI) recommendations. Native species planted in high densities aim to out-compete undesirable weed species. Where possible, species have been selected from the species list relevant to the original and surrounding vegetation communities, or have otherwise been selected due to their demonstrated hardiness or bushfire resilience. It is essential that weed control continues throughout the duration of the VMP period. If feasible, coinciding revegetation works with growing seasons will also ensure a competitive advantage over weed species.

It is preferable to use local provenance plants for the new planting works where possible. This is determined by the need to preserve biodiversity and ensure that the new plants are genetically similar to those that are growing in the area and therefore may have been previously growing on site. As the site is highly degraded it is recommended that seed be sourced from a similar vegetation community, soil type and altitude to that which preceded clearing. In the absence of more local material, seed may be sourced from the broader catchment region (10 – 100km).

### **Objectives**

- Reduce weed populations to the percentages noted in Section 4.8.
- Achieve a minimum 90% survival rate of new plantings.
- Control water quality and flow by reducing bank and channel erosion.

### **Action**

It is preferable to use local provenance seed sourced from large populations and propagated for use in the new planting works. If using provenance plants, allow sufficient lead time for seed sourcing, collection and growing on to the nominated size and propagate the necessary quantities to allow for plant losses. Propagation is to be undertaken by a suitably qualified bush regenerator and all plant material shall be to Australian Standard quality.

Seed collection must be sourced from a variety of host plants as variations within populations of the same species are common.

If new plant material is nursery purchased and not propagated by the bush regeneration contractor, then certification of provenance is preferred.

Planting is to be undertaken by suitably qualified staff as per the planting detail provided on the VMP drawings. Nominated plants are listed in the Plant Schedule on the VMP drawings.



Initial protection of all individual plantings shall be undertaken using protective biodegradable tree sleeves held in place with hardwood stakes. Jute mat as erosion control shall be installed on the embankment and forest blend much used elsewhere.

### **Performance indicators**

#### **Establishment**

- Initial weed removal and planting (year 1) – 50% vegetation cover.
- Planting maintenance (year 2) – 60% vegetation cover.

#### **Maintenance**

- Planting maintenance (year 3) – 70% vegetation cover.
- Planting maintenance (year 4) – 80% vegetation cover.
- Planting maintenance (year 5) – 90% vegetation cover.

### **Maintenance Activities**

The maintenance schedule includes but is not limited to the prescribed instructions. The contractor shall perform additional tasks that would reasonably be accepted as part of maintenance tasks, should they be required.

- Inspect and assess site for any plant illness, deficiencies, theft or death.
- Check that the planted vegetation is not adversely affected by wildlife (predation). Liaise with Council's DPFF to determine the most suitable method of alleviating the problem.
- Treat pest infestations if causing severe plant illness or failure, using environmentally sensitive methods.
- Replace lost plants with either same species or more appropriate approved species if it is determined that plant failure was due to unsuitable site conditions.
- Apply low dosage of slow release fertiliser in spring (before a rainfall event)
- Inspect plants for moisture stress and adjust watering regime appropriately.
- Monitor nest boxes annually for the need for repairs or replacement.

### **RUBBISH**

#### **Issue**

Access to some of the study area was restricted due to the density of weed infestation. It is not until the majority of weed removal is undertaken in these areas that the full extent of the presence of rubbish shall be revealed.

The remains of a disused concrete crossing partially obstruct the water flow in the creekline.

There is potential for wind-blown waste (such as plastic sheeting, cardboard, etc) to enter the subject site as the construction works progress. Despite the installation of temporary protective fencing separating the construction site from the study area, there is still potential for dumping of building refuse so this will require monitoring.

#### **Objectives**

Remove all rubbish and debris and maintain the study area as rubbish-free in perpetuity.



### **Actions**

All inorganic debris shall be removed from the study area as part of the primary works. Where machinery is required for the removal of larger concrete elements, ensure no damage occurs to existing native vegetation. Where machinery is not used, the physical removal of larger components shall only be undertaken if in compliance with WH&S regulations.

Remove wind-blown construction waste if in small amounts, but contact the construction site superintendent if the volume is considered excessive or the temporary fencing has been breached.

