WARRNAMBOOL
CITY COUNCIL

Warrnambool Revegetation Guidelines

Guidelines and Revegetation Application for Council owned and managed land

July 2021

Warrnambool Revegetation Guidelines

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CONTENTS

1.0 INTRODUCTION

Native vegetation is crucial for the health of the environment and supporting biodiversity. However, following extensive removal and modification of native vegetation over many years, less than 10% of native vegetation currently remains in the Warrnambool region.

Warrnambool City Council encourages and supports revegetation works on Council managed land. When planned and implemented carefully, these works can provide a range of environmental and social benefits. However, there can also be problematic issues associated with this work that need to be avoided, such as inappropriate siting and design and insufficient maintenance.

To address these issues, Council has developed the Revegetation Policy and Warrnambool Revegetation Guidelines. These documents are for use by groups and individuals wanting to undertake revegetation projects on Council managed land.

All open spaces of Warrnambool have been prioritised for revegetation and restoration based on a biodiversity principle. The Revegetation Priority Map (RRPM) is a result of this process. Revegetation projects should be carried out within areas classified as 'very high' or 'high' as depicted in the RRPM at Appendix 1.

1.1 Purpose of the Revegetation Policy and Revegetation Guidelines

The purpose of the Policy and Guidelines is to assist groups and individuals in planning for and carrying out revegetation projects that will satisfy Council's requirements.

The Guidelines are designed to:

- provide an overview of key considerations when planning and implementing revegetation projects; and
- provide clear direction regarding Council requirements for revegetation proposals.

The Guidelines outline Council's requirements for applications to revegetate sites. They include the key steps involved in the planning and implementation of revegetation projects as well as examples of plans to be submitted with applications, a Revegetation Application, a Memorandum of Understanding (MOU) template and a Handover Checklist. The information provided in the Guidelines will help ensure successful delivery of revegetation projects with favourable outcomes for all parties.

It is not the intent of these guidelines to provide in-depth information on issues associated with planting, such as seed collection, sourcing of plant stock, site protection or weed control measures. This information is accessible in other documents, many of which are detailed under 'Useful Resources' at Section 7.0.

2.0 THINKING ABOUT UNDERTAKING A REVEGETATION PROJECT – WHAT IS THE PROCESS?

When planning for revegetation works there are a number of factors that need to be taken into consideration in order to deliver a successful project.

It is important that organisations and individuals undertaking revegetation projects realise there is a significant amount of time required in planning for a revegetation project to get it right. In preparing to undertake a revegetation project there are a number of steps including planning, designing, making an application to Council for approval, preparing the site, planting, maintaining and monitoring. Each revegetation project also requires a 3-year commitment, prior to handover of the maintenance activities to Council.

The full process is detailed at Figure 1 (pages 6 & 7).

Figure 1: Revegetation Works Process (Steps 1-3)

STEP 1: Site Assessment and pre-application meeting with Council's Natural Environment Officer (and GHCMA, where required)

The applicant conducts a site assessment of the area where the revegetation works are proposed. The site analysis plan should be prepared by the applicant to show the important features of the site. Council's Natural Environment officer can assist with the provision of information for the site analysis plan.

The applicant must meet with Council's Natural Environment Officer on site to discuss the proposed works. The purpose of this meeting is to agree upon the nature and extent of the revegetation works and discuss any site features or proposed land uses on or near the site which may impact on the design and maintenance of the site.

STEP 2: Applicant selects plant species, prepares a Revegetation Plan and completes the Revegetation Application

The revegetation works, including plant selection, need to be appropriate for the site and respond to the site analysis. A Revegetation Plan showing the area proposed for revegetation must be prepared and submitted, along with the Revegetation Application to Council for consideration.

STEP 3: Consideration of application by Council

Once Council has received the Revegetation Application and relevant attachments, Council can consider the application. Council will review the application, including proposed plant species, plant densities and proposed maintenance. The review process will take 3 – 5 weeks. If the proposal meets all the necessary requirements, Council signs-off on the plan and a Memorandum of Understanding is signed by the applicant and Council prior to the works commencing.

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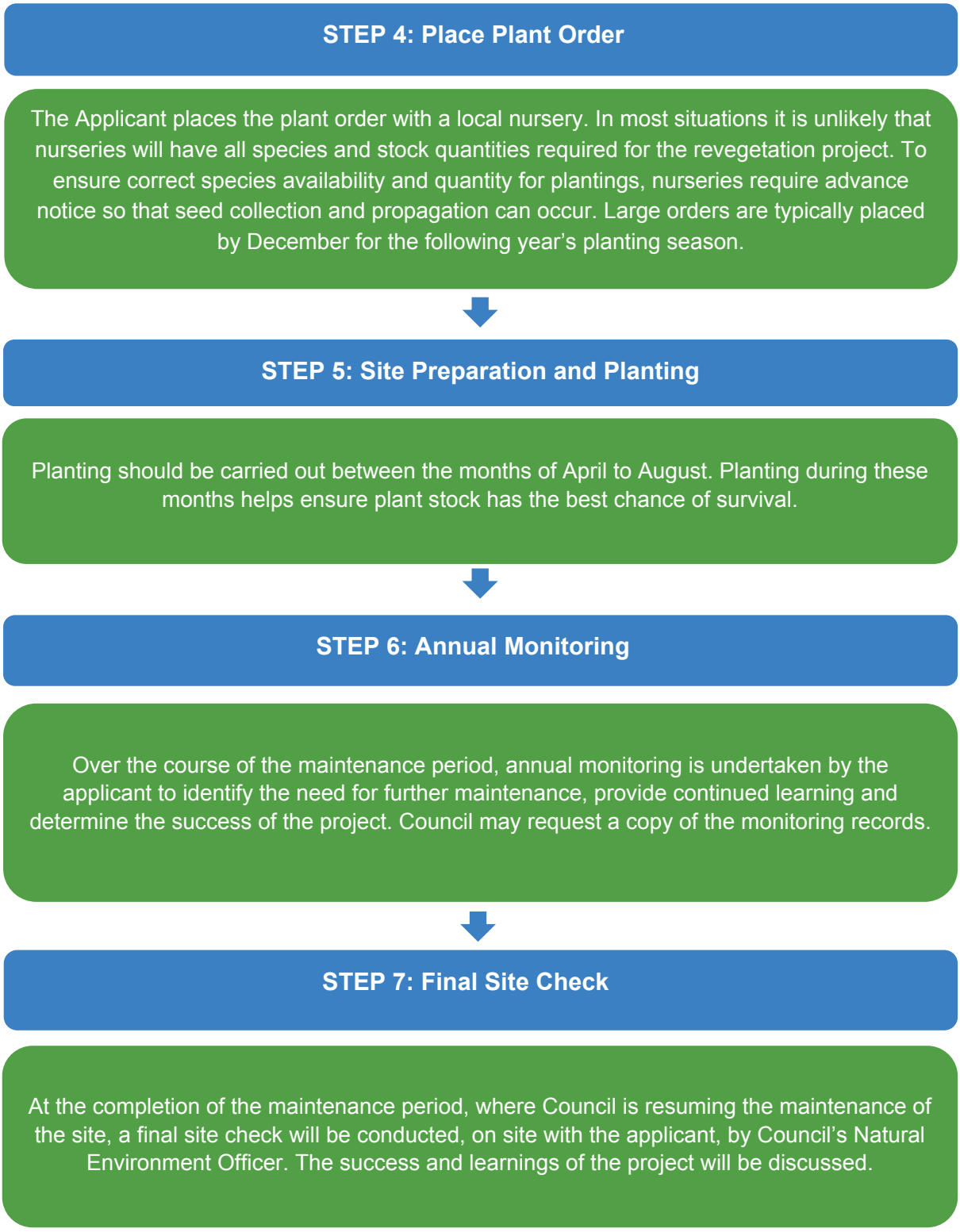
Figure 1 cont'd: Revegetation Works Process (Steps 5-8)



3.0 MAKING AN APPLICATION – WHAT TO CONSIDER?

When preparing an application for a revegetation project and completing the Revegetation Application (Appendix 2), please consider the following:

3.1 Objectives

The objective/s of the project need to be clear. The objectives will directly influence the design, plant selection and outcome of the project. Typical objectives may include improving water quality, preventing erosion, increasing habitat areas for native wildlife and creating vegetation links for biodiversity connections. In some cases it may be appropriate to have more than one project objective.

Having clear and well-defined objectives for the project will also help in measuring the success of the project.

3.2 Site Assessment, Pre-application meeting and Site Analysis Plan

A thorough site assessment is essential when planning a revegetation project. It is beneficial for applicants and Council to see the information from the site assessment detailed on a site analysis plan.

