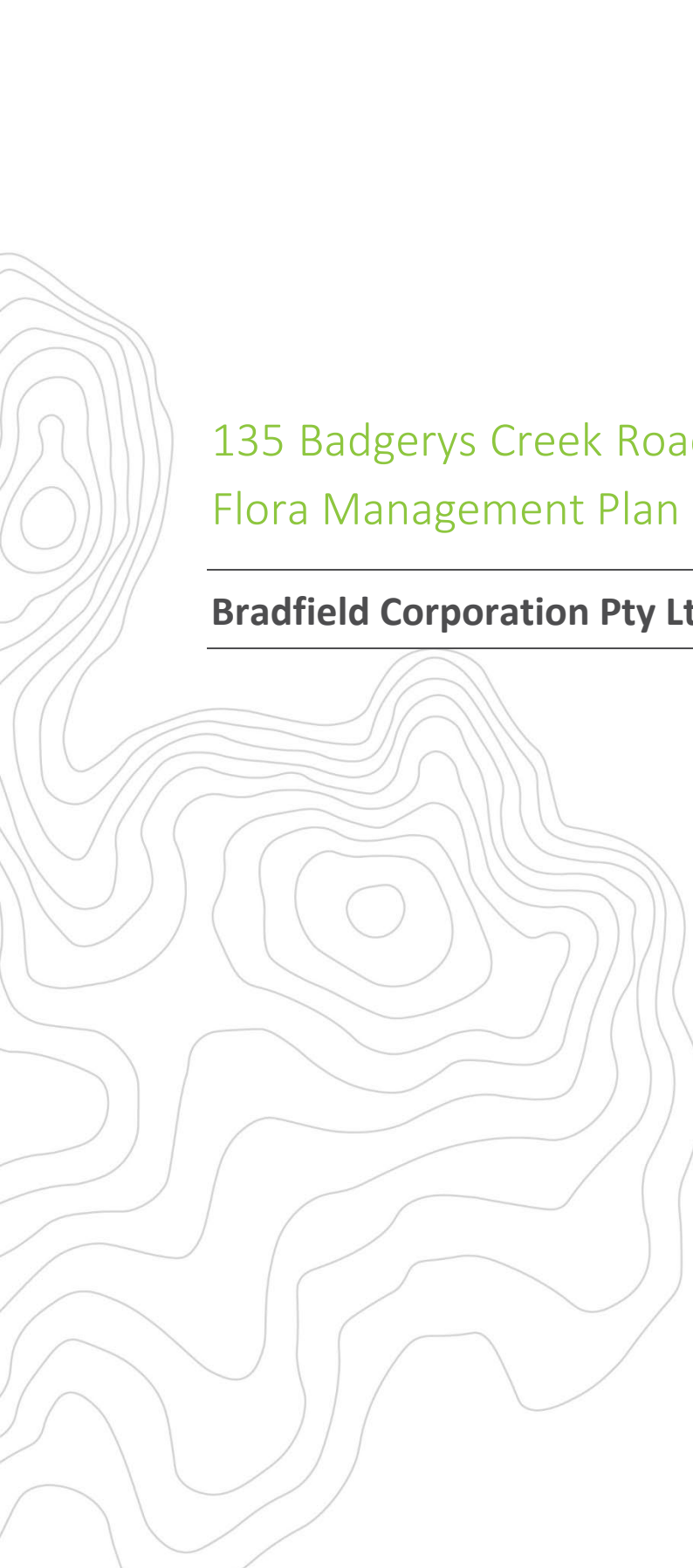


A stylized topographic map with contour lines in shades of green and brown, located on the left side of the page.

# 135 Badgerys Creek Road, Bradfield NSW – Fauna and Flora Management Plan

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**Bradfield Corporation Pty Ltd**

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## DOCUMENT TRACKING

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| <b>Project Name</b>    | 135 Badgerys Creek Road, Bradfield NSW – Fauna and Flora Management Plan |
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| <b>Project Manager</b> | Deanne Hickey                                                            |
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| <b>Reviewed by</b>     | Andrew Whitford                                                          |
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Template 2.8.1

## Contents

|                                                                             |          |
|-----------------------------------------------------------------------------|----------|
| <b>1. Introduction .....</b>                                                | <b>1</b> |
| <b>2. Requirements.....</b>                                                 | <b>3</b> |
| <b>Appendix A Subplan to address DCP Phase 2 .....</b>                      | <b>4</b> |
| A1 Implementation and Operation .....                                       | 4        |
| A2 Structure and Responsibility .....                                       | 7        |
| A3 Team Induction Sign-Off Sheet .....                                      | 8        |
| A4 Complaints Recording Template.....                                       | 9        |
| A5 Phone and Emergency Contact List .....                                   | 10       |
| A6 Site Biodiversity Inspection Checklist (Weekly) .....                    | 11       |
| A7 Pre-Clearance Survey Procedure .....                                     | 12       |
| A8 Hollow-bearing Tree Removal Procedure.....                               | 13       |
| A9 Fauna Management .....                                                   | 14       |
| A10 Fauna Rescue and Release Procedure.....                                 | 15       |
| A11 Prevention of Pathogens .....                                           | 17       |
| A12 Re-Use of Floristic Material and Native Habitat Features Strategy ..... | 19       |

