NSW (Off-airport) Flora and Fauna Management Sub-plan

Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works

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Revision	1

Document approval

Rev	Date	Prepared by	Reviewed by	Approved By	Remarks
A	19/05/2022	[redacted]	[redacted]	[redacted]	For stakeholder consultation and review
0	23/08/2022	[redacted]	[redacted]	[redacted]	Revised to address stakeholder comments, ER comments and Sydney Metro comments.
1	21/09/2022	[redacted]	[redacted]	[redacted]	Revised in response to ER comments.
Signature:					

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Compliance

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<tr><th>No.</th><th>Requirement</th><th>Reference</th></tr>
<tr><td colspan="3">SSI 10051 Planning Approval</td></tr>
<tr><td>C1</td><td>Construction Environmental Management Plans (CEMPs) and CEMP Sub-plans must be prepared in accordance with the Construction Environmental Management Framework (CEMF) included in the documents listed in Condition A1 to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during construction.</td><td>Project CEMP (SMWSASBT-CPG-1NL-EV-PLN-000002)</td></tr>
<tr><td>C5</td><td>Of the CEMP Sub-plans required under Condition C1, the following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan. Details of issues raised by a government agency during consultation (as required by Condition A6) must be provided as part of the relevant CEMP Sub-Plan when submitted to the Planning Secretary / ER (whichever is applicable). Where a government agency(ies) request(s) is not included, the Proponent must provide the Planning Secretary / ER (whichever is applicable) justification as to why.
<table>
<tr><th></th><th>Required CEMP Sub-Plan</th><th>Relevant government agencies to be consulted for each CEMP Sub-plan</th></tr>
<tr><td>(b)</td><td>Flora and fauna</td><td>DPIE EES, DPI Fisheries, and Relevant Councils</td></tr>
</table></td><td>Section 1.4</td></tr>
<tr><td>C6</td><td>The CEMP Sub-plans must state how:
(a) the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved;
(b) the mitigation measures identified in the documents listed in Condition A1 will be implemented;
(c) the relevant terms of this approval will be complied with; and
(d) issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.</td><td>(a) Part B, Element 2
(b) Section 8
(c) Part B and this table
(d) Project CEMP</td></tr>
<tr><td>C7</td><td>With the exception of any CEMP Sub-plans expressly nominated by the Planning Secretary to be endorsed by the ER, all CEMP Sub-plans must be submitted to the Planning Secretary for approval.
Note ER endorsement only be confirmed through Staging Report update</td><td>Documentation of submission process will be included in the Project CEMP</td></tr>
<tr><td>C8</td><td>The CEMP Sub-plans not requiring the Planning Secretary's approval must obtain the endorsement of the ER as being in accordance with the conditions of approval and all relevant undertakings made in the documents listed in Condition A1. Any of these CEMP Sub-plans must be submitted to the ER with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction or where construction is staged no later than one (1) month before the commencement of that stage.</td><td>Documentation of ER review will be incorporated into this CFFMP after the review has been completed
Section 1.4</td></tr>
<tr><td>C9</td><td>Any of the CEMP Sub-plans to be approved by the Planning Secretary must be submitted to the Planning Secretary with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction or where</td><td>Noted</td></tr>
</table>

No.	Requirement	Reference
	construction is staged no later than one (1) month before the commencement of that stage.	
C10	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary or endorsed by the ER (whichever is applicable), unless otherwise agreed by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary or endorsed by the ER (whichever is applicable), including any minor amendments approved by the ER, must be implemented for the duration of construction.	Project CEMP (SMWSASBT-CPG-1NL-EV-PLN-000002)
C11	In addition to the relevant requirements of the CEMF, the Flora and Fauna CEMP Sub-plan must include but not be limited to: (a) details of how the requirements of Conditions E11 are met; (b) details of a dewatering plan of farm dams including: (i) supervision of dewatering by a suitably qualified ecologist; (ii) a methodology for the transfer of native fauna species known to inhabit and/or use the dam; (iii) the location and suitability of the proposed relocation sites; and (iv) any potential impacts of relocating the fauna to the relocation sites; (c) protocols for incidental finds of threatened species and ecological communities within the construction boundary.	(a) Section 8.11 (b) Section 8.7 & Annexure E (c) Annexure F
Construction Environmental Management Framework		
3.5 (a)	Off-Airport Construction Environmental Management Sub-Plans (a) Subject to Section 3.4(b) the Principal Contractors will prepare issue-specific environmental sub plans to the CEMP which address each of the relevant environmental impacts at a particular site or stage of the project. Issue specific sub plans will include as a minimum:…. (vi) Flora and fauna management;	(vi) This Plan
3.5 (b)	Additional detail on the minimum requirements for these sub plans is provided in Sections 6 to 14 of this CEMF.	Project CEMP (SMWSASBT-CPG-1NL-EV-PLN-000002)
10.1 (a)	The following flora and fauna management objectives will apply to construction: i. Minimise impacts on flora and fauna; ii. Design waterway modifications and crossings to incorporate best practice principles; iii. Retain and enhance existing flora and fauna habitat wherever possible; iv. Appropriately manage the spread of weeds and plant pathogens; and For on-airport works, the Sydney Metro Western Sydney Airport Biodiversity CEMP will detail all fauna and flora management objectives and will be consistent with the WSA Biodiversity CEMP, including all appendices to the Biodiversity CEMP.	i Section 8 ii not relevant to SBT Works package (refer Section 6.6) iii Section 8.1, 8.5 and 8.13 iv Section 8.9
10.2 (a)	On-airport management of flora and fauna will be achieved through the implementation of the SMWSA Biodiversity CEMP and Principal Contractors will develop and implement a Flora and Fauna Management Plan for all off-airport works. Both plans will include as a minimum: i. The biodiversity mitigation measures as detailed in the planning approval documentation;	i Section 8

No.	Requirement	Reference
	ii. The responsibilities of key project personnel with respect to the implementation of the plan; iii. Procedures for the clearing of vegetation and the relocation of flora and fauna; iv. Details on the locations, monitoring program and use of nest boxes by fauna; v. Procedures for the demarcation and protection of retained vegetation, including all vegetation outside and adjacent to the construction footprint, and the protection of retained vegetation within the environmental conservation zone on the airport site; vi. Plans for impacted and adjoining areas showing vegetation communities; important flora and fauna habitat areas; locations where threatened species, populations or ecological communities have been recorded; vii. Vegetation management plan(s) for sites where native vegetation is proposed to be retained; viii. Identification of measures to reduce disturbance to sensitive fauna; ix. Rehabilitation details, including identification of flora species and sources, and measures for the management and maintenance of rehabilitated areas (including duration of the implementation of such measures); x. Weed and disease management measures focusing on early identification of invasive weeds and diseases. Protocols to address the effective management of these risks; xi. A procedure for dealing with unexpected threatened species identified during construction, including cessation of work and notification to the relevant government department for both on- and off-airport works. The procedure shall define how appropriate mitigation measures (including relevant relocation measures) and updating of ecological monitoring or off-set requirements; xii. Details on the methodology for vegetation mapping and survey; xiii. Ecological monitoring requirements; and xiv. Compliance record generation and management.	ii Section 4, Part B iii Section 8.1 to 8.4 iv Sections 8.11 v Section 8.2 Annexure H vii Section 8.2 viii Section 8.2 ix Section 8.13 x Section 8.9, 8.10 xi Section 8.8. Annexure B, Annexure F xii Section 8.3 xiii Section 8.3.1 xiv Part B, Element 2
10.2 (b)	Principal Contractors would undertake the following ecological monitoring as a minimum: i. A pre-clearing inspection will be undertaken prior to any native vegetation clearing by a suitable qualified ecologist and the Contractor's Environmental Manager (or delegate). The pre-clearing inspection will include, as a minimum: • Identification of hollow bearing trees or other habitat features; • Identification of any threatened flora and fauna; • A check on the physical demarcation of the limit of clearing; • An approved erosion and sediment control plan for the worksite; and • The completion of any other pre-clearing requirements required by any project approvals, permits or licences. ii. The completion of the pre-clearing inspection will form a HOLD POINT requiring sign-off from the Contractor's Environmental Manager (or delegate) and a qualified ecologist; and iii. A post clearance report, including any relevant Geographical Information System files, will be produced that validates the type and area of vegetation cleared including confirmation of the number of hollows impacted and the corresponding nest box requirements to offset these impacts.	(i) Section 8.2, 8.4, 8.5, 8.6, 8.7, 8.9 (ii) Annexure B (iii) Part B, Element 2

No.	Requirement	Reference
10.2 (c)	The Principal Contractor's regular inspections will include a check on the ecological mitigation measures and project boundary fencing	Part B, Element 3
10.2 (d)	The following compliance records would be kept by the Principal Contractor: i. Records of pre-clearing inspections undertaken; ii. Records of the release of the pre-clearing hold point; and iii. Records of ecological inspections undertaken.	Part B, Element 2
10.3 (a)	The on-airport Biodiversity CEMP and the off-airport Flora and Fauna Management Plan will include the following flora and fauna mitigation measures as well as any relevant Conditions: i. Areas to be retained and adjacent habitat areas will be fenced off prior to works to prevent damage or accidental over clearing; ii. Clearing will follow a two-stage process as follows: • Non-habitat trees will be cleared first after sign-off of the pre-clearing inspection; and • Habitat trees will be cleared no sooner than 48 hours after non-habitat trees have been cleared. A suitably qualified ecologist will be present on site during the clearing of habitat trees. Felled habitat trees will be left on the ground for 24 hours or inspected by the ecologist prior to further processing. Weed management is to be undertaken in areas affected by construction prior to any clearing works. Off-airport weed management will be undertaken in accordance with the NSW *Noxious Weeds Act 1993*. On-airport weed management will also be undertaken in accordance with the NSW *Noxious Weeds Act 1993* and the NSW *Biosecurity Act 2015*, which is consistent with the approach adopted in the Western Sydney Airport Weed and Disease Management Plan (Appendix C of the Western Sydney Airport Biodiversity CEMP).	Section 7.1, 7.2, 7.3, 7.4 and 7.9

Note: Other relevant SSI 10051 Planning Approval Conditions and the Revised Environmental Outcomes and Revised Environmental Mitigation Measures (REMMs) from Section 7 of the Submissions Report are addressed in Element 4 Package specific requirements of Part B. Element 4

Definitions

Term	Description
BOS	Biodiversity Offset Scheme
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
CEMP	Construction Environmental Management Plan
CPBG	CPB Contractors Ghella Joint Venture
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
ER	Environmental Representative
FM Act	Fisheries Management Act
GDE	Groundwater Dependant Ecosystem
GIS	Geographic Information System
IC	Independent Certifier
LGA	Local Government Area
PCT	Plant Community Type
Project	Sydney Metro Western Sydney Airport
REMM	Revised Environmental Mitigation Measure
SBT Works	Station Boxes and Tunnelling Works
SEP	Site Environmental Plan
TBM	Tunnel boring machine
TEC	Threatened Ecological Community
WSI	Western Sydney International

Part A: Overview

1.Introduction

1.1. Purpose and application

This NSW (Off-airport) Construction Flora and Fauna Sub-plan (CFFMP or Sub-Plan) is applicable to the Station Boxes and Tunnelling Works (SBT Works) Package of the Sydney Metro Western Sydney Airport (the Project). This Sub-plan describes how the CPB Contractors Ghella Joint Venture (CPBG) will minimise and manage the Flora and Fauna impacts of the SBT Works in NSW.

This Sub-Plan has been prepared to address the requirements of the:

- State Significant Infrastructure (SSI) 10051 Planning Approval (dated 23 July 2021)
- Commonwealth Approval (EPBC 2020/8687)
- Sydney Metro Western Sydney Airport – CSSI Staging Report (Staging Report)
- AS/NZS ISO 14001:2016 Environmental Management Systems – Requirements with guidance for use
- Sydney Metro Construction Environmental Management Framework (CEMF)
- Environmental Impact Statement (EIS) and the Submissions Report, including the Revised Environmental Mitigation Measures (REMMs)
- Contractual requirements, including the SBT Design and Construction Deed and General and Particular Specifications
- Applicable legislation (NSW and Commonwealth).

Operational flora and fauna impacts and operational mitigation measures are outside the scope of this CFFMP and therefore are not included within the processes contained within this Sub-Plan.

1.2 Sub-plan context

To achieve the intended environmental performance outcomes of the Project, CPBG have an established Environmental Management System (EMS) in accordance with the requirements of ISO 14001:2016. Guided by the Environment and Sustainability Policy, the EMS consists of a Construction Environmental Management Plan (CEMP), aspect-specific procedures and Sub-Plans as illustrated in Figure 1. Implementation of the EMS is achieved through tools, checklists and forms as detailed in Section 5.2 of the CEMP.

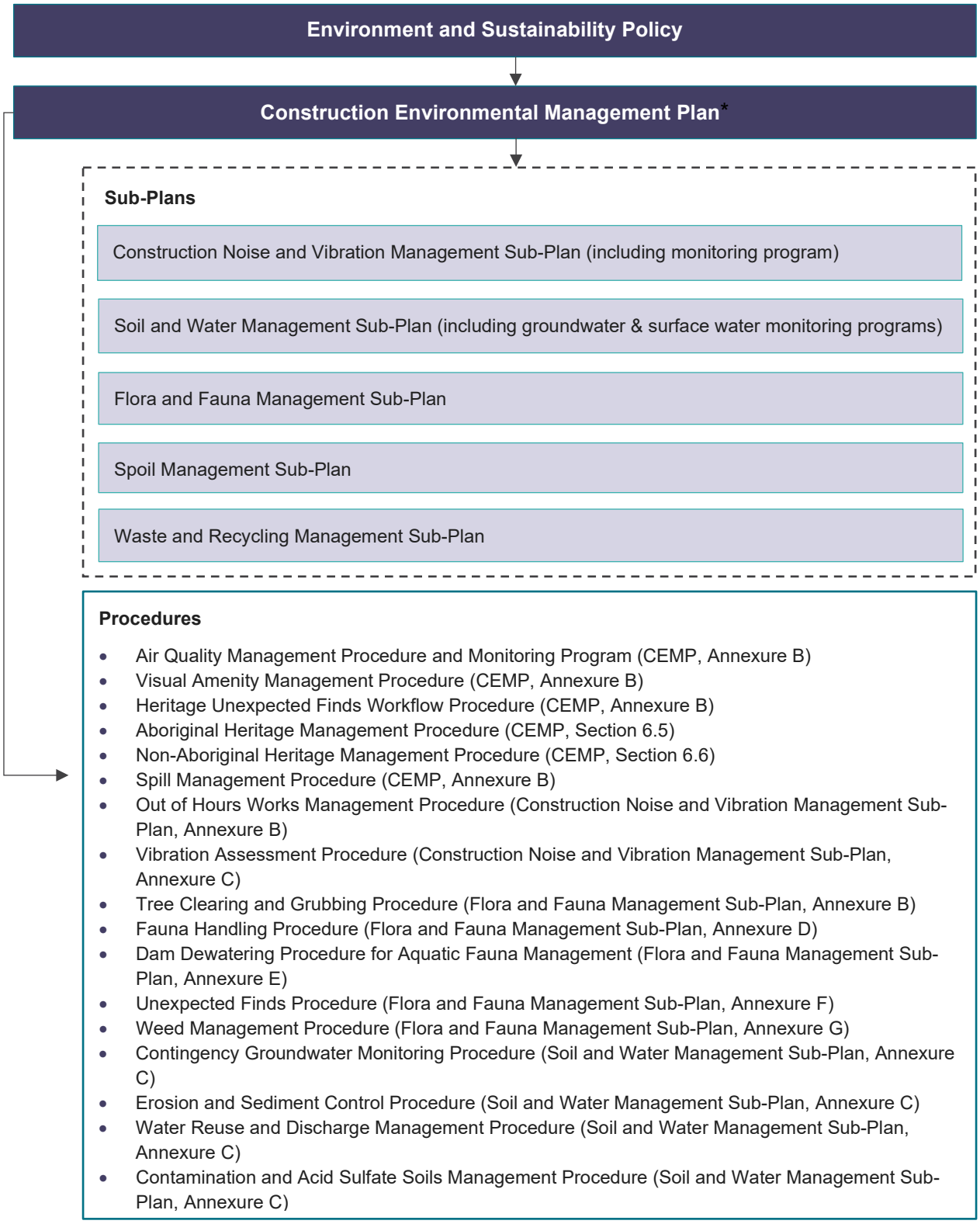


Figure 1: EMS Overview

1.3 Objectives and performance outcomes

The objectives and performance outcomes for flora and fauna management are to ensure:

- Compliance with the SSI 10051 Planning Approval
- Compliance with the Environment Protection Licence (EPL) for the SBT Works (on receipt)
- Minimise vegetation clearance where practicable
- Minimise impacts on threatened species and ecological communities
- Minimise impacts on terrestrial and aquatic biodiversity
- Minimise impacts on retained significant trees
- Offset the loss of habitat trees through installation of nest boxes in adjacent woodland, where practicable
- Protect retained and adjacent native vegetation where possible
- Control the spread of weeds and plant pathogens
- Minimise disturbance to fauna
- Management of groundwater drawdown at Orchard Hills to avoid or minimise impacts on groundwater dependent ecosystems
- Compliance with offset requirements of the *NSW Biodiversity Assessment Methods* (OEH, 2017).

CPBG will target 100% reuse of all vegetative waste material (excluding weeds). Prior to vegetation clearing, CPBG will identify native trees and vegetation that is to be cleared to Sydney Metro. Habitat features (refer Section 8.5) that are deemed to be valuable for retention, will be marked with pink flagging tape and will be stored on site.

Habitat rehabilitation will be undertaken by Sydney Metro and / or its contractors in subsequent stages of the Project, in accordance with the Place, Urban Design and Corridor Landscape Plan. Habitat features unable to be incorporated into the Place, Urban Design and Corridor Landscape Plan will be offered to stakeholders in accordance with Condition E12 for habitat enhancement and rehabilitation work elsewhere.

Where vegetation cannot be reused for habitat enhancement or on site as mulch, it will be transferred to a recycling facility.

1.4 Consultation and approval

1.4.1 Relevant government agencies and council(s)

Reflecting the requirements of Conditions A6, C5(b) and C6, this Sub-Plan has been prepared in consultation with DPE Environment and Heritage Group (EHG) (formerly DPIE EES), DPI Fisheries, Penrith City Council and City of Liverpool Council.

A detailed consultation report, including matters raised by stakeholders and CPBG responses is provided in Annexure I

Construction will not commence until this Sub-plans and Program have been approved by the Planning Secretary or endorsed by the ER (whichever is applicable), unless otherwise agreed by the Planning Secretary. This Sub-plan and Program, as approved by the Planning Secretary, including any minor amendments approved by the ER, will be implemented for the duration of the SBT Works.

1.5 Sub-Plan structure

Part A: Overview	• Section 1: An introduction to the Sub-Plan and the SBT Works • Section 2: Project overview • Section 3: Legal and other requirements • Section 4: People and collaboration • Section 5: Scope and context • Section 6: Existing and surrounding environment • Section 7: Potential impacts • Section 8: Flora and fauna management
Part B: Implementation	• Element 1: Training • Element 2: Monitoring and reporting • Element 3: Auditing, review and improvement • Element 4: Package specific requirements
Part C: Annexures	• Annexure A: Pre-clearing checklist • Annexure B: Clearing and grubbing procedure • Annexure C: Clearing permit • Annexure D: Fauna handling procedure • Annexure E: Dam dewatering procedure • Annexure F: Unexpected finds procedure • Annexure G: Weed management procedure • Annexure H: Existing environment figures

2. Project overview

2.1. Background

The Sydney Metro Western Sydney Airport will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport (referred to as Western Sydney International) and the growing region.

The Sydney Metro Western Sydney Airport EIS was prepared in October 2020 to assess the impacts of construction and operation of the Project and was placed on public exhibition between 21 October 2020 and 2 December 2020. The Project was declared a Critical State Significant Infrastructure (CSSI) Project and is listed in Schedule 5 of State Environmental Planning Policy (State and Regional Development).

The Sydney Metro Western Sydney Airport was approved by the Minister for Planning and Public Spaces on 23 July 2021 (SSI 10051) under section 5.19 of the Environmental Planning and Assessment Act 1997 (EP&A Act).

2.2. Project description

The Project forms part of the broader Sydney Metro network. It involves the construction and operation of a 23km new metro rail line that extends from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaduct, bridges, surface and open-cut troughs between the two tunnel sections (Figure 2).

Figure 2: Project Overview

2.3. Project Staging

2.3.1. Overview

As detailed in the Staging Report, the Project will be delivered through the following stages:

- Advanced and Enabling Works – Site investigations, modification of the existing transport network, power and water supply for construction sites, utility and stormwater diversions and some demolition works.
- SBT Works – delivered through the following sub-stages:
  - Preparatory Works – Including NSW (off-airport) demolition works, site levelling/grading, site access and parking, utility and temporary services works, erection of demountable buildings and noise barriers, tunnelling preparatory works and use of ancillary facilities including onsite parking.
  - Bulk Excavation and Tunnelling Works (the subject of this Sub-Plan) – Preparatory Works (works not completed prior to approval of this CEMP), bulk excavation, acoustic shed installation (where required), tunnelling and cross passage installation.
- Surface and Civil Alignment Works – Construction of bridges and viaducts to cross floodplains, watercourses and existing and proposed permanent infrastructure. Delivered through two sub-stages including preparatory works and main excavation and viaduct works.
- Stations, Systems, Trains, Operations and Maintenance – Station design and fit-out, testing and commissioning, and operation of the Western Sydney Airport metro service
- Finalisation Auxiliary Works.

2.4. SBT Works Scope

2.4.1. Station Boxes and Tunnelling Works

The SBT Works include the design and construction of:

- Two sections of twin tunnels with a total combined length of approximately 9.8km, including associated portal structures; Orchard Hills to St Marys (off-airport) and Western Sydney International (WSI) airport to the new Aerotropolis Station (off-airport)
- Excavations at either end to enable trains to turn back and stub tunnels to enable future extensions
- Station box excavations with temporary ground support for four stations at St Marys (off-airport), Orchard Hills (off-airport), Airport Terminal (on-airport) and Aerotropolis (off-airport)
- Excavations for two intermediate service facilities, one in each of the tunnel sections at Claremont and Bringelly (both off-airport).

An overview of the SBT Works at each worksite is provided in Table 1.