The applicant must meet a Council officer from the natural environment team on site to discuss the proposed works. A representative from the Glenelg Hopkins Catchment Management Authority (GHCMA) may also attend the meeting if the planting works are proposed next to a waterway.

The purpose of this meeting is discuss the site and to agree upon the extent of the revegetation works. Discussion should include existing vegetation, potential land use considerations, key views requiring protection, site infrastructure, weed management, the local EVC, plant densities, particularly tree planting density, and mix of plants (ie. trees, shrubs, graminoids, groundcovers etc).

The site analysis plan should be prepared by the applicant, with assistance from Council, and detail the following information:

- **Vegetation,** both native and introduced species, and their coverage of the site, including Ecological Vegetation Class (EVC). The assessment of vegetation, particularly for groundcover, is best carried out in spring as most annuals and perennials will be present. Assessing the ground level flora of the site will help determine the site preparation.

  EVCs in Warrnambool are shown on the map at Appendix 7. For more information regarding EVCs at specific locations, visit the Victorian Government's Nature Kit[1]. Nature Kit is an online mapping resource that shows information about biodiversity and native vegetation, including modelled 'current' and 'pre-1750s' EVCs.
- **Fauna,** including both native and introduced species.

[1] Links to online resources are provided at Section 7.0 Useful Resources.

- **Rare or threatened species** or communities of native plants or animals listed under the FFG or EPBC, where known. The Salt-wedge Estuaries Ecological Community occurs along sections of the Hopkins River and Merri River. In Warrnambool, the location of the Salt-wedge Estuaries ecological community is located within the:
  - **Merri River**. Physical description of estuary - length is approximately 7.4 kilometres, average width is approximately 361 metres and surface area is an estimated 54.1 hectares. (AG 2018, p. 9)
  - **Hopkins River**. Physical description of estuary - length is approximately 9.6 kilometres, average width is approximately 170 metres and surface area is an estimated 163.3 hectares. (AG 2018, p. 9)

  The EVC Map at Appendix 7 shows sites where these communities are likely to occur. The Victorian Government's Nature Kit[1] is a useful resource that shows species observation records and information from the Victorian Biodiversity Atlas (VBA).

- **Cultural and historical values.** There are many sites of cultural significance in Warrnambool. Sites of cultural significance are commonly located along rivers and waterways and the coastline. Some artefact sites are known and recorded, but there are many sites that have yet to be recorded. It is important for all sites to be protected. For more information regarding cultural heritage sensitivity, visit Aboriginal Victoria's website[2]. There is a mapping tool available online that shows areas of cultural heritage sensitivity and registered sites.

- **Past, current or future land uses.** Identify the current and future use of the land to help ensure the design and plants selected will be compatible with the land use and also achieve good ecological and/or social outcomes for the site. For example, what is the site currently used for and what land uses adjoin the site (ie. houses, public open space, paths/trails, playground, sporting activities, etc)? For further information regarding adopted plans/strategies for open space or possible future changes to land use contact Council's planning team.

- **Built Assets and Infrastructure** such as roads, powerlines, easements, dams, buildings and bores.

- **Access arrangements** for pedestrians and maintenance.

- **Topography** and other features such as wetlands, creeks, drainage lines and ridges.

- **Flood line.** Show the 1 in 100 year, if known. Planning maps can be a useful resource as the 1 in 100 year floodline is often represented as a planning overlay and identified on the overlay maps[2].

- **Key viewlines to and from public land** that need to be protected. (Refer to Merri River Landscaping Guidelines for further information regarding key viewlines along the Merri River).

- **Soil types**, where known

- **GPS Co-ordinates.** This can be taken using hand-held device or obtained on NatureKit (under 'search location' and 'plot coordinates')

[2] Links to online resources are provided at Section 7.0 Useful Resources.

The information gathered from the site assessment and analysis should be used to inform the revegetation planting plan and provide the baseline of information for monitoring and comparison of revegetation over the life of the project.

The Site Analysis Plan and site photos of the site need to be submitted with the Revegetation Application, as they assist with consideration of the application and future comparisons. A sample Site Analysis Plan is provided at Appendix 3.

3.3 Plant Selection

Indigenous species are to be planted in revegetation areas. Indigenous vegetation has adapted to the Australian landscape and provides the habitat required for local fauna. It is important to revegetate with local native plants to reduce competition for local plants, provide habitat for local fauna and maintain the local ecosystem balance. It is also important that remnant indigenous vegetation existing at the revegetation site be protected, enhanced and managed appropriately and should be viewed as a starting point to build a successful project.

There are a variety of different vegetation types across the Warrnambool region. Site conditions such as topography, slope aspect, soil type, geology, elevation and rainfall patterns all influence the particular groups of vegetation types.

Ecological vegetation classes (EVCs) are a standard unit for the classification of vegetation types in Victoria. EVCs have been broadly mapped across Victoria. EVCs along with their associated benchmarks provide a guide to the vegetation that would have existed in an area prior to the extensive clearing that occurred across the state. Plant species selected for revegetation project should be consistent with the local EVC for the area.[3]

When planning the revegetation of a site, the appropriate EVC and associated benchmark along with knowledge of existing remnant vegetation must be considered. In some situations it may be appropriate to select plant species from both the local EVC and adjacent EVC. Using plants from multiple EVCs may be appropriate in locations where there is a transition between EVCs, or where the selection from a larger number of species is warranted to suit the conditions or required vegetation characteristics for the current or planned use of the site. The site conditions and required vegetation characteristics should be a consideration during the preparation of the site analysis.

Plants must not only be selected for their ability to tolerate the site conditions, they must have characteristics that make them suitable for the site they are planted in and the surrounding uses. The following should be given consideration when selecting plants:

Function

- Are there any site conditions which require plants to perform a specific function, such as erosion control/prevention?

[3] Note: EVC benchmarks are a guide and do not contain a full comprehensive list of species for the EVC within a region, but rather a subset of typical species. Not all species in the benchmark will be appropriate to all sites across the range of an EVC, and not all remnant species that exist at a site will be listed within the EVC benchmark.

Form and Size

- Are there any shared public viewlines that should be protected? If so, large trees/shrubs that block key viewlines need to be avoided.
- If the revegetation planting is proposed along a road, path or trail edge, the plant form and size will need to be considered to avoid impeding sight lines and passive surveillance.

Habitat

- Are there any fauna species found at the location or nearby which require particular requirements to create a safe habitat for them? For example, many bird species require branches up off the ground for nesting and many ground-dwelling species require groundcovers for protection.

Suitability to the Environment & Land Use

- Consider site aspect, slope, existing vegetation, existing shade/exposure and salt spray.
- Is there a Council endorsed master plan or other approved plan for the site. If so, is the proposed revegetation planting in line with this Plan?
- Will the planting have any negative consequences such as leaf/nut/seed drop creating hazards for adjoining sporting fields or facilities?
- Consider plant flammability and select plants with lower flammability if planting is near houses.[4]
- Will the plantings impact infrastructure (eg planting too close to footpaths, branches hanging over footpaths or private property)?

The *Merri River Landscaping Guidelines 2020* provides further considerations for land adjoining the Merri River. Some of the principles and considerations in the Merri River Landscaping Guidelines can also be applied to other sites, such as the Hopkins River or other revegetation sites not adjoining a river. Sample cross sections from the Merri River Landscaping Guidelines are provided at Figures 2 and 3. These figures show samples of how revegetation works can be designed with appropriate plant selection to achieve positive outcomes for users of public open space.

[4] Links to online resources are provided at Section 7.0 Useful Resources.

