

# Biodiversity Management Plan

145 McCarrs Creek, Church Point

*Prepared by Ecological Consultants Australia Pty Ltd  
TA Kingfisher Urban Ecology and Wetlands*

**31 October 2024**



# Biodiversity Management Plan – 145 McCarrs Creek, Church Point

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## Statement of Authorship

*This study and report were undertaken by Ecological Consultants Australia for the client. The authors of the report are Brooke Thompson and Geraldene Dalby-Ball whose qualifications are BSc majoring in Ecology and Botany with over 25 years' experience in this field and specialising in projects within Sydney urban areas.*

## Limitations Statement

*Information presented in this report is based on an objective study undertaken in response to the brief provided by the client. Any opinions expressed in this report are the professional, objective opinions of the authors and are not intended to advocate any particular proposal or pre-determined position.*

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## Contents

<b>Summary .....</b>	<b>3</b>
<b>1 Introduction .....</b>	<b>4</b>
1.1 Requirement for a BMP .....	4
1.2 Land to which this BMP applies .....	6
1.3 Proposed works.....	7
1.3.1 Management zones .....	7
1.4 Objective of this BMP .....	8
1.5 Existing Vegetation .....	8
1.6 Weeds .....	8
<b>2 Work Schedule .....</b>	<b>12</b>
2.1 Stage 1 – Works to be completed prior to issue of construction certificate .....	12
2.2 Stage 2 – Works to be completed prior to start of construction .....	12
2.3 Stage 3 – Works to be completed during construction.....	12
2.4 Stage 4 – Works ongoing .....	12
<b>3 Management Actions .....</b>	<b>13</b>
3.1.1 Tree Protection .....	13
3.1.1 Sediment fencing .....	13
3.1.2 Biodiversity fencing.....	13
3.1.3 Storage of tools, equipment and materials.....	13
3.1.4 Weed management during works.....	14
3.1.5 Pathogen prevention .....	16
<b>4 Performance Indicators .....</b>	<b>17</b>
<b>5 Reporting.....</b>	<b>18</b>
<b>Appendix A – Weed Removal Techniques .....</b>	<b>19</b>
<b>Appendix B – Bushland Hygiene Protocols for <i>Phytophthora</i> .....</b>	<b>21</b>
<b>Appendix C – Local Native Plant Nurseries .....</b>	<b>22</b>

# 1 Introduction

Ecological Consultants Australia (ECA) Pty Ltd trading as Kingfisher Urban Ecology and Wetlands has been engaged by Luke Anglicas to prepare a **Biodiversity Management Plan Report (BMP)** for DA2024/1152 as the development is located on a vegetated site known to contain endangered ecological communities along a riparian corridor.

The site is 145 McCarrs Creek, Church Point.

## 1.1 Requirement for a BMP

This BMP has been prepared in accordance with the Northern Beaches Council guidelines, *Biodiversity Requirements for Development Applications*.

This BMP has been prepared by Brooke Thompson who is an NSW Biodiversity Assessment Method accredited assessor and NSW Ecological Consultants Association member.

Table 1.1. Technical requirements of a BMP.

Chapter	Required Information	BMP Ref.
<b>Introduction</b>	Identification and description of the site including Lot, DP and street address.	Section 1.2
	Identification and description of proposed management zones to be included in the BMP.	Section 1.3
<b>Management zones</b>	A description and map of each proposed management zone, including existing bushland condition and significant environmental features.	Figure 1.2
	Clear and achievable objectives for each zone.	In line with existing approved BMP
	Detailed management actions proposed to achieve each objective.	In line with existing approved BMP
	Identification of any retained native vegetation on the map.	Figure 1.2
<b>Management actions</b>	The BMP must specify which management actions will be undertaken.	Section 3
<b>Work schedule/GANTT Chart</b>	A work schedule or GANNT chart outlining the timing and responsibility for delivery of management actions.	Section 2
	The BMP should have a maintenance period of no less than five years unless otherwise specified by Council and include a schedule for ongoing monitoring and reporting.	In line with existing approved BMP and yes covers 5 yrs
	The following delivery stages are to be included in the BMP: prior to commencement, prior to issue of construction certificate, during construction, prior to issue of occupation certificate, ongoing.	Section 2
<b>Performance indicators</b>	Meaningful performance indicators should be identified for each management action.	Included
	For smaller sites, performance criteria may be limited to photo point monitoring undertaken by the owner. If this option is used, photo points must capture all management actions.	Included