Table 1: SBT Works overview

Jurisdiction	Worksite	Indicative scope of works
NSW	St Marys	• Preparatory CEMP scope (not completed prior to approval of this CEMP) • Demolition of existing industrial premises • Offices, amenities, car parking and access roads • Piling and station box excavation using rippers and rock hammers • Stub tunnel excavation using roadheaders • TBM retrieval
NSW	Claremont Meadows	• Preparatory CEMP scope (not completed prior to approval of this CEMP) • Offices, amenities, car parking, and access roads • Piling and services facility shaft excavation using ripper and rock hammers • Construction of part of the cast-in-situ permanent shaft

Jurisdiction	Worksite	Indicative scope of works
		• Cross passage construction support • Invert construction support (subject to Sydney Metro approval)
NSW	Orchard Hills	• Preparatory CEMP scope (not completed prior to approval of this CEMP) • Demolition of existing buildings and removal of septic tanks • Offices, amenities, car parking, and access roads • Lansdowne Road temporary diversion and construction of the permanent road bridge • Piling and portal, station box and dive excavation using rippers and rock hammers • Construction of cast-in-situ permanent portal structure • TBM assembly, launch and tunnelling support works • Cross passage construction support • Precast segment storage
On-Airport	Airport Portal Dive Structure	• Offices, amenities, car parking and access roads • Piling and portal excavation using rippers and rock hammers • Open cut dive excavation using rippers and rock hammers • Construction of cast-in-situ permanent dive structure • TBM assembly, launch and tunnelling support works • Cross passage construction support
On-Airport	Airport Terminal and TBM shaft	• Offices, amenities, car parking and access roads • Piling and station box and shaft excavation using rippers and rock hammers • TBM re-launch and tunnelling support works • Cross passage construction support
On-Airport	Primary Spoil Receival	• Access road • TBM spoil conveyor set up • Earthworks in accordance with Sydney Metro Specifications
NSW	Bringelly	• Preparatory CEMP scope (not completed prior to approval of this CEMP) • Offices, amenities, car parking and access roads • Piling and services facility shaft using rippers and rock hammers • Construction of part of the cast-in-situ permanent shaft • Cross passage construction support • Invert construction support (subject to Sydney Metro approval)
NSW	Aerotropolis	• Preparatory CEMP scope (not completed prior to approval of this CEMP) • Offices, amenities, car parking and access roads • Piling and Station box excavation using rippers and rock hammers • Stub tunnel excavation using roadheaders • TBM retrieval

Note: Worksites shown in grey are within the boundary of the Western Sydney International (On-Airport), are regulated under the Commonwealth Airports Act 1996 and are outside the scope of this Plan.

2.4.2. Construction methodology

The construction methodology for the SBT Works entails:

- Utility works including removal, diversion, protection and connection to SBT worksites
- Local area works including provision of site accesses and some road upgrades
- Site establishment works including:
  - Fencing

  - Installation of environmental mitigation including erosion and sediment controls, noise barriers, and acoustic enclosures
  - Clearing and grubbing of existing vegetation
  - Demolition of existing buildings and structures
  - Site levelling and drainage works
  - Establishment of internal access roads, hardstand areas and onsite parking
  - Erection of demountable buildings including offices and amenities
  - Other ancillary facility works including the erection of sheds, establishment of materials laydown and stockpiling areas and Tunnel Boring Machines (TBMs) support works including spoil conveyors.
- Construction of station, shaft and dive excavations predominately completed by piling and excavators with rippers and hammers. A roadheader will also be used at St Marys and Aerotropolis to complete the stub tunnels
- Four TBMs will be used to construct the mainline tunnels as follows:
  - Two earth pressure balance TBMs will be launched from Orchard Hills tunnel approximately 4.3 km north to St Marys, including traversing the Claremont Shaft, and be retrieved from the St Marys Station Box.
  - Two double shield TBMs will be launched from the Airport Dive and tunnel south, traverse the Airport Terminal Station Box and Shaft, whereupon tunnelling will cease, and the conveyor and backend equipment will be demobilised from the Airport Dive and re-established at Airport Terminal Shaft. The TBMs will recommence tunnelling including traversing the Bringelly Shaft and be retrieved from the Aerotropolis Station Box (a distance of 5.5 km from the Airport Dive, with 2.5 km of the southern tunnels located off-airport within NSW).
  - Cross passages will be constructed using concrete saws and excavators with hammers.

It is anticipated that the shaft and station excavations will be completed in advance of TBM tunnel construction. The TBMs will be delivered via oversize heavy vehicles to Orchard Hills and the Airport Dive site and retrieved from St Marys and Aerotropolis, subject to relevant approvals.

The SBT Works do not include any surface works between the northern and southern tunnel sections, which are to be undertaken by another contractor as part of the Surface and Civil Alignment Works stage.

Tunnelling, including station box, shaft and dive excavation, and associated support activities, will be undertaken 24 hours a day, seven days per week. Utility and local area works which cannot be completed during standard daytime hours due to Road Occupancy Licence (ROL) requirements or utility authority requirements will also be undertaken outside of standard hours.

Completed sections of the SBT Works, including established construction worksites, will be progressively handed over to Sydney Metro to enable follow-on contractors to commence works.

Changes to the SBT Works scope may be required to facilitate constructability, amenity and staging. This may include but is not limited to refinement of site layouts based on detailed construction planning and safety assessment. For example:

- Relocation of internal access roads to allow for refinements in heavy vehicle/light vehicle movements
- Separation of people and plant
- Alteration to car parking/container and laydown areas to allow for safe working distances
- Movement of portable site offices, workshops and containers for construction staging.

As detailed in CEMP (Section 7.12.2), any changes to SBT Work scope will be provided to the ER for endorsement in accordance with Condition A32(j).

3. Legal and other requirements

3.1. Legislation

This Plan is prepared in accordance with the:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Biodiversity Conservation Act 2016 (BC Act) including Biodiversity Regulation 2017;
- Environment Protection and Biodiversity Conservation Act 1999;
- Fisheries Management Act 1994;
- Water Management Act 2000 (WM Act);
- Biosecurity Act 2015 (BS Act);
- National Parks and Wildlife Act 1974 (NPW Act);
- Local Land Services Act 2013;
- Airports Act 1996 (Cth) (the Airports Act); and,
- State Environmental Planning Policy (Vegetation in Non-Rural Areas) SEPP 2017.

3.2. Guidelines

Guidelines and standards relating to management of flora and fauna on the SBT Works include (but are not limited to):

- Sydney Growth Centres Strategic Assessment: Program Report (DECCW and DoP 2010);
- Draft Cumberland Plain Conservation Plan – a conservation plan for Western Sydney to 2056 (Department of Planning, Infrastructure and Environment, 2020) ;
- Airport Plan for Western Sydney Airport (the 'Airport Plan');
- Department of Primary Industries 'Policy and Guidelines for Fish Habitat Conservation and Management (DPI 2013);
- Department of Primary Industries – Policy and Guidelines for Fish Friendly Waterway Crossings – November 2003;
- Hygiene protocol for the control of disease in frogs (DECCW, 2008);
- Australian Standard AS 4373 Pruning of Amenity Trees;
- Australian Standard 4970 – 2009 Protection of Trees;
- Hygiene Protocol for the Control of Disease in Frogs (DECC 2008);
- Hygiene protocols for the control of diseases in Australian frogs (Murray et al. 2011);
- Species credit' threatened bats and their habitats. NSW survey guide for the Biodiversity Assessment Method (OEH, 2018);
- Survey guidelines for Australia's threatened bats - Guidelines for detecting bats listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Department of Environment Water Heritage and the Arts (2010);
- Cumberland Plain Land Snail (*Meridolum corneovirens* Pfeiffer, 1851) Environmental Impact Assessment Guidelines. Hurstville, National Parks and Wildlife Service (National Parks and Wildlife Service (2000);
- NSW Guide to Surveying Threatened Plants. Sydney, Office of Environment and Heritage. (Office of Environment & Heritage 2016); and,
- Biodiversity Assessment Method (Office of Environment & Heritage 2017)

4. People and collaboration

4.1. Our team

The roles and responsibilities of key CPBG personnel with respect to flora and fauna management are outlined in Table 3.

Table 2: Roles and responsibilities

Role	Responsibility
Project Director	• Manage the delivery of the SBT Works including overseeing the SSI 10051 Planning Approval • Hold the authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts • Act as Contractor's Representative.
Environmental Manager	• Oversee the implementation of all flora and fauna management initiatives set out in this Plan • Ensure development, implementation, monitoring, annual management reviews and updating of this FFMP in accordance with ISO14001 • Ensure environmental risks of the SBT Works are identified and appropriate mitigation measures are implemented
Commercial Manager	• Ensure sufficient resources are allocated to flora and fauna management.
Construction Manager and Tunnelling Managers	• Manage the delivery of the construction process in relation to flora and fauna management across all sites together with the Environmental Manager.
Environment Coordinators	• Assist the Environmental Manager and Construction Manager and Tunnelling Managers in implementing this Plan • Oversee flora and fauna training, including inductions, toolbox talks • Monitor and report on compliance • Manage, review and continuously improve this Plan.
Project Managers, Project Engineers, Site Supervisors	• Assist the Construction Manager and Tunnelling Managers in implementing this Plan • Ensure compliance with this Plan.

4.2. Specialist ecological consultant

AMBS Ecology & Heritage Pty Ltd (AMBS) has been engaged to undertake comprehensive research and prepare this Sub-Plan. AMBS is a specialist consultancy providing expert advice and services in Aboriginal and historic heritage and archaeology, and ecology (flora and fauna). The AMBS team combines high level technical expertise with quality assured project management. AMBS' ecology staff includes specialists in botany, zoology and wildlife management. The team can provide a range of services including flora and fauna surveys, vegetation mapping, ecological impact assessments, flora and fauna management plans, and biodiversity monitoring. AMBS has an excellent understanding of Commonwealth and State legislation relevant to ecological assessments and potential impacts on threatened species, populations and ecological communities. AMBS has extensive experience managing biodiversity and ecology for linear infrastructure projects and has previously provided project ecologist services to contractors building the Northwest Rail project, M8 Motorway project, Sydney Metro and Sydney Metro 2 projects, M6 Motorway project and the Botany Rail Duplication project.

During delivery, AMBS will continue to provide specialist advice and services in the development and implementation of this Sub-Plan and associated documents to ensure impacts can be avoided, minimised or appropriately mitigated, including:

- Pre-clearing inspections (Section 8.3.1)
- Dam dewatering supervision;
- Vegetation/ habitat tree clearance fauna management;
- Advice on the management of the weeds and plant pathogens; and,
- Assisting in the event of any unexpected threatened or endangered species.

4.3. Collaboration with Sydney Metro, ER, and IC

As noted in Section 5.2, pre-clearing surveys and biodiversity offsetting are the responsibility of Sydney Metro.

The Environmental Representative (ER), appointed by Sydney Metro, and the Independent Certifier (IC) have roles that include overseeing flora and fauna management. CPBG will provide Sydney Metro, the ER and the IC with:

- Flora and fauna documents including pre-clearing and post-clearing inspection reports
- Reporting of unexpected finds
- Access to monitoring activities and data
- Any information requested to demonstrate implementation of this FFMP.

5. Scope and context

5.1. Project-wide flora and fauna management

The Project-wide scope of flora and fauna management entails:

1. Pre-clearing surveys and inspections
2. Seed collection
3. Biodiversity Offsetting
4. Delineating (fencing off) to protect any vegetation to be retained within and around the Construction Sites
5. Implementing the Part 13 permit under the EPBC Act
6. Overseeing vegetation clearing works including any fauna relocation and nest box installation
7. Supervise Dam dewatering including aquatic fauna relocation and wetland bird nest relocation
8. Monitoring and reporting of impacts during construction and implementation of required mitigation including weed management
9. Preparation and implementation of the Place, Urban Design and Corridor Landscape Plan

5.2. Sydney Metro's flora and fauna scope

Sydney Metro and other contractors will be responsible for flora and fauna investigation and management not listed in Section 5.3 including:

- Pre-clearing surveys of sites not assessed during the Project BDAR. It is noted that these pre-clearance surveys have been undertaken and are documented in Appendix A of the Sydney Metro – Western Sydney Airport EPBC Approval 2020/6887 – Off-airport Biodiversity Management Plan;
- Seed collection;
- Biodiversity Offsetting;
- Delineating (fencing off) to protect any vegetation to be retained within and around the Construction Sites prior to the commencement of the SBT Works
- Implementing the Part 13 permit under the EPBC Act;
- Overseeing vegetation clearing works including and any fauna relocation and nest box installation prior to the commencement of the SBT Works;
- Preparation and implementation of the Place, Urban Design and Corridor Landscape Plan.

The above matters are outside of the scope of this Sub-Plan.

5.3. SBT Works flora and fauna scope

An overview of the SBT Works scope is provided in Section 2.4. The SBT Works Package is a major civil enabling works package and is limited to site establishment works within defined worksites and excavation and lining of station boxes, shafts and mainline tunnels.

The SBT Works will require the following flora and fauna management:

- Pre-clearing inspections (Section 8.3);
- Facilitating Sydney Metro access for seed collection;
- Delineating (fencing off) to protect any vegetation to be retained within the SBT Worksites (Section 8.2);
- Overseeing vegetation clearing works including any fauna relocation and nest box installation within SBT Worksites (Section 8.4, Section 8.6 and Section 8.11);
- Supervision of dam dewatering, relocation of aquatic fauna and wetland bird nests and euthanasia of introduced aquatic fauna (Section 8.7);

- Installation of nest boxes in response to detection of unexpected microbats utilising habitat features within the SBT footprint or if unexpected tree hollows are identified on the SBT Works Footprint (Section 8.11);
- Identifying habitat features to be retained including logs, hollows and bush rock (Section 8.5);
- Monitoring and reporting of impacts during construction and implementation of required mitigation including:

– Weed management within SBT Worksites (Section 8.9);
– Pathogen management within SBT Worksites (Section 8.10); and,
– Monitoring of the groundwater dependent ecosystem near the Orchard Hills Station Box (Section 8.12).

5.4. Flora and fauna management system overview

Documents for flora and fauna management relevant to SBT Works are outlined in Table 3, which also provides an overview of the Project flora and fauna management system. CPBG SBT documents are identified in grey.

Table 3: Flora and fauna management documents overview

Document type	CSSI Planning Approval	EPBC Act
• Strategic Assessment	Sydney Metro EIS Technical Paper 3 – Biodiversity Development and Assessment Report	Sydney Metro – Western Sydney Airport -EPBC Approval 2020/8687 – Off-airport Biodiversity Management Plan
• Biodiversity Offsetting	Sydney Metro EIS Technical Paper 3 – Biodiversity Development and Assessment Report	Sydney Metro – Western Sydney Airport - EPBC Biodiversity Offset Strategy for off-airport lands Sydney Metro – Western Sydney Airport - Off-airport Biodiversity Staging Plan
• Management Plan	CPBG NSW (Off-airport) Flora and Fauna Management Sub-plan (this Plan) CPBG Nest Box Strategy	
• Environment Procedures	CPBG Tree Clearing and Grubbing Procedure CPBG Fauna Handling Procedure CPBG Weed Management Procedure CPBG Unexpected Finds Procedure CPBG Dam Dewatering Procedure	
• Reports	CPBG Pre-clearing Inspection and Post-Clearing Reports	
• Urban design	Place, Urban Design and Corridor Landscape Plan	

6. Existing and surrounding environment

Scaled figures of the existing and surrounding environment are included in Annexure H of this Sub-Plan and identify Plant Community Types (PCTs), Threatened Ecological Communities (TEC), Threatened Flora, Fauna Habitat, Aquatic habitat and predicted groundwater drawdown contours on GDEs outside the SBT off-airport project footprint.

6.1. Plant Community Types, Threatened Ecological Communities and other Vegetation Communities

Three PCTs were identified within SBT off-airport project footprint during the Project BDAR. All three were found to conform to TECs listed under the NSW BC Act. Details of these PCTs are provided in Table 5.

All remaining vegetation within the SBT off-airport project footprint was characterised as “Miscellaneous Ecosystem”. While these areas may contain plant species native to NSW, they do not conform to descriptions of PCT’s and are therefore not assessed as a PCT in the BAM. Native fauna can still utilise these habitats.

Some areas of PCT 724 and 849 also qualify as TECs under the EPBC Act. These areas are also described on Table 5. The boundaries of polygons conforming to the TEC listed under the EPBC Act vary slightly to those listed under the BCT Act.

Areas of PCT 835 now conform to a TEC listed under the EPBC Act but at the time of the BDAR investigations, the TEC had yet to be listed.

Table 4: PCTs and other vegetation types identified within SBT Works Footprint** (M2A 2021)

Plant Community Type	Threatened Ecological Community	BC Act Listing	EPBC Act Listing	Occurrence on SBT Off-Airport Footprint
PCT 724 - Broad-leaved Ironbark - Grey Box – Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion and Shale Gravel Transition Forest in the Sydney Basin Bioregion	Endangered	Critically Endangered	3.35 hectares is estimated to occur within the SBT footprint
PCT 849 - Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion		Critically Endangered	Critically Endangered	0.78 hectares is estimated to occur within the SBT footprint
PCT 835 - Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered	Critically Endangered	0.55 hectares is estimated to occur within the SBT footprint
Miscellaneous Ecosystem – Non Native		N/A	N/A	1.30 hectares
Miscellaneous Ecosystem – Urban Exotic/native landscape plantings		N/A	N/A	N/A

*PCT 724 and 849 are both components of the same TEC as listed under the EPBC Act. Mapping of the EPBC TEC includes areas which are not mapped as PCT 724 and 849

6.2. Threatened Flora

For the purposes of assessing impact and developing biodiversity offsets under the BC Act, threatened flora species are separated into “Ecosystem” species and “Species Credit” species.

All threatened flora that are designated as “Ecosystem” species are assumed to be present within PCTs that have been associated with them. Biodiversity Offset obligations for these species will be covered by Sydney Metro and will not be discussed further in this FFMP.

The Commonwealth Department of Agriculture, Water and the Environment has endorsed the BAM to be used to calculate impact of the proposed project and to define biodiversity offset obligations for the project. As such, species listed as Threatened under the EPBC Act that are found on the off airport project footprint are managed in accordance with their Ecosystem or Species Credit status under the BC Act.

Species credit threatened flora species and threatened flora species listed under the EPBC Act which have potential to occur based on the PCT’s identified on the SBT Works off-airport footprint are listed in Table 6.

During targeted threatened flora surveys undertaken during the Project BDAR, two “Species Credit” flora species were identified on the SBT Works off-airport footprint from a candidate list of 32 species; *Pultenaea parviflora* and *Dillwynia tenuifolia*. Both have been identified as occurring on Orchard Hills.

Table 5: Candidate species credit threatened flora species predicted to occur on the off-airport footprint based on the PCTs present (M2A 2021)

Common Name	Scientific Name	BC Act Listing (Ecosystem/Species)1	EPBC Act Listing	Likelihood of Occurrence on SBT Works Footprint
Bynoe’s Wattle	*Acacia bynoeana*	Endangered	Vulnerable	Moderate – suitable habitat present but not previously detected on SBT footprint.
Downy Wattle	*Acacia pubescens*	Vulnerable	Vulnerable	Low
N/A	*Allocasuarina glareicola*	Endangered	Endangered	Moderate – suitable habitat present but not previously detected on SBT footprint.
Thick Lip Spider Orchid	*Caladenia tessellata*	Endangered	Vulnerable	Low
Netted Bottle Brush	*Callistemon linearifolius*	Vulnerable	No listing	Low
Dwarf Kerrawang	*Commersonia prostrata*	Endangered	Endangered	Low
White-flowered Wax Plant	*Cynanchum elegans*	Endangered	Endangered	Moderate – suitable habitat present but not previously

Common Name	Scientific Name	BC Act Listing (Ecosystem/Species)1	EPBC Act Listing	Likelihood of Occurrence on SBT Works Footprint
				detected on SBT footprint.
	Deyeuxia appressa	Endangered	Endangered	Low
	Dillwynia tenuifolia	Vulnerable	No listing	High – present on Orchard Hills
Camden White Gum	*Eucalyptus benthamii*	Vulnerable	Vulnerable	Low
Juniper-leaved Grevillea	*Grevillea juniperina subsp. juniperina*	Vulnerable	No listing	High – suitable habitat but not previously detected on SBT footprint
Small-flower Grevillea	*Grevillea parviflora subsp. Parviflora*	Vulnerable	Vulnerable	High – suitable habitat but not previously detected on SBT footprint
	Gyrostemon thesioides	Endangered	No listing	Low
Square Raspwort	*Haloragis exalata subsp. exalata*	Vulnerable	Vulnerable	Low
	Hibbertia fumana	Critically Endangered	No listing	Moderate – suitable habitat present but not previously detected on SBT footprint.
	Hibbertia sp. Bankstown	Critically Endangered	Critically Endangered	Low
Marsdenia viridiflora R. Br. Subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local Government areas	*Marsdenia viridiflora subsp. viridiflora endangered population*	Endangered	No listing	Moderate – suitable habitat present but not previously detected on SBT footprint.
	Maundia triglochinoides	Vulnerable	No listing	Low
Melaleuca biconvexa	*Biconvex Paperbark*	Vulnerable	Vulnerable	Low
	Micromyrtus minutiflora	Endangered	Vulnerable	Moderate – suitable habitat present but not previously

Common Name	Scientific Name	BC Act Listing (Ecosystem/Species)1	EPBC Act Listing	Likelihood of Occurrence on SBT Works Footprint
				detected on SBT footprint.
Tall Knotweed	*Persicaria elatior*	Vulnerable	Vulnerable	Low
Bargo Geebung	*Persoonia bargoensis*	Endangered	Vulnerable	Low
Hairy Geebung	*Persoonia hirsuta*	Endangered	Endangered	Low
Nodding Geebung	*Persoonia nutans*	Endangered	Endangered	Moderate – suitable habitat present but not previously detected on SBT footprint.
Austral Pillwort	*Pilularia novaehollandiae*	Endangered	No listing	Low
	Pimelea curviflora var. curviflora	Vulnerable	Vulnerable	Moderate – suitable habitat present but not previously detected on SBT footprint.
Spiked Rice-flower	*Pimelea spicata*	Endangered	Endangered	Moderate – suitable habitat present but not previously detected on SBT footprint.
Brown Pomaderris	*Pomaderris brunnea*	Endangered	Vulnerable	Low
Sydney Plains Greenhood	*Pterostylis saxicola*	Endangered	Endangered	Low
	Pultenaea parviflora	Endangered	Vulnerable	High – detected at Orchard Hills
Matted Bush-pea	*Pultenaea pedunculata*	Endangered	No listing	Low
Austral Toadflax	*Thesium australe*	Vulnerable	Vulnerable	Low
	Zannichellia palustris	Endangered	No listing	Low

6.3. Weeds

Weed prevalence and density is variable throughout the SBT Works off-airport footprint. Weeds include Weeds of National Significance (WoNS) as listed under the EPBC Act and High Threat Exotic weeds listed on the BAM. All species that are considered to be high threat will outcompete native plants if not controlled.

In N.S.W, all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose under the *Biosecurity Act 2015*. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

African Olive has a Regional Recommended Measure stating that the plant or parts of the plant are not traded, carried, grown or released into the environment. In the Penrith LGA, the plant requires eradication from the land and the land kept free of the plant. In remaining areas of Sydney, land managers prevent spread from their land where feasible.

Species identified within the SBT Works off-airport footprint are described in Table 7.