Figure 2: Sample cross-section of planting adjacent the river in a peri-urban context (residential development on one side of the river and farmland on the opposite side)

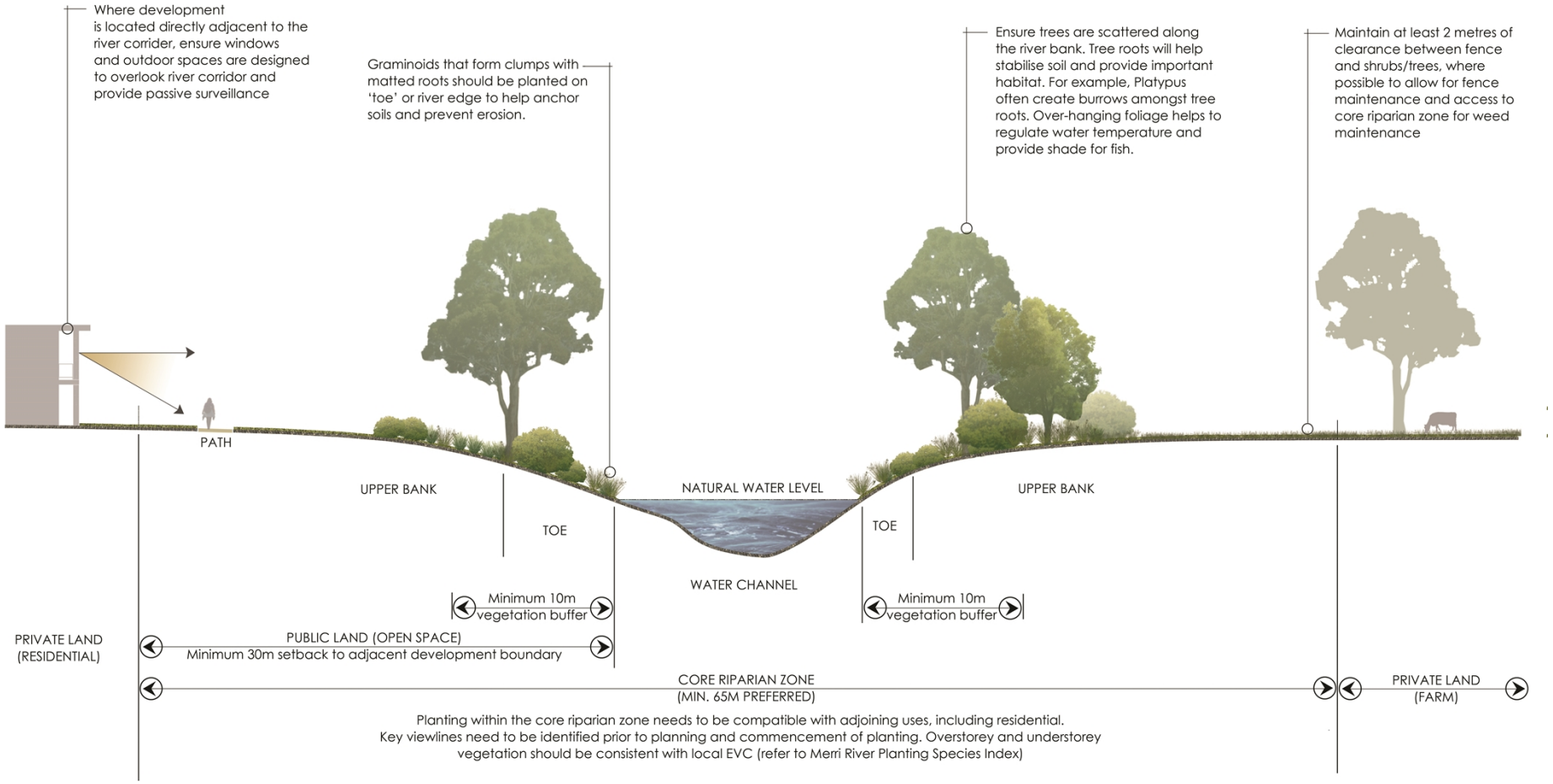
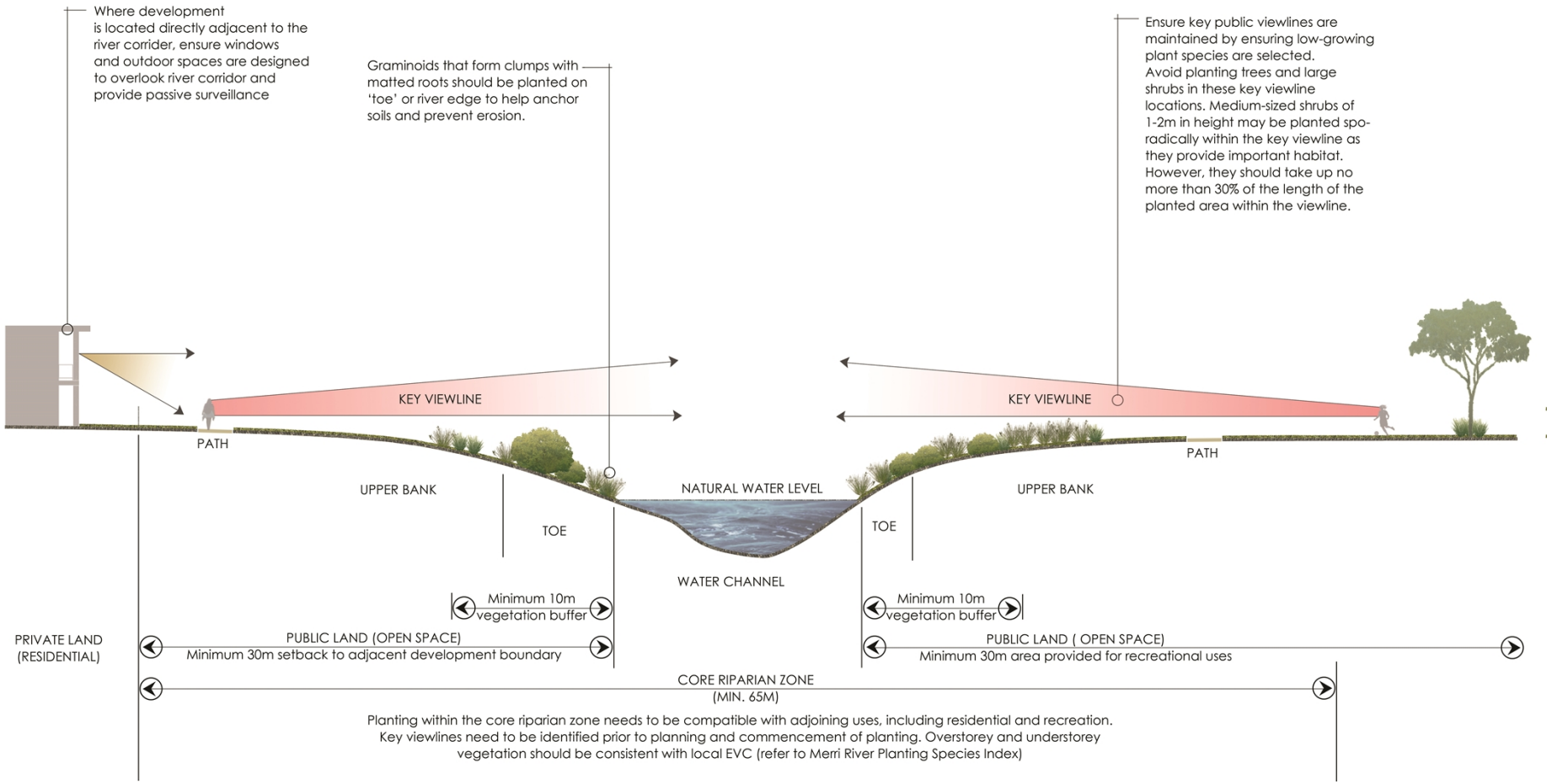


Figure 3: Sample cross-section of planting adjacent the river in an urban or rural living context where key viewlines exist



3.4 Planting Densities

Overall, revegetation works should aim for an average overall density of 3-4 plants per square metre. The following densities should be used as a guide to achieve this:

Table 1: Recommended Planting Densities

Plant Description (as listed in EVC)	**Planting Density**
Large tufted graminoids and large herbs	2 plants per square metre
Medium tufted graminoids and medium herbs	4 plants per square metre
Small graminoids and small herbs (includes prostrate groundcovers)	6 plants per square metre
Small shrubs	1 plant per square metre
Medium shrubs	1 plant per 2 square metres
Large shrubs	1 plant per 3 square metres
Trees	Scattered at a rate applicable to the EVC (where stated) or as otherwise decided, depending on the site.
Note: Graminoid is a term used to describe grasses or grass-like plants including sedges and rushes.	

These planting densities will help to:

- Ensure relatively dense plant cover across the site
- Minimise competition from weeds, and
- Compensate for plant stock losses from natural plant death or damage from animal grazing. Plant stock losses are anticipated to be up to 30% for new revegetation sites across Warrnambool.

The EVC benchmark for tree density is specified as number of trees per hectare. An additional 30% should be added when planting to account for stock losses.

In some situations, especially where viewlines need to be retained, trees may not be suitable for planting on the site or the tree planting density may need to be adjusted to a lower rate than specified in the EVC in order to maintain open views and enhance safety through passive surveillance. The incorporation of trees and tree planting density should be discussed with Council's Natural Environment officer onsite.

When calculating the planting density for a site, the breakdown of areas for each plant description needs to be determined first. The ratio of plant types will vary depending on the EVC and preferred mix of plants. Table 2 provides an example of plant number calculations for a 1000sqm site (note, the vegetation type and percentages will vary depending on the site).