## List of Figures

|                                               |    |
|-----------------------------------------------|----|
| Figure 1-1: Location of the Project Site..... | 2  |
| Figure 2-1: Fauna management hierarchy .....  | 14 |

## List of Tables

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| Table 1: Appendix D.16 DCP requirements.....                                      | 3  |
| Table 2: Flora and Fauna Management Plan.....                                     | 4  |
| Table 3: Responsibilities of personnel.....                                       | 7  |
| Table 4: Decision tree on how to respond to a native fauna encounter .....        | 15 |
| Table 5: Best practice hygiene protocols to prevent the spread of pathogens ..... | 17 |

## Abbreviations

| Abbreviation               | Description                                                                         |
|----------------------------|-------------------------------------------------------------------------------------|
| BMP                        | Biodiversity Management Plan                                                        |
| CPW                        | Cumberland Plain Woodland                                                           |
| DCP                        | Development Control Plan                                                            |
| DDP                        | Dam Dewatering Plan                                                                 |
| DPHI                       | NSW Department of Planning, Housing and Infrastructure                              |
| DCCEEW                     | NSW Department of Climate Change, Energy, the Environment and Water                 |
| ELA                        | Eco Logical Australia Pty Ltd                                                       |
| FFMP                       | Flora and Fauna Management Plan                                                     |
| ha                         | Hectares                                                                            |
| PCT                        | Plant community type                                                                |
| SEPP                       | State Environmental Planning Policy                                                 |
| TEC                        | Threatened ecological community                                                     |
| VMP                        | Vegetation Management Plan                                                          |
| WEMP                       | Weed Eradication Management Plan                                                    |
| Western Parkland City SEPP | <i>State Environmental Planning Policy (Precincts – Western Parkland City) 2021</i> |
| WSA                        | Western Sydney Aerotropolis                                                         |

## 1. Introduction

This Flora and Fauna Management Plan (FFMP) has been prepared on behalf of the Bradfield Corporation Pty Ltd (the Applicant) by Eco Logical Australia (ELA). It is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) on land at 135 Badgerys Creek Road, Bradfield (the site). The SSDA must show consistency with the Western Sydney Aerotropolis Phase 2 Development Control Plan (Phase 2 DCP) and the relevant precinct plan (Western Sydney Aerotropolis Precinct Plan, DPE 2023).

The FFMP has been prepared based on the findings of the Biodiversity Assessment (ELA 2025a) and Riparian Assessment (ELA 2025b). The BMP will be revised and necessary approvals sought if the scope of works change.

The FFMP consists of a sub-plan (Appendix A), which has addressed the requirements of the Phase 2 DCP, in addition to the Weed Eradication Management Plan (WEMP) – ELA 2025c

The Study area is presented in Figure 1-1.



Figure 1-1: Location of the Project Site

## 2. Requirements

This FFMP has been prepared to satisfy the requirements of Appendix D.16 of the Phase 2 DCP, as outlined in Table 1 below. This FFMP has also been prepared in accordance with the *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011* (DPIE 2011) and is based on current best practice.

**Table 1: Appendix D.16 DCP requirements**

| Appendix D.16 DCP Requirement                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-construction surveys prior to removal or disturbance to all human-made structures, to ensure roosting habitat for microbat species, including subsurface structures such as mine shafts and storm water tunnels to ensure any individuals are dispersed or relocated as per best practice.                                                                                    |
| A pre-clearance assessment for any native fauna immediately prior to any clearing of native vegetation to ensure that arboreal mammals, roosting and hollow-using birds, bats and reptiles are deterred from accessing any vegetation to be cleared, and are removed if present prior to clearing according to EES' policy on the Translocation of Threatened Fauna in NSW.       |
| Incorporation of best practice site hygiene protocols to manage the potential spread of Phytophthora and Myrtle Rust for land adjacent to land zoned E1 National Parks and Nature Reserves, E2 Environmental Conservation or lands managed as a reserve. In accordance with the best practice guideline 'Arrive Clean, Leave Clean: Guidelines (Commonwealth of Australia, 2015). |
| Best practice site hygiene protocols to manage the potential spread of chytrid fungus are to be incorporated along Ropes Creek to maintain local Green and Golden Bell Frog populations.                                                                                                                                                                                          |
| Weed management, site rehabilitation and nest boxes are to be installed on development adjoining land zoned E1 National Parks and Nature Reserves, E2 Environmental Conservation or lands managed as a reserve.                                                                                                                                                                   |
| A tree-felling protocol is to be implemented to avoid impacts to birds, arboreal mammals and reptiles, raptor nests (almost all large raptors in Wilton are threatened), dreys, dens, hollows and other nests or habitat such as loose bark in trees that are to be cleared.                                                                                                      |
| If the presence of Green and Golden Bell Frog is confirmed present along Ropes Creek within the Western Sydney Aerotropolis, incorporate best practice site hygiene protocols to manage the potential spread of chytrid fungus and maintain local species populations.                                                                                                            |
| Reuse of native plants including, but not limited to, seed collection and topsoil from development sites that contain native seed bank.                                                                                                                                                                                                                                           |

### SCOPE AND OBJECTIVES

This FFMP has been prepared for the associated construction and operation works for the Masterplan, such that it:

- Identifies measures to protect the environment.
- Defines roles and responsibilities during proposed works.
- Identifies any external approvals needed.
- Identifies consultation and communication needs.
- Describes the monitoring and reporting regime.