Table 6: High threat weeds, priority weeds and WoNS identified on the Off-airport project footprint

Common Name	Scientific Name	High Threat Weed	Priority Weed Listing	WoNS
Sheep sorrel	*Acetosella vulgaris*	Yes		No
Khaki weed	*Alternanthera pungens*	Yes	General Biosecurity Duty	No
Moth Vine	*Araujia sericifera*	Yes	General Biosecurity Duty	No
Asparagus Fern	*Asparagus aethiopicus*	Yes	General Biosecurity Duty	Yes
Bridal Creeper	*Asparagus asparagoides*	Yes	General Biosecurity Duty	Yes
Narrow-leaved Carpet Grass	*Axonopus fissifolius*	Yes		No
Rhodes grass	*Chloris gayana*	Yes		No
Tall flatsedge	*Cyperus eragrostis*	Yes		No
African Love Grass	*Eragrostis curvula*	Yes	General Biosecurity Duty	No
Green Cestrum	*Cestrum parqui*	Yes	General Biosecurity Duty Regional Recommended Measure	No
Panic veldtgrass	*Ehrharta erecta*	Yes		No
Lantana	*Lantana camara*	Yes	General Biosecurity Duty Prohibition on dealings	Yes
Small-leaved Privet	*Ligustrum sinense*	Yes	General Biosecurity Duty	No
Broad-leaved Privet	*Ligustrum lucidum*		General Biosecurity Duty	No
African Box Thorn	*Lycium ferocissimum*	Yes	General Biosecurity Duty Prohibition on dealings	Yes
African Olive	*Olea europaea*	Yes	General Biosecurity Duty Regional Recommended Measure	No
Prickly Pear	*Opunita sp.*	Yes	General Biosecurity Duty Prohibition on dealings	Yes

Common Name	Scientific Name	High Threat Weed	Priority Weed Listing	WoNS
	Paspalum dilatatum	Yes		No
Castor Oil Plant	*Ricinus communis*	Yes	General Biosecurity Duty	No
Blackberry	*Rubus fruticosus complex*	Yes	General Biosecurity Duty Prohibition on dealings	Yes
Fireweed	*Senecio madagascariensis*	Yes	General Biosecurity Duty Prohibition on dealings	Yes
Bathurst burr	*Xanthium spinosum*	Yes	General Biosecurity Duty	No

6.4. Threatened Fauna

For the SBT Works, threatened fauna are managed under the BC Act and EPBC Act using the same legislative framework described for threatened flora (see section 6.2). All threatened fauna that are designated as "Ecosystem" species are assumed to be present within PCTs that have been associated with them on the off-airport footprint. Biodiversity Offset obligations for these species will be covered by Sydney Metro and will not be discussed further in this FFMP.

One "species credit" threatened fauna species was detected within the SBT Works off-airport footprint during field surveys conducted for the EIS; the Cumberland Plain Land Snail (*Meridolum corneovirens)*.

One species listed under the EPBC Act is assumed to be present, the Grey-headed Flying Fox (*Pteropus poliocephalus*). Biodiversity Offset obligations for these species will be covered by Sydney Metro. Pre-clearance surveys should account for their potential presence in areas not mapped as habitat but which could be potentially suitable.

Species credit threatened fauna species and threatened fauna species listed under the EPBC Act which could potentially occur within the SBT Works off-airport footprint based on the PCT's identified are listed in Table 7.

Table 7: Candidate species credit threatened fauna species predicted to occur on the off-airport footprint based on the PCTs present

Common Name	Scientific Name	BC Act Listing	EPBC Act Listing	Probability of Occurrence on SBT Works Footprint
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered	Critically Endangered	Low
Bush Stone-Curlew	*Burhinus grallarius*	Endangered	-	Low
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Glossy Black-cockatoo	*Calyptorhynchus lathami*	Vulnerable	-	Low

Common Name	Scientific Name	BC Act Listing	EPBC Act Listing	Probability of Occurrence on SBT Works Footprint
Large-eared Pied Bat	*Chalinolobus dwyeri*	Vulnerable	Vulnerable	Moderate – foraging habitat present on SBT footprint
Sea Eagle	*Haliaeetus leucogaster*	Vulnerable	Migratory/Marine under the EPBC Act	Low
Little Eagle	*Hieraaetus morphnoides*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Swift Parrot	*Lathamus discolor*	Endangered	Critically Endangered	Moderate – foraging habitat present on SBT footprint
Green and Golden Bell Frog	*Litoria aurea*	Endangered	Vulnerable	Low
Square-tailed Kite	*Lophoictinia isura*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Cumberland Plain Land Snail	*Meridolum corneovirens*	Endangered	-	High – species has been recorded on Orchard Hills SBT site
Little Bent-winged Bat	*Miniopterus australis*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Large Bent-winged Bat	*Miniopterus orianae oceanensis*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Southern Myotis	*Myotis macropus*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Barking Owl	*Ninox connivens*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Powerful Owl	*Ninox strenua*	Vulnerable	-	Moderate – foraging habitat present on SBT footprint
Squirrel Glider	*Petaurus norfolcensis*	Vulnerable	-	Low
Koala	*Phascolarctos cinereus*	Vulnerable	Vulnerable	Low
Grey-headed Flying Fox	*Pteropus poliocephalus*	Vulnerable	Vulnerable	High – foraging habitat present on SBT footprint

Common Name	Scientific Name	BC Act Listing	EPBC Act Listing	Probability of Occurrence on SBT Works Footprint
Masked Owl	*Tyto novaehollandiae*	Vulnerable	-	Low

6.5. Fauna Habitat

Fauna habitat on the SBT Works footprint could provide foraging and shelter resources for threatened fauna. Table 9 describes the threatened fauna habitats identified during the Project BDAR on the SBT Works off-airport footprint.

Spatial data compiled during the project BDAR indicates that approximately 3.1 hectares of Cumberland Plain Land Snail habitat existed on the SBT Works off-airport footprint. This habitat was found on the Orchard Hills site and conforms to areas of PCT 724 and 849.

All PCTs are considered to be suitable habitat for the Grey-headed Flying Fox, which was not recorded on the SBT Works off-airport footprint but is highly likely to utilise the vegetation for foraging. Some Miscellaneous Ecosystem plants could also provide foraging resources for this species.

Table 8: Fauna habitats on the SBT Works off-airport footprint (M2A 2021)

Habitat	Associated PCTs	Description	Associated Threatened Fauna with potential to use habitat on the project footprint
Woodland	724 and 849 Claremont Meadows and Orchard Hills SBT Works footprints.	Woodland habitats on the SBT Works off-airport footprint provide shelter, foraging and potential breeding habitat for a range of common and threatened fauna species. The canopy is dominated by *Eucalyptus moluccana* (Grey Box) and *E. tereticornis* (Forest Red Gum). These myrtaceous species provide blossom resources for birds, possums and flying-foxes. Understorey grasses, coarse woody debris and leaf litter provide shelter habitat for small terrestrial amphibians and reptiles. Stags, decorticating bark and hollow-bearing trees provide roosting and potentially breeding habitat for microbats and woodland birds	• Gang-gang Cockatoo • Large-eared Pied Bat • Little Eagle • Swift Parrot • Square-tailed Kite • Cumberland Plain Land Snail • Little Bent-winged Bat • Large Bent-winged Bat • Southern Myotis • Powerful Owl • Grey-headed Flying Fox
Riparian Forest	835 Orchard Hills	Riparian forest is associated with PCT 835 which occurs on the Orchard Hills SBT Works footprint Riparian forest habitats of the study area provide foraging and roosting habitat for a range of common and threatened fauna species. The canopy is dominated by *Casuarina glauca* (Swamp Oak), often as monospecific stands. Scattered *Eucalyptus amplifolia subsp.*	• Gang-gang Cockatoo • Large-eared Pied Bat • Little Eagle • Swift Parrot • Square-tailed Kite • Little Bent-winged Bat

Habitat	Associated PCTs	Description	Associated Threatened Fauna with potential to use habitat on the project footprint
		amplifolia (Cabbage Gum) were also recorded, some with limb and trunk hollows.	• Large Bent-winged Bat • Southern Myotis • Powerful Owl • Grey-headed Flying Fox
Grassland	724, 835, 849, Miscellaneous Ecosystem – Non Native All SBT Sites	Grassland habitat areas were highly disturbed with none or limited native vegetation and water bodies. The condition of grassland habitat was poor. Dead trees and tree hollows within grassland habitat were observed to be used as roosting and nesting habitat by common bird species typically associated with grassland or more tolerant of disturbance.	• Little Eagle • Little Bent-winged Bat • Large Bent-winged Bat • Large-eared Pied Bat
Wetland	Miscellaneous Ecosystem – waterbody Orchard Hills and Bringelly Services Facility	Wetland habitat within the study area was comprised of several scattered agricultural dams and were mainly devoid of vegetation and considered to be in poor condition. Most dams are located within cleared grazing lands and provide limited habitat value for most wetland dependent fauna as they lack emergent vegetation. The wetland habitat within the study area is degraded and rarely contains habitat features such as rocks or coarse woody debris. Notwithstanding, these dams provide suitable habitat for some frog, reptile, mammal and bird species including native aquatic fauna.	• Southern Myotis
Abandoned Buildings and Road Culverts	N/A St Mary's, Orchard Hills, Bringelly Services Facility	Abandoned buildings and some types of road culvert can be colonised by a variety of microbat species including threatened species. Many abandoned buildings could not be surveyed during the EIS as they were occupied at the time. Abandoned buildings could occur and St Mary's, Orchard Hills, Bringelly Services Facility and Aerotropolis sites.	• Little Bent-winged Bat • Large Bent-winged Bat • Southern Myotis • Large-eared Pied Bat

6.6. Aquatic flora, fauna and habitats

Desktop searches for threatened aquatic fauna and flora undertaken for the Project EIS indicated three threatened fish listed under the EPBC Act had the potential to occur within the locality: Australian Grayling (*Prototroctes maraena*), Macquarie Perch (*Macquaria australasica*) and Murray Cod (*Maccullochella peelii*). The Australian Grayling and Macquarie Perch are also listed as threatened species under the FM Act. A further two threatened invertebrate species listed under the FM Act, Adam's Emerald Dragonfly (*Archaeophya adamsi*) or the Sydney Hawk Dragonfly (*Austrocordulia leonardi*) were also determined to potentially use habitats within the off-airport project

footprint. A search of the DPI Fisheries Spatial Data Portal found that none of the waterways on the off-airport project footprint contain mapped habitat for threatened aquatic species listed under the FM Act, based on predicted occupancy extents. It was determined that all predicted threatened species that could occur on the off-airport project footprint had a very low likelihood of occurring.

No mapped streams of any order are located on the SBT Works off-airport footprint. A riparian buffer has been identified within the southern portion of the Orchard Hills site, corresponding to the vegetation adjacent to a tributary of Blaxland Creek. Blaxland Creek was identified as containing Type 2 Moderate Fish Habitat using definitions in DPI 2013 and Class 2 moderate fish habitat using definitions in Fair full and Witheridge 2003. The expression of the tributary along the southern boundary of the Orchard Hills SBT site has been transformed into a farm dam with an overflow swale, with intermittent flow and lack any permanent refuge in the form of permanent or semipermanent pools or aquatic vegetation (i.e. likely a 1st order stream classified as containing Class 3 (minimal fish habitat) or Class 4 (unlikely fish habitat) using guidelines in Fairfull and Witheridge 2003)).

The macroinvertebrate communities within Blaxland Creek are dominated by Dipterans (true flies), Acarina (water mites), and Odonata (Dragonflies) with lower numbers of other taxa including Bivalvia, Coleoptera, Decapoda, Ephemeroptera, Gastropoda, Hemiptera, Hirudinea, Lepidoptera, Oligochaeta, Trichoptera, and Turbellaria (see DIRD, 2016e). The macroinvertebrate communities in these waterways are composed of taxonomic groups that have a high tolerance to severe pollution levels with an absence of taxa sensitive to poor water quality (DIRD, 2016e).

Aquatic flora and fauna could utilise the farm dams located on the Orchard Hills and Bringelly work sites. This could include non-threatened species such as Long and Short-finned Eels, freshwater turtles and amphibians.

Further information regarding the catchment, nearby watercourses and baseline surface water quality is contained within the Soil and Water Management Sub-Plan.

6.7. Pathogens

The fungal pathogen Chytrid (*Batrachochytrium dendrobatidis*) could be present within farms dams that are located within the SBT Works off-airport footprint. The fungus causes the disease Chytridiomycosis in native amphibians. It is a water borne fungus that is spread through cross contaminations between water bodies. Fungal spores can be spread through contaminated water, soil and vegetation. Some native frog species are natural carriers of the fungus and can also spread it.

Another two pathogens of concern are considered to have the potential to occur on or within the Project area; Myrtle Rust (*Uredo rangelli*) and Phytophthora (*Phytophthora cinnamomi*). Myrtle Rust is an air-borne plant fungus that attacks the young leaves, shoot tips and stems of Myrtaceous plants eventually causing plant death. It is spread by movement of contaminated material such as clothing, infected plants, vehicles and equipment.

Phytophthora is a soil-borne fungus capable of causing tree death (dieback) by attacking the roots of native plants. Spores can be spread over large areas by water, vehicle and machinery movement as well as human and animal movement.

6.8. Groundwater Dependant Ecosystems

Groundwater Dependent Ecosystems (GDEs) are defined as ecosystems that require access to groundwater to meet all or some of their water requirements to maintain their communities of plants and animals, ecological processes and ecosystem services' (Department of Planning, Industry and Environment, 2020).

Within the SBT Works off-airport footprint, potential GDEs include:

- areas mapped as Cumberland Plain Woodland in the Sydney Basin Bioregion (PCT 849);

- areas mapped as River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (PCT 835); and,
- areas mapped as Shale Gravel Transition Forest in the Sydney Basin Bioregion (PCT 724)

Based on detailed modelling of groundwater draw-down, the Project EIS identified that one GDE could be potentially impacted by the proposed SBT construction works. This impact could include areas of the GDE outside the project footprint. This GDE is located within and adjacent to the Orchard Hills site. Drawdown modelling indicates that up to 1.81 hectares of Shale Gravel Transition Forest in the Sydney Basin Bioregion occurs within the drawdown zone in the Orchard Hills locality and could be impacted as a resulted of water table disturbance.

7. Potential impacts

Potential and likely impacts associated with the construction of the SBT Works are identified in Chapter 11.5 of the EIS and include:

- removal of native vegetation including three TECs listed under the BC Act and habitat for species listed as threatened under the BC Act and EPBC Act;
- removal of habitat and artificial features suitable for threatened fauna listed under the BC Act;
- direct and indirect impacts to fauna, including injury and mortality;
- decrease in health of GDE's due to water draw down;
- potential impacts on threatened species not previously detected within the Project area but known to occur close to the Project area;
- spread of weeds;
- introduction and spread of pathogens;
- impacts on adjacent habitat or vegetation;
- increased edge effects;
- reduced viability of adjacent habitat due to noise, dust or light spill; and,
- reduction of habitat connectivity.

These potential impacts are described in more detail in Section 7.1.

7.1. Removal of vegetation and threatened flora species

Construction of the SBT Works will result in the removal of approximately 3.01 hectares of native PCT's (Table 10). All PCT's within the SBT Works area correspond to TEC's listed under the BC Act. Three hectares of PCT's are also listed as threatened under the EPBC Act. On the SBT Works off airport footprint, native vegetation has been mapped at the Claremont Meadows Services Facility and Orchard Hills Station.

Strategies for mitigating and managing the impact of removal of vegetation are discussed in Section 8.1, 8.2, 8.12,8.13 and 7.14.

Table 9: Direct impacts to native vegetation resulting from the SBT Works

PCT ID	PCT Name	Threatened Ecological Community	Listing under the BC Act	Listing under the EPBC Act	Extent of Vegetation to be removed on SBT Footprint
PCT 724	Broad-leaved Ironbark - Grey Box – Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	Shale Gravel Transition Forest in the Sydney Basin Bioregion (BC Act) Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (EPBC Act)	Endangered	Critically Endangered	3.35 hectares (As defined under the BC Act)
PCT 835	Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (BC Act)	Endangered	Critically Endangered	0.55 hectares (As defined under the BC Act)

PCT ID	PCT Name	Threatened Ecological Community	Listing under the BC Act	Listing under the EPBC Act	Extent of Vegetation to be removed on SBT Footprint
PCT 849	Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland in the Sydney Basin Bioregion (BC Act) Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (EPBC Act)	Critically Endangered	Critically Endangered	0.78 hectares (As defined under the BC Act)

Two species credit threatened species listed under the EPBC Act have been identified on the SBT Works footprint; *Pultenaea parviflora* and *Dillwynia tenuifolia*. *Pultenaea parviflora* is also listed under the EPBC Act. Both species have been identified on the Orchard Hills project site.

Table 10: Impacts to threatened flora resulting from construction of the SBT Works

Common Name	Scientific Name	Listing under the BC Act	Listing under the EPBC Act	Number of plants within SBT footprint (area of habitat impacted)
	Dillwynia tenuifolia	Vulnerable		87 (0.72 hectares)
	Pultenaea parviflora	Endangered	Vulnerable	11 (0.51 hectares)

7.1.1. Loss of habitat for threatened species

One threatened species has been recorded on the SBT Works footprint; the Cumberland Plain Land Snail. 3.01 hectares of habitat have been mapped for this species on the SBT Works off-airport footprint, all located on the Orchard Hills project site. This habitat will not be cleared until Sydney Metro has advised CPBG that the required offset credits have been retired for the species and until appropriate pre-clearing inspections have been completed by CPBG within the habitat (Annexure B).

All PCTs and some areas of “Miscellaneous Ecosystem –Urban Exotic/native landscape plantings” located in the SBT Works footprint could provide foraging habitat for the Grey-headed Flying-fox.

Several vacated dwellings are present on the SBT Works footprint, including sites at St Marys, Orchard Hills, Bringelly and the Aerotropolis. Abandoned buildings can quickly be colonised by a variety of threatened microbat species. Many of these buildings were still in use when the BDAR for the Project was undertaken.

Strategies for mitigating and managing the impact of loss of habitat for threatened species are discussed in Section 8.

7.1.2. Direct and indirect impacts to fauna

Fauna injury or mortality could occur during construction of the SBT Works as a result of direct collision with vehicles and equipment within the construction boundary. Additional mortality could occur as a result of the clearing of native and non-native vegetation and the dewatering of dams. Mobile species (such as birds) may be able to move away quickly and easily, but other less mobile and smaller species may be slower to move away potentially resulting in injury or mortality of the individual.

Strategies for mitigating and managing the direct and indirect impacts on fauna are discussed in Section 8.

7.1.3. Impacts to aquatic biodiversity

Potential impacts to aquatic biodiversity could occur as a result of dewatering of farm dams and polluted runoff into adjacent riparian corridors.

Currently, five dams will require dewatering on the SBT Works off-airport footprint. These are located at Orchard Hills and Bringelly. Macro invertebrate and aquatic flora diversity is usually very low in farm dams. However, a wide array of native aquatic fauna, including freshwater turtles, amphibians and eels will often utilise farm dams. Many native wetland birds will also forage and build nests in farms dams.

Strategies for mitigating and managing the impacts on aquatic fauna from dam dewatering are discussed in Section 8.7.

7.1.4. Spread of weeds

Some weeds will be removed during the vegetation clearing required for the SBT Works. Given the presence of weeds in the study area, there is potential for disturbance of vegetation to lead to the spread and/or intensification of weeds on the project footprint and outside of the project footprint. If not appropriately managed, this may indirectly affect native flora and fauna in adjoining areas by further reducing habitat quality, altering the structure and composition of vegetation and increasing competition for resources. The spread of weeds could also hamper successful post-construction landscaping and revegetation programs.

Strategies for mitigating and managing the impacts of weeds are discussed in Section 8.9.

7.1.5. Introduction or spread of pathogens

Activities that involve movement of equipment, people, landscaping materials and other construction materials over large areas present potential vectors for the spread of pathogens. While presence of pathogens was not confirmed during the Project EIS, there is a high chance that Chytrid fungus is present while areas mapped as riparian vegetation also have the potential to support the Phytophora fungus. Myrtle rust could be present within any areas of landscaped vegetation or in areas with high densities of myrtaceous species. All three pathogens can cause disease and death of certain plant and animal species.

Strategies for mitigating and managing the impacts of weeds are discussed in Section 8.10.

7.1.6. Edge effects, habitat connectivity and adjacent habitat impacts

Clearing of vegetation has the potential to disrupt the already limited connectivity between remnant areas of bushland in Orchard Hills while also creating a larger “edge effect”. For the SBT Works off-airport footprint, this primarily related to the Orchard Hills site, which is situated between remnant bush in Orchard Hills.

Strategies for mitigating and managing the impacts of weeds are discussed in Section 8.13.

8. Flora and fauna management

8.1. Detailed Design Approach

Where possible, CPBG will use the detailed design process to identify potential areas of native vegetation that can be retained.

The primary focus of this process will be temporary structures and infrastructure such as site offices, site compounds, ancillary facilities and site tracks in areas that have already been cleared. Detailed design will also investigate the ability to retain native vegetation that fringes each site in order to form a screen between neighbouring properties and the construction sites.

The detailed design will also be used to ensure shading and artificial light impacts would be minimised in areas adjoining remnant bushland that is in intact condition during construction and operation.

8.2. SBT Works boundaries and environmentally sensitive areas

Prior to the planned vegetation clearing, dam dewatering and pre-clearing inspections, the SBT Works area boundaries and Environmentally Sensitive Area (ESA) exclusion zones must be identified and marked. Environmentally Sensitive Areas include areas of native vegetation to be retained at each SBT site and as well as all native vegetation that requires offsetting but whose biodiversity offsetting credits have not been retired.

All Boundaries and ESAs will be marked with an appropriate fence or series of boundary markers to limit clearing of native vegetation to the greatest extent practicable, prior to works to prevent damage or accidental over clearing. In addition, all environmentally sensitive areas will have indicative signage installed every 50 metres around the boundary (or at the feature for particularly sensitive areas) (Figure 3). Exclusion zones and the clearing extents will also be recorded on the Site Environmental Plan (SEP) for each SBT worksite (refer to Section 5.2 of the CEMP).

Vegetation management plan(s) will be developed in collaboration with Sydney Metro where native vegetation is proposed to be retained within the SBT site.

Figure 3: Example of Environmentally Sensitive Area exclusion fencing and signage (Source: TR&T 2010)

8.3. Pre-clearing

8.3.1. Pre clearing inspection

Pre-clearing inspections of PCTs and habitat features will be undertaken by the Project Ecologist at least 30 days prior to clearing of vegetation (unless the pre-clearing inspection does not identify any habitat features). All other pre-clearing inspections will be undertaken by the Environmental Advisor, in consultation with the Project Ecologist as required. The Project Pre-Clearing Checklist is provided in Annexure A and relevant hold points are detailed in the Clearing and Grubbing Procedure (Annexure B).

The objectives of the pre-clearing inspection are to:

- Confirm the clearing boundary has been identified and clearly marked;
- Confirm any environmentally sensitive areas have been clearly marked and signed;
- Confirm area to be cleared conforms with Project PCT mapping;
- Confirm and map the number of threatened plants present (if threatened plants have been previously detected on the site);
- Search for living Cumberland Plain Land Snails within habitats identified in the Project EIS;
- Identify and mark fauna roosting features such as birds' nests and possum dreys;
- Determine if potential microbat roosting structures are present (i.e. abandoned dwellings, road culverts);
- Identify and mark habitat features such as hollow bearing trees, stags, hollow logs or rockpiles;
- Confirm no roosts of Grey-headed Flying Fox are present;
- Identify and demarcate areas or individual weeds that are considered high threat or Weeds of National Significance;
- Determine if any hollow logs can be salvaged for habitat restoration;
- Determine if vegetation within the clearing boundary is suitable for mulching and re-use or if it is required to be treated as green waste, and,
- Identify potential release sites if fauna require capture and relocation during clearing.