Table 2: Example calculation for plant numbers for a 1000sqm site

Area and Density	**Number of Plants**
20% (200sqm) of site planted with large tufted graminoids (2/sqm)	400
20% (200sqm) of site planted with medium tufted graminoids (4/sqm)	800
10% (100sqm) of site planted with small graminoids and herbs (6/sqm)	600
50% (500sqm) of site planted with medium shrubs (1 per 2sqm)	250
Tree density as per relevant EVC i.e. 20/hectare	3*
TOTAL NUMBER OF PLANTS	**2053**
*Note: The EVC benchmark for tree density is specified as number of trees per hectare. An additional 30% should be added when planting to account for stock losses. In this example 2 trees are required per 1000sqm, so one additional tree has been added to account for stock losses.	

3.5 Revegetation Plan

Good planning is essential for a successful revegetation project and ensures critical factors such as weed control, timing of planting and species selection are carried out at the right time.

The preparation of a Revegetation Plan helps all stakeholders to visualise what is being planned for the site. The Revegetation Plan is prepared by the applicant and information shown on the plans must take into account the Policy and the Guidelines (there is a checklist contained in the Revegetation Application). The Revegetation Plan must submitted with the Revegetation Application to Council for approval.

A Revegetation Plan is prepared to show following information:

- **Topographical features**
- **Areas that should not be disturbed**
- **Areas to be planted**
- **Infrastructure**
- **Site access**
- **Monitoring locations** (photo points)
- **Corresponding EVC(s)** of the works area
- **Site preparation details,** including key dates and responsible parties
- **Plant species**. Including number of each species and planting densities.
- **Planting method**, including tree guards and mulching details. If direct seeding, the seed mix and amount to be used, method of seeding
- **Erosion control measures**, where required

A map or aerial photo of the site should be used as part of the planning process.

A sample Revegetation Plan is provided at Appendix 4.

3.6 Seed Sourcing and Provenance Mixing

In situations where seed sourcing is carried out in preparation for revegetation planting, sourcing seed from other areas for climate change adaptation should be explored. This is referred to as provenance mixing.

The Department Environment, Land, Water and Planning (DELWP) provides advice that '*while the proportion of local and climate adjusted seed which should be planted is flexible and dependant on availability*' they recommend '*70% local seed, 20% from hotter and drier climates … and 10% from a wetter, cooler climate* (DELWP[4], 2020)'. DELWP has an online resource (listed in Section 7.0) that provides further information about provenance mixing for climate change adaptation. This online resource has a link to a web resource that can assist in determining likely climate change analogues for Warrnambool.

3.7 Site Preparation and Weed Control

Site preparation for revegetation projects is determined by the existing vegetation at the site. It is important to remember that all plants at a site are competing for space, light, water and nutrients. Therefore, adequate site preparation can assist indigenous plants to survive and thrive.

Weed control is usually the most important step in the preparation of a site for successful revegetation. Understanding the life cycle of the weeds present on the site will assist in determining the most effective weed control method. There are numerous methods for weed control, some of which are highlighted below.

Manual control is the most labour intensive control method as is usually only suitable on a small scale or with a team of workers and is best carried out when the soil is moist. It is not suitable for weed species with underground bulbs.

Slashing can be useful where chemical control is not appropriate, such as areas where exotic and native grass co-exist. Slashing is usually only used at large accessible sites and can help keep down competitive weeds.

Chemical control may be the only practical and selective method of controlling certain weeds in some situations. Herbicide application is usually cost-effective, however it is very important to use the right herbicide at the correct application rate. All herbicides must be used strictly in accordance with the manufacturer's recommendations and in accordance with the licencing provision for that chemical.

If spraying the site, a minimum of two sprays must be undertaken. Spraying must be carried out by a person with the correct qualifications and in accordance with current legislation. Contractors must be fully aware of relevant State and Federal legislation with regard to protected species, environmental harm, pollutions and other pertinent issues to carry out weed control.

Chemical control is not recommended in areas dominated by perennial native grass. Selective herbicide control may be required in areas containing a mix of perennial native grass and exotic grass.

Weed mats are an effective way of suppressing weed growth, particularly in areas where herbicides are not desired or appropriate. If used, weed matting must be made from jute, coir or other natural fibre and must be pinned down appropriately with one peg in each corner. Plastic or recycled poly-cotton blend matting will not be accepted.

Mulching can also suppress weed growth and improve moisture content in the soil. Chemical control prior to mulching has been found to be more effective.

In sand dune areas, mulching is not appropriate. Erosion control in sand dunes should be discussed with Council Natural Environment officer onsite. In some situations, on exposed sites, wind barriers and/or vegetation bundles may be required to help plants to establish.

The site visit with Council is a good time to discuss the preferred approach to site preparation and weed control.

3.8 Weed hygiene

Weed hygiene can be a critical component of a revegetation project. The introduction of weeds, particularly to remnant vegetation in good condition, can be disastrous. Weeds can be spread from infested areas to weed-free areas via contaminated clothing and footwear, tools and equipment, as well as vehicles and machinery. It is crucial for workers on site to practice good weed hygiene to prevent the spread of weeds.

Weed hygiene is discussed in depth in numerous readily available documents that should be consulted when planning efficient and effective weed hygiene procedures. The following provides a broad overview of simple weed hygiene practices and issues to consider:

Weed Identification

Applicants and land managers should be aware of the potential priority weeds in the area and should be able to identify them. The mapping of areas containing weed infestations is an important part of weed control, along with the development and implementation of weed hygiene procedures.

Careful Planning of Activities

Carefully planning activities onsite can reduce the spread of weeds in an area. The life cycle of weeds, particularly seeding, along with how weeds spread should be considered when planning works.

Slashing and chemical control, for example, should be carried out prior to seeding. It should also be noted that slashing can exponentially increase the spread of weeds that grow from fragments (e.g. Morning Glory, Wandering Creeper).

Simple practices such as minimising soil disturbance which can reduce seed germination, avoiding driving off-road in areas known to contain declared weeds and beginning work in areas with little or no infestation before working in highly infested areas, can all assist in the reducing the spread of weeds.

Equipment and machinery hygiene

Equipment and machinery can transfer weeds between sites. It is important to clean vehicles, machinery and equipment to remove weed seeds prior to moving to a different area.

Inspecting and cleaning of equipment, machinery and vehicles will vary according to type of equipment/vehicle/machinery being cleaned, the work environment and the contamination level.

Options for cleaning include wash-down with a high-pressure cleaner, air blast with a compressor, vacuuming interiors or machinery or vehicles and physical removal (often undertaken prior to or at the completion of wash down or air blast).

Cleaning sites should be located close to the exit point of the site, away from water courses and drains and if possible the site should be well grassed to reduce mud during cleaning.

Ensure areas of machinery and vehicles are cleaned properly, with particular attention given to areas where seeds can be easily lodged such as radiators, grills, filters, tyres and axels, chassis and body, ledges, frames and mudguards, buckets and blades and slashing equipment.

Wastes from cleaning sites should be appropriately disposed of, ideally onsite to reduce the spread of weeds to other sites.

3.9 Risk Management

A risk assessment must be undertaken for every application in accordance with ISO31000 - Risk Management and a risk management plan must in place prior to the commencement of the works.

The risk assessment should include, but is not limited to exposures included in Section 3 Making an Application – What to Consider?, including those identified in the planning and site analysis process.

Public liability insurance for a minimum of $20 million must be held by the applicant and their subcontractors for the duration of the works. A copy of the Public Liability Insurance Certificate of Currency is required to be submitted with the Revegetation Application.

Applicants may be able to enter into an auspice arrangement with community groups that hold the required amount of public liability insurance.

3.10 Maintenance

The works associated with a revegetation project do not cease once the initial site preparation and/or planting has been carried out. Ongoing management of the site will be required, in the case of Council owned or managed land, the applicant is responsible for the maintenance of the site for a minimum of three years. Maintenance will include ongoing weed control, installation and subsequent removal of tree guards and replacement of plants that have died. Watering of seedlings may be also be required during dry periods.

Infill planting, which may include follow-up plantings, may be required to achieve the required vegetation diversity and density for a revegetation site, if there has been an unexpectedly high rate of plant mortality.

A maintenance schedule must be detailed in the Revegetation Application submitted to Council and regular monitoring of the site must be used to inform any further maintenance required other than that documented.

3.11 Monitoring

Monitoring of revegetation sites involves the recording and analysis of observations over time and is an important aspect of any project. Monitoring allows project managers to:

- see what is happening at the site
- identify the need for any further maintenance, such as weed control or any replanting requirements in relation to plant losses
- provides continued learning to improve current or future projects, and
- assists in determining the success of the project

It is essential that monitoring begins at the start of the project, during the planning stages, as this allows for the collection of baseline data. It is also important to ensure the monitoring program is not subjective and easily repeatable so it can be carried out by different people over the life of the project.