### **Maintenance Activities**

Remove any rubbish or debris. All trash, litter, leaves, etc. shall be collected and deposited off site to approved waste areas or as otherwise directed by the superintendent.

If unlawful dumping occurs, locate the source (if possible) and report to the site superintendent or council.

### **Performance indicators**

Establishment

- All rubbish to be removed from site.

Maintenance

- Ongoing rubbish removal

## **CREEK BANK EROSION**

### **Issue**

Whilst the creek embankment is almost vertical in places, it appears to be relatively stable and there is no evidence of recent severe erosion.

The complete removal of large woody weeds within the immediate creekline interface presents a high potential for destabilisation, so alternative control measures shall be adopted.

### **Objectives**

Minimise the potential for erosion by treating disturbed areas immediately with erosion control matting and revegetating with appropriate native species.

### **Actions**

Provide sediment control fencing where weed removal takes place, prior to importing and spreading topsoil. Regularly check for breaches of the sediment fencing, especially following heavy rainfall events.

Appropriate erosion control measures shall be undertaken immediately following the application of topsoil. This will reduce the potential for erosion damage and prevent the re-colonisation of weeds in the disturbed areas. Erosion control measures shall include the installation of jute matting and coir logs, followed by revegetation planting. The use of hay bales is not preferred due to the potential for nutrient loading within the vicinity of the creek.



Where woody weeds with a trunk diameter greater than 20mm occur within 2m of the top of the creek bank, the cut and paint method of control shall be implemented. This will enable the residual roots to continue their stabilisation role until the native vegetation has established. The selected herbicide shall be registered as suitable for use in riparian areas. Chemical control options for riparian areas are restricted due to the limited number of herbicides registered for use near waterways. Consult with the relevant authorities regarding the administration of herbicides and use in accordance with the instructions on the label and with any permits that have been obtained.

All woody snags shall be retained within the creek as potential habitat areas, but all manufactured debris shall be removed.

#### **Performance indicators**

##### **Establishment**

- Creek banks with exposed soil to be stabilised with jute matting and coir logs.
- Overplanting 60% vegetation cover.

##### **Maintenance**

- Overplanting 70% vegetation cover.
- Overplanting 80% vegetation cover.
- Overplanting 90% vegetation cover.

#### **GENERAL EROSION AND SEDIMENT CONTROL**

##### **Issue**

Many factors that occur on site throughout the construction phase have the potential to contribute to erosion and unnecessary damage to the site itself and adjoining land. Factors that may cause adverse impacts can include; storage of fill, disturbance of grass cover in open areas and weed removal. In some cases areas some distance from the initial disturbance may be affected by actions elsewhere on site. It is anticipated that these items won't be an issue if the construction site is properly managed, but they must be considered.

As previously discussed, the study area has substantial weed coverage, of which some occurs on a steep embankment which descends into the creek. Where larger woody weeds occur on the embankment their complete removal has the potential to destabilise the soil and generate erosion.

Decompaction of soil within the regraded zone also may also result in erosion, especially if a high rainfall event occurs prior to the establishment of new vegetation.

##### **Objectives**

Minimise soil erosion on site and downstream by using the most appropriate erosion control method suitable for each situation.

##### **Actions**

Monitor the construction zone interface for potential breaches beyond the temporary protective fencing.



Where heavy weed infestations occur, use a brush cutter, brush hook or machete to enable initial access to the areas immediately adjacent to the creek, in lieu of mechanical removal. Rake up fallen flowers and seeds and remove and dispose of all refuse in a legal manner off site. Follow up with direct herbicide application to the main stems using the cut stump method. The root systems of the larger plants may be left in the ground to assist with stabilisation and prevent erosion. This method will cause less off-target damage and creek bank erosion than mechanical control. Ensure stumps are cut to a minimum 50mm below ground surface so as to ensure no humps and hollows (trip hazards) occur in the jute matting.

Soil regrading and decompaction works are not to be undertaken during overland flow events or prior to forecast heavy rainfall. Use temporary organic erosion control methods if soil destabilisation occurs and inspect site for damage following storm events. Materials may include coir logs or jute matting, or whatever is considered appropriate following assessment of the damage.