Initially, areas requiring a pre-clearing inspection will be identified by the Environmental Manager or Environmental Advisor, in consultation with the Project Engineer or Site Supervisor. To achieve most aims of the pre-clearing inspection, the Project Ecologist will undertake a meandering walk throughout the vegetation to identify the required parameters on the pre-clearing checklist. Habitat features or habitat trees (trees containing nests, dreys or hollows) will be marked with red and white tape which will be tied around the tree or structure that has the habitat feature. A GPS co-ordinate will be taken for each feature. All weeds will be identified. Weeds that require to be treated as contaminated waste will be marked with pinktape and the GPS Co-ordinate will be recorded. Areas of vegetation predominantly comprised of weeds will be treated as contaminated (i.e. not every weed will be marked with tape).

Outcomes of the pre-clearing inspection will be documented in pre-clearing reports. The purpose of the pre-clearing report is to summarise data collected during pre-clearing inspection and provide recommendations that directly relate to Planning Conditions, REMMs and EPBC Act Conditions of Approval covering the SBT Works.

Details of each pre-clearing inspection, including the location, date, scope and report number, will be recorded by the Environmental Coordinator in a pre-clearing inspection register.

8.3.2. Targeted microbat surveys

Targeted microbat surveys of abandoned dwellings, structures, culverts and other under road structures within the construction footprint that are proposed for demolition will be undertaken prior to works in accordance with 'Species credit' threatened bats and their habitats NSW survey guide

for the Biodiversity Assessment Method (OEH, 2018). Specifically, signs of bats will be searched for at entrances to roof spaces or wall cavities and microbat echolocation recording units will be deployed prior to planned demolition. If dwellings are identified as potentially being suitable for roosting microbats. These surveys will be taken independently to the pre-clearing surveys.

If threatened microbats are detected, a Microbat Management Plan would be developed as part of the Biodiversity Construction Management Plan and implemented by a suitably qualified bat specialist. The Microbat Management Plan would be prepared by the Project Ecologist and submitted to EHG for information. The Microbat Management Plan would include:

- Measures to avoid or minimise impacts
- Potential impacts from construction
- Adaptive management principles using SMART principles
- Monitoring and reporting requirements

8.4. Clearing supervision

A clearing permit is required for the removal of any area of vegetation for the SBT Works. This includes areas mapped as “Urban Exotic and Native Cover” and limb removal on trees that are to be retained. The clearing permit template is provided in Annexure C.

The clearing of native vegetation that conforms to a PCT will not be undertaken until Sydney Metro have advised CPBG that the required biodiversity offsetting credits have been retired (Section 8.14). This hold point can only be released by the Environmental Manager.

Prior to the commencement of clearing, the Environmental Advisor will complete a brief inspection to ensure no fauna have moved into the area since the initial pre-clearing inspection (Section 8.3.1). The Environmental Advisor will complete the pre-clearing checklist provided in Annexure A of this FFMP and will coordinate with the Project Ecologist as required. The results of this inspection will be communicated to the clearing contractors prior to the commencement of clearing. In the unlikely event that additional hollows are identified (Section 8.3.1), additional nest boxes will be installed in accordance with Condition E11.

Clearing will be undertaken using the 2-stage clearing process described in Transport Roads and Traffic Authority Biodiversity Guidelines. Stage 1 of the clearing process will be designed to remove shrub and ground cover and most non-habitat trees. All habitat trees must be retained. Stage 1 clearing is designed to protect habitat features that could support fauna and while encouraging them to naturally disperse after the disturbance. Some non-habitat features could be retained during this process to allow fauna to leave the impact area more easily. These decisions can be made on a case by case basis in consultation with the Project Ecologist.

Stage 2 clearing will be supervised by the Project Ecologist and involve the removal of remaining habitat trees and features. If the feature is a hollow, nest or drey, the machine that is clearing the vegetation will gently tap the feature, to see if any fauna are disturbed. If fauna are disturbed, the Project Ecologist will attempt to capture the animal or corral it off the impact area into an area of suitable habitat. After this, the habitat tree will be pushed (or cut) down. The Project Ecologist will then inspect the feature to determine if any fauna are using the structure.

Any fauna present will be captured by the Project Ecologist and have its health assessed. If the animal appears injured or unwell, the Project Ecologist will implement the Fauna Handling Procedure described in Section 8.6. If care is not required, the Project Ecologist will relocate the animal to a suitable release area close to the clearing site. If the species is nocturnal, it will be released after dark. In such cases, the animal will be kept in a cool dark and quite area prior to release. Stage 2 will occur no earlier than 48 hours after Stage 1.

All Stage 2 clearing will be supervised by the Project Ecologist or, if deemed appropriate in certain situations, appropriately qualified environmental staff. The Project Ecologist will be in communication with clearing teams during the process to discuss the best way clear vegetation in a way the reduces risk to any fauna that may be present.

Post clearing reports will be submitted to Sydney Metro with spatial data to validate the type and area of vegetation cleared including the number of hollows and the corresponding nest box requirements to offset these impacts.

8.5. Retention of habitat features

Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation will be evaluated during pre-clearing inspections to determine suitability for use in habitat rehabilitation (refer Section 8.13) or habitat enhancement and rehabilitation work by other stakeholders in accordance with Condition E12.

Felled habitat trees would be left for 24 hours (or inspected by ecologist) and features that are deemed to be valuable for retention, will be marked with pink flagging tape and will be stored on site.

Sydney Metro will collect plant material, seeds and/or propagated plants from native vegetation impacted by the Project for use in habitat rehabilitation (refer Section 8.13).

8.6. Fauna rescue and release

Fauna inadvertently encountered during everyday construction activities will be managed using the Fauna Handling Procedure (Annexure D). The key components of the procedure are described below.

If an animal is identified within an area where it is likely to be impacted by current construction activity, work must stop immediately, and the Environmental Advisor will be contacted. If the animal is a snake, the snake handler will also be contacted. If the animal is a bat, the Project Ecologist will be contacted. If the animal appears injured or unwell (and is not a bat or snake) the Environmental Advisor will organise to have the animal captured and placed in a cool dark holding container and they will be immediately taken to the nearest veterinarian, WIRES representative or Sydney Wildlife for treatment in accordance with the fauna handling procedure.

If the animal appears uninjured, the Environmental Advisor will co-ordinate with the Project Ecologist to identify a suitable release point for the animal. If the species is nocturnal, it will be released after dark. In such cases, the animal will be kept in a cool dark and quite area prior to release. Water is not necessary when kept in these conditions.

No attempt will be made to touch or confine Microbats or Flying-foxes identified on the SBT Works area. Injured and or unwell bats could be experiencing symptoms of Australian Bat Lyssavirus (ABL), which can cause fatalities in humans if transmitted through bites or scratches. ABL has been detected in Grey-headed Flying foxes roosting in the Sydney Metropolitan Area. Microbats and Flying-foxes must only be handled by the Project Ecologist who has had a vaccination for Rabies within the last 2 years or has had their titre levels tested.

The relocation of venomous snakes, if required, is hazardous and will be carried out by an experienced and appropriately licenced fauna handler.

8.7. Dam dewatering supervision and aquatic fauna management

Dam dewatering will be undertaken in accordance with the Dam Dewatering Procedure (Annexure E). The key objectives of the Dam Dewatering management are to minimise the risk of injuring aquatic and semi-aquatic fauna.

Prior to commencing dam dewatering, the following actions will be undertaken:

- Pre-clearing inspections will be undertaken to determine the risk of harming aquatic fauna and to determine whether wetland bird nests are present. Attempts will be made to relocate nesting waterbirds if they are present;
- Fauna relocation sites will be identified;
- Locations for the off-take structure will be identified to minimise the extent of disturbance;
- Fauna rescue actions will be planned and covered under an appropriate Permit and meet relevant legislation under the NSW Fisheries Management Act 1994 and the NSW Biosecurity Act 2016
- Pumped screens will be inspected to confirm that they are of a suitable capacity and size to minimise the risk of fauna uptake
- Pump velocities are evaluated to ensure they are slow enough to allow fish to escape
- Baseline measurements of turbidity, pH and oxygen levels of the water are taken prior to dewatering

Once commenced, dam dewatering will be supervised at all times by an ecologist experienced in aquatic fauna rescue who has the appropriate capture nets and fauna holding enclosures to ensure all native fauna can be stored safely until relocation. Enclosures designed to manage fresh-water fish will be filled with water from the dam being dewatered. Fauna captured from the dams will be temporarily stored prior to relocation and release. Records of species and numbers will be kept for each dam. Turbidity, pH and oxygen levels of the water within the dam will be regularly monitored and if they decline, dewatering scale back will be initiated. If they continue to decline, dewatering will cease until levels stablise.

Exotic species of fish will be euthanised using DPI Fisheries preferred method of immersion in a 50 % ice/water slurry for 10 minutes. Euthanised fish will need to be disposed of by burial at the worksite if possible. If this is not possible, CPBG will organise alternate disposal methods.

All data collected on the number of individuals of native species relocated and the number of individuals of exotic species euthanised will be provided to DPI Fisheries.

Release of fauna will be done by gradual acclimatisation. Once at the release site, approximately 25% of the holding enclosure volume will be added three times prior to release. Potential release sites will be identified by the ecologist prior to the commencement of dam dewatering.

If dewatering is incomplete at the end of the day, CPBG will ensure that the gradient of the dam bank is low enough to allow Freshwater Turtles and Eels to escape (i.e., egress ramp). Gradients higher than 45% could prevent this. The ecologist will undertake a review of potential routes available and provide recommendations as required to minimise risks to fauna harm during movement from the dam.

At the conclusion of dewatering, the ecologist supervising will inspect the sediment at the bottom of the dam for Freshwater Turtles and Eels. This sediment will then be removed by an excavator under the supervision of the ecologist.

8.8. Unexpected threatened species procedure

If flora, fauna or a TEC are encountered or inadvertently impacted and have not been previously identified on the SBT Works footprint, the Unexpected Finds Procedure will be initiated (Annexure F). The key components of the procedure are described below.

Unexpected, threatened flora and fauna are usually inadvertently encountered during the preclearing inspections. If threatened species are encountered work must stop, the Environmental Coordinator, in liaison with the Project Ecologist will undertake an assessment of potential impacts and identify any required mitigation measures for implementation. Should any exceedances of vegetation clearing limits and offsets requirement be likely to occur as a result of the unexpected find, the Environmental Manager will notify Sydney Metro. Sydney Metro will obtain necessary approvals, licenses or permits in in consultation with the Environmental Manager and ER.

Unexpected fauna can also be occasionally inadvertently encountered on the construction site after pre-clearing inspections have been completed or during general construction activities. If fauna is encountered during construction activities, the fauna handling procedure (Annexure D) will be activated. Work will stop and the Environmental Advisor will capture and assess the animal. If the animal is identified as a threatened species, all works will stop until the Project Ecologist, in coordination with the Environmental Advisor and DPE have evaluated the potential impacts of the SBT Works and developed suitable mitigation and management measures.

Suitable mitigation and management measures may include updated ecological monitoring and / or amendments to offset requirements.

8.9. Weed management

In addition to the CoA's for the Project, CPBG has a general biosecurity duty under the *Biosecurity Act 2015* to manage and minimise the spread of species listed in Table 7. Weeds will be managed in accordance with the Weed Management Procedure (Annexure G). The key components of the procedure are described below.

The objective of weed management is to minimise the risk of weed spread to areas outside the SBT Works footprint. A secondary objective is to manage weeds within areas of retained vegetation located in or adjacent to the SBT Works footprint.

The early identification of weeds will be undertaken during the pre-clearing inspections, and will be managed in accordance with the Weed Management Procedure. At some sites, individual weed management prior to clearing, including spraying and removal may not be feasible. Instead, cleared vegetation that includes weeds, including High Threat weeds and WNoS will be treated as green waste. It will be either encapsulated on site and transported to a licensed green waste facility or all vegetation from a weed infested area will be loaded into a suitable truck and taken to a green waste facility.

Ongoing weed management will occur throughout the construction phase, where required. The focus of this management will be retained vegetation within Environmentally Sensitive Areas and vegetation directly adjacent to the SBT Works off airport footprint. Three options are available for weed control:

- Cut and remove the foliage of the weeds and spray the stem;
- Spray foliage with an appropriate herbicide;
- Physical removal;

Any use of herbicides will be strictly in accordance with the *Pesticides Act 1999*, the product label, and the relevant Safe Work Method Statement developed in accordance with the SBT Works' Work Health & Safety Management Plan. In addition, where approved herbicides are required to be used to control weed species near water, i.e. creeks, drainage depressions, and stormwater drains, extra care is to be taken to limit overspray. All herbicides will only be used during suitable meteorological

conditions. Herbicides are not to be used without the prior approval of the Project Environmental and Sustainability Manager. If a non-glyphosate herbicide is to be used, approvals from the Safety Director and the Environment and Sustainability Manager are required. This 'hold point' is clearly stated in the Weed Management Procedure. Records of herbicide types and location of use will be maintained.

8.10. Pathogen management

The presence of environmental pathogens will be identified early as part of pre-clearing inspections. If suspected during the pre-clearings inspections, environmental controls will be implemented by the Environmental Advisor in consultation with the Project Ecologist to prevent the spread or introduction of pathogens. Controls will include:

- Map and mark areas that are infested with pathogens as an exclusion zone with fencing and signage to limit access by personnel and vehicles
- Install wheel wash and rumble grids at construction sites
- Provide boot wash down facilities at construction sites
- Program works from uninfected areas to infected areas, where possible

The suitability of control techniques will vary depending on the pathogen and will be determined on advice from the Project Ecologist and best practice guidelines. Best practice protocols include:

- Minimise work during excessively wet or muddy conditions
- Provide parking and turn-around points on hard, well-drained surfaces
- Restrict vehicles to designated tracks, trails and parking areas
- Restrict personnel to designated tracks and trails
- Personnel working in an infected site should shower and launder clothes before moving to another vegetated site
- Use disinfectant or gloves when handling frogs and only handle frogs when necessary
- Ensure vehicles and footwear are free of soil before entering or exiting the site (i.e. directed to wash down area before entering or exiting the site)
- Use a certified supply of plants and soil that is disease-free

All vegetation and soil from the contaminated areas will be stockpiled within the boundaries of the clearing footprint. It will be removed to an appropriate green waste facility.

To avoid cross contamination of frogs with Chytrid, CPBG will avoid, where possible, transferring water between two or more separate waterbodies.

8.11. Nest box strategy

To minimise habitat loss to hollow-dependent fauna, a Nest Box Strategy will be prepared by a trained ecologist in accordance with REMM FF2 and the Sydney Metro – Western Sydney Airport Biodiversity Management Plan.

Key requirements of the Nest Box Strategy will include:

- Hollow-bearing trees will be marked/tagged and mapped prior to their removal
- The size, type, number and location of nest boxes required will be based on the results of the pre-clearing inspection (Section 8.3)

- All nest boxes will be installed one month prior to any removal of existing tree hollows and/or the release of any captured hollow dependent fauna to provide alternate habitat for hollow-dependent fauna displaced during clearing
- Nest boxes will be installed within the nearest accessible area of vegetation close to the site where the hollow or other feature is located
- The number of hollows on each hollow bearing tree will be confirmed during clearing supervision (Section 8.4). If more hollows are identified, additional nest boxes will be installed
- Nest box type and size will be dependent on the species that that they are targeting. The size of the nest box and its entrance will be determined based estimates of structure and size undertaken during pre-clearing inspection. Where possible, nest boxes will be installed at a similar height and aspect to those they are replacing. For tree hollows, nest boxes will be installed using a ratio of one box for each hollow removed.
- Nest boxes will be made out of hard durable materials and will be installed utilising the Habisure method (Figure 4)
- Nest box performance indicators (nest box use and condition of nest boxes) and corrective actions. Results would be reviewed holistically with consideration of future stages of works (for SCAW and SSTOM) to provide integrated outcomes
- Nest boxes monitoring will be monitored annually (during nesting seasons) by CPBG Project Ecologist for the duration of the delivery of the SBT works scope. Monitoring will occur using ground-based observation and pole cameras. Monitoring will evaluate nest box use and the condition of nest boxes. Nest boxes that are deteriorating prior to the completion of construction will be repaired or replaced.
- For each recorded nest box, the monitoring data will include:
    - The name of the observer
    - Date
    - Prevailing weather conditions
    - Assessment of hollow replacement condition (eg structural integrity, evidence of rot or termite activity, condition of fastenings etc)
    - Evidence of fauna activity and presence of pest activity
    - Identification and implementation of any corrective actions, as required
- Nest box installation details (date installed, direction the box entrance faces, height above ground) will be documented in the post clearing report as required under Section 10.2 (b) of the CEMF.

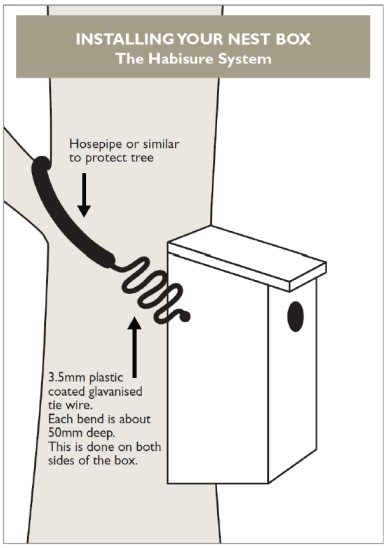


Figure 4: Habisure © method for installing nest boxes (Source: Franks and Franks 2006)

If microbats are found utilising abandoned buildings as habitat, nest boxes will be installed in adjacent foraging habitat prior to demolition of the building. The number of nest boxes will be determined upon evaluation of the number of microbats using the structure, in consultation with the Project Ecologist and detailed within the Microbat Management Plan (Section 8.3.2).

8.12. Groundwater dependant ecosystem management and monitoring

Groundwater level GDE monitoring performance criteria and the groundwater network is detailed in the Groundwater Monitoring Program (SMWSASBT-CPG-SWD-SW000-GE-RPT-040404).

GDE monitoring will be undertaken using a BACI (Before-After-Control-Impact) approach, in which pre-impact data will be collected (Before-After) and a control will be utilised (Control-Impact) to monitor for any changes to GDE health as a result of groundwater drawdown. The objectives of the monitoring will be to:

- Monitor for potential effects the GDE vegetation resulting from water draw down; and,
- Determine the extent to which reduced groundwater availability to GDE vegetation impacts on the ecological condition of individual trees and the vegetation communities within which they occur.

Data will be collected prior to construction and groundwater drawdown. This pre-impact data will establish an environmental baseline from which assessment of potential impacts from the Project can be based.

CPBG will aim to develop three monitoring sites within intact Shale Gravel Transition Forest within the mapped groundwater drawdown contour and three monitoring sites in be established outside of the drawdown zone. The ability to achieve these monitoring program aims will be dependent on achieving access to the private land on which the drawdown zone is within. In the event that access to private land is not feasible, modelling will be undertaken based on available data (refer to the Groundwater Monitoring Program).

Ecological monitoring variables will include:

- Foliage cover measurements using digital cameras and specialised software for analysis;
- Assessments of vegetation community condition and health; and,
- Plant species diversity and community composition.

Data from each variable will be collected twice from each monitoring plot prior to impact. After this, data collection will continue twice a year until construction of the SBT Works is complete. The control sites will be monitored concurrently to the impact sites so that any changes in vegetation observed at control sites can be compared to changes at impact sites. If similar changes are observed at both site types, it is more likely to be a result of climatic conditions rather than groundwater drawdown at the Orchard Hills sites.

Vegetation community composition will be recorded using the frequency score method (Morrison et al. 1995) and Braun-Blanquet cover abundance estimates. Should groundwater drawdown have profound effects on vegetation at the impact sites, differences in frequency scores between impact and control sites are expected to show changes in recruitment rates, rather than changes in vegetation cover alone.

Cover estimates will be derived using a fisheye lens camera on a tripod to take canopy photos aligned north-south. These photos will be analysed for percent canopy cover using Gap Light Analyzer v2.0 (Frazer et. al. 1999).

Trigger-action-response measures in relation to GDE health in areas identified as subject to potential drawdown but outside the construction footprint will be set within six months after baseline data is collected. They will be designed to minimise the risk of long-term damage occurring to the GDE outside of the SBT Works footprint.

8.13. Habitat rehabilitation

As identified in Section 8.5, prior to vegetation clearing, CPBG will identify habitat features. Habitat rehabilitation will be undertaken by Sydney Metro and / or its contractors in subsequent stages of the Project, in accordance with the Place, Urban Design and Corridor Landscape Plan. Habitat features unable to be incorporated into the Place, Urban Design and Corridor Landscape Plan will be offered to stakeholders in accordance with Condition E12 for habitat enhancement and rehabilitation work elsewhere.

Revegetation and the provision of replacement trees will be informed by a Tree Survey undertaken during detailed design. The Tree Survey will identify the number, type and location of any trees to be removed. Where trees are to be removed, Sydney Metro will provide a net increase in the number of replacement trees at a ratio of 2:1, except trees that are offset under Condition E4 (i.e. those associated with PCTs). Where possible, tree planting will be designed to increase connectivity between remnant woodland adjacent to the SBT Works off-airport footprint to minimise the overall edge of remnant woodland patches (i.e. by creating a more continuous woodland fragment). The suitability of this planting will be further enhanced through the provision and installation of the retained habitat features (see Section 8.5).

CPBG will co-ordinate site access with Sydney Metro to facilitate a native vegetation seed collection and salvage program. Sydney Metro will investigate opportunities for use of the collected and salvaged seed, which will be detailed in the Place, Urban Design and Corridor Landscape Plan.

8.14. Biodiversity Offsetting

All unavoidable residual impacts resulting from the SBT Works will be offset in accordance with the BAM. Retirement of biodiversity offset credits will be managed by Sydney Metro. Impacts to PCTs or threatened species habitats on the SBT Works off airport footprint will not occur until CPBG have received confirmation from Sydney Metro that the required credits have been retired.

Offsetting requirements under the BC Act have been described in the Project BDAR and SSI Environmental Assessment. Offsetting requirements that relate to Matters of National Environmental Significance under the EPBC Act have been summarised in the "*Sydney Metro – Western Sydney Airport - EPBC Biodiversity Offset Strategy for off-airport lands*". This document outlines the staged approach to offsetting required under the EPBC Act Approval (EPBC 2020/8687).

Part B: Implementation Systems and Tools

Part B of this Plan explains how the flora and fauna impacts of the SBT Works will be minimised. All relevant mitigation measures from the Construction Environmental Management Framework (CEMF) and Revised Environmental Mitigation Measures (REMMs) identified in Section 7 of the Submissions Report, are addressed in this section of the Plan. Compliance with all elements of these systems and tools is required at all times to minimise the likelihood of causing unauthorised environmental harm and maximise the uptake of opportunities to reduce environmental impact.

Part B contains the following:

- **Environmental Elements and Expectations**: These describe what is required of the SBT Works in order to implement the objectives of CPBG's Environment and Sustainability Policy:
  - **Element** – Key aspects for managing this function in delivering the SBT Works
  - **Intent** – A one-line statement describing the overall purpose of the Element
  - **Expectation** – The outcomes achieved as part of each Element.
- **Requirements**: These are the specific actions performed in order to demonstrate compliance with the Elements and Expectations.
- **Responsibility and Key Contributor**: This information is included to ensure absolute clarity as to those people responsible for achieving compliance with the stated Expectation, as well as those that will need to assist/contribute to achieving compliance.
- **Deliverables**: This column of the table lists the tangible outcomes to be produced in order to demonstrate compliance with the environmental Elements and Expectations.