There are several monitoring methods that may be used by applicants, however one of the simplest ways to monitor a project is through photographs. A fixed location must be set up to ensure the same area is photographed over time. These photographs can then provide a record of changes in the vegetation. The photo monitoring point must be recorded and marked, along with the camera settings used. When selecting a photo monitoring point, the future growth of vegetation must be considered, this is particularly important when planting trees as the revegetated area should not be blocked by future tree growth.

Observations at the time of photographic monitoring should also be recorded. This information combined with the photographs can build a more effective picture of the site and assist in determining the success and/or failure of species, allowing the modification of practices for future projects.

Monitoring results may be requested by Council.

4.0 SUBMISSION OF REVEGETATION APPLICATION

The Revegetation Application, along with the required plans and photographs, must be submitted to Council in either electronic or hard copy form.

Electronic copies of the plan must be sent to the natural environment team at: **green@warrnambool.vic.gov.au,** with **Attention: Revegetation Application**

Hard copies of the plan must be submitted to:

Attn: Revegetation Application
Council Civic Centre
25 Liebig Street
Warrnambool 3280

The applicant must allow up to 25 working days for approval of the plan. It should be noted the 25 working days begin after Council are satisfied the information provided meets the requirements of the Policy and the Guidelines.

5.0 MEMORANDUM OF UNDERSTANDING

Following approval of the Revegetation Application and associated Revegetation Plan, a Memorandum of Understanding between the applicant and the Warrnambool City Council must be prepared and signed prior to works commencing. A template for the MOU can be found at Appendix 5.

It is the responsibility of the applicant to ensure that any proposed works comply with all relevant laws.

6.0 SITE HANDOVER

The site must be maintained by the applicant for a minimum three years following the signing of the MOU. Following the end date of the MOU, the maintenance of the site may be handed back to Council. Council will conduct a final site check with the applicant on site. Discussions will include the success and learnings of the project.

7.0 REFERENCES AND USEFUL RESOURCES

The following references may be of use when planning a revegetation project:

Warrnambool Plant Species and EVC Information

- Australian Plants Society (2020), *Warrnambool and District Group Inc Pty Ltd*, http://apswarrnambool.org.au/
- Department of Environment, Land, Water and Planning (DELWP), (2020), *Nature Kit Maps*, http://maps.biodiversity.vic.gov.au/viewer/?viewer=NatureKit
- Department of Environment, Land, Water and Planning (DELWP[3]), (2020), *Bioregions and EVC Benchmarks*: https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks
- Department of Sustainability and Environment (DSE) (date unknown). *Bioregional Conservation Status for each Bio EVC. Victorian Government*, Department of Sustainability and Environment: https://www.environment.vic.gov.au/__data/assets/pdf_file/0012/50511/Bioregional-Conservation-Status-for-each-BioEVC.pdf
- Sparrow, K. (2013) *Plants of the great South West: a guide to the indigenous plants of South West Victoria*, Society for Growing Australian Plants Warrnambool & District Group.
- Warrnambool City Council (2020), *Merri River Landscaping Guidelines*. https:// www.warrnambool.vic.gov.au/merri-river-planning-projects
- Warrnambool City Council (2012), *Warrnambool Coast Vegetation Management Plan* - Biosis Research Pty Ltd. Warrnambool City Council https://www.warrnambool.vic.gov.au/sites/warrnambool.vic.gov.au/files/documents/council/plans_strategies/FINAL_Warrnambool Coast VMP_Council approval 24 Feb 2014(2).pdf
- Warrnambool City Council (2013) *Warrnambool Coastal Management Plan 2013*, https://www.warrnambool.vic.gov.au/sites/warrnambool.vic.gov.au/files/documents/council/plans_strategies/coastal%20plan.pdf

Provenance Mixing for Climate Change Adaptation

- Department of Environment, Land, Water and Planning (DELWP4) (2020), https://www.environment.vic.gov.au/__data/assets/pdf_file/0036/489159/Revegetation-plant-provenance-information-sheet_final.pdf

Plant Species Database (useful for finding out information about particular species)

- Royal Botanic Gardens Victoria (RBGV) *Vicflora – Flora of Victoria*: Flora of Victoria (rbg.vic.gov.au)

Planning Zones and Overlays

- For information on planning zones and overlays, including land subject to inundation visit Planning Schemes Online at: https://planning-schemes.delwp.vic.gov.au

Catchment and Riparian Management

- Department of Environment, Land, Water and Planning (DELWP[2]) (2015) *Regional Riparian Action Plan*: https://www.water.vic.gov.au/__data/assets/pdf_file/0018/52722/RRAP-FINAL-web-version-15Dec15.pdf

- Glenelg Hopkins Catchment Management Authority (GHCMA) *Waterway Strategy 2014-2022:* GHCMA Waterway Strategy 2014-2022 by shane mcgrath - Issuu

- Glenelg Hopkins Catchment Management Authority (GHCMA) *Glenelg Hopkins Regional Catchment Strategy 2013-2019:* https://info.ghcma.vic.gov.au/wp-content/uploads/2017/04/11259_GHCMA_RSC_WEB.pdf

Cultural Heritage

- For information regarding Cultural Heritage Sensitivity and the Victorian Mapping Tool visit: https://www.aboriginalvictoria.vic.gov.au/cultural-heritage-sensitivity

- Eastern Maar Aboriginal Corporation has Registered Aboriginal Party status. For further information regarding cultural heritage management in Warrnambool visit the Eastern Maar website at: https://easternmaar.com.au/

Landscaping and Plant Selection for Bushfire Prone Areas

- Landscaping for Bushfire https://www.cfa.vic.gov.au/documents/20143/72271/landscaping_for_bushfire.pdf/1c6084e1-159e-a820-b0b3-6dc077e661c0 (cfa.vic.gov.au)

- Plant Selection Key https://cdn.cfa.vic.gov.au/documents/20143/72271/landscaping_for_bushfire_plant_selection_key.pdf/0de33610-864a-77ec-d3e7-63931b2ff373 (cfa.vic.gov.au)

Example of a revegetation management plan and other information about revegetation planting

- *Native Vegetation Revegetation planting standards – Guidelines for establishing native vegetation for net gain accounting*. Victorian Government, Department of Sustainability and Environment: http://www.dse.vic.gov.au/__data/assets/pdf_file/0005/97349/NativeVeg_Reveg.pdf

Local Plans and Strategies

- Warrnambool City Council (2014) *Warrnambool Open Space Strategy*: https://www.warrnambool.vic.gov.au/sites/warrnambool.vic.gov.au/files/documents/property/planning/strategies/Warrnambool%20Open%20Space%20Strategy%202014.pdf

- Warrnambool City Council (2018) *Green Warrnambool*: https://www.warrnambool.vic.gov.au/sites/warrnambool.vic.gov.au/files/documents/council/plans_strategies/Green%20Warrnambool%20FINAL%20adopted%203%20September%202018.pdf

- *Warrnambool 2040 - Community Plan 2019*, http://w2040.com.au/

Risk Management

- Safe Work Australia (May 2018) How to manage work health and safety risks, Code of Practice: https://www.safeworkaustralia.gov.au/doc/model-code-practice-how-manage-workhealth and-safety-risks

- Risk Assessment, Safe Work Australia: https://www.safeworkaustralia.gov.au/covid-19-information-workplaces/industry-information/office/risk-assessment#heading--2--tab-toc-how_do_i_do_a_risk_assessment?