Chapter	Required Information	BMP Ref.
	Copies of annual monitoring reports are to be provided to Council's Bushland & Biodiversity Team at: biodiversity@northernbeaches.nsw.gov.au	
<b>Photo monitoring points</b>	Baseline photo points to be included, taken at the time of the BMP preparation to track progress of site management. Coordinates for photo points are to be provided where possible.	Small area 2 points noted – rest of site is covered by original BMP
<b>Maps</b>	A site map showing site boundaries, bush fire asset protection zones (APZs), any new 10/50 Code clearing entitlements, and BMP management zones including any proposed temporary or permanent fencing.	Figure 1.1 Figure 1.2
	A detailed map of vegetation communities, threatened species records/habitat and weeds.	As per original BMP and BDAR
	A map of the location and direction of photo points.	Figure 1.2
<b>Tables</b>	A list of Priority and environmental weeds identified on the site.	As per BMP original
	A list of suitable local native species for planting on site (where applicable).	N/A
	Minimum planting densities for groundcovers, understorey, mid-storey and canopy.	N/A



## 1.2 Land to which this BMP applies

The subject site is located at Lot 13 in DP 28236, 145 McCarrs Creek Road, Church Point NSW 2105, in the Northern Beaches Council LGA.

The site is zoned C4 Environmental Living under the *Pittwater Local Environmental Plan 2014* (Pittwater LEP).



Figure 1.1. Site map.





## 1.4 Objective of this BMP

The site's vegetation is currently maintained in accordance with the BMP prepared by GIS Consulting (2020).

The objective of this BMP is to provide guidance for working in and around native vegetation on site during works.

## 1.5 Existing Vegetation

### 1.6 Weeds

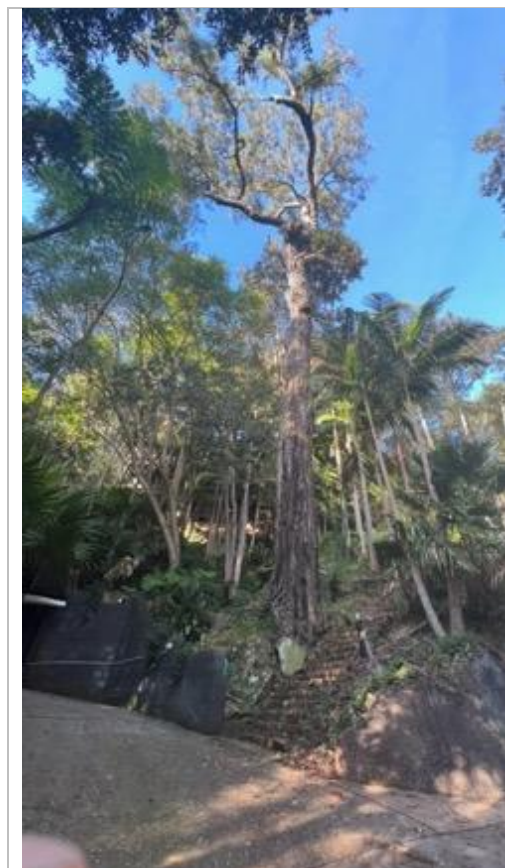
The following weeds of significant importance were identified within the site during the site inspection. Weeds must be controlled as required under the *Biosecurity Act 2015*.

Table 1.2. Weeds present on or within close proximity to the site with the potential to spread.

Scientific name	Common name
<i>Senna pendula</i>	Cassia
<i>Ochna serrulata</i>	Mickey mouse plant
<i>Lantana camara</i>	Lantana

#### 1.6.1 Site photos

Photos shown below is sites' current condition.