Install jute mat immediately following decompaction and application of topsoil. Regularly monitor for erosion breakouts, especially following rainfall.

#### **Performance indicators**

##### **Establishment**

- Exposed soil to be stabilised with jute matting.
- Overplanting 60% vegetation cover.

##### **Maintenance**

- Overplanting 70% vegetation cover.
- Overplanting 80% vegetation cover.
- Overplanting 90% vegetation cover.

### **WATERING**

#### **Issue**

It is the contractor's responsibility to ensure that all new plants receive adequate water for successful plant establishment through the contract period.

#### **Objectives**

Provide sufficient water to ensure successful germination and establishment of the new plants, especially within the first two weeks.

Maintain new plantings in a stress-free status so as to achieve the desired survival rates.

#### **Action**

Ensure watering methods do not displace seed or soil from plant locations and prevent excessive runoff. If necessary, apply water in a series of passings within the one session, rather than a single inundation.





Favour infrequent deep watering sessions over regular shallow watering to encourage deep root penetration and future resilience during dry periods.

#### **Maintenance Activities**

It is the contractor's responsibility to ensure that all plants receive adequate water regardless of weather conditions. The contractor shall ensure all plantings receive adequate water as required for successful establishment.

Monitor plants for water stress and adjust watering regime appropriately.

### **MAINTENANCE AND RESILIENCE**

#### **Issue**

Ongoing monitoring and plant establishment is important to establish and retain high quality, successful vegetation cover and minimise weed re-colonisation. The contract shall include a minimum management period of ten years following the completion of the VMP works. This may be reduced or extended in perpetuity until Council deems that the VMP objectives have been met. During this period the plants shall be checked for pests and disease, fauna damage and general health and vigour. Plants found to be dead or dying shall be progressively replaced as it occurs, so as to ensure establishment during the contract period.

Monitoring sessions shall also address the performance criteria as outlined below. The sessions will need to be more frequent in the early stages following planting, with the frequency decreasing over time.

#### **Objectives**

Provide ongoing maintenance of the subject site for a minimum ten-year period following the completion of the VMP works.

Create a stable and resilient vegetation community consisting of diverse native vegetation without compromising the bushfire prevention and control requirements.

#### **Action**

Where plants are failing they shall be replaced with suitable substitutes as recommended by a registered landscape architect, ecologist or bush regenerator. Weeding shall occur as outlined in Section 4.2.

Where creek bank or other erosion occurs, re-stabilise using coir logs, jute mat or planting techniques to minimise long term maintenance issues.

If erosion continues in areas of concentrated overland flow, re-stabilise using inorganic products (such as pebble or rock) appropriate to the site aesthetics. Alternatively use temporary coir logs until plant establishment is sufficient to stabilise the soil and minimise long term maintenance issues.

If plants are being impacted by grazing wildlife / vermin, contractor shall liaise with LMCC DPFF to discuss protection options. Individual new plantings may require the installation of



biodegradable sleeves to assist in providing protection and a suitable microclimate for plant establishment. If installed, these shall be regularly monitored as part of the routine maintenance of the area and displaced stakes and sleeves shall be reinstated as required and removed at the end of the maintenance period or when deemed that they are no longer required.

The frequency and duration of monitoring should be flexible and re-assessed following each session. However, as an initial guide, monitoring is likely to be required:

- Twice a week following seed dispersal for the first month,
- Weekly for the second month,
- Fortnightly for the following four months,
- Every 4 weeks for the remaining six months,
- Every 8 weeks for the next 52 weeks,
- Every 12 weeks for subsequent weeks, including 1 at completion

If it is necessary to increase or decrease monitoring at any given time the contractor shall discuss options with the Council's DPFF.

Monitoring sessions would indicate the specific maintenance requirements for the site. Such maintenance is likely to involve (but not necessarily be restricted to):

- Inspection and repair / replacement of constructed nest boxes
- weed removal and disposal off site;
- spot spraying;
- monitor seed germination of temporary cover crop;
- monitor exposed soil for erosion;
- watering;
- monitor plant losses / poor plant growth;
- inspect plants for pests / diseases / predation and control as required;
- rectification of any significant nutrient deficiencies;
- replacement planting;
- inspect creek for sedimentation / erosion or build-up of bio-mass;
- monitor for soil surface rilling / erosion;
- remove sedimentation or bio-mass (where there is a risk of congesting water flow), ensuring native plants are not disturbed;
- inspect for building waste / rubbish disposal;
- rubbish removal.