8.0 APPENDICES

APPENDIX 1: REVEGETATION PRIORITY MAP FOR OPEN SPACES

APPENDIX 2: REVEGETATION APPLICATION

APPENDIX 3: SAMPLE SITE ANALYSIS PLAN

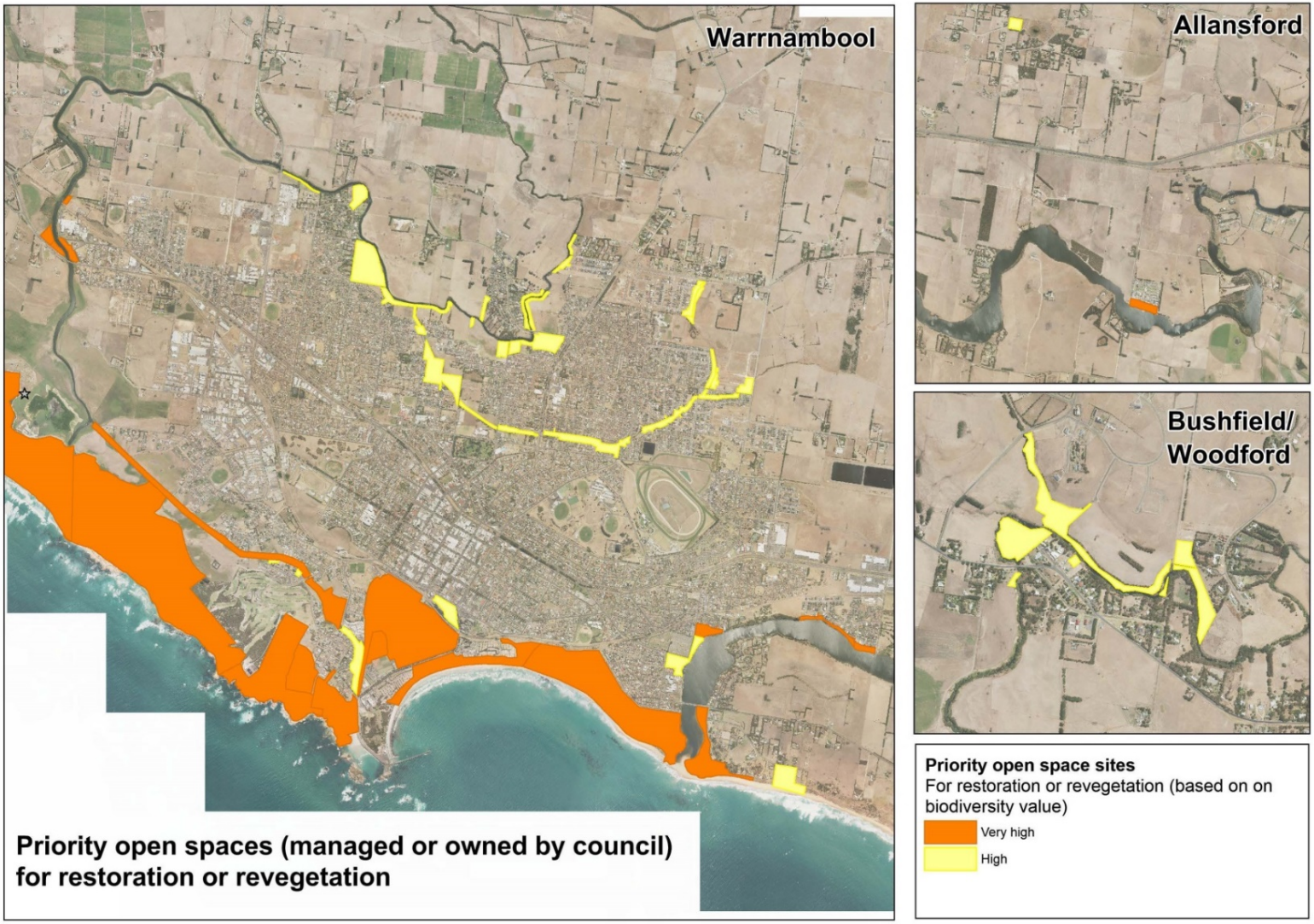
APPENDIX 4: SAMPLE REVEGETATION PLAN

APPENDIX 5: MEMORANDUM OF UNDERSTANDING

APPENDIX 6: EVC AND SALT-EDGE ESTUARIES MAP

APPENDIX 1

REVEGETATION PRIORITY MAP FOR OPEN SPACES



APPENDIX 2

REVEGETATION APPLICATION

This application form is for revegetation projects proposed on Council managed land.

Q1. What is the name of your group/organisation?
Q2. Please provide contact details of two persons from your group/organisation associated with the project. **Contact No. 1** Name: Phone: Email: Postal Address: **Contact No. 2** Name: Phone: Email: Postal Address:

Q3. The objective/s for the revegetation project can have a direct influence on the design, planning and outcome of the project. What is the main aim of your project (select multiple if applicable)?

- ☐ Improving health of adjacent waterway/wetland
- ☐ Improving water quality
- ☐ Soil stabilisation and erosion prevention
- ☐ Increasing habitat for native wildlife
- ☐ Creating a vegetation link for a biodiversity connection
- ☐ Increasing the amount of native vegetation in Warrnambool
- ☐ Seeking to address a particular environmental problem. If selected, please describe below.

Q4. Have you had an onsite/pre-application meeting with staff from Council's natural environment team? ☐ Yes ☐ No

If the answer is no, you will need to organise an onsite meeting prior to lodgement of the application.

Q5. Please provide a brief description of the site, including its location and approximate size?

Q6. Have you prepared and attached a Site Analysis Plan? ☐ Yes ☐ No

If yes, please attach it to the application form.

(Note: applications will not be accepted without a Site Analysis Plan)

The site analysis plan should include the following, where information is known:

- ☐ Vegetation, both introduced and native, and approximate coverage of the site
- ☐ Applicable Ecological Vegetation Class (EVC)
- ☐ Fauna, including native and introduced species.
- ☐ Presence of rare or threatened species listed under the FFG or EPBC Act
- ☐ Cultural and historical values
- ☐ Past, current and future land uses of the site and surrounds.

- ☐ Built assets and infrastructure
- ☐ Access arrangements
- ☐ Topography and other features such as wetlands, creeks, drainage lines and ridges
- ☐ Flood line (1 in 100 year)
- ☐ Key viewlines to and from public land that need to be protected
- ☐ Soil Types (where known)
- ☐ North point
- ☐ GPS co-ordinates of the site. This can be taken using hand-held device or obtained on NatureKit (under 'search location' and 'plot coordinates')
- ☐ Photo points
- ☐ Photographs (please attach)

Q8. Have you prepared and attached a Revegetation Plan? ☐ Yes ☐ No

If yes, please attach it to the application form.

(Note: applications will not be accepted without a Revegetation Plan)

Prepare a plan of the area to be landscaped. The site analysis plan can be used as the basis for the revegetation plan. The plan should be drawn to scale and show the following information:

- ☐ Surface levels (where known)
- ☐ Built assets and infrastructure such as paths, seats, play equipment, powerlines, easements, buildings, etc, to demonstrate that revegetation works are located at a suitable distance from infrastructure.
- ☐ Edge of River (where applicable)
- ☐ Existing vegetation to be retained/removed
- ☐ Applicable Ecological Vegetation Class (EVC) for the works area
- ☐ Areas to be protected from disturbance (if applicable)
- ☐ Proposed revegetation area, including species, location, densities and quantity
- ☐ Planting method, including tree guards and mulching details. If direct seeding, the seed mix and amount to be used.
- ☐ Matting and erosion control measures (where required)
- ☐ Site access, particularly for maintenance.
- ☐ Key viewlines (if applicable)
- ☐ Important features/uses of the site or adjoining land to demonstrate that the planting is compatible
- ☐ North point
- ☐ Monitoring locations (photo points)
- ☐ GPS co-ordinates of the site

Q9. Is your project along the edge of the Merri River? ☐ Yes ☐ No

If yes, have you referred to the Merri River Landscaping Guidelines? ☐ Yes ☐ No

Q10. Have the members of the group/organisation discussed Cultural Heritage Management with Council's natural environment team?

(Note: it is important for groups/individuals carrying out revegetation works to know about Cultural Heritage of the site. Where sites do not have registered Cultural Heritage sites, it is still important for those carrying out the planting to know what to look for and what to do in the event that an artefact is discovered on the site).

PART C – SCHEDULE OF WORKS FOR PREPARATION AND PLANTING OF SITE

Q11. Please describe how the site will be prepared and planted. Include information on:

Who is responsible for preparation and planting?

What type of work you are proposing (weed removal, revegetation)

Planting method (direct seeding, tube stock, use of jute matting or weed matting, furrows, other)

Timeline of actions/key dates

PART D – RISK MANAGEMENT

Q12. Please provide a risk assessment for the proposal. Please attach a copy of a valid Public Liability insurance 'Certificate of Currency' providing indemnity for not less than $20 million.

PART E – MAINTENANCE SCHEDULE

Q13. Please detail the maintenance of the site. Provide a response to the following:

Who is responsible for the maintenance?

Methods used to maintain the site

Timeline of actions/key dates

PART F – MONITORING PROGRAM

Q14. Please detail the site monitoring that will be undertaken.

(Note: Regular weeding and weed monitoring will be important in ensuring no new pest or weed species become established. An annual site visit should be undertaken by Council and those responsible for weed management during the 5-year maintenance period to ensure weed control is taking place as planned.)

Monitoring method chosen

Monitoring sites and how they are identified

Monitoring schedule

PART G – ESTIMATED COST

Q15. What is the estimated project cost?