## Appendix A Subplan to address DCP Phase 2

### A1 Implementation and Operation

Safeguards to manage potential flora and fauna impacts are detailed in Table 2, together with who is responsible for their implementation and at what stage of works. Person responsible for implementation: PM – Project Manager; SS – Site Supervisor; E – Project Ecologist; AE – Aquatic Ecologist; All – All Site Personnel

**Table 2: Flora and Fauna Management Plan**

| Environmental Action                                                                                                                                                                                                                                                                                                                                                          | Timeframe      | Monitoring         | Responsible Person |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------|--------------------|
| <b>OBJECTIVE: GENERAL</b>                                                                                                                                                                                                                                                                                                                                                     |                |                    |                    |
| All project staff and contractors will be inducted on the biodiversity values and habitat features of the Project Site, and relevant safeguards prior to commencement.                                                                                                                                                                                                        | Prior to works | Induction Records  | PM                 |
| If required, the Department of Climate Change, Energy, the Environment and Water (DCCEEW) will be notified immediately of any complaints in relation to management of biodiversity issues.                                                                                                                                                                                    | As required    | Complaint Register | SS                 |
| All general contractor waste is to be disposed of using provided waste bins.                                                                                                                                                                                                                                                                                                  | During works   | Weekly checklist   | All                |
| <b>OBJECTIVE: REDUCE HARM TO BIODIVERSITY</b>                                                                                                                                                                                                                                                                                                                                 |                |                    |                    |
| Programming of works should avoid critical life cycle events such as breeding or nursing wherever possible. Impacts to vegetation should be minimised during the spring/summer seasons to avoid disrupting breeding cycles of threatened species.                                                                                                                             | Prior to works | Weekly checklist   | PM, SS, E          |
| Prior to clearance of the vegetation in the development area, collectable floristic material such as native species seed stock and woody fruit of all native species will be collected for reuse in landscaping works wherever feasible. Refer to Appendix A12 for further information.                                                                                       | Prior to works | Weekly checklist   | PM, SS, E          |
| Pre-clearance surveys must be completed prior to removal of any vegetation, with a focus on the habitat features described in Section 12. Pre-clearance procedures are provided in Appendix A7.                                                                                                                                                                               | Prior to works | Weekly checklist   | PM, SS, E          |
| Survey efforts identified no hollow-bearing trees within the Project Site. If any hollows or habitat features are identified prior to clearance during the pre-clearance survey, the Project Ecologist is to be present during the removal of these hollow-bearing trees or habitat features. Hollow-bearing trees (HBTs) should be removed per the procedure in Appendix A8. | Prior to works | Weekly checklist   | PM, SS, E          |

| Environmental Action                                                                                                                                                                                                                                                                                                                                                                             | Timeframe                                  | Monitoring       | Responsible Person |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------|--------------------|
| During any hollow-bearing tree removal, an experienced wildlife handler is to be present to extract and re-locate any displaced fauna that may be disturbed during this activity. Any injured fauna is to be appropriately cared for and released on site where and when appropriate. Refer to Appendix A10 for further details.                                                                 | During works                               | Weekly checklist | SS, E              |
| The Site Ecologist and /or a wildlife handler is to be present during removal of identified hollow-bearing trees to relocate any identified fauna. Native animals are to be relocated from development sites in accordance with the former Office of Environment and Heritage's Policy on the <i>Translocation of Threatened Fauna in NSW</i> and Fauna Relocation Management Plan, if required. | During construction                        | Weekly checklist | PM, SS, E          |
| If native fauna is identified during pre-clearance surveys or prior to removal of habitat features, the Fauna Rescue and Release Procedure found in Appendix A10 must be adhered to.                                                                                                                                                                                                             | Prior to works                             | Weekly checklist | PM, SS, E          |
| Removal of hollow-bearing trees should be replaced (1:3) with: <ul style="list-style-type: none"> <li>Extracted/carved hollow from the tree, an artificial hollow or nest box installed on retained trees; or</li> <li>Removed hollows placed on the ground in landscaped areas nearby retained bushland or riparian corridors.</li> </ul>                                                       | Before construction, after detailed design | Weekly checklist | SS, E              |
| A report detailing the pre-clearance and clearance works is to be prepared within 10 days of completion.                                                                                                                                                                                                                                                                                         | During construction                        | Weekly checklist | PM, E              |
| Ensure that no plant, equipment, or stockpiles are positioned under the drip line of retained along the boundary of the development site trees.                                                                                                                                                                                                                                                  | During construction                        | Weekly checklist | All                |
| If fauna is found on the construction site during construction works, stop work – all native fauna is protected. Do not touch the animal; wait for it to leave. If injured fauna is found, a site ecologist training in wildlife rescue is to transport to the nearest local vet and / or call WIRES or a wildlife rescue service.                                                               | All times                                  | Weekly checklist | All                |
| If a threatened fauna species is identified, stop works. Refer to Appendix A10 for further guidance.                                                                                                                                                                                                                                                                                             | All times                                  | Weekly checklist | All                |
| Install sediment barriers and erosion controls to prevent runoff into vegetation outside the impact area, in particular the riparian corridors. Maintain controls throughout construction and complete regular inspections (weekly, before and after predicted heavy rainfall periods). Schedule works outside heavy rainfall periods.                                                           | Prior to works and during construction     | Weekly checklist | All                |
| To reduce the spread of pathogens and diseases, ensure <i>Arrive Clean, Leave Clean Guidelines</i> (Department of the Environment, 2015) are adhered to: <ul style="list-style-type: none"> <li>Ensure all clothing, hats, footwear, tools, equipment, machinery and vehicles are free of mud, soil and organic matter before entering and exiting bushland.</li> </ul>                          | During construction                        | Weekly checklist | All                |