Element 1 Training

All staff, employees and subcontractors will actively drive continuous improvement in the environmental performance of the SBT Works

Expectations	How will CPBG meet the Expectation?	Responsible Key Contributor	Deliverables
1.1. All personnel have completed an induction containing relevant environmental information before they are authorised to work on the SBT Works	All personnel working on the SBT Works will undertake a site induction, which will provide initial training on various environmental aspects, including flora and fauna management. It will cover: • Tree clearing procedure • Management of retained vegetation • Weed management • Fauna handling procedure • Management of unexpected threatened species identification	**Human Resources Manager** Environmental Manager Environment Coordinators	Induction presentation
1.2. Toolbox talks are used to reinforce key management requirements and lessons learnt	Tool boxing will be undertaken to reinforce and reiterate information from inductions and where procedures are amended, or new procedures are introduced.	**Environmental Manager** Site Supervisor Environment Coordinators	Toolbox records

Element 2 Monitoring and reporting

All staff, employees and subcontractors will actively drive complaint environmental performance of the SBT Works

Expectations	How will CPBG meet the Expectation?	Responsible Key Contributor	Deliverables
2.1. Hold Point release prior to vegetation clearing	Prior to the clearing of any vegetation, a Pre-clearing and Grubbing Checklist must be completed and signed off by the Environment Team and Construction Team.	**Environment Coordinators** Project Managers	Pre-clearing and Grubbing Checklist
2.2. Worksites are regularly inspected to ensure the adequacy of controls	Site Supervisor to undertake daily inspections of worksite to ensure management of flora and fauna controls. Weekly inspection of flora and fauna management controls will be undertaken as part of Joint Environment Inspections.	**Environmental Manager** Superintendents Site Supervisors	Site Diary entries Environment Inspection Reports
2.3. Monitoring is performed to establish baseline data and ensure compliance is maintained	CPBG will monitor trends in environmental data including weed management and fauna relocation/rescue.	**Environmental Manager** Environment Coordinators	Flora and fauna records Reports
2.4. Monitoring records are maintained	Compliance records will be retained by CPBG and will include: • Pre-clearing survey reports • Hold-point records • Post-clearing report (including GIS files) • Clearing and grubbing checklists • Clearing Permits • Ecological inspection records	**Senior Environment Coordinators** Environment Coordinators	Pre-clearing survey reports Hold-point records Post-clearing reports Clearing and grubbing checklists Clearing Permits Ecological inspection records

Element 3 Auditing, review and improvement

We will continually improve our environmental systems and environmental performance by monitoring and reviewing their effectiveness

Expectations	How will CPBG meet the Expectation?	Responsible Key Contributor	Deliverables
3.1. Review this Plan to ensure compliance	Review of this Plan will be undertaken in accordance with the final Construction Environmental Management Plan (SMWSASBT-CPG-1NL-EV-PLN-000002). If required, this Plan will be updated and provided to the Environmental Representative under SSI 10051 Planning Approval Condition A32(j) for endorsement.	**Environment Manager** Environmental Representative	Updates to this Plan if required during delivery
3.2. Audits are undertaken to ensure compliance with the requirements of this Plan	Audits will be performed in line with the Construction Environmental Management Plan (SMWSASBT-CPG-1NL-EV-PLN-000002), and we will update this Plan and/or procedures if required.	**Environment Manager** Environment Coordinators	Audit Reports
3.3. All non-compliances are reported and actioned	A non-compliance can generally be defined as a failure to comply with SSI 10051 Planning Approval or the EPBC Approval 2020/8687. Reporting requirements for environmental non-compliances are detailed in Section 7.4.3 of the CEMP. Where a non-compliance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-compliance and it is not necessary to raise a separate non-compliance reporting process. Procedures for corrective actions are addressed in the Construction Environmental Management Plan (SMWSASBT-CPG-1NL-EV-PLN-000002).	**Environmental Manager** Environment Coordinators	Corrective Action Reports Complaint Reports Incident Reports Audit Reports

Element 4 Package specific requirements

SSI 10051 Modified Planning Approval

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
E2	The clearing of native vegetation must be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological communities and threatened species habitat.	CPBG will identify potential areas of native vegetation that can be retained during the detailed design process – See Section 8.1	CPBG	A potential reduction in the total area of native vegetation cleared	
E3	Impacts to plant community types must not exceed those identified in the documents listed in Condition A1 of this schedule, unless otherwise approved by the Planning Secretary. In requesting the Planning Secretary's approval, an assessment of the additional impact(s) to plant community types and an updated ecosystem and / or species credit requirement under Condition E4 below, if required, must be provided.	Sydney Metro will be responsible for E3, except that the SBT Contractor must provide Sydney Metro with any assessments of additional impacts to plant community types and updated ecosystem and/or species credit requirements – See Section 8.2 and 8.4	CPBG AMBS	Post-clearing report detailing area of native vegetation cleared and spatial data files	
E4	Prior to impacts on the biodiversity values set out in Table 3 and Table 4, the number and classes of ecosystem credits and species credits (like-for-like) must be retired. Table 3: Ecosystem credits **Plant Community Type (PCT) ID and name** / **Number of Credits** 724: Broad-leaved Ironbark – Grey Box – Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion/ — 246	Requirement held by Sydney Metro Clearing Hold Points will be held by CPBG Environmental Manager until confirmation that credits have been retired	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing

835: Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	217
849: Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	202
1800: Swamp Oak open forest on river flats of Cumberland Plain and Hunter Valley	181
TOTAL	846

Table 4: Species credits required

Species	Number of Credits
Dillwynia tenuifolia	21
Grevillea juniperina subsp. juniperina (Juniper-leaved Grevillea	57
Pultenaea parviflora	10
Meridolum corneovirens Cumberland Plain Land Snail	159
Myotis Macropus (Southern Myotis)	292
TOTAL SPECIES CREDITS	539

Note: Credits have been calculated using the Biodiversity Assessment Method.

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
E5	The requirement to retire like-for-like ecosystem credits and species credits in Condition E4 may be satisfied by payment to the Biodiversity Conservation Fund of an amount equivalent to the number and classes of ecosystem credits and species credits.	Requirement held by Sydney Metro	N/A	N/A	N/A
E6	Where evidence of compliance with the Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules has been provided to the Planning Secretary, variation rules may be applied to retire the relevant ecosystem credits and species credits as set out in the BAM Biodiversity Credit Report (Variation)	Requirement held by Sydney Metro	N/A	N/A	N/A
E7	Evidence of the retirement of credits in satisfaction of Condition E4 or payment to the Biodiversity Conservation Fund in satisfaction of Condition E5 must be provided to the Planning Secretary prior to impacts on the biodiversity values.	Requirement held by Sydney Metro Clearing Hold Points will be held by CPBG Environmental Manager until confirmation that credits have been retired	N/A	N/A	N/A
E8	The Proponent must minimise impacts to Key Fish Habitat (KFH) as defined in Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update). Residual impacts to KFH, following the implementation of habitat rehabilitation or other environmental compensation measures, must be offset at a ratio of 2:1 habitat offset requirement in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update) and in consultation with DPI Fisheries.	Requirement held by Sydney Metro	N/A	N/A	N/A
E9	Where offsets are required in accordance with Condition E8, payment of the habitat offset requirement must be made to the DPI Fish Conservation Trust Fund prior to the commencement of Work that impacts KFH.	Requirement held by Sydney Metro	N/A	N/A	N/A
E10	Where offsets are required in accordance with Condition E8, the Proponent must submit to the Planning Secretary a receipt confirming	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	payment to the DPI Fish Conservation Trust Fund within one (1) month of making the payment.				
E11	Nest Boxes must be installed one (1) month prior to any removal of existing tree hollows and/or the release of any captured hollow dependent fauna.	See Section 8.11	CPBG AMBS	Nest boxes installed within 30 days of proposed removal of hollows	30 days prior to clearing hollow bearing trees
E12	Re-use of Timber E9 Prior to vegetation clearing, the Proponent must identify where it is practicable for the CSSI to reuse native trees and vegetation that are to be removed. If it is not possible for the CSSI to reuse removed native trees and vegetation, the Proponent must consult with the relevant council(s), NSW National Parks & Wildlife Service, Western Sydney Parklands Trust, Greater Sydney Local Land Services, Landcare groups, DPI Fisheries and any additional relevant government agencies to determine if: (a) hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation impacted by the CSSI; and (b) collected plant material, seeds and/or propagated plants from native vegetation impacted by the CSSI, could be used by others in habitat enhancement and rehabilitation work, before pursuing other disposal options.	See Section 8.5 and 8.13 Requirement E12(b) is held by Sydney Metro	CPBG	Place, Urban Design and Corridor Landscape Plan to investigate use of timber salvaged from clearing operations	Construction
E13	Revegetation and the provision of replacement trees must be informed by a Tree Survey undertaken during detailed design. The Tree Survey must identify the number, type and location of any trees to be removed. The Tree Survey must be submitted to the Planning Secretary for information with the Place, Urban Design and Corridor Landscape Plan required under Condition E79. Where trees are to be removed, the Proponent must provide a net increase in the number of replacement trees at a ratio of 2:1, except trees	Sydney Metro will be responsible for E13, except that the SBT Contractor is responsible for undertaking Tree Surveys during detailed design and providing these to Sydney Metro prior to	CPBG	Place, Urban Design and Corridor Landscape Plan	Construction

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	that are offset under Condition E4. Replacement trees must have a minimum pot size consistent with the relevant authority's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant authority(ies). Note: For the purposes of this condition, the relevant authority is that State or local government authority that owns or manages the land on which the replacement trees will be planted.	vegetation removal – See Section 8.13			

Revised Environmental Performance Outcomes

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
1	Minimise or where possible avoid impacts on threatened flora and fauna species, and ecological communities listed under the *Biodiversity Conservation Act 2016* (NSW) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth)	Section 8.1, 8.2, 8.3 and 8.8	CPBG AMBS	Reduction in native vegetation cleared	N/A
2	Manage groundwater drawdown at Orchard Hills to avoid or minimise impacts on groundwater dependent ecosystems	Section 8.12	CPBG AMBS	GDE monitoring program	Prior and during construction

Revised Environmental Mitigation Measures

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
FF1	The Biodiversity Construction Environmental Management Plan (on-airport) and Flora and Fauna Management Plan (off-airport) would be prepared by a suitably qualified and experienced person to minimise and manage the clearing of native vegetation and habitat by: • seeking to locate site offices, site compounds and ancillary facilities in areas where there are limited biodiversity values (e.g. cleared land) • delaying the removal of vegetation until absolutely necessary • avoiding the removal of hollow-bearing trees, where possible • using a qualified surveyor and suitably qualified ecologist to mark out exclusion zones and clearing/project boundaries prior to construction • providing contractors with regularly updated sensitive area maps (showing clearing boundaries and exclusion zones) • investigating opportunities for salvage and storage of felled native trees for potential use in landscape design.	Section 8.1, 8.2, 8.4, 8.5 and 8.13	CPBG AMBS	FFMP	Construction

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	The Biodiversity Construction Environmental Management Plan (on-airport) and Flora and Fauna Management Plan (off-airport) would be implemented throughout construction.				
FF2	A Nest Box Strategy would be prepared to minimise habitat loss to hollow-dependent fauna in accordance with the Flora and Fauna Management Plan and would include the following requirements: • hollow-bearing trees would be marked/tagged and mapped prior to their removal. The size, type, number and location of nest boxes required would be based on the results of the pre-clearing survey • about 70 per cent of nest boxes would be installed about one month prior to any vegetation removal to provide alternate habitat for hollow-dependent fauna displaced during clearing	Section 8.11	CPBG AMBS	Nest Box Management Strategy Installed nest boxes	Construction
FF3	Works on-airport would be undertaken in accordance with the nest box strategy included in the Western Sydney Airport Habitat Management subplan and in consultation with Western Sydney Airport	N/A	N/A	N/A	N/A
FF4	A targeted microbat survey (including Eastern Coastal Free-tailed Bat, Large Bent-winged bat and Eastern False Pipistrelle) of dwellings and structures proposed for demolition, removal or modification would be undertaken in accordance with 'Species credit' threatened bats and their habitats NSW survey guide for the Biodiversity Assessment Method (OEH, 2018) prior to disturbance Other human-made structures such as culverts and other under-road structures within the construction footprint would be surveyed for threatened microbats (e.g. particularly the Southern Myotis) in accordance with the Biodiversity Assessment Method (OEH, 2018). If threatened microbats are detected, a Microbat Management Plan would be developed as part of the Flora and Fauna Management Plan and implemented by a suitably qualified bat specialist.	Section 8.3	CPBG AMBS	Microbat surveys of abandoned structures	Construction

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
FF5	Works on-airport would be managed in accordance with the Western Sydney Airport Microbat Management Plan and in consultation with Western Sydney Airport	N/A	N/A	N/A	N/A
FF6	During construction, shading and artificial light impacts would be minimised in areas adjoining remnant bushland that is in intact condition	Section 8.1	CPBG	N/A	Detailed Design Construction Operation
FF7	Fish passage and fish habitat associated with Cosgrove Creek and Blaxland Creek would be protected in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI (Fisheries NSW), 2013)	Requirement held by Sydney Metro	N/A	N/A	N/A
FF8	A Dewatering Plan would be prepared and implemented for the dewatering of rural dams which are impacted as a result of the construction of the project. This would include measures to manage the transfer of native aquatic fauna, if required, prior to dewatering and removing of dams.	Section 8.7	CPBG	Dewatering Plan	Construction
FF9	A Dewatering Plan would be prepared and implemented for the dewatering of rural dams which are impacted as a result of the construction of the project. This would include measures to manage the transfer of native aquatic fauna, if required, prior to dewatering and removing of dams. The plan would be consistent with the Western Sydney Airport Biodiversity Construction Environmental Management Plan (2019) (on-airport).	Section 8.7	CPBG	Dewatering Plan	Construction
FF10	The impact of Key Threatening Processes as a result of the project would be managed and minimised where possible through: • implementation of weed management measures to prevent the introduction and spread of weeds including exotic vines and	Section 8.8 and 8.9	CPBG		Construction

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	scramblers, Olea europaea (African Olive), Chrysanthemoides monilifera, Lantana camara, and exotic perennial grasses • implementation of pathogen management measures to prevent the introduction and spread of pathogens including amphibian chytrid, Phytophthora implementa, and Exotic Rust Fungi of the order Pucciniales • implementation of management measures to protect the riparian zone to ensure fish passage and protect fish habitat in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI (Fisheries NSW,) 2013), and minimisation of vegetation removal within the riparian zone where possible				
FF11	A native vegetation seed collection and salvage program would be developed prior to the commencement of construction and implemented during construction. The seed collection and salvage program would aim to target native species prioritising the Cumberland Plain Woodland species to be utilised in landscaping for the project where possible. Opportunities for use of collected and salvaged seed outside of the project would also be investigated.	Sydney Metro will manage the process with the co-operation of the SBT Contractor	N/A	N/A	Pre-construction
LV1	Opportunities for the retention and protection of existing street trees and trees within the construction sites would be identified during detailed construction planning	Section 8.13	CPBG	Place, Urban Design and Corridor Landscape Plan	Construction
LV2	Existing trees to be retained would be protected prior to the commencement of construction in the vicinity of these trees in accordance with AS4970-2009 Protection of Trees on Development Sites	Section 8.13	CPBG	Place, Urban Design and Corridor Landscape Plan	Construction

EPBC Approval

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
EPBC1	The approval holder must not clear outside the study area.	Section 8.2	CPBG AMBS	Project Boundary Fencing	Pre-construction
EPBC2	To minimise the impacts of the action on protected matters, the approval holder must not clear more than the following specified amounts within the study area: a. 5.87 hectares of Cumberland Plain Woodlands and Shale-Gravel Transition Forest threatened ecological community (TEC). b. 4.94 hectares of Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland TEC. c. 24.79 hectares of Grey-headed Flying-fox habitat. d. 7.3 hectares of native vegetation on the Defence Establishment Orchard Hills site (which may include threatened ecological communities in conditions 2a and 2b). e. 335 individuals of Grevillea juniperina subsp. juniperina on the Defence Establishment Orchard Hills site (Lot 1 DP 629326 and Lot 2 DP 242968). f. The number of individuals identified by pre-clearance surveys, undertaken in accordance with conditions 3 - 5.	Section 8.2, 8.3 and 8.4	CPBG AMBS	Sensitive area fencing Pre and post clearing reports	Construction
EPBC3	To inform the preparation of the Biodiversity Management Plan required under conditions 8 and the Biodiversity Offset Strategy required under conditions 18, the approval holder must undertake pre-clearance surveys in areas not yet surveyed for the following species: a. Bynoe's Wattle. b. Downy Wattle. c. Allocasuarina glareicola. d. White-flowered Wax Plant. e. Small-flower Grevillea.	Requirement held by Sydney Metro.	Sydney Metro	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	f. Micromyrtus minutiflora. g. Pimelea curviflora var. curviflora. h. Spiked Rice-flower. i. Pultenaea parviflora.				
EPBC4	Pre-clearance surveys in areas not yet surveyed must be undertaken in accordance with the NSW Biodiversity Assessment Method, or another methodology agreed to by the Department in writing.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC5	The results of the pre-clearance surveys in areas not yet surveyed must be submitted to the Department in writing prior to, or with, the submission of: a. The Biodiversity Management Plan required under condition 8; and b. The Biodiversity Offset Strategy required under condition 18.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC8	For the protection of protected matters, the approval holder must submit to the Minister for approval a Biodiversity Management Plan that sets out requirements for Flora and Fauna Management Plans prepared and implemented under the project's Construction Environmental Management Framework.	Sydney Metro will in relation to EPBC8, prepare and submit the Biodiversity Management Plan to the Department	N/A	N/A	N/A
EPBC9	The Biodiversity Management Plan must be consistent with the Department's Environmental Management Plan Guidelines (2014), and must include: a. Environmental objectives, relevant protected matters, and a reference to EPBC Act approval conditions to which the Biodiversity Management Plan refers; b. A table of commitments made in the Biodiversity Management Plan to achieve the objectives, and a reference to where the commitments are detailed in the Biodiversity Management Plan; c. Reporting and review mechanisms, and documentation standards, to demonstrate compliance with the Biodiversity Management Plan; d. An assessment of risks to achieving Biodiversity Management Plan environmental objectives and risk management strategies that will be	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	applied; e. Impact avoidance, mitigation and repair measures, and their timing; f. A monitoring program, which must include: i. measurable performance indicators; ii. trigger values for corrective actions; iii. the timing and frequency of monitoring to detect trigger values and changes in the performance indicators; and iv. proposed corrective actions, if trigger values are reached. g. Provide any links to other plans or conditions of approval for the action.				
EPBC10	The approval holder must not commence the action unless the Minister has approved the Biodiversity Management Plan in writing.	Sydney Metro will in relation to EPBC10, notify the SBT Contractor when the Biodiversity Management Plan has been approved.	N/A	N/A	N/A
EPBC11	If the Minister approves the Biodiversity Management Plan then the Biodiversity Management Plan must be implemented.	This Plan	CPBG AMBS	Pre-clearing Permits Pre-Clearing Hold Points Environmental inspection checklist Site Diary/ Pre-starts GDE monitoring plan	Construction
EPBC12	The approval holder must submit to the Minister, for approval, a Staging Plan in relation to the construction of the action, prior to commencement of the action.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC13	The approval holder must implement the Staging Plan approved by the Minister.	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
EPBC14	The Staging Plan must set out: a. how the construction of the action will be staged, including details of clearing and other activities to be carried out in each stage; b. mapping and delineation of the spatial location of each stage; and c. the planned timing of when construction of each stage will commence and finish.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC15	Prior to the commencement of clearing of protected matters identified in condition 2 in each stage, as defined in the Staging Plan required under condition 12, the approval holder must: a. determine the offset requirement for protected matters identified in condition 2 to be cleared in that stage in accordance with the NSW Biodiversity Assessment Method and the process set out in the Biodiversity Offset Strategy required under condition 18. b. secure the required offsets for that stage.	Sydney Metro in relation to EPBC15, inform of compliance to the Department. The SBT Contractor must present Sydney Metro with a hold point prior to clearing. See Section 8.3	CPBG	Provision of Hold Point prior to clearing	Construction
EPBC16	The offsets must be secured in accordance with the NSW Biodiversity Offset Scheme.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC17	Within 3 months of retiring credits or making a payment to secure offsets, the approval holder must submit evidence of the retirement or payment the Department.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC18	The approval holder must submit a Biodiversity Offset Strategy for the Minister's approval, prior to clearing of protected matters identified in condition 2.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC19	The Biodiversity Offset Strategy must: a. Be prepared by a suitably qualified ecologist; b. Be prepared in accordance with the NSW Biodiversity Assessment Method; c. Be based on and consistent with the Biodiversity Development Assessment Report at Appendix A of the EIA;	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	d. Be consistent with the principles of the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (October 2012); and e. Provide for the number of individuals identified in accordance with condition 3; and f. Set out: i. The process used for quantifying the impacts to protected matters based on the final design of the action, with quantification of the final number and class of biodiversity credits required to offset the residual impacts of action on protected matters; ii. Details of how the credit requirement to offset the impacts from each stage of construction (defined in the Staging Plan) will be determined and reported; and iii. How offset requirements will be satisfied, including the timeframes by which offsets must be secured in relation to each stage of construction as defined within the Staging Plan.				
EPBC20	The approval holder must not commence the action unless the Minister has approved the Biodiversity Offset Strategy in writing.	Sydney Metro will in relation to EPBC20, notify the SBT Contractor when the Biodiversity Offset Strategy Plan has been approved.	N/A	N/A	N/A
EPBC21	If the Minister approves the Biodiversity Offset Strategy then the Biodiversity Offset Strategy must be implemented.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC22	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC23	The approval holder must notify the Department in writing of the date of commencement of each stage of the action, as specified in the Staging	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	Plan required under condition 12, within 10 business days after the date of commencement of the relevant stage of the action.				
EPBC24	The approval holder must maintain accurate and complete compliance records.	Sydney Metro will be responsible for EPBC24, except that the SBT Contractor must provide Sydney Metro with all information required to demonstrate compliance. See Part B, Element 2	CPBG	Pre-clearing Inspection reports Post-clearing inspection reports Spatial data for clearing footprint Monitoring data	Construction
EPBC25	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request. Note: Compliance records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the Department's website or through the general media.	Sydney Metro will in relation to EPBC25, prepare and submit response to the Department. The SBT Contractor must inform the request and provide compliance records to Sydney Metro See Part B, Element 2	CPBG	Pre-clearing Inspection reports Post-clearing inspection reports Spatial data for clearing footprint Monitoring data	Construction
EPBC26	The approval holder must: a. submit plans electronically to the Department b. publish each plan on the website within 3 month of the date the plan is approved by the Minister or the date a revised action management plan is submitted to the Minister or the Department, unless otherwise agreed in writing by the Minister c. exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public d. keep plans published on the website until 24 months after the completion of the action, or as otherwise agreed by the department in writing.	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
EPBC27	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the Biodiversity Management Plan, is prepared in accordance with the Department's Guidelines for biological survey and mapped data (2018) and submitted electronically to the Department in accordance with the requirements of the plan.	Sydney Metro will, in relation to EPBC27, prepare and submit response to the Department. The SBT Contractor must inform the request and provide compliance records to Sydney Metro See Part B, Element 2	CPBG	Pre-clearing inspection and post-clearing inspection data GDE and Nest box Monitoring data	Construction
EPBC28	The approval holder must prepare a compliance report addressing each condition of this approval for each 12-month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must: a. publish each compliance report on the website within 3 months following the relevant 12-month period; b. notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within 5 business days of the date of publication; c. keep all compliance reports publicly available on the website until 24 months after the completion of the action, or as otherwise agreed by the department in writing; d. exclude or redact sensitive ecological data from compliance reports published on the website; and e. where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication. Note: Compliance reports may be published on the Department's website.	Sydney Metro will, in relation to EPBC28, prepare and submit response to the Department. The SBT Contractor must inform the request and provide compliance records to Sydney Metro See Part B	CPBG	Annual Compliance Report	Construction
EPBC29	The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the	Sydney Metro will, in relation to EPBC29, prepare and submit a	CPBG	N/A	Construction