Photo points are one of the easiest ways of monitoring.

#### **Photo Points**

Select appropriate reference points on site, taking into consideration future access as the vegetation changes / establishes. Monitoring locations should be representative of the condition of the whole study area. Photo points should be permanent for consistency of recording and marked with a firm stake. Consider future access to each photo point site



(due to changes in vegetation). Nominate a reference number for each photo point site (eg: PP1, PP2).

Use a small blackboard to create a sign including the following details:

- Project Number;
- First initial and surname of photographer;
- Photo point reference number;
- Date.

Set the sign up 5 metres from the camera location, without obstructing critical vegetation information and ensure subsequent photos are consistent in form to facilitate ease of comparison.

Take photos at similar times of the day (10am preferred), with the sun behind or overhead the camera, if possible and ensure there is sufficient lighting to accurately record as much detail as possible.

- Star pickets with yellow caps are to be installed to mark the photo monitoring locations,
- Record photo locations with a GPS and show locations on Baseline Monitoring Map.
- Photos are to be taken at a consistent height using the established reference point.
- Monitoring shall be continued bi-annually in spring and autumn for the duration of the VMP.

### **Record Keeping**

Record all site assessments, risk assessments, chemical usage and other relevant WH&S requirements. The contractor shall keep records of each chemical application, including details such as location, target identification, operators name, treatment date and time, risk assessment (including prevailing conditions, product and equipment used and application rates).

Maintain a log book of initial and maintenance tasks for the duration of the project and submit to the superintendent within 24 hours of being requested to do so. The log book is to include as a minimum:

- Date;
- Time;
- Weather (since last entry);
- Rainfall (since last entry);
- Tasks undertaken;
- Observations and comments;
- Number of hours;
- Number and level of staff;
- Total hours.



### **Reporting**

The contractor shall meet with LMCC DPFF for an initial reporting and onsite meeting prior to undertaking any works.

Annual progress reports shall be submitted to council verifying compliance with the VMP. Reports are to be inclusive of but not be limited to; status of nest boxes, up to date photographs of areas treated, current progress or issues encountered, providing viable options for the remedy of any such issues, an outline of future works programs and monitoring activities, any recommended amendments to the proposed program and reason for proposed amendments, including any necessary recommendations to enhance the VMP, if requested.

Progress reports and monitoring shall directly relate to the baseline monitoring, VMP works in progress and proposed outcomes of the VMP.

Submission of progress reports shall trigger follow-up site meetings with the contractor and council.

A final report at the end of the VMP shall be submitted to council summarising all previous assessments, documents and the final site condition prior to the release of bond.

### **Reportable Issues**

Any unauthorised activity affecting the implementation of the VMP, known to occur during the timeframe of the VMP, must be reported to Council's DPFF within 48 hours. This includes unauthorised access and unauthorised development.

### **Maintenance Activities**

Refer previous sections

### **CHECKLISTS AND LOGS**

The contractor shall progressively keep a log of all maintenance undertaken on site. Details included within the log shall include date, time, work undertaken and any relevant responses/recommendations with respect to work undertaken. Submit log records to the site superintendent within 24 hours of being requested to do so.

### **TIMING FOR MAINTENANCE ACTIVITIES**

Refer to the Implementation Schedules Section 5 for the timing of recurrent maintenance activities. It should be noted that this schedule is not comprehensive and additional items noted in the body of this report must be undertaken as part of the maintenance works.

### **SITE SUPERVISION**

A copy of the bushland contractor's works specification is to be submitted to the LMCC Development Planner Flora and Fauna (DPFF). An initial site inspection is to be undertaken



in the company of an appointed council representative prior to undertaking any work identified in this VMP, if requested.

The bush regeneration contractor shall be responsible for over-seeing the appropriate methodology, location, maintenance, monitoring and reporting of all works within the scope of the VMP. Submissions and reporting shall be undertaken and provided as outlined in Sections 3

If undertaking any minor erosion control works, the contractor shall ensure all environmental guidelines are adhered to during all operations.