| Environmental Action                                                                                                                                                                                                                                                                                                                                             | Timeframe                                | Monitoring       | Responsible Person |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------|--------------------|
| <ul style="list-style-type: none"> <li>Ensure any soil, plants or other materials entering the site are certified free of pathogens.</li> <li>A dedicated washdown location, at the entry/exit of the site is to be determined prior to construction works. If pathogens are known to be present within the development site, A11 must be adhered to.</li> </ul> |                                          |                  |                    |
| <b>OBJECTIVE: REDUCE SPREAD OF PRIORITY WEEDS</b>                                                                                                                                                                                                                                                                                                                |                                          |                  |                    |
| Wash down equipment and vehicles prior to and after use, to manage the introduction and spread of weed propagules.                                                                                                                                                                                                                                               | Prior to works, during construction      | Weekly checklist | All                |
| All weeds are to be treated prior to becoming an environmental threat according to best management practices.                                                                                                                                                                                                                                                    | During construction, completion of works | Weekly checklist | SS                 |
| <b>OBJECTIVE: REDUCE POTENTIAL LIGHT AND NOISE IMPACTS TO NATIVE FAUNA</b>                                                                                                                                                                                                                                                                                       |                                          |                  |                    |
| <p>Works will only occur during the standard daytime hours:</p> <ul style="list-style-type: none"> <li>Monday to Friday 7:00 am to 5:00 pm</li> <li>Saturday 8:00 am to 1:00 pm.</li> </ul> <p>Works will not operate after sunset to minimise indirect noise and light impacts to fauna species in adjacent retained vegetation.</p>                            | During construction                      | Weekly checklist | SS                 |
| Where practical, avoid simultaneous operation of noisy plant within discernible range of vegetation outside of the development site.                                                                                                                                                                                                                             | During construction                      | Weekly checklist | All                |
| Maximise the distance between noisy plant items and nearby residential receivers and potential fauna habitat.                                                                                                                                                                                                                                                    | During construction                      | Weekly checklist | All                |
| Orient equipment such as offensive noise carriers away from residential receivers and potential fauna habitat.                                                                                                                                                                                                                                                   | During construction                      | Weekly checklist | All                |
| Plant used intermittently is to be throttled or shut down when not required.                                                                                                                                                                                                                                                                                     | During construction                      | Weekly checklist | All                |
| Permanent lighting installed during construction is to be designed as compliant with AS/NZS 4282:2019 <i>Control of the obtrusive effects of outdoor lighting</i> .                                                                                                                                                                                              | During and after construction.           |                  | PM                 |

## A2 Structure and Responsibility

Details of personnel responsibilities are outlined in Table 3. Contact details for these personnel are included in Section A5.

**Table 3: Responsibilities of personnel**

| Role            | Name, Position and Company     | Responsibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Manager | Name:<br>Position:<br>Company: | <ul style="list-style-type: none"> <li>Requires the contractor to adhere to the approved works.</li> <li>Accountable for contractor's and subcontractor's environmental performance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Site Supervisor | Name:<br>Position:<br>Company: | <ul style="list-style-type: none"> <li>Issues stop work orders, if required.</li> <li>Records any community complaints (Section A4) and notifies Project Manager.</li> <li>Responsible for site management, FFMP compliance, including subcontractors.</li> <li>Facilitates environmental induction and toolbox talks for site personnel.</li> <li>Undertakes minimum of weekly environmental inspections (or after environmental conditions change).</li> <li>Ensures proponent, DCCEW and community are notified of commencement of works.</li> <li>Initiates corrective actions.</li> <li>Reports FFMP non-conformances to the Project Manager.</li> <li>Reports incidents.</li> <li>Notifies the Project Manager if the FFMP needs revising.</li> </ul> |
| Staff           | Company:                       | <ul style="list-style-type: none"> <li>Comply with the FFMP.</li> <li>Monitor and maintain controls.</li> <li>Report breaches of the FFMP and potential / actual incidents to Site Supervisor</li> <li>Report incidents.</li> <li>Stop work and reports to Site Supervisor in the event of unexpected finds (e.g., native fauna).</li> <li>Record any community complaints and notify the Site Supervisor (Section A4).</li> </ul>                                                                                                                                                                                                                                                                                                                          |

### A3 Team Induction Sign-Off Sheet

The following personnel certify the works will be carried out in accordance with the FFMP.

| Name | Position / Company                                        | Signature | Date |
|------|-----------------------------------------------------------|-----------|------|
|      | Position: Project Manager<br><b>Company:</b>              |           |      |
|      | Position: Site Supervisor / Contractor<br><b>Company:</b> |           |      |
|      | Position: Project Ecologist<br><b>Company:</b>            |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |
|      | Position: Staff<br><b>Company:</b>                        |           |      |