## 2 Work Schedule

### 2.1 Stage 1 – Works to be completed prior to issue of construction certificate

Nil.

### 2.2 Stage 2 – Works to be completed prior to start of construction

Task no.	Task	Responsibility
2.1	Install trunk protection for trees 68 and 69	Builder, to be certified by Arborist
2.2	Install sediment fencing	Builder
2.3	Install biodiversity fencing	Builder, to be certified by Ecologist

### 2.3 Stage 3 – Works to be completed during construction

Task no.	Task	Responsibility
3.1	Maintain/monitor trunk protection for trees 68 and 69	Builder/Arborist
3.2	Maintain/monitor sediment fencing	Builder
3.3	Maintain/monitor biodiversity fencing	Builder/Ecologist
3.4	Maintain site works area free of weeds.	Bushregenerator/owner

### 2.4 Stage 4 – Works ongoing

Task no.	Task	Responsibility
3.1	Maintain site works area free of weeds.	Bushregenerator/owner



## 3 Management Actions

### 3.1.1 Tree Protection

The Arborist has recommended trunk protection for trees 68 and 69. See Image A. Refer to Arborist Letter.



Image A: Trees 68 and 69 are located up to 1.8m lower on the site than the proposed excavation.

Source: Hugh the Arborist.

### 3.1.1 Sediment fencing

Sediment fencing (Geofab / starpickets) will be put in place around the works area as per Figure 2.1.

Sediment fencing to be inspected daily during works to ensure no runoff occurs. Sediment fencing to be retained for the duration of works.

### 3.1.2 Biodiversity fencing

Biodiversity fencing (Orange barrier mesh / starpickets) will be put in place around the works area as per Figure 2.1.

### 3.1.3 Storage of tools, equipment and materials

No storage of tools, equipment or materials beyond biodiversity fencing and to avoid vegetated areas.

### 3.1.4 Weed management during works

Weeds are uncommon on the site as regeneration works have been occurring for over 5 years. Works can continue as per methods in Table 4.1.

All bush regeneration activities requiring the use of chemicals must be performed in accordance with the *NSW Pesticides Act 1999*. Herbicides must not be applied whilst exotic plants are setting seed. The weed removal program aims to be broad in approach and sustained in application to provide the best possible conditions for natural regeneration and to control weeds within the site.

Performance targets for weed species include:

- A reduction in noxious weed density to 5% or less in the management zone; and
- A reduction in all other weed density to 10% or less in the management zone.

Although soil borne pathogens have not been identified as a Key Threatening Process, accidental spread of pathogens can occur at any time. To prevent the introduction of pathogens, Bushland Hygiene Protocols outlined in Appendix II must be followed. Hydrological conditions may promote the spread of *Phytophthora* (a group of fungus-like diseases affecting plants) due to moist soil and proximity to water. It is recommended that Bushland Hygiene Protocols be followed closely.

Table 3.1. Weed removal methods. NB only herbaceous weeds are expected and in low density – hand weeding only needed. Other techniques included for reference only.

Weed type	Primary control treatment	Follow up control	Maintenance weeding post-planting (revegetation)	Disposal
Woody weeds (e.g., shrubs and trees)	Cut/scrape and paint with herbicide for small shrubs <sup>1</sup> . Large trees greater than four metres high and diameter > 10 cm drill and inject with registered herbicide <sup>2</sup> .	Retain dead trunks in or on ground has habitat. Continue to Cut/scrape and paint remaining weeds. Monitored monthly and controlled as required (and within a minimum of three months) and up until the date of final plantings.	Cut/scrape and paint germinating weeds. Monitored and carried out regularly for a period of five years from the date of final planting.	Raft and pile non-reproductive parts on site (for later pile burns or left as habitat) and bag flower heads, berries, and seeds.
Climbing weeds (e.g., vines and scramblers)	Hand pull/ Dig juvenile growths and bag. Bag seeds, pods and flowers then skirt vines out of the canopy and Scrape and paint for established growths. Scrape from the base up the stem covering 1 m length. Large infestations foliar spray using registered herbicides.	Scrape and paint and bag reproductive parts. Monitored monthly and controlled as required (and within a minimum of three months) and up until the date of final plantings.	Scrape and paint and bag reproductive parts. Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.
Herbaceous weeds	Using a combination of non-selective and selective herbicides where damage to adjoining native vegetation can be avoided.	Hand pull seedlings. Monitored monthly and controlled as required (and within a minimum of three months) and up until the date of final plantings.	Pull seedlings. Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.
Exotic grasses and broadleaf annuals around native grasses	Hand weeding	Hand pull and bag weeds in amongst natives. Monitored monthly and controlled as required (and within a minimum of three months) and up until the date of final plantings.	Hand weed isolated patches. Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.