Site Establishment and Planting (weed removal, jute matting, mulch, plants or seed, stakes, plant protectors, mulch)

Maintenance (over 3 years)

Monitoring

Total

SUBMIT THE PROPOSAL TO COUNCIL FOR APPROVAL

Upon completion of the Revegetation Application, please provide the required attachments and submit application to the natural environment team at: **green@warrnambool.vic.gov.au**, with **Attention: Revegetation Application**

Before submitting your application, please ensure you have completed the following:

- ☐ Determined the objectives of your project
- ☐ Prepared a Site Analysis Plan
- ☐ Attended an onsite/pre-application meeting with staff from Council's natural environment team
- ☐ Prepared a Revegetation Plan
- ☐ Provided all other relevant information regarding the project for consideration of this application

APPENDIX 3 – SITE ANALYSIS PLAN

Site Analysis Plan (Sample)

Plant Court Revegetation Site, Warrnambool

LEGEND
- Subject Site (proposed for revegetation works)
- Contours (0.5m)
- Flood level (1 in 100 year)
- ① Photo point

VEGETATION DESCRIPTION

The subject site contains exotic pasture grasses and herbaceous weed species including *Hypochaeris radicata* (Flatweed/Cat's Ear) (approx 10%) and *Holcus lanatus* (Yorkshire Fog) (approx 10%).

The site is currently mown at regular intervals by Council.

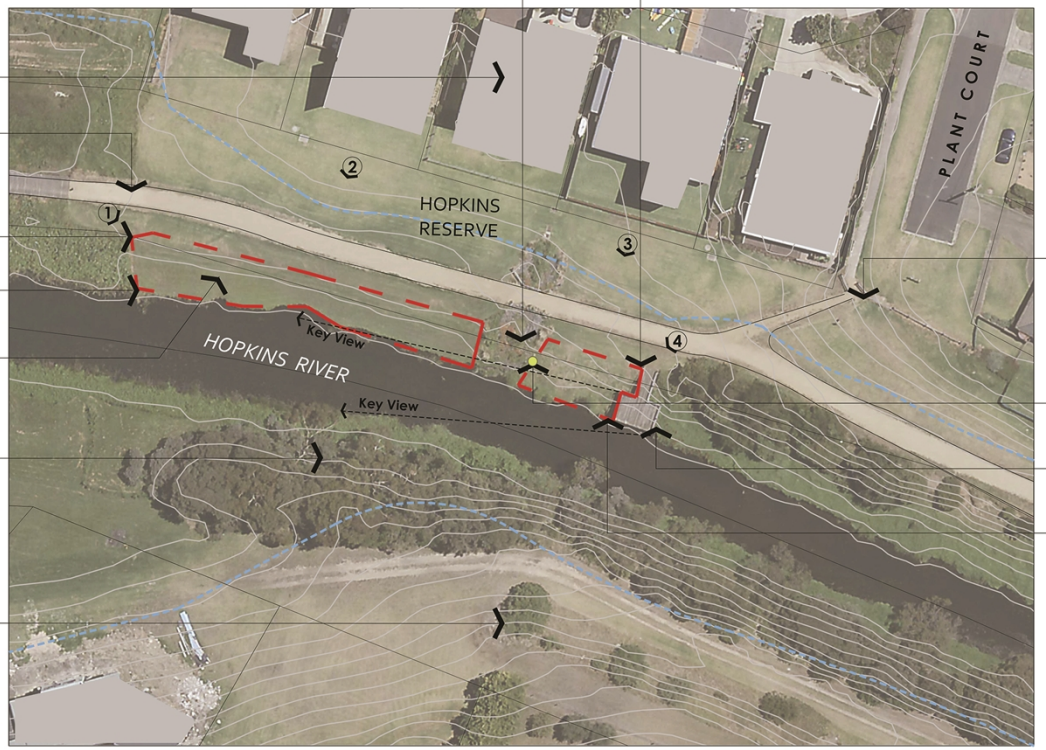
EVC 3: Damp Sands Herb-rich Woodland is likely to have existed on this site as per modelled pre- 1750's mapping. Soil type is deep sandy loam.

CULTURAL HERITAGE

The entire subject site is in an area of Cultural Heritage Sensitivity,

Open Drain with culvert

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx



Existing Residential Houses
neighbouring the edge of reserve

Shared Path
with board walk and access to Plant Court

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

Subject Site
Total area = 425m^2 aprx.

Existing Vegetation
on south side of River blocks views to future residential development

Future Residential Development
Vacant land to be developed as residential lots

Access Point
Pedestrian access and gate for maintenance vehicle access

Victorian Biodiversity Atlas Species Listing
Pied Cormorant *(Phalacrocorax varius)*
Threatened Non-sensitive Fauna

Deck/Fishing Pontoon
Key view from deck looking west along river

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

N

0 15 30m

Drawn By	Date
XX	XX

Group Name
XXX

APPENDIX 4 – REVEGETATION PLAN

Revegetation Plan (Sample)

Plant Court Revegetation Site, Warrnambool

No planting in/near culvert
Retain access to culvert for maintenance

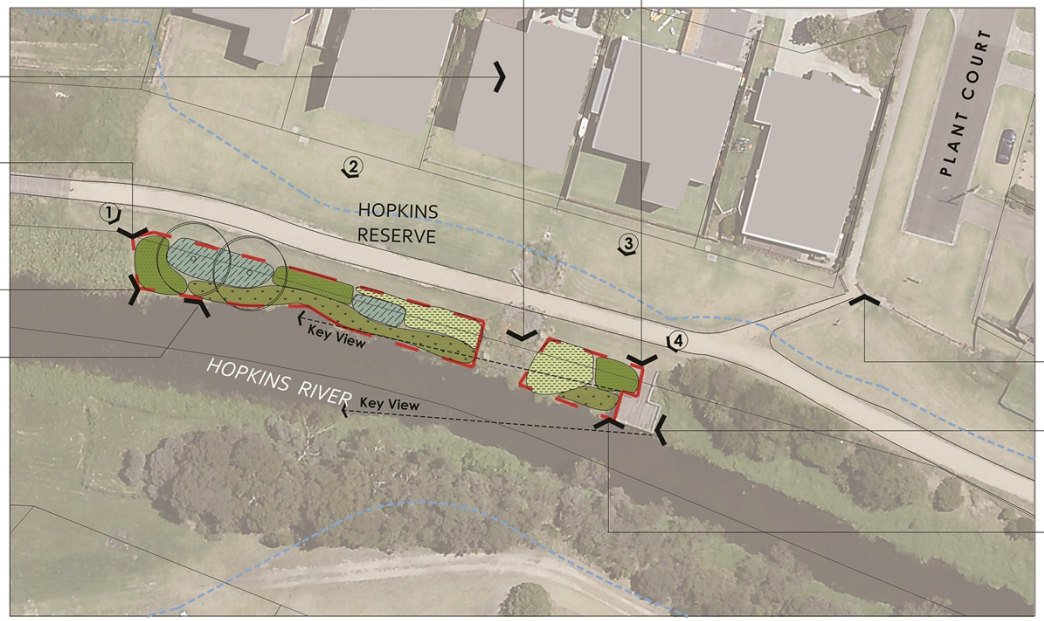
VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

Existing Residential Houses
neighbouring the edge of reserve

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

Subject Site
Total area = 425m^2 aprx.



Access Point
Pedestrian access and gate for maintenance vehicle access

Deck/Fishing Pontoon
No medium to large shrubs or trees to be planted within key viewline from pontoon

VICGRID 94A Co-ordinates
x - xxxxxxx.xxxxx, y - xxxxxxx.xxxxx

LEGEND
- Subject Site (proposed for revegetation works)
- Contours (0.5m)
- Flood level (1 in 100 year)
- Photo point

VEGETATION AND SITE DESCRIPTION

Details of the relevant local EVC should be noted as well as any other known information about the site. For example: EVC 3 Damp Sands Herb-rich Woodland is likely to have existed on this site as per modelled pre- 1750's mapping.

Soil type is deep sandy loam.

CULTURAL HERITAGE

Details of the location of any known cultural heritage sites should be listed. If the site is within a Cultural Heritage Sensitivity area, this should also be noted.

PLANTING METHOD

Details of planting method should be provided here. This should detail where tubestock or seed will be planted. Details of plant protection should also be providing. ie. the type of plant guards to be used to exclude animals from browsing or grazing on newly planted tubestock, until it becomes established.