A4 Complaints Recording Template

| Date | Received by phone / email / letter | Complaint | Name | Address | Contact | Follow-up Actions | Date Complete |
|------|------------------------------------|-----------|------|---------|---------|-------------------|---------------|
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |
|      |                                    |           |      |         |         |                   |               |

## A5 Phone and Emergency Contact List

| Organisation                         | Name | Position        | Contact Number          |
|--------------------------------------|------|-----------------|-------------------------|
| <b>Project Contacts</b>              |      |                 |                         |
|                                      |      | Project Manager |                         |
|                                      |      | Site Supervisor |                         |
|                                      |      | Site Ecologist  |                         |
| <b>Emergency Contacts</b>            |      |                 |                         |
| Emergency Services                   | -    | -               | 000                     |
| Campbelltown Hospital                | -    | -               | 02 4634 3000            |
| Environment Protection Authority     | -    | -               | 131 555                 |
| SafeWork NSW                         | -    | -               | 131 050                 |
| Fire and Rescue NSW                  | -    | -               | 02 9265 2999            |
| State Emergency Services (SES)       |      |                 | 132 500                 |
| WIRES                                | -    | -               | 1300 094 737            |
| Origin Energy                        |      |                 | 132 461                 |
| Energy Australia                     |      |                 | 133 466                 |
| Transgrid System Operations          |      |                 | 1800 027 253 / 9284 300 |
| Police Assistance Line (PAL)         |      |                 | 131 444                 |
| Gas – Agility                        |      |                 | 131 909                 |
| Poisons Information                  |      |                 | 131 126                 |
| Telstra                              |      |                 | 132 200                 |
| NSW Road and Maritime Services (RMS) |      |                 | 132 213                 |

## A6 Site Biodiversity Inspection Checklist (Weekly)

### Constructor Details    Site Supervisor - Environmental Checklist

Site Inspected: 135 Badgerys Creek Road, Luddenham NSW

Time & Date:

Weather:

#### Biodiversity

All collectable floristic material such as native vegetation seed stock, woody debris and bush rock has been collected for use in landscaping. ☐

No plant, equipment or stockpiles are positioned under the drip line of retained trees. ☐

Pre-clearance surveys completed for habitat features (stags, woody debris, dams, buildings/sheds, trees)

The Site Ecologist was present during tree removal and displaced fauna has been relocated. ☐

#### Aquatic Biodiversity

Aquatic ecologist has been notified of intention to commence dam dewatering, DPI Fisheries notified of intended dewatering works and aquatic fauna relocation location has been chosen ☐

Erosion and sediment controls downstream of dam water irrigation areas are installed correctly ☐

Aquatic Ecologist completed capture and translocation of aquatic fauna ☐

#### Priority Weeds

Equipment and vehicles have been washed down prior to and after use, to manage the introduction and spread of weed propagules and pathogens in accordance with Section A11. ☐

#### Noise

Simultaneous operation of noisy plants within discernible range of a sensitive receiver has been avoided. ☐

The distance between noisy plant items and nearby residential receivers and potential fauna habitat has been maximised. ☐

Equipment such as offensive noise carriers have been oriented away from residential receivers and potential fauna habitat. ☐

Plants used intermittently have been throttled or shut down when not required. ☐

Inspected by:                      Signature:

Actions:

By Who:

Date Completed:

## A7 Pre-Clearance Survey Procedure

A survey of habitat features identified within the Project Site is to be completed by a suitably qualified ecologist prior to any vegetation clearing, to determine:

- If any fauna are using hollow-bearing trees (HBTs) or stags. In addition:
  - HBTs to be removed will be marked with flagging tape and an “H” spray painted onto two or three sides of the tree trunk with fluorescent paint
  - HBTs immediately adjacent to and / or within the Development Footprint that will be retained will be marked, for the establishment of an exclusion zone and protection from impacts. Note that the HBTs to be retained will be differentiated (marked differently (i.e. colour)) to those HBTs that are to be removed
  - Removal of HBTs is to be avoided during spring to minimise disturbance of the main breeding period of hollow-dependent fauna
- If any microbats are present in suitable habitat (including hollows as above, manmade structures (buildings and sheds) and decorticated bark);
- Resident fauna or habitat features that may require active management prior to or during disturbance will be recorded using GPS (see active management protocols below). This may include:
  - actively nesting birds or mammals
  - habitat features including tree hollows or fallen logs that may contain roosts
  - nests, dreys or dens
  - suspected active microbat roosts, particularly within manmade structures (existing sheds and buildings)
- The presence of any previously unrecorded threatened flora or fauna species requiring management

Features identified in the pre-clearing survey will be recorded using handheld GPS. The use of a differential GPS unit will be considered where sensitive vegetation or features are identified to provide greater accuracy of the location.

Data collected in the pre-clearing inspection will be collated and reported by Project Ecologist and/or Site Supervisor to the Project Manager.