Weed type	Primary control treatment	Follow up control	Maintenance weeding post-planting (revegetation)	Disposal
Weeds and seedlings in close proximity to protected native vegetation	hand weeding.	Where possible hand weed. Monitored monthly and controlled as required (and within a minimum of three months) and up until the date of final plantings.	Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.
Bulbous and succulent weeds	Hand pull/dig, bagging all plant parts and removing from site <sup>3</sup> .	Hand weeding.	Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.
Aquatic weeds	Hand dig/pull juvenile plants. Contact your local weed officer if you require a permit to spray near water.	Hand pull.	Monitored and carried out regularly for a period of five years from the date of final planting.	Bag and remove from site.

**Note:** <sup>1</sup> Some weeds will have different treatment requirements i.e., *Ochna serrulata* requires scrape and paint on one side with stem width less than 2 cm thick, scrape and paint both sides from root to 2/3 up the stem >2 cm thick. *Ligustrum* spp. and Lantana are treated with cut and paint.

<sup>2</sup> After drill and inject treatment, the plant usually will drop its leaves within six weeks and dies within a few months. Monitor the plant and if it re-sprouts, the process will need to be repeated. Drill around the base of the tree and on exposed lignotubers less than 20mm apart and as deep as possible.

<sup>3</sup> If hand pulling/dig, ensure all reproductive parts of the plant e.g., corms, tubers and rhizomes are removed.

See to Appendix A for Weed Removal Techniques.

### Pathogen prevention

To prevent the introduction of pathogens, Bushland Hygiene Protocols outlined in Appendix II should be followed. The site is considered an area which may promote the spread of Phytophthora (a group of fungus-like diseases affecting plants) due to its moist soil and proximity to water. It is recommended that Bushland Hygiene Protocols be followed closely.



## 4 Performance Indicators

In order to provide an effective method of assessing the success of the BMP, performance indicator targets such as the following must be provided. Table 6.1 provides a summary of the outcomes to be achieved each year.

Table 6.1. Summary of the outcomes to be achieved each year.

Management Zone	Year 1	Year 2	Year 3	Year 4	Year 5
MZ1	Commencement of all management activities in the works area – noting the rest of the site is covered by an existing and active BMP.				
	Maintenance of the area for the life of the plan (min 5 yrs)				
	0% weed cover.	0% weed cover.	0% weed cover.	0% weed cover.	0% weed cover.




A suitability qualified Ecologist should monitor and report on the condition of the site on an annual basis. For these works the ecologist is to sign off that the vegetation protection is in place per works and removed post works and the area is stable and native cover is present.



## 5 Reporting

To assess the success of the BMP against the established performance indicator targets, subsequent reporting is required. This is to include:

- Demonstrated compliance with performance indicator target.
- Identification of deficiencies and correction actions taken to ensure targets are met.
- A photographic record before, during and after works is to be provided with the final compliance certificate.
- Copies of monitoring reports are to be provided to Council's Bushland & Biodiversity Team at: [biodiversity@northernbeaches.nsw.gov.au](mailto:biodiversity@northernbeaches.nsw.gov.au)
- Reporting at the completion of the first year should be provided to Council to enable a review and consideration in the development of actions and objectives for the following year. This first-year report also enables an early assessment of the works and suitability of performance criteria.
- Monitoring to be performed by a suitably qualified and experienced Ecologist on an annual basis, in consultation and collaboration with the property owner and/or bush regeneration contractor. Reporting must be performed in association with maintenance inspections to form the primary source of information for monitoring and review reports. Monitoring by the property owner and/or bush regeneration contractor must occur quarterly during the restoration phase and bi-annually in the post-restoration phase if adequate progress towards performance indicators is achieved. A primary goal of monitoring and reporting will be to provide recommendations to improve compliance.