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	commitments made in plans. The notification must be given as soon as practicable, and no later than 2 business days after becoming aware of the incident or non-compliance. The notification must specify: a. any condition which is or may be in breach b. a short description of the incident and/or non-compliance c. the location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.	response to the Department. The SBT Contractor must inform the request and provide compliance records to Sydney Metro Part B, Element 3			
EPBC30	The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying: a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future b. the potential impacts of the incident or non-compliance c. the method and timing of any remedial action that will be undertaken by the approval holder.	Sydney Metro will in relation to EPBC30, prepare and submit response to the Department. The SBT Contractor must inform the request and provide compliance records to Sydney Metro Part B, Element 3	CPBG		Construction
EPBC31	The approval holder must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister.	Sydney Metro will in relation to EPBC31, arrange and pay for the Independent Audits. The SBT Contractor must participate in the Independent Audit process Part B, Element 3	CPBG		Construction
EPBC32	For each independent audit, the approval holder must: a. provide the name and qualifications of the independent auditor and the draft audit criteria to the Department b. only commence the independent audit once the independent auditor and audit criteria have been approved in writing by the Department	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	c. submit an audit report to the Department within the timeframe specified in the approved audit criteria.				
EPBC33	The approval holder must publish the audit report on the website within 10 business days of receiving the Department's approval of the audit report and keep the audit report published on the website until 24 months after the completion of the action, or as otherwise agreed by the department in writing.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC34	The approval holder may, at any time, apply to the Minister for a variation to an action management plan approved by the Minister under conditions 8 and 15, or as subsequently revised in accordance with these conditions, by submitting an application in accordance with the requirements of section 143A of the EPBC Act. If the Minister approves a revised action management plan (RAMP) then, from the date specified, the approval holder must implement the RAMP in place of the previous action management plan.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC35	The approval holder may choose to revise an action management plan approved by the Minister under conditions 18 and 15, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the RAMP would not be likely to have a new or increased impact.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC36	If the approval holder makes the choice under condition 35 to revise an action management plan without submitting it for approval, the approval holder must: a. notify the Department in writing that the approved action management plan has been revised and provide the Department with: i. an electronic copy of the RAMP ii. an electronic copy of the RAMP marked up with track changes to show the differences between the approved action management plan and the RAMP	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
	iii. an explanation of the differences between the approved action management plan and the RAMP iv. the reasons the approval holder considers that taking the action in accordance with the RAMP would not be likely to have a new or increased impact v. written notice of the date on which the approval holder will implement the RAMP (RAMP implementation date), being at least 20 business days after the date of providing notice of the revision of the action management plan, or a date agreed to in writing with the Department. b. subject to condition 38, implement the RAMP from the RAMP implementation date.				
EPBC37	The approval holder may revoke their choice to implement a RAMP under condition 35 at any time by giving written notice to the Department. If the approval holder revokes the choice under condition 35, the approval holder must implement the action management plan in force immediately prior to the revision undertaken under condition 35.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC38	If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the RAMP would be likely to have a new or increased impact, then: a. condition 35 does not apply, or ceases to apply, in relation to the RAMP b. the approval holder must implement the action management plan specified by the Minister in the notice.	Requirement held by Sydney Metro	N/A	N/A	N/A
EPBC39	At the time of giving the notice under condition 38, the Minister may also notify that for a specified period, condition 35 does not apply for one or more specified action management plans. Note: conditions 35, 36, 37, and 38 are not intended to limit the operation of section 143A of the EPBC Act which allows the approval holder to submit a revised action management plan, at any time, to the Minister for approval.	Requirement held by Sydney Metro	N/A	N/A	N/A

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
EPBC40	Within 20 business days after the completion of the action, the approval holder must notify the Department in writing and provide completion data.	Principal			

Sydney Metro General Specification

No.	Requirement	How will CPBG meet this Requirement?	Responsible Key Contributor	Deliverables	Timing
2.8.5	Biodiversity Conservation a. The SBT Contractor must identify and implement initiatives for biodiversity impact reduction as part of the Sustainability Report. [SM-WSA-SBT-GS-1388] b. The SBT Contractor must minimise clearance of vegetation, particularly native vegetation. [SM-WSA-SBT-GS-1389]	See Section 8.1	CPBG	Sustainability Report	Construction

Part C: Annexures

Annexure A Pre-clearing Checklist

Pre-Clearing Inspection Checklist

Project:	**Site Location:**	**Lease or Lot Number:**
Area supervisor:		**Checklist completed by:**
Clearing Start Date:	**Expected Completion Date:**	

VEGETATION CLEARING LOCATIONS – ATTACH DRAWINGS / SKETCHES IF NECESSARY

	GPS Coordinates	Location	Comments

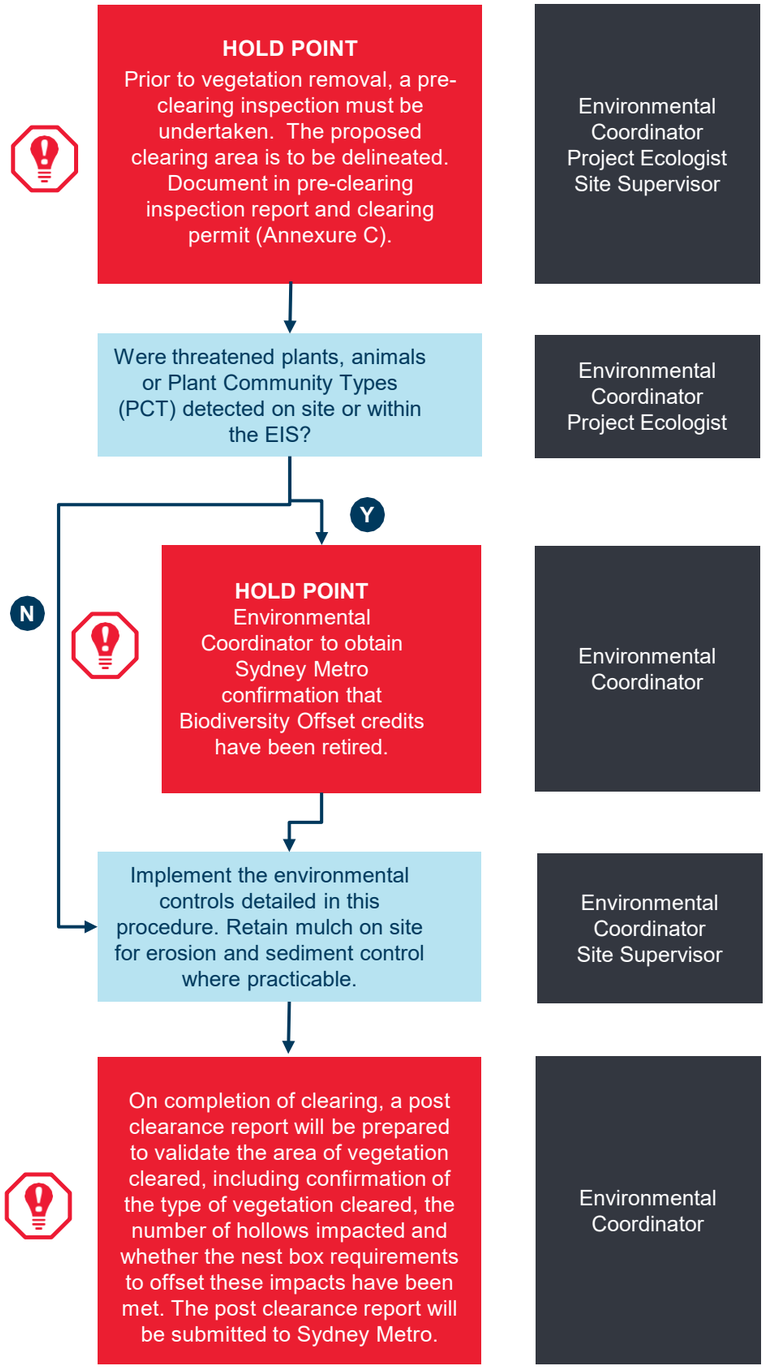
		Y	N	Comments
1	Has the vegetation to be removed been clearly delineated?			
2	Has all trees / vegetation to be retained been identified and No-Go Areas sign posted & fenced off?			
3	If soil disturbance is to occur, have erosion and sedimentation controls (ESC) been installed?			
4	Have habitat trees and nests been identified, recorded and appropriately marked? If so, list how identified:			
5	Has the weed management strategy (including disposal) been communicated to site personnel? List pre-clearing weed management controls.			
6	Has an unexpected finds procedure for threatened or endangered species been communicated to site personal, including stop works, notification and revised approval requirements?			
7	Have all pre-clearing checks for threatened flora species and fauna as per project requirements been completed?			
8	Will ecologist and/or fauna rescue personnel be present during clearing operations (e.g. for areas likely to contain threatened species/ protected environments)			
9	Has a Permit to Clear been issued? (attach a copy) Clearing Permit No. _____Expiry Date_____			
10	Have clearing workers been trained in relation to clearing boundary, stop work procedures, weed management, fauna handling procedures and other SHE controls?			
11	Additional comments/ requirements			

Approval by Environmental Site Representative **Name:** **Signature:**	**Date:**

Annexure B Clearing and Grubbing Procedure

TREE CLEARING AND GRUBBING PROCEDURE

MANAGEMENT AND RESPONSIBILITY



PROTOCOL

Delineate Vegetation to be Cleared or Trimmed

Environment Coordinator, Project Ecologist and Site Supervisor to delineate the area of vegetation to be cleared or trimmed based on the EIS and confirmed through survey. Install perimeter flagging/ fencing and "Environmental Exclusion Zone – No Access" signage (see below) around areas to be retained.

Pre-clearing inspection

Pre-clearing inspections of PCTs and habitat features must be undertaken by the Project Ecologist at least 30 days prior to clearing of vegetation (unless the pre-clearing inspection does not identify any habitat features). All other pre-clearing inspections can be undertaken by the Environmental Advisor, in consultation with the Project Ecologist as required

As part of the pre-clearing inspection:

- Mark habitat features, including trees containing hollows or nests
- Conduct searches for threatened Cumberland Plain Land Snails (if the species is predicted to occur) and unexpected threatened species. Refer to Annexure F of the FFMP if an unexpected threatened species is identified.
- Identify boundaries of PCT's and threatened species polygons. If PCT's or threatened species or threatened species polygons are present within the clearing footprint, works must stop until the Environmental Coordinator has confirmed the required biodiversity offset credits have been retired.
- Inspect for presence of fauna; capture and relocate in accordance with the Fauna Handling Procedure.
- Identify features that could provide roosts for microbats including abandoned buildings and survey as required
- Identify and mark Weeds of National Significance and Priority Weeds.
- Submit the Pre-Clearing and Grubbing Permit to the Environment Manager for approval and submission to Sydney Metro.

On completion of the pre-clearing inspection, maps depicting vegetation clearing boundaries and exclusion/no-go zones will be provided to the construction team through a toolbox talk or pre-start meeting. The meeting will also include discussion of clearing procedures, fauna handling and any weed identification and control measures. Implement nest box installation as required by CoA E11.

Implement Environmental Controls

- Install erosion and sediment controls prior to grubbing works
- Separate topsoil from sub soil and green waste and stockpile for reuse onsite or offsite. Stockpiles are to be on hardstand or appropriately delineated and must not be compacted.

Remove Vegetation

DEFER VEGETATION REMOVAL UNTIL NECESSARY AND ONLY CLEAR VEGETATION WITHIN THE APPROVED PRE-CLEARING AND GRUBBING PERMIT

1. Trimming of threatened or endangered ecological communities will be conducted by an arborist.
2. All non-marked trees and features will be removed first. Groundcover habitat features that are not too large to be moved will be removed and searched.
3. All remaining marked habitat trees will be knocked (gently tapped with construction equipment) at the end of each day of clearing and groundcover features such as logs will be gently rolled and searched for the presence of animals.
4. At least 48 hours after the clearance of non-marked vegetation, each habitat tree will be carefully removed in the presence of the project ecologist, and thoroughly searched for the presence of animals:
   - Marked trees will be shaken prior to felling using an excavator or similar equipment and then left for a specific period (determined by the project ecologist) to allow any fauna using the hollows to be observed.
   - Hollow-bearing trees will be slowly pushed over to avoid damage to hollows.
   - Fauna rescue personnel will instruct the equipment operators regarding how and which side to fell the trees so that hollows can be quickly checked. In some circumstances, sections of a tree containing a hollow or habitat may be individually removed prior to felling.
   - Felled habitat trees will be left on the ground for 24 hours or inspected by the project ecologist prior to further processing.
3. Habitat features to be used for habitat enhancement or in rehabilitation works will be relocated to adjacent habitat (subject to landowner consent).
4. Report any injured native fauna to the Environment Coordinator immediately. The Environment Coordinator will provide direction on relocation of the native fauna.
5. Mulch is to be reused on-site for erosion and sediment control, if practicable. Residual mulch is to be taken to a recycling facility. Mulch/ green waste containing herbaceous noxious weeds will be managed in accordance with the Weed Management Procedure. Disposal records will be retained.

NOTE: Where practical, the clearing of trees and shrubs should be avoided in late winter/spring during breeding/nesting period for birds

Annexure C Clearing Permit

Permit to Clear Land or Vegetation

NOTE: No clearing is to be undertaken until this **Permit to Clear Land or Vegetation** is completed and approved by the Environmental Manager. **Pre-Clearing Inspection Checklist** to be completed on the day before clearing commences.			
SECTION 1 – REQUEST DETAILS			
Site: (Off airport or On-airport)		**Date**	
Area Supervisor		**Map (attached)**	
Work Pack Reference		**SWMS/EWMS Reference No**	
Date disturbance to commence		**Permit Expiry Date**	
Total disturbance area (ha)		**Estimated Topsoil volume (m^3)**	
Estimated Topsoil Depth (mm)		**GPS Coordinates**	
Has a risk assessment been completed for this task?		**Machinery to be used**	
Site Environment Plan (SEP) Reference:		**Type of removal (clearing, slashing**	

SECTION 2 – PERMIT CONDITIONS		Area Supervisor to Complete		
		Yes	No	Details/Comments
2.1	Map showing location of clearing and physical demarcation on the limit of clearing [include approved project boundary			
2.2	Has an ecologist been consulted? [attach report]			
2.3	Have any PCT and/or TEC been identified within the clearing zones? List PCT and/ or TEC			
2.4	If clearing is to occur within PCTs, TECs or other environmentally significant areas have offset credits been retired and evidence provided by the Client?			
2.5	Is there vegetation bearing hollows and does it provide habitat for any other species?			
2.6	If yes, have nest boxes been installed correctly for one month prior to any removal of existing tree hollows and/or the release of any captured hollow dependent fauna? Record start date and end date of nest boxes.			
2.7	Will an arborist be used or consulted? [If yes, attach report] And state proposed method of removal			
2.8	Has the Tree Survey been completed and submitted? List the number and type of trees to be removed			
2.9	Have the relevant credits been retired and the register updated			
2.10	Have options to reuse native tree and vegetation been investigated? If not possible has consultation with all stakeholders been completed?			
2.11	If clearing, grubbing or any activity to trigger ground disturbance is being undertaken has a DSI been completed or an approved low risk tech memo? Detail activity.			
2.12	Is there weeds on the site? Detail weed management that will be undertaken prior to clearing			
2.13	Detail measures proposed to stabilise area after removal [include approved ERSED plan]			
2.14	Ground engaging equipment must be confirmed as weed free before entering the site			
2.15	Operators working in the area have been shown the clearing limits by Area Supervisor.			
2.16	Personnel undertaking works are appropriately trained and aware of environmental risks.			
2.17	Approved mulch storage locations are available, sign-posted, mapped and have been communicated to relevant workers			

2.18	Approved topsoil storage locations are available, sign-posted, mapped and have been communicated to relevant workers. Topsoil stockpiles to be less than 2m high.			
2.19	Approved subsoil storage locations are available and have been communicated to relevant workers			
2.20	Will any facilities or services be affected during removal/cutting/lopping/ringbarking of the vegetation? (e.g underground gas/watermains, overhead communication cables power lines)			
2.21	On the day of clearing/disturbance activities, an environmental representative is to sign off on the **Pre-Clearing Inspection Checklist** before clearing activities are carried out.			

SECTION 3 – PERMIT ISSUE (Completed by Permit Issuer – Enviro team)					
Permit Tracking Information	Permit # Status Received by Environmental Representative/Advisor: DD/MM/YY Submitted to Client for Approval (if required): DD/MM/YY Followed up: DD/MM/YY Approval Received: DD/MM/YY				
I confirm the work area is controlled and authorise work to proceed in strict accordance with the conditions stated in this Work Permit and associated Work Pack documents and Site Environmental Plans.					
Permit Issuer		**Signature**		**Date & Time**	

SECTION 4 – PERMIT ACCEPTANCE (Completed by Permit Holder – Site supervisor)					
I confirm and accept the conditions stated in this Work Permit and associated work activity documents. I will ensure strict adherence to these conditions and all persons under my control will be advised accordingly.					
Permit Holder		**Signature**		**Date & Time**	

Equipment operators involved in clearing have been advised of all Permit conditions and understand limits of work and clearing controls.					
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	
Name		**Signature**		**Date**	

SECTION 5 – CLOSE OUT					
Project Environmental Representative Sign Off					
Name		**Signature**		**Date**	
Client Representative Sign Off (if needed)					
Name		**Signature**		**Date**	
Area Supervisor Sign Off					
Name		**Signature**		**Date**	

Annexure D Fauna Handling Procedure

FAUNA HANDLING PROCEDURE

MANAGEMENT AND RESPONSIBILITY

All personnel are to attend the project induction and toolbox talks. — Site Supervisor, Environmental Coordinator

FAUNA ENCOUNTERED

If any native fauna is encountered, stop work in the immediate area and contact the Environment Coordinator. — Site Supervisor, Environmental Coordinator

The Environment Coordinator is to:

1. In the case of a snake, contact the snake handler. The snake handler will relocate all snakes to a suitable location.
2. In the case of a bat*, contact the project ecologist to relocate the bat to a suitable location.

To minimise stress to fauna during relocation:

1. Ensure appropriate PPE (e.g. leather gloves) prior to attempting to handle fauna.
2. Cover larger animals with a towel or blanket and place in a cardboard box and/or hessian bag.
3. Place smaller animals in a cotton bag, tied at the top; keep the animal in a quiet, warm, ventilated and dark place.
4. If fauna is not injured, relocate to a suitable location. If cats or dogs are found, return to owner or local animal shelter.

— Site Supervisor, Site Engineer, Environmental Coordinator

INJURED FAUNA

For snakes and bats* that are seriously injured and require immediate attention, the appropriate rescue service, ecologist or snake handler will be called immediately. For all other native fauna, agreement will be made with the rescue agency if the animal will be collected or taken to animal hospital. — Site Supervisor, Environmental Coordinator, Environment Manager

Rescue Service Contact

WIRES	**1300 094 737**
RSPCA (Emergency Line)	**02 9770 7556**
Sydney Snake Catchers	**1300 599 938**
Small Animal Hospital - Ryde	**02 9889 0289**
Vet Hospital – St Marys	**02 98339321**
Vet Hospital – Orchard Hills	**02 47362027**
Vet Hospital – Rossmore	**02 96066984**

***Australian Bat Lyssavirus (ABL) Warning**

Australian Bat Lyssavirus is a rabies like virus that can infect humans if they are bitten or scratched by an infected bat. Bats that are symptomatic with the virus often behave as if injured, disorientated or unwell.

Under no circumstances should unvaccinated and untrained personnel approach, capture or handle Grey-Headed Flying Foxes or microbat species.

PROTOCOL

HANDLING PROCEDURE

1. If the animal cannot be handled (i.e. venomous snake or bats), the exact location of the animal is to be recorded and provided to the snake handler or project ecologist. All personnel and/or subcontractors are to be excluded from the vicinity.
2. If the animal requires immediate attention, as determined by the Environmental Coordinator in consultation with the project ecologist or fauna specialist (where required), a rescue service will be contacted.
3. In the event the rescue service cannot attend the site, the Environmental Coordinator will deliver the injured/captured animal (other than snakes or bats) to the animal service/shelter as soon as practical.
4. If the animal is a threatened species that was not previously identified, the Environment Manager is to notify the Principal and the ER. In consultation with relevant stakeholders, the Environment Manager and project ecologist will implement any corrective action and additional safeguards required. Refer to Section 6.8.4 of the Preparatory CEMP for additional details.

RELEASE PROCEDURE
(native fauna other than snakes or bats)

If the animal is not injured, the Environment Coordinator in consultation with the project ecologist (where required) may release the fauna into a suitable area in accordance with the following procedures:

1. The Environment Coordinator in consultation with the project ecologist is responsible for undertaking the release. Release sites should be identified during pre-clearing inspections.
2. Animals must be released in suitable habitat as close as possible to the original capture location where possible. Cumberland Plain Land Snails should be released in areas with thick leaf/ bark cover or areas with numerous fallen logs.
3. If the species is nocturnal, release should be carried out at dusk if practicable. Animals can be left in nest boxes at dusk and allowed to vacate them passively. The nest box can then be inspected in the morning.

DOMESTIC ANIMALS

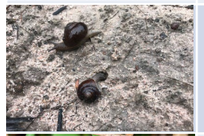
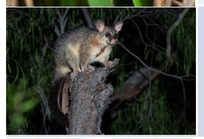
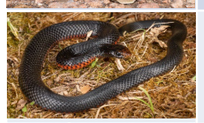
If the animal is not aggressive, the Environmental Coordinator in consultation with the Community and Stakeholder Team to make arrangements for the animal to be returned to its or the local council animal shelter. If the animal is aggressive, the Environment Coordinator is to arrange for the local council animal control officer to collect the animal.

If the animal is injured and not aggressive, the Environment Coordinator will take the animal to the nearest vet.

REPORTING

Records of any fauna handling and release locations will be retained.