0 15 30m

N

TUBESTOCK PLANT SCHEDULE

TOTAL SITE AREA =425m²	KEY	BOTANICAL NAME	COMMON NAME	MATURE SIZE	SITE AREA	DENSITY	NO. OF PLANTS	EVC
TREES		*Eucalyptus ovata*	Swamp Gum	20m H x 10-12m W	N/A*	15/Ha	2*	3
SHRUBS 20% of site (85m²)		*Banksia marginata*	Silver Banksia	5m H x 4m W	42.5m²	2/m²	85	3
		Leptospermum continentale	Prickly Tea-tree	2m H x 2m W	42.5m²	2/m²	85	3
LARGE GRAMINOIDS, LARGE HERBS 30% of site (128m²)		*Juncus procerus*	Tall Rush	2 H x 1 W	128m²	2/m²	256	3
MEDIUM GRAMINOIDS, MEDIUM HERBS 25% of site (106m²)		*Lomandra filiformis*	Wattle Mat Rush	0.5m H x 1m W	53m²	4/m²	212	3
		Dianella tasmanica	Tasman Flax Lily	0.8m H x 0.8m W	53m²	4/m²	212	3
SMALL GRAMINOIDS, SMALL HERBS AND GROUNDCOVERS 25% of site (106m²)		*Hydrocotyle laxiflora*	Stinking Pennywort	0.2m H x 2m W	53m²	6/m²	318	3
		Kennedia prostrata	Running Postman	0.1m H x 2m W	53m²	6/m²	318	3
						TOTAL	1,488	

NOTES:

**Tree density for site is calculated for total area of site using the tree density rate per hectare specified in the EVC Bioregion Benchmark. The number of trees calculated for the area should have 30% added to allow for natural plant stock losses.*
The plant densities (plants/m²) listed for shrubs, graminoids, groundcovers and herbs allow for a 30% stock loss factor.

Drawn By	Date
XX	XX

Group Name
XXX

APPENDIX 5

MEMORANDUM OF UNDERSTANDING

1. PURPOSE OF MEMORANDUM OF UNDERSTANDING

1.1. To describe the responsibilities with regard to revegetation plans on land owned by Warrnambool City Council

2. PARTIES

2.1. (Insert Name)

2.2. WARRNAMBOOL CITY COUNCIL

3. PARTIES ROLES AND RESPONSIBILITIES

(Insert Name) shall:

3.1. Carry out all works and tasks described within the approved Revegetation Plan (attached)
3.2. Undertake a risk assessment in accordance with ISO31000 – Risk Management and prepare a Risk Management Plan.
3.3. Ensure the Risk Management Plan is in place prior to the commencement of works described within the approved Revegetation Plan
3.4. Conduct annual site monitoring
3.5. Participate in a final site check with Warrnambool City Council, within 20 days of the end date of this MOU or within 20 days of voluntary disassociation.

Warrnambool City Council shall:

3.6. Ensure that all works and tasks described within the approved Revegetation Plan, to be undertaken by Warrnambool City Council, are carried out

4. INSURANCE

4.1. Managing works associated with an approved revegetation plan includes ensuring the safety of event organisers, volunteers, contract staff, event staff and the public. It is imperative that all events held within the Warrnambool City Council have appropriate Public Liability Insurance.

(Insert Name) shall, at all times during the MOU Term, be the holder of a current Public Liability Policy of Insurance ('The Public Liability Policy') to cover legal liability to third parties for personal injury or property damage as a result of an occurrence in connection with the business of the insured or use of its facilities during the event as outlined in this MOU, providing coverage of at least $20 million.

The Public Liability Policy shall extend to cover the Warrnambool City Council (The Principal) in respect to claims for personal injury or property damage arising out of the negligence of (Insert Name).

5. DURATION OF MEMORANDUM OF UNDERSTANDING

5.1. The commencement date of this MOU shall be the date both parties sign the memorandum of understanding

5.2. The duration of this MOU is three years

5.3. The end date of this MOU is three years after the commencement date

6. VOLUNTARY DISASSOCIATION

6.1. This MOU is a non-binding agreement that both parties have entered into in good faith. Either party may disassociated from the MOU without penalty or liability by notifying the other party in writing.

6.2. Not withstanding clause 6.1, clauses 4.1, 7.1 and 7.2 shall be legally binding upon the parties.

7. INDEMNITY

7.1. By signing this MOU, (Insert Name) agrees to indemnify and to keep

indemnified Warrnambool City Council, its servants and agents (the Council), and each of them from and against all actions, costs, claims, charges, expenses, penalties, demands and damages whatsoever which may be brought or made or claimed against them, or any of them, in connection with performance or purported performance of its obligations under this Agreement and be directly related to the negligent acts, errors or omissions of (Insert Name).

(Insert Name) liability to indemnify the Warrnambool City Council shall be reduced proportionally to the extent that any act or omission of the Council directly contributed to the loss or liability.

7.2. By signing this MOU (Insert Name) agrees to hold harmless Warrnambool City Council its servants and agents and each of them in connection with all claims resulting from damage, loss, death or injury which may otherwise be brought or made or claimed by

(Insert Name) against the Council, except to the extent that the Council is grossly negligent

EXECUTED by WARRNAMBOOL CITY COUNCIL

By being signed by those persons who are authorised to sign for the company

Signature:

Name:

Position:

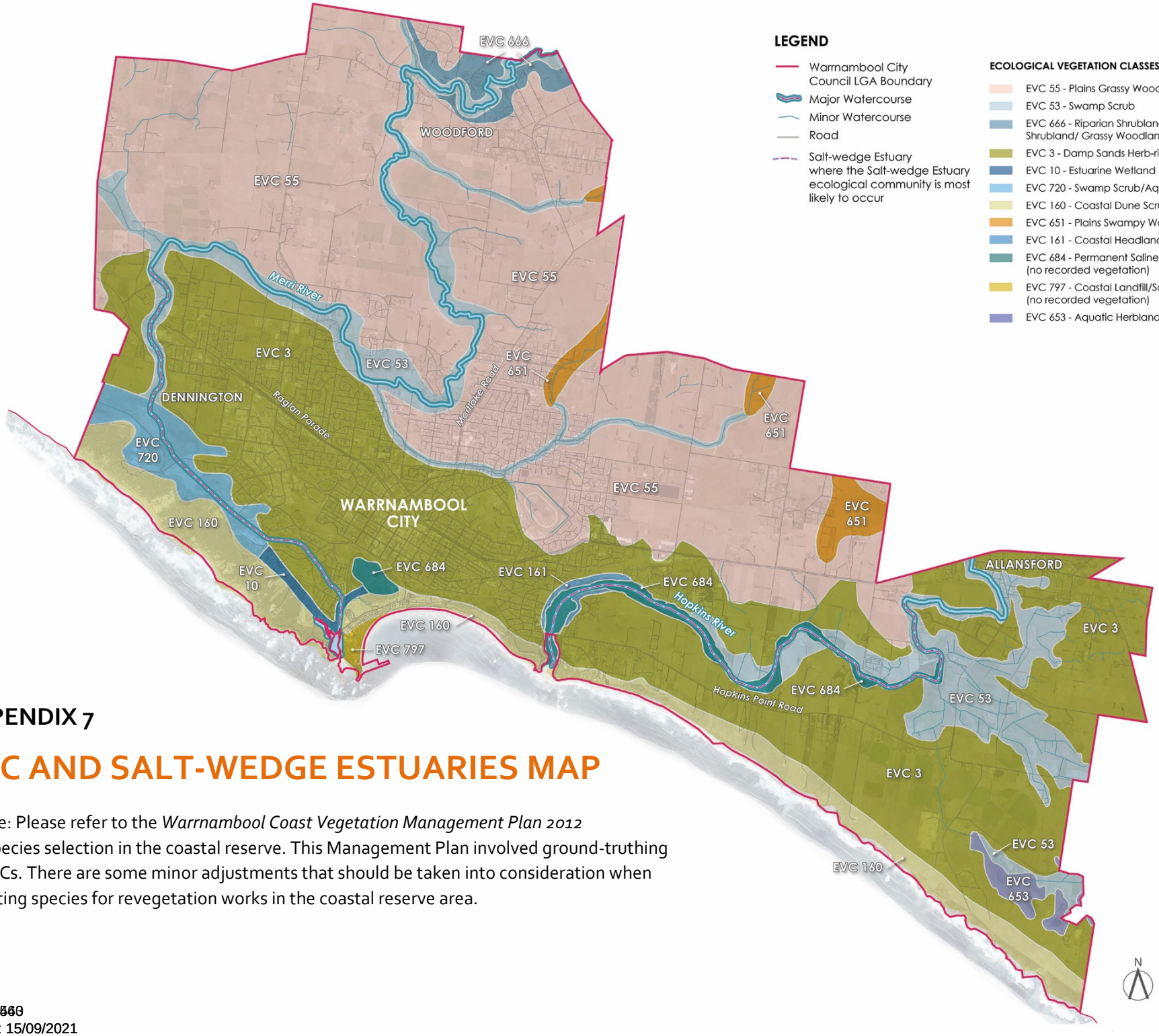
EXECUTED by (Insert Name)

By being signed by those persons who are authorised to sign for the company

Signature:

Name:

Position:



APPENDIX 7

EVC AND SALT-WEDGE ESTUARIES MAP

*Note: Please refer to the *Warrnambool Coast Vegetation Management Plan 2012* for species selection in the coastal reserve. This Management Plan involved ground-truthing of EVCs. There are some minor adjustments that should be taken into consideration when selecting species for revegetation works in the coastal reserve area.