If / where suitable to use machinery, all machinery works are to be undertaken by an appropriately experienced contractor, proficient in the use of the machinery and with an ability to carry out minimal disturbance to the surrounding vegetation.

All weed control, revegetation and maintenance works will be undertaken by experienced and certified bush regeneration contractors. Industry standard planting and establishment methods are to be implemented to ensure adequate survival rates. Allow for sufficient replacement planting at the propagation stage and replace failed plants as soon as possible, so as to enable sufficient establishment during the remaining contract period.

The contractor shall report to the client's agent for any clarifications or issues encountered throughout the program.

#### **4. CONCLUSION**

Vegetation Management investigations and analysis undertaken for this Concept DA and first stage of development demonstrate compliance with relevant State and Local Government policies and guidelines subject to future stage development applications satisfactorily addressing the matters outlined below.

This VMP has established background information for vegetation management with regards to the Extent of existing vegetation to be retained and protected, identification of undesirable plant species / removal techniques to be employed to enhance remnants of existing vegetation, native plant species proposed to be used for revegetation works and methods for vegetation maintenance, establishment, monitoring and reporting.

The document establishes management objectives specific to the site that are to be developed and addressed in detail in subsequent VMP's including general management actions.



## 5. REFERENCES

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## 6. APPENDICES

### 6.1 NATIONAL TRUST METHOD OF WEED DENSITY MAPPING

COLOUR CODE	% NATIVE RANGE	% WEED RANGE	CONDITION OF BUSHLAND	DESCRIPTION	INTERVENTION REQUIRED
<b>GREEN</b>	75 > 100	0 > 25	<b>Good</b>	Virtually weed free, a healthy native community	<b>Minimal</b> Prevention of future impacts. Removal of possible scattered weed
<b>BLUE</b>	50 > 75	25 > 50	<b>Fair</b>	Minor infestations of weeds, natives dominate the site	<b>Low</b> Requires removal of minor impact (e.g. overuse) and of low level weed invasion.
<b>ORANGE</b>	25 > 50	50 > 75	<b>Poor</b>	Severely infested, Regeneration of native species is being suppressed.	<b>Medium</b> Removal of impacts required. Removal of weeds. Additional 'kick start' to promote natural regeneration, e.g. fire, physical disturbance
<b>RED</b>	0 > 25	75 > 100	<b>Very Poor</b>	Bushland replaced by exotic species OR only mature specimens of highest stratum remain – no seedlings or saplings due to infestation of understory with exotics	<b>Medium or high</b> Ability of system to recover is lost or seriously limited. Definitely needs a "kick- start" or may need reconstruction to approximate original system.

## 6.2 ACCEPTED WEED REMOVAL TECHNIQUES

### WOODY WEED REMOVAL TECHNIQUES

#### Removal Techniques:

- Cut and Paint (Woody weeds to 10 cm basal diameter)
- Stem Injection
- Frilling or Chipping

#### Notes

- Plants should be actively growing and in good health;
- Deciduous plants should be treated in spring and autumn when leaves are fully formed;
- For multi-stemmed plants, inject or chip below the lowest branch or treat each stem individually; and
- Herbicides must be injected immediately before plant cells close (within 30 seconds) and translocation of herbicide ceases.

### SMALL HAND-PULLABLE PLANTS

#### Removal Techniques:

- Hand removal

#### Notes

- Leave weeds so roots are not in contact with the soil e.g. hang in a tree, remove from site or leave on a rock.

### VINES AND SCRAMBLERS

#### Removal Techniques:

- Hand removal

#### Notes

- Take hold of one runner and pull towards yourself;
- Check points of resistance where fibrous roots grow from the nodes;
- Cut roots with a knife or dig out with a trowel and continue to follow the runner;
- The major root systems need to be removed manually or scrape/cut and painted with herbicide;
- Any reproductive parts need to be bagged.

#### Removal Techniques:

- Stem Scraping

#### Notes

- Scrape 15 to 30 cm of the stem with a knife to reach the layer below the bark/outer layer; and immediately apply herbicide along the length of the scrape.