## Appendix A – Weed Removal Techniques

Technique	Method	Equipment
<b>Hand Removal</b> 	<p>Seedlings and smaller weed species where appropriate will be pulled out by hand, without risk of injury to workers. The size that this can occur varies throughout the treatment area. Generally, it ranges from post seed to approximately 300mm in height.</p> <p>Rolling and raking is suitable for larger infestations of Wandering Jew. The weed can be raked, and stems and plant parts rolled. The clump of weed material can then be bagged and removed from site.</p>	<p>Tools: gloves, rakes, knife, and weed bags</p>
<b>Crowning</b> 	<p>Plants that possess rhizomes or bulbs might not respond to various removal techniques and may need to be treated with crowning.</p> <p>A knife, mattock, or trowel is to be driven into the soil surrounding the bulb or rhizome at an angle of approximately 45 degrees, to cut any roots that may be running off. This is to occur in 360 degrees around the bulb/rhizome. The rhizome or bulb is to be bagged and removed from the site and disposed of at an appropriate waste recycling facility.</p> <p>Soil disturbance is to be kept to a minimum when using this technique.</p>	<p>Tools: knife, mattock, trowel, impervious gloves, and all other required PPE</p>
<b>Cut and Paint Stems</b> 	<p>Weed species deemed unsuitable for hand removal shall but cut. Those that have persistent vigorous growth will be cut and painted with Roundup® Biactive Herbicide or equivalent.</p> <p>Juvenile and smaller weed species will be cut with secateurs at base of plant, and herbicide applied via applicator bottle. Stem to be cut horizontally as close to the ground as possible, using secateurs, loppers, or a pruning saw. Horizontal cuts to be made on top of stem to prevent the herbicide running off the stump.</p> <p>Apply herbicide to the cut stem immediately, within 10-20 seconds, before the plant cells close and the translocation of herbicide is limited. Herbicide is not to reach sediment or surrounding non-target plants.</p>	<p>Tools: loppers, secateurs, pruning saw, herbicide applicator/sprayer, impervious gloves, Roundup® Biactive Herbicide and all other required PPE</p>
<b>Scrape and Painting</b>	<p>More resilient weed species, where other techniques are less reliable are to be scraped with a knife or chisel and painted with undiluted Roundup® Biactive Herbicide. Works to be carried out by a contractor with a current herbicide license.</p>	<p>Tools: knife, chisel, protective clothing, safety glass, herbicide applicator/sprayer, impervious gloves,</p>