## A8 Hollow-bearing Tree Removal Procedure

Prior to removal of hollow-bearing trees, the following is to be completed by, or under the supervision of, the Project Ecologist:

- Discourage fauna first by restricting access to the hollow, deterrence measures (e.g., noise).
- Check for fauna in the zone of disturbance before clearing.
- Remove all non-hollow bearing vegetation prior to the removal of the habitat trees.
- After clearing, re-check to ensure no fauna have become trapped or injured during clearing operations. Any fauna found should be safely relocated to nearby habitat.
- Leave habitat trees standing for at least one night after clearing of non-hollow bearing trees to allow any fauna the opportunity to remove themselves after site disturbance.
- Before felling the habitat tree, engage a climbing arborist to sectionally lop and lower branches one at a time.
- Re-check after felling the habitat tree to ensure no fauna have become trapped or injured during clearing operations. Any fauna found should be safely relocated to nearby habitat.
- If taking the habitat tree down in stages, the non-hollow-bearing branches should be removed before the hollow-bearing branches are removed.
- Take care when moving equipment near vegetation to be retained.

## A9 Fauna Management

As a general principle, any native animals found within the construction area should be avoided. Fauna should only be handled by a qualified ecologist or wildlife carer with relevant skills and experience (e.g., snake handling), and only when absolutely necessary.

Where a need for active fauna management has been determined from the pre-clearing inspections, a qualified ecologist/licenced wildlife handler is to be present during vegetation clearing activities.

In any area to be cleared, non-habitat vegetation should be cleared first per vegetation removal procedures. Any fauna habitat (or resident fauna including actively nesting birds) demarcated during the pre-clearing procedure is then to be left standing overnight as a minimum (ideally longer up to three days) to encourage the self-relocation of fauna that may be using the available habitat feature.

A hierarchy of fauna management should be followed that prioritises passive fauna management and proactive measures prior to clearing, to reduce fauna disturbance and potential harm. Any injured fauna must be reported to the Project Manager and identified by a qualified Ecologist.

# FAUNA MANAGEMENT HIERARCHY

**Proactive discouragement of fauna by passive methods.** This may involve using noise and light to make habitat less desirable, giving fauna time to leave site on their own.

**Passive fauna management** with higher disturbance. For example, felling non-habitat trees and leaving HBTs to stand overnight, or up to 3 days, to encourage fauna to leave.

**Active fauna management** – handling, manual removal etc. by Ecologist

**Figure 2-1: Fauna management hierarchy**

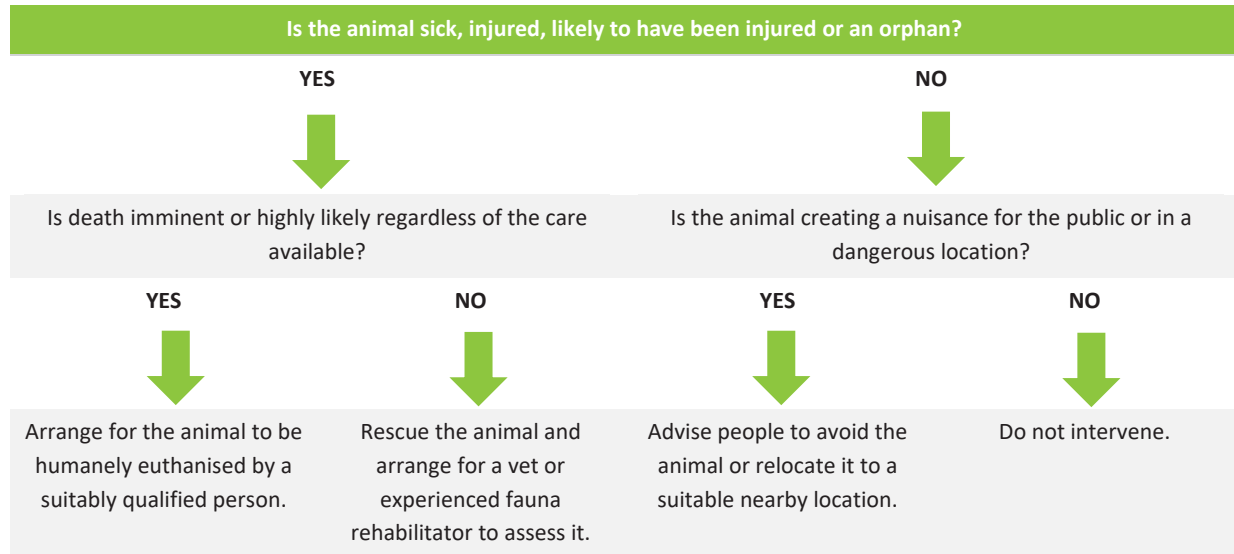
## A10 Fauna Rescue and Release Procedure

The following Fauna Rescue and Release Procedure has been prepared in accordance with the NSW Department of Planning, Industry and Environment *Code of Practice for Injured, Sick and Orphaned Protected Fauna 2011*.

### NATIVE FAUNA ENCOUNTER

If native fauna (including threatened fauna) is encountered during pre-clearance or clearance surveys, the decision tree outlined in Table 4 should be adhered to.

**Table 4: Decision tree on how to respond to a native fauna encounter**



### RESCUING OF NATIVE FAUNA

If rescuing of the animal is chosen to be the most suitable option, the following must be adhered to:

- Assessment of all risk to fauna from environmental hazards and from capture.
- Confirmation that the correct rescue equipment for the type and size of fauna is at hand.
- Confirmation that enough trained personnel for that species and size are present.
- If the rescued wildlife needs assessment by a vet, wildlife rescuer or rehabilitator, ensure that an organisation such as WIRES has been contacted to ascertain an available person relevant to that species.