## **WEEDS WITH UNDERGROUND REPRODUCTIVE STRUCTURES**

### **Removal Techniques:**

#### **HAND REMOVAL OF PLANTS WITH A TAPROOT**

- Remove and bag seeds or fruits;
- Push a narrow trowel or knife into the ground beside the tap root, carefully loosen the soil and repeat this step around the taproot;
- Grasp the stem at ground level, rock plant backwards and forwards and gently pull removing the plant; and
- Tap the roots to dislodge soil, replace disturbed soil and pat down.

#### **CROWNING**

- Remove and bag stems with seed or fruit;
- Grasp the leaves or stems together so the base of the plant is visible;
- Insert the knife or lever at an angle close to the crown;
- Cut through all the roots around the crown; and
- Remove and bag the crown.

#### **STEM SWIPING**

- Remove any seed or fruit and bag; and
- Using a herbicide applicator, swipe the stems/leaves.

#### **HERBICIDE TREATMENT**

- Isolated spray with 'Glyphosate'.

## 7. IMPLEMENTATION

### FIRST YEAR WORKS SCHEDULE

FIRST YEAR												
<b>NOTE:</b> THE FOLLOWING LIST OF TASKS IS NOT COMPREHENSIVE AND SHALL BE UNDERATKEN AT OTHER TIMES THAN THOSE DESIGNATED, IF DEEMED NECESSARY												
ACTION	TIMING (MONTH)											
	1	2	3	4	5	6	7	8	9	10	11	12
Baseline Monitoring												
Photo monitoring												
Reporting												
Install temporary fencing												
Monitoring (weeds, plant loss, etc)												
Collect seed / order plants												
Maintain bushfire prevention requirements												
Remove rubbish												
Monitor and control erosion												
Primary weeding and mulching												
Secondary weeding												
Planting and mulching												
Watering (Adjust as required)												
Maintenance weeding												
Replacement planting & jute if used												

**NOTE:** Remove temporary fencing at the completion of adjoining staged construction works.



## SECOND YEAR WORKS SCHEDULE

SECOND YEAR												
<b>NOTE:</b> THE FOLLOWING LIST OF TASKS IS NOT COMPREHENSIVE AND SHALL BE UNDERATKEN AT OTHER TIMES THAN THOSE DESIGNATED, IF DEEMED NECESSARY												
ACTION	TIMING (MONTH)											
	1	2	3	4	5	6	7	8	9	10	11	12
Photo monitoring												
Reporting												
Monitoring (weeds, plant loss, etc)												
Maintain bushfire prevention requirements												
Remove rubbish												
Erosion control												
Planting												
Replenish mulch (if required)												
Watering (Adjust as required)												
Maintenance weeding												
Replacement planting												



### THIRD YEAR WORKS SCHEDULE

THIRD YEAR												
<b>NOTE:</b> THE FOLLOWING LIST OF TASKS IS NOT COMPREHENSIVE AND SHALL BE UNDERATKEN AT OTHER TIMES THAN THOSE DESIGNATED, IF DEEMED NECESSARY												
ACTION	TIMING (MONTH)											
	1	2	3	4	5	6	7	8	9	10	11	12
Photo monitoring												
Reporting												
Monitoring (weeds, plant loss, etc)												
Maintain bushfire prevention requirements												
Remove rubbish												
Planting												
Watering (Adjust as required)												
Maintenance weeding												
Replacement planting												



#### FOURTH AND SUBSEQUENT YEARS WORK SCHEDULE

FOURTH AND SUBSEQUENT YEARS												
<b>NOTE:</b> THE FOLLOWING LIST OF TASKS IS NOT COMPREHENSIVE AND SHALL BE UNDERATKEN AT OTHER TIMES THAN THOSE DESIGNATED, IF DEEMED NECESSARY												
ACTION	TIMING (MONTH)											
	1	2	3	4	5	6	7	8	9	10	11	12
Photo monitoring												
Reporting												
Monitoring (weeds, plant loss, etc)												
Maintain bushfire prevention requirements												
Remove rubbish												
Planting												
Watering (Adjust as required)												
Maintenance weeding												
Replacement planting												