Threatened and Common Fauna that could be Encountered

Image	Name	EPBC Act Listing	BC Act Listing
	Southern Myotis *Myotis marcopus* *	Not Listed	Vulnerable
	Grey-headed Flying Fox *Pteropus poliocephalus* *	Vulnerable	Vulnerable
	Cumberland Plain Land Snail *Meridolum corneovirens**	Not Listed	Endangered
	Green and Golden Bell Frog *Litoria aurea* *	Vulnerable	Endangered
	Brush-tailed Possum *Trichosurus vulpecula* *	Not Listed	Not Listed
	Ring-tailed Possum *Pseudocheirus peregrinus* *	Not Listed	Not Listed
	Blue Tongue Lizard *Tiliqua scincoides* *	Not Listed	Not Listed
	Red-bellied Black Snake *Pseudechis porphyriacus* *	Not Listed	Not Listed
	Eastern Brown Snake* *Pseudonaja textilis*	Not Listed	Not Listed

* Images © Henry Cook AMBS Ecology and Heritage

Annexure E Dam Dewatering Procedure

DAM DEWATERING PROCEDURE FOR AQUATIC FAUNA MANAGEMENT

MANAGEMENT AND RESPONSIBILITY

ASSESSMENT OF PROPOSED DAM DEWATERING SITE

Are all permits for water discharge valid in accordance with Water Reuse and Discharge Management Procedure?

Site Supervisor
Project Engineer
Environmental Coordinator

Y

N

Contact the Environmental Coordinator to obtain appropriate permits

Dam boundaries demarcated and Dam Dewatering Checklist completed

Environmental Coordinator
Environment Manager

Implement Environmental Controls (where required) in accordance with this procedure.

Site Supervisor
Environmental Coordinator

PROTOCOL

Prior to Dewatering

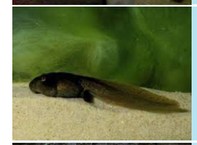
- Sample water to review parameters including pollutants, metals, turbidity, salinity and dissolved oxygen.
- Identify water discharge limits and sites in accordance with the Water Reuse and Discharge Management Procedure.
- Engage the project ecologist to conduct an inspection to identify potential fauna hazards including the presence of waterbird nests.
- Identify a suitable fauna relocation site.

Dewatering Supervision and Fauna Handling

- All dewatering is to be supervised by project ecologist.
- Inlet valve of water pump should be paced within a netted exclusion box to reduce risk of aquatic fauna being sucked into pump. Outlet valves should be visible to project ecologist so that they can be monitored for unexpected fauna capture.
- Pump should be set up within bund that prevents petrochemical spills from entering dam boundaries.
- Any wetland bird species nests will require relocation prior to dewatering. This is to be done in consultation with project ecologist.
- Plastic storage tubs should be kept to store any rescued fauna, including native fish and freshwater turtles until relocation can be completed. Fauna should be stored in a shady location.
- If a threatened species is identified that was not previously recorded in the EIS, the Environment Manager is to notify the Principal and the ER. Refer to Section 6.8.4 of the Preparatory CEMP for additional details on unexpected threatened fauna process.
- All non-native vertebrate fauna will be separated out from native fauna and euthanised in accordance with the project ecologist's Ethics Permit (refer to Guide to Acceptable Procedures and Practices for Aquaculture and Fisheries Research, DPI 2017).
- If dewatering requires multiple days and the banks of the dam have a steep gradient, egress ramps will be built to assist in natural migration of mobile species such as freshwater turtles. The ecologist will provide recommendations to minimise risks to fauna harm during movement from the dam.
- Once dewatering is complete, an excavator should gently remove loose sediments from the bottom of the dam under the supervision of the ecologist.
- Dewatering should cease if signs of fauna distress, including fish struggling to breath, are observed.

Fauna relocation

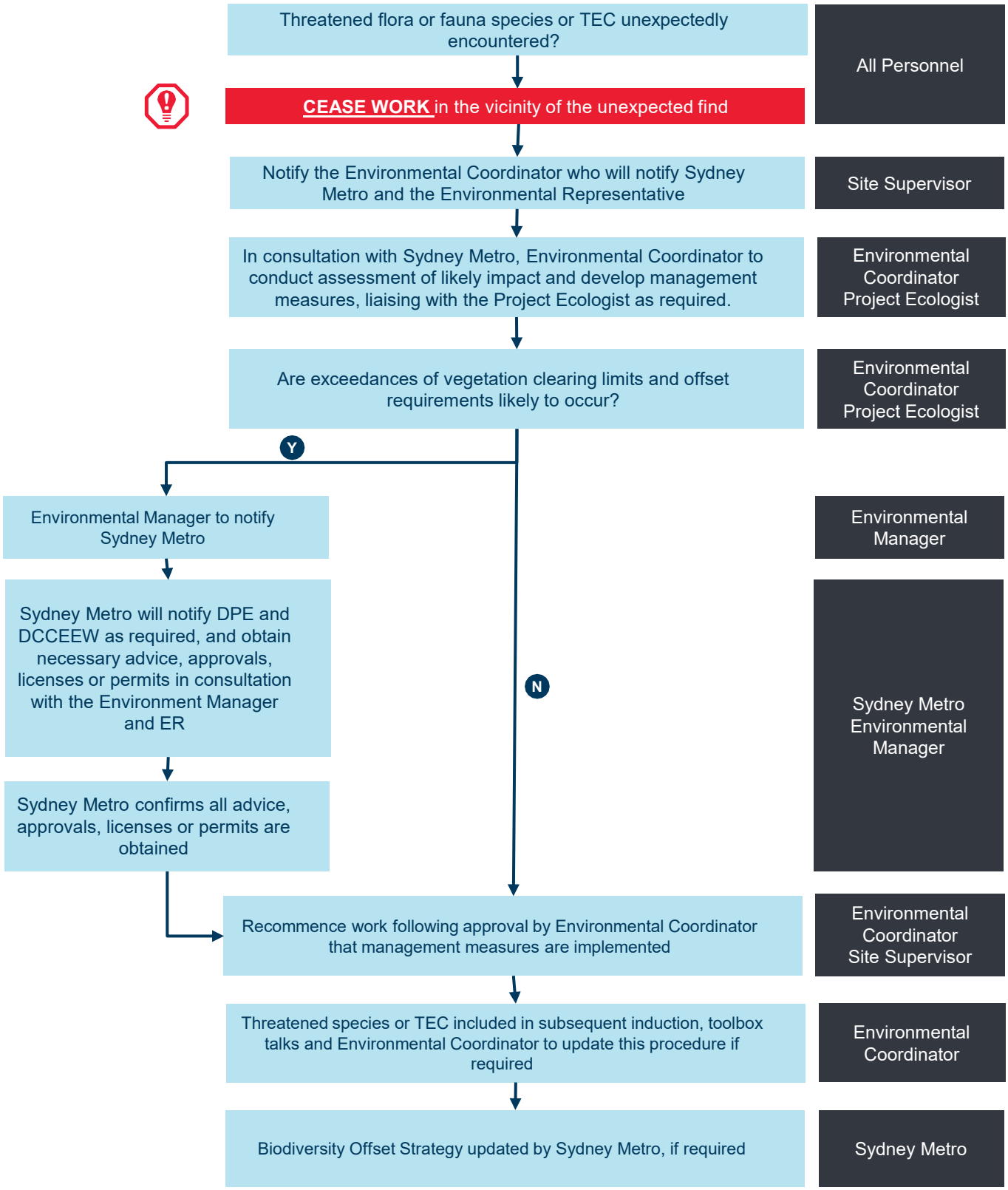
- Fauna should be taken to a suitable habitat within a reasonable time from capture. For native fish including eels, this should be within two hours of capture or if signs of distress are observed.
- Release of fish should be done using water acclimatisation. When at the release site, water from the dam or creek which is being used for release should be introduced into the holding container in 15-minute increments so that the fauna can acclimatise.
- Once released, the project ecologist should observe the fauna until they are comfortable that the animals are not in distress; any fauna that show signs of distress or injury should be taken to the nearest animal hospital or rescue service.
- Records of fauna capture and release should be retained.

IMAGE	SPECIES
	Name: Long-finned Eel *Anguilla reinhardtii* Status: Native
	Name: Short-finned Eel *Anguilla australis* Status: Native
	Name: Tadpole Status: Native
	Name: Eastern Long-necked Turtle *Chelodina longicollis* Status: Native
	Name: Red-eared Slider *Trachemys scripta elegans* Status: Non-native Euthanasia: Veterinarian required for euthanasia **NOTE: All staff have a general biosecurity duty to report records of this species to DPE under the Biosecurity Act 2015**
	Name: European Carp *Cyprinus carpio* Status: Non-native Euthanasia: Ice Water and Clove Oil
	Name: Mosquito Fish or Eastern Gambusia *Gambusia holbrooki* Status: Non-native Euthanasia: Ice Water and Clove Oil

WIRES	**1300 094 737**
RSPCA (Emergency Line)	**02 9770 7556**
Sydney Snake Catchers	**1300 599 938**
Small Animal Hospital - Ryde	**02 9889 0289**
Vet Hospital – St Marys	**02 98339321**
Vet Hospital – Orchard Hills	**02 47362027**
Vet Hospital – Rossmore	**02 96066984**

Annexure F Unexpected finds procedure

UNEXPECTED THREATENED SPECIES FIND PROCEDURE



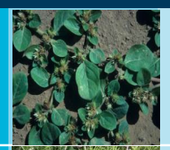
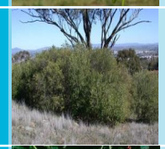
Annexure H Weed management procedure

WEED MANAGEMENT PROCEDURE

MANAGEMENT AND RESPONSIBILITY

Have weeds been identified within the boundary of the Preparatory Works?	Environmental Coordinator Site Supervisor
Y: Environment Manager and Safety Manager approval required prior to use of non-glyphosate herbicide N: Landowner and Environment Manager approval required prior to use of herbicides outside of Preparatory Works boundary.	Environment Manager Site Supervisor
HOLD POINT A pre-clearing inspection and Pre-Clearing and Grubbing Checklist must be completed prior to weed removal works.	Environmental Coordinator Project Ecologist
Herbicide application to be administered by authorised personnel in accordance with the SDS, SWMS, and the requirements of the Pesticides Act 1999.	Site Supervisor
STABILISATION OF AREA Following weed control, any bare soil areas will be assessed and appropriate mitigation measures implemented i.e. stabilisation, erosion & sediment controls etc.	Site Supervisor
DISPOSAL OF WEEDS • Disposal method to be determined by the Environment Coordinator and may include onsite encapsulation or transport to an appropriate green waste facility. • Weeds controlled with herbicide may be retained in-situ or mulched (removal and disposal is not required).	Environmental Coordinator Site Supervisor
ONGOING MANAGEMENT • Conduct periodic inspections to assess weed re-growth. • Methods such as hand weeding to be used around retained vegetation (onsite) and in adjacent vegetated areas (offsite), to protect vegetation from potential mechanical or chemical damage.	Environmental Coordinator Site Supervisor

WEEDS of NATIONAL SIGNIFCANCE AND PRIORITY WEEDS TO BE CONTROLLED

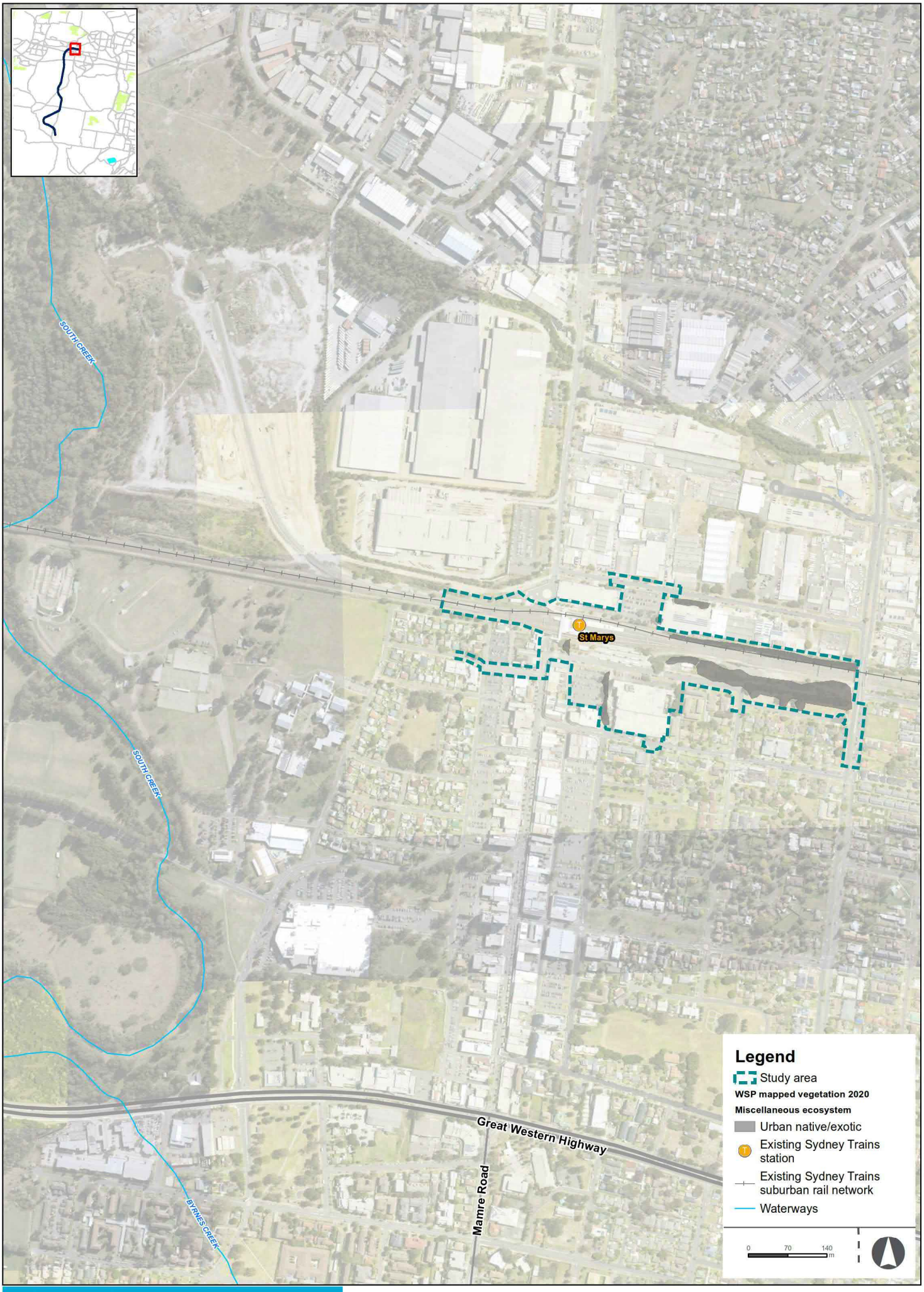
IMAGE*	WEED	SOLUTION	IMAGE*	WEED	SOLUTION
	Name: Sheep Sorrel *Acetosella vulgaris* WoNS: No HT Weed: Yes			Name: Khaki Weed (*Alternanthera pungens)* WoNS: No HT Weed: Yes	
	Name: Moth Vine *Araujia sericifera* WoNS: No HT Weed: Yes			Name: Asparagus Fern *Asparagus aethiopicus* WoNS: Yes HT Weed: Yes	
	Name: Bridal Creeper *Asparagus asparagoides* WoNS: Yes HT Weed: Yes			Name: Green Cestrum *Cestrum parqui* WoNS: No HT Weed: Yes	
	Name: African Love Grass *Eragrostis curvula* WoNS: No HT Weed: Yes			Name: Small-leafed Privet *Ligustrum sinense* WoNS: No HT Weed: Yes	
	Name: African Box Thorn *Lycium ferocissimum* WoNS: Yes HT Weed: Yes			Name: African Olive *Olea europaea* WoNS: No HT Weed: Yes	
	Name: Castor Oil Plant *Ricinus communis* WoNS: No HT Weed: Yes			Name: Blackberry *Rubus fruticosus* complex WoNS: Yes HT Weed: Yes	
	Name: Fireweed *Senecio madagascariensis* WoNS: Yes HT Weed: Yes			Name: Bathurst Burr *Xanthium spinosum* WoNS: No HT Weed: Yes	
	Name: *Chrysanthemoides monilifera* WoNS: Yes HT Weed: Yes			Name: *Lantana camara* WoNS: Yes HT Weed: Yes	

* Images sourced from NSW WeedWise (https://weeds.dpi.nsw.gov.au/)

KEY

- Cut and paint herbicide treatment
- Hand weeding
- Scrape and paint herbicide treatment
- Spray with herbicide treatment

Annexure I Existing Environment Figures



Sydney Metro – Western Sydney Airport

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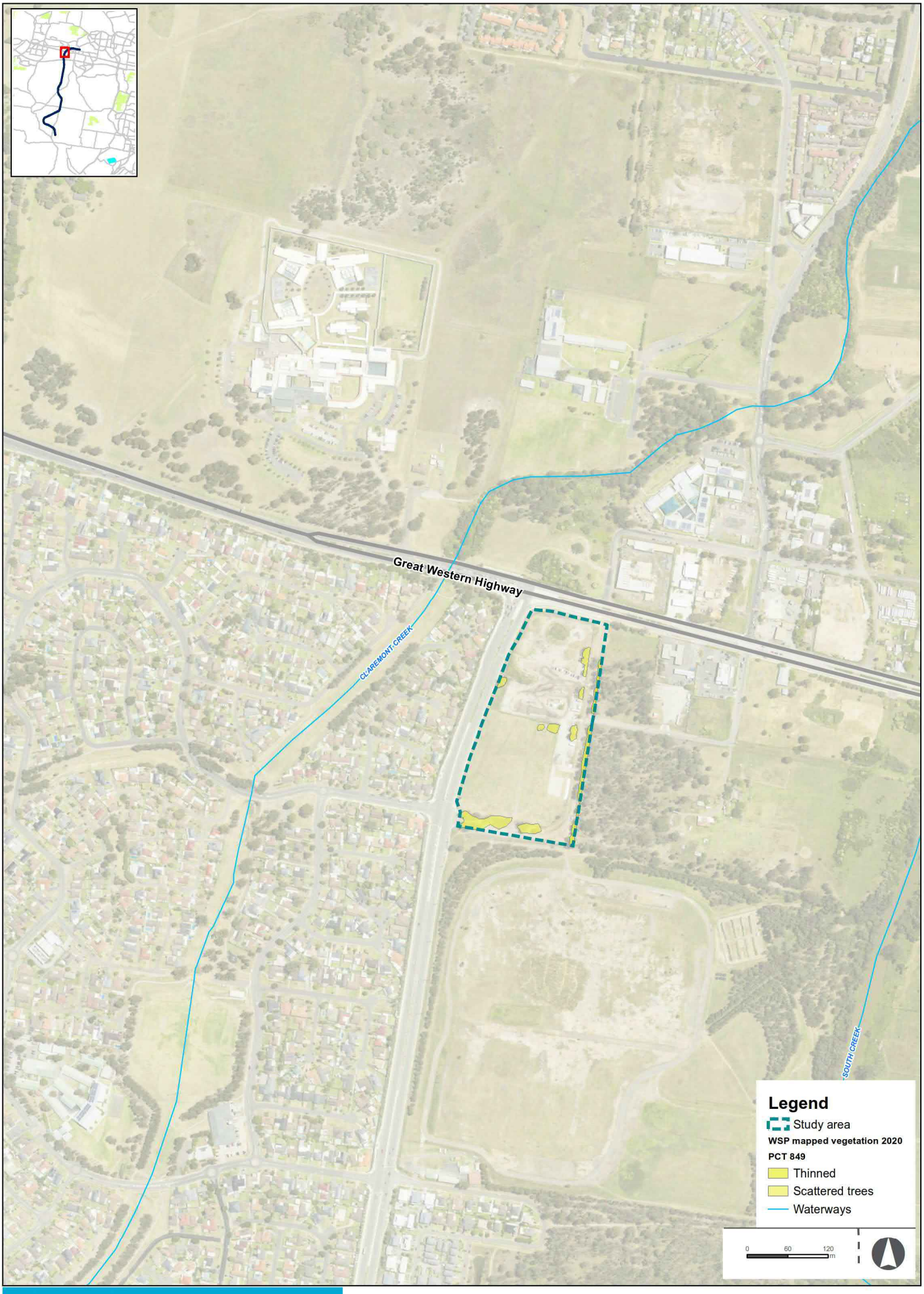
Vegetation types and zones

Figure 5-1a



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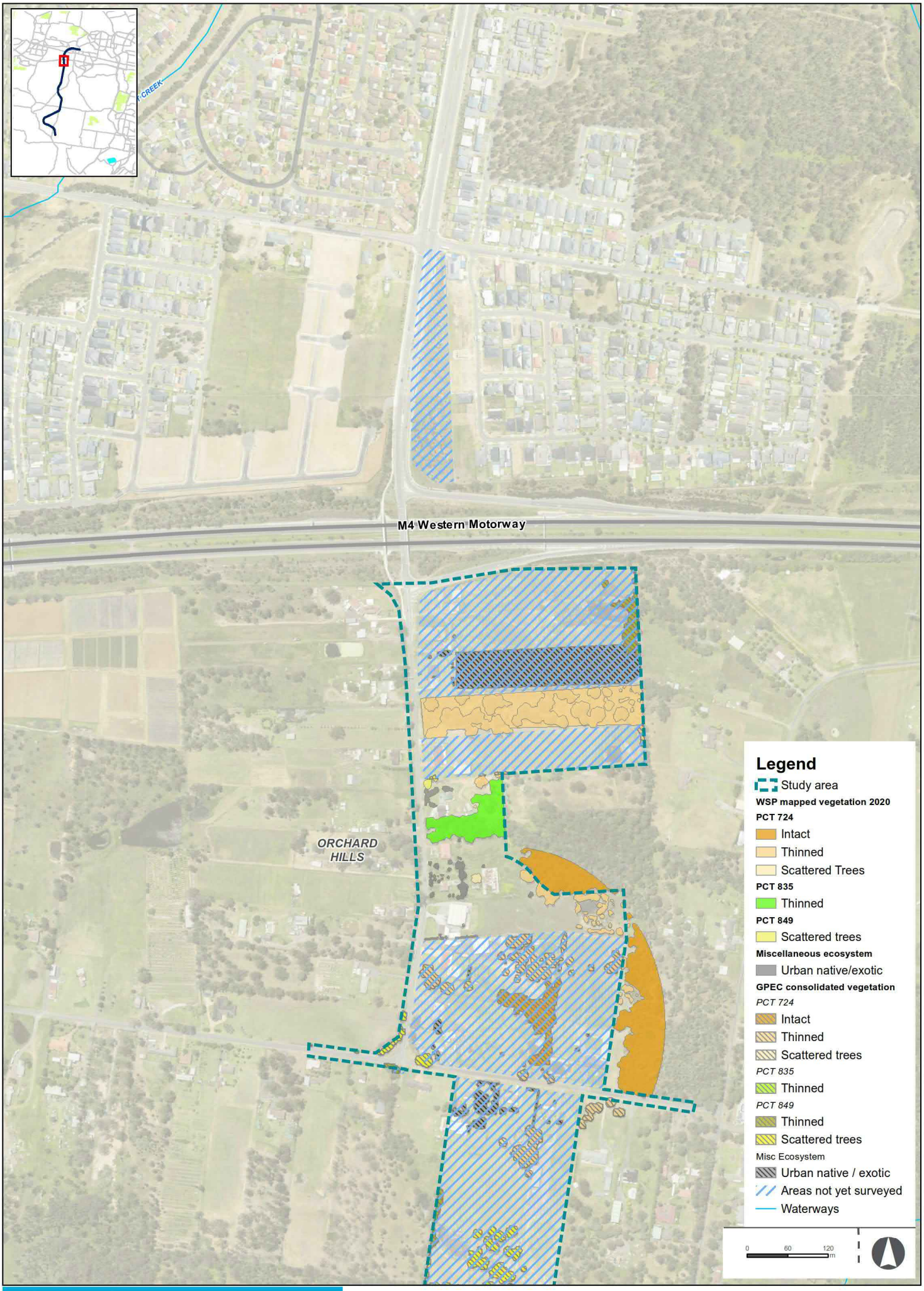
Vegetation types and zones