### TRANSPORTATION OF RESCUED NATIVE FAUNA

When transporting the rescued native fauna to a veterinary surgery, wildlife rescuer, or rehabilitation facility guided by an organisation such as WIRES, the following must be adhered to:

- Ensure transport methods and container sizes are appropriate for the species, size, strength, and temperament of fauna. This may include incorporating padding walls and ensuring no ingestible surfaces are present. Containers must also be designed and positioned so breathing is not restricted.
- Transportation containers are kept at an appropriate temperature for the species (note a range of 25 – 27°C is appropriate for most species and ages; 31°C is appropriate for unfurred joeys and 21°C is appropriate for echidnas, platypuses, and frogs).

- Transportation containers are well ventilated.
- Ensure containers holding snakes and bats include a visible warning label outlining the danger.
- Ensure transportation containers are not left in the back of uncovered utility vehicles or car boots.
- During transportation, adult fauna should not be fed or watered during trips lasting less than a few hours.
- Attain approval by a veterinarian before use of medication to facilitate transport.
- Ensure fauna transport is the sole purpose of the trip.

#### RELOCATION OF NATIVE FAUNA

If the encountered native fauna does not require rescuing, however, is required to be located outside of the construction site, the following must be adhered to:

- A suitable environment must be identified prior to relocation, this is one that:
  - Contains appropriate habitat and adequate good resources.
  - Is occupied by members of the same species.
  - Does not place the animal at a high risk of injury.
  - Is not outside of an area which the fauna would not normally cross (i.e., brush-tail possums rarely move more than 50 m however; wombats have a radius of approximately 50 km).

## A11 Prevention of Pathogens

### WEED ERADICATION

A Weed Eradication Management Plan (WEMP) has been prepared (ELA 2023d) which should be referred to in full for weed management measures. The WEMP includes:

- Identification and description of weed infested areas within the site.
- Recommendations for managing weeds.
- Weed control methods.
- Measures to prevent the spread of weeds.
- A monitoring program to measure the success of weed management.
- Communication strategies to improve contractor awareness of weeds and weed management.

### PATHOGEN ERADICATION

Pathogens are agents such as bacterium, virus or fungus that cause disease in flora and fauna, which are be spread on footwear, vehicles, or machinery. The four most common pathogens found in NSW include:

- **Phytophthora (*Phytophthora cinnamomi*):** A soil-borne fungus that attacks the roots of native plant species, causing them to rot and eventually die.
- **Chytrid fungus (*Batrachochytrium dendrobatidis*):** A waterborne fungus that affects native frog species.
- **Myrtle rust (*Uredo rangelii*):** An introduced fungus that attacks young leaves, shoot tips and stems of Myrtaceous plants (such as Bottle Brush, Tea Tree, Lilly Pilly and Turpentine), eventually killing the plant.

Construction works on development sites have the potential to promote the spread of pathogens. This procedure is intended to prevent or minimise the spread of pathogens if they have been identified within the development site. If the occurrence of pathogens is known within the locality, a test for presence through soil or water tests should first be undertaken. If pathogens are present, during construction, the Project Manager and Site Supervisor should adhere to best practice methods for pathogens (Table 5).

**Table 5: Best practice hygiene protocols to prevent the spread of pathogens**

| Pathogen            | Best Practice Hygiene Protocols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Phytophthora</b> | <ul style="list-style-type: none"> <li>• Minimise work during excessively wet or muddy conditions.</li> <li>• Programming of works should always move from uninfected areas to infected areas.</li> <li>• Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>• All personnel (including visitors) to be inducted on Phytophthora management measures for the site. Provide vehicle wash down facility.</li> <li>• Restrict vehicles to designated tracks, trails, and parking areas.</li> <li>• Provide parking and turn-around points on hard, well-drained surfaces.</li> <li>• Provide boot wash down facility.</li> <li>• Restrict personnel to designated tracks and trails.</li> <li>• Use a certified supply of plants and soil that is disease-free.</li> <li>• Retain all potentially affected materials within the contaminated area.</li> <li>• Ensure stockpiles of mulch, topsoil and fill material are separated to avoid potential contamination and spread.</li> </ul> |