	<p>Weed species will be scrapped with a knife or chisel up the length of the trunk, and herbicide applied via applicator bottle. Scrape the trunk from as close to the ground as possible to approximately <math>\frac{3}{4}</math> of the plants height. Where trunk diameters exceed approximately 5cm a second scrape shall be made on the other side of the trunk.</p> <p>Apple undiluted herbicide to the cut trunk immediately, within 10-20 seconds, before the plant cells close and the translocation of herbicide is limited. Herbicide is not to reach sediment or surrounding non-target plants.</p> <p>Follow up treatment may be required. If plants resprout, scrape and paint the shoots using the same method after sufficient regrowth has occurred.</p>	<p>Roundup® Biactive Herbicide, and all other required PPE</p>
<p>Cut with a Chainsaw and Paint</p> 	<p>Larger size weed species, too large for cutting with hand tools, shall be cut with a chainsaw, and painted with undiluted Roundup® Biactive Herbicide. Works to be carried out by a contractor with a current chainsaw and herbicide license.</p> <p>Larger weed species will be cut with a chainsaw at base of plant, and herbicide applied via applicator bottle. Cut the stem horizontally as close to the ground as possible, using the chainsaw. Remove upper branches to reduce bulk of plant.</p> <p>If cutting at the base is impractical, cut higher to get rid of the bulk of the weed, then cut again at the base and apply herbicide. Make cuts horizontal to prevent the herbicide running off the stump. Apply undiluted herbicide to the cut trunk immediately, within 10-20 seconds, before the plant cells close and the translocation of herbicide is limited. Herbicide is not to reach sediment or surrounding non-target plants.</p> <p>Follow up treatment may be required. If plants resprout, scrape and paint the shoots using the same method after sufficient regrowth has occurred.</p>	<p>Tools: chainsaw, earmuffs, protective clothing, safety glasses herbicide applicator/sprayer, impervious gloves, Roundup® Biactive Herbicide, and all other required PPE</p>
<p>Spot Spraying</p>	<p>Spot spraying involves spraying non-seeding annuals and grasses, and for regrowth of weeds once an area has been cleared or brush cut. Works to be carried out by a contractor with a current herbicide license.</p> <p>Herbicide will be mixed up according to the manufacturer's directions for the weed species being targeted. Mixed herbicide shall be applied to the targeted weed species with a backpack sprayer. All care must be taken by the contractor not to spill herbicide onto sediment or surrounding non-targeting plants.</p>	<p>Tools: protective clothing, safety glasses, herbicide sprayer, impervious gloves, Herbicide, and all other required PPE</p>



## Appendix B – Bushland Hygiene Protocols for *Phytophthora*

- Always assume that the area you are about to work in is free of the disease and therefore needs to be protected against infection.
- And always assume that the activity you are about to undertake has the potential to introduce the disease.
- Arrive at the site with clean shoes, i.e., no dirt encrusted on them.
- If you arrive with shoes that are encrusted with dirt, they will have to be completely soaked in methylated spirit or disinfectant and allow a few minutes to completely soak in. NEVER scrape untreated dirt off your shoes onto the ground.
- Before you move onto the site spray the bottom of your shoes with 70% methylated spirit. Bleach solution (1% strength) or household/commercial disinfectant (as per label) are also suitable.
- Check all tools and equipment that come in contact with soil are clean before entering the area (they should have been cleaned on-site at the end of the previous work session). If there is any dirt on them, spray them with 70% methylated spirit.
- Clean all tools at the end of each work session while still on site ensuring this is done away from drainage lines and adjacent work areas. Knock or brush off encrusted dirt and completely spray with 70 % methylated spirit. Replace in storage/transport containers.
- Preferably compost all weed material on site.
- Never drag vegetation with exposed roots and soil through bushland.
- When removing weeds from the site, remove as much soil as possible from them in the immediate work area and carefully place vegetative material into plastic bags.
- Try not to get the bag itself dirty; don't put it on/in a muddy area.
- Always work from the lower part of a slope to the upper part.
- Always work in areas known to be free of the pathogen before working in infected areas.
- Minimise activities wherever possible when the soil is very wet.
- Vehicles should not be driven off track or into reserves (unless vehicle decontamination is carried out before and after entering a single work site)
- Only accredited supplies of plants/mulch are to be used.

**Kit contents:** 1 bucket, 1 scrubbing brush, 1 spray bottle (methylated spirit 70% solution), 1 bottle of tap water, and 1 bottle of methylated spirits.

## Appendix C – Local Native Plant Nurseries

Name	Phone	Location	Website
Wirreanda Nursery	(02) 9450 1400	Ingleside	wirreandanursery.com.au/
Kulgoa Nursery	(02) 9450 1217	Terrey Hills	kulgoa.com.au/
Indigo Native Nursery	(02) 9970 8709	Ingleside	indigonursey.com.au/
New Leaf Nursery	(02) 9913 3709	Ingleside	newleafnursery.com.au/
Harvest Seeds & Native Plants Nursery	(02) 9450 2699	Terrey Hills	harvestseeds-nativeplants.com.au/
Wildflower Nursery Ku-ring-gai	(02) 9423 0353	Ku-ring-gai	kwg@krg.nsw.gov.au