| Pathogen              | Best Practice Hygiene Protocols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chytrid Fungus</b> | <ul style="list-style-type: none"> <li>• Minimise work during excessively wet or muddy conditions.</li> <li>• Programming of works should always move from uninfected areas to infected areas.</li> <li>• Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>• All personnel (including visitors) to be inducted on chytrid management measures for the site.</li> <li>• Provide vehicle wash down facility.</li> <li>• Restrict vehicles to designated tracks, trails, and parking areas.</li> <li>• Provide parking and turn-around points on hard, well-drained surfaces.</li> <li>• Provide boot wash down facility.</li> <li>• Disinfect with cleaning products containing benzalkonium chloride or 70% methylated spirits in 30% water.</li> <li>• Disinfect hands or change gloves between the handling of individual frogs and between each site.</li> <li>• Only handle frogs when necessary. Use the 'one bag-one frog' approach.</li> <li>• To avoid cross contamination, generally avoid transferring water between two or more separate waterbodies.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Myrtle Rust</b>    | <ul style="list-style-type: none"> <li>• To determine if Myrtle Rust is known within the locality of the development site, the following should be undertaken: <ul style="list-style-type: none"> <li>○ Use of The DPI Myrtle Rust Management Zone map (<a href="http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones">www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones</a>)</li> <li>○ Photograph potentially infected plants and send to: <a href="mailto:biosecurity@industry.nsw.gov.au">biosecurity@industry.nsw.gov.au</a> for confirmation.</li> </ul> </li> <li>• Programming of works should always move from uninfected areas to infected areas.</li> <li>• Set up exclusion zones with fencing and signage to restrict access into contaminated areas.</li> <li>• All personnel (including visitors) to be inducted on Myrtle rust management measures for the site.</li> <li>• Provide vehicle wash down facility.</li> <li>• All vehicles and machinery to be washed with Truck wash-(or equivalent).</li> <li>• Restrict vehicles to designated tracks, trails, and parking areas.</li> <li>• For medium-long term projects, install a concrete wash down bay which will capture the water in a trench or bunded area.</li> <li>• Water used for wash downs must not be used for dust control.</li> <li>• Personnel working in an infected site should shower and launder clothes (especially hats) before moving to another bushland site.</li> <li>• Provide boot wash down facility.</li> <li>• Footwear and equipment to be cleaned of soil/mud then sprayed with 70% methylated spirits in 30% water.</li> <li>• Use a certified supply of plants and soil that is disease-free (the Australian Nursery Industry <i>Myrtle Rust Management Plan</i> (McDonald 2011) provides best practice Myrtle rust management that is to be expected from suppliers).</li> <li>• Plant material should be buried on site if possible.</li> <li>• Do not dispose of waste at another bushland site.</li> <li>• Buried material sites must be mapped to prevent re-exposure, especially if located near utility easements.</li> <li>• If material cannot be buried advice should be sought from Liverpool City Council.</li> </ul> |

## A12 Re-Use of Floristic Material and Native Habitat Features Strategy

### COLLECTION OF FLORISTIC MATERIAL

Native seed collection may be completed prior to construction to later be used in project landscaping, or nearby conservation areas. If this is the case, the following should be adhered to:

- Seed should first be collected from all areas that are to be cleared as part of the project. By selecting a seed source that is from plants growing in similar environmental conditions nearby, the plants should be naturally adapted to local conditions and more likely to survive and prosper in proposed re-use areas.
- Carry out all seed collection in accordance with the Florabank Guidelines (Florabank, 2000) and Model Code of Practice (Mortlock, 1998). Experienced and licensed seed collectors should carry out the seed collection.

### RELOCATION OF WOODY DEBRIS AND BUSH ROCK

Many native fauna species utilise woody debris and bush rock for shelter, basking to hide from predators, find food and avoid extreme weather. When woody debris and bush rock are required to be removed from a development site, consideration should be given to finding suitable locations for re-use of these important habitat features.

| Term                | Definition                                                                                              |
|---------------------|---------------------------------------------------------------------------------------------------------|
| <b>Woody Debris</b> | Trees and wood, whether living or dead, at least 100 mm in diameter and 500 mm long, including hollows. |
| <b>Bush Rock</b>    | Loose rock occurring on rock or soil surfaces.                                                          |

Prior to relocation of woody debris found within the development site, consultation should be undertaken with DCCEEW and the Site Ecologist to determine a suitable location for re-use to ensure it does not have a negative impact on the receiving environment. For example, in areas of high-quality bushland, there may already be enough suitable hollows, fallen logs or bush rock and adding more may cause unnecessary disturbance or create a fire hazard.

If a suitable relocation area (such as a nearby conservation area) has been agreed upon by DCCEEW and the development proponent, the Project Manager and Site Supervisor should ensure the following best practice methods are undertaken during relocation:

- Removal, stockpiling, transportation, and relocation of woody debris and/or bush rock is carried out in a manner that minimises disturbance to native vegetation (including the canopy, shrubs, dead trees, fallen timber and groundcover species) or bush rock.
- The spread of any weeds or pathogens that may be in the soil is avoided when relocating woody debris and bush rock from stockpiles.
- The Site Ecologist is consulted with to provide advice on positioning woody debris and bush rock in designated relocation areas.
- Topsoil disturbance is kept to a minimum and is not heaped up against woody debris or bush rock because of the potential to provide habitat for rabbits.
- Woody debris is placed evenly across the site.

- Where woody debris is to be mulched the Project Manager and/or Site Supervisor should ensure that weeds are separated from native vegetation.

#### USE OF NEST BOXES

Nest boxes can be used to provide supplementary breeding habitat and shelter for hollow-dependant fauna where hollows have been removed. If requested by DCCEW, nest boxes may be required to be installed as a replacement for the removal of the identified hollow-bearing trees. Generally, it is recommended that three (3) nest boxes are installed for every hollow-bearing tree removed. Ideally, nest boxes should replicate the hollows being replaced as close as possible due to specific species requirements as outlined below.

If the installation of nest boxes is required, the following must be considered in consultation with the Project Ecologist:

- The target species.
- The tree hollow preferences of native hollow-dependant fauna known or likely to occur in the locality.
- The sizes, types, and quantities of potential tree hollows to be removed.
- The sizes, types and quantities of tree hollows existing in adjacent areas.
- The design, materials and quantity of nest boxes required.
- Whether the nest boxes are required to fill a short-term gap in the availability of hollows (e.g., during construction) or to compensate for the long-term reduced availability of hollows.
- Monitoring and maintenance of the nest boxes.