Figure 5-1b



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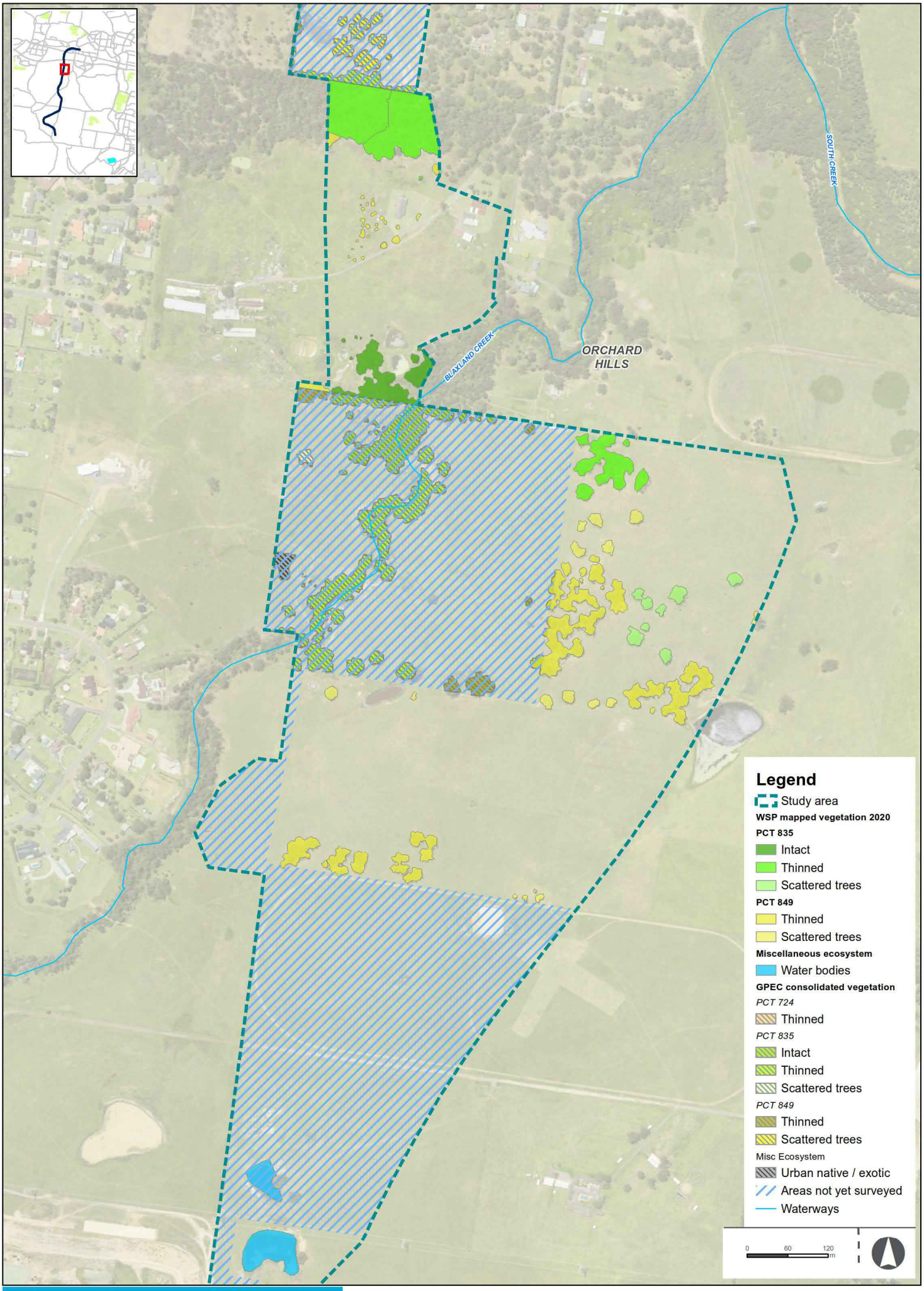
Vegetation types and zones

Figure 5-1c



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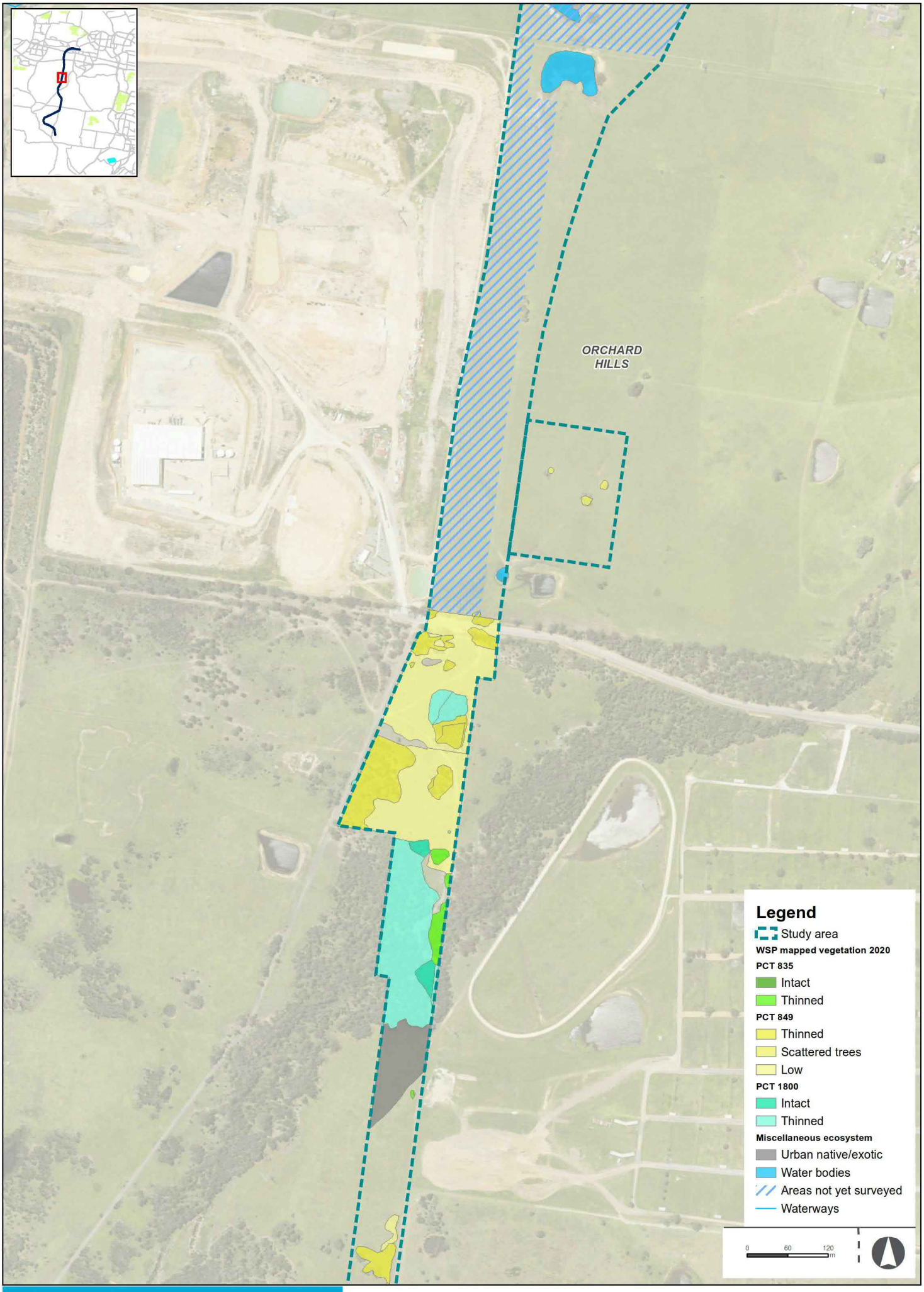
Vegetation types and zones

Figure 5-1d



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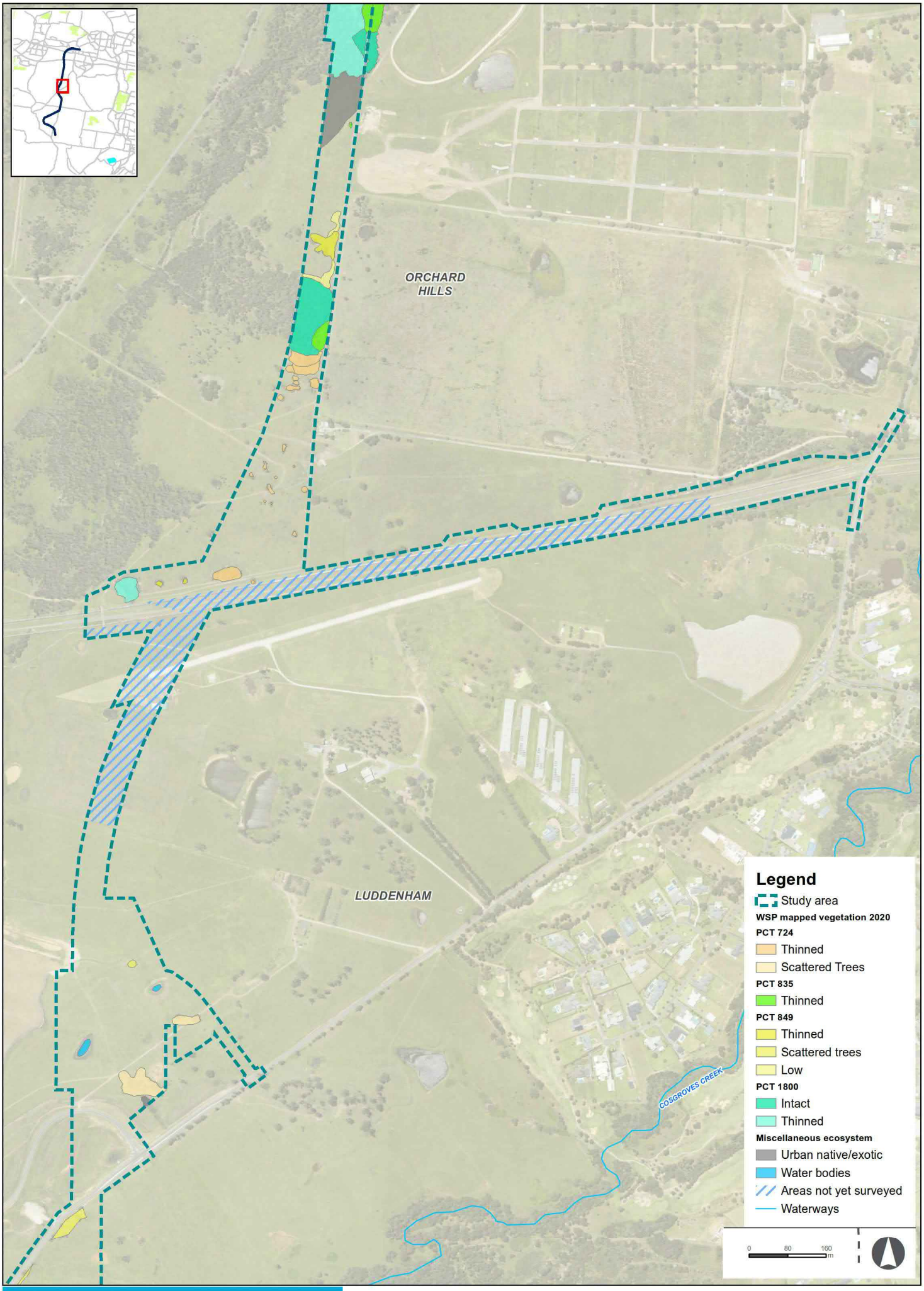
Vegetation types and zones

Figure 5-1e



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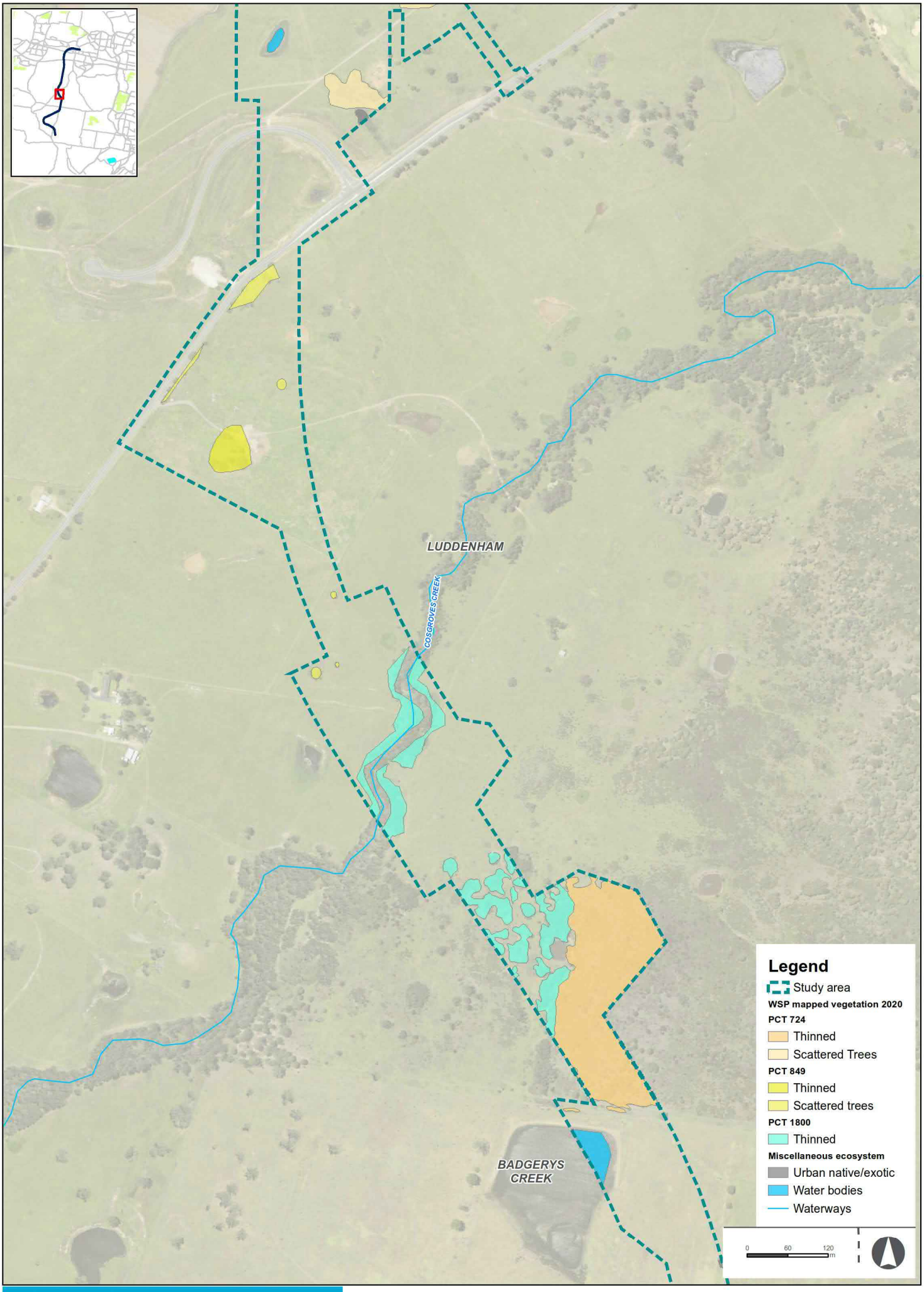
Vegetation types and zones

Figure 5-1f



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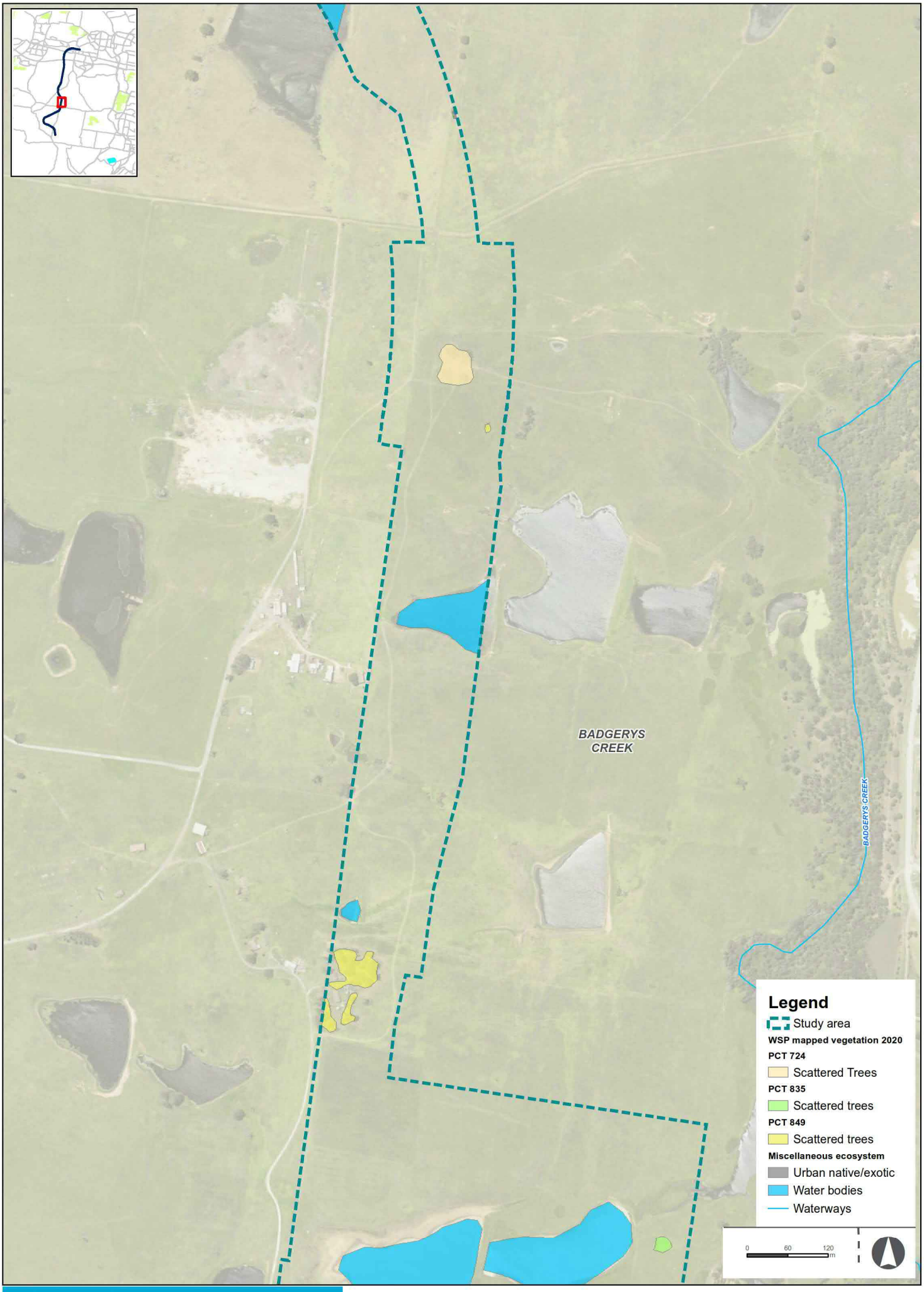
Vegetation types and zones

Figure 5-1g



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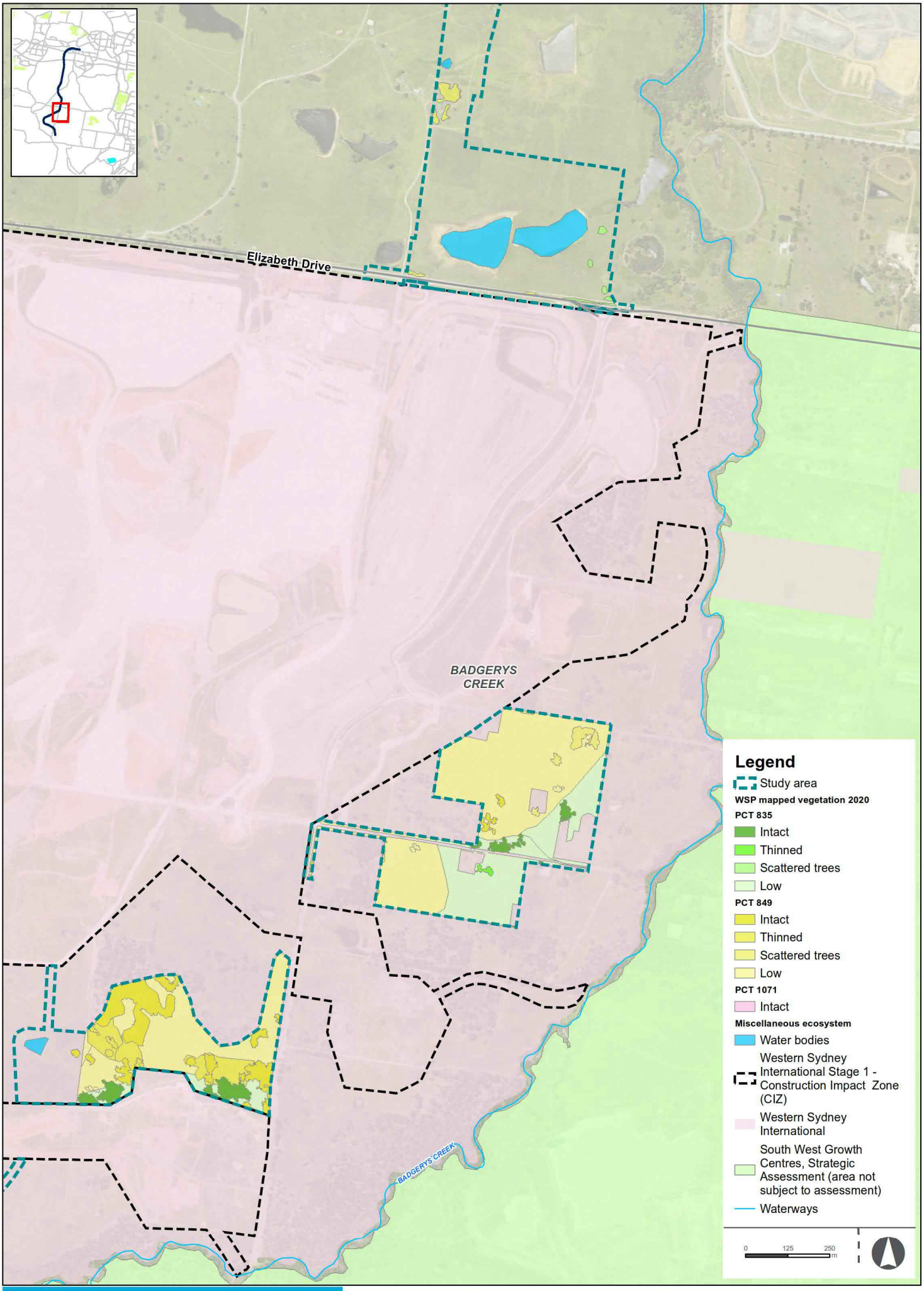
Vegetation types and zones

Figure 5-1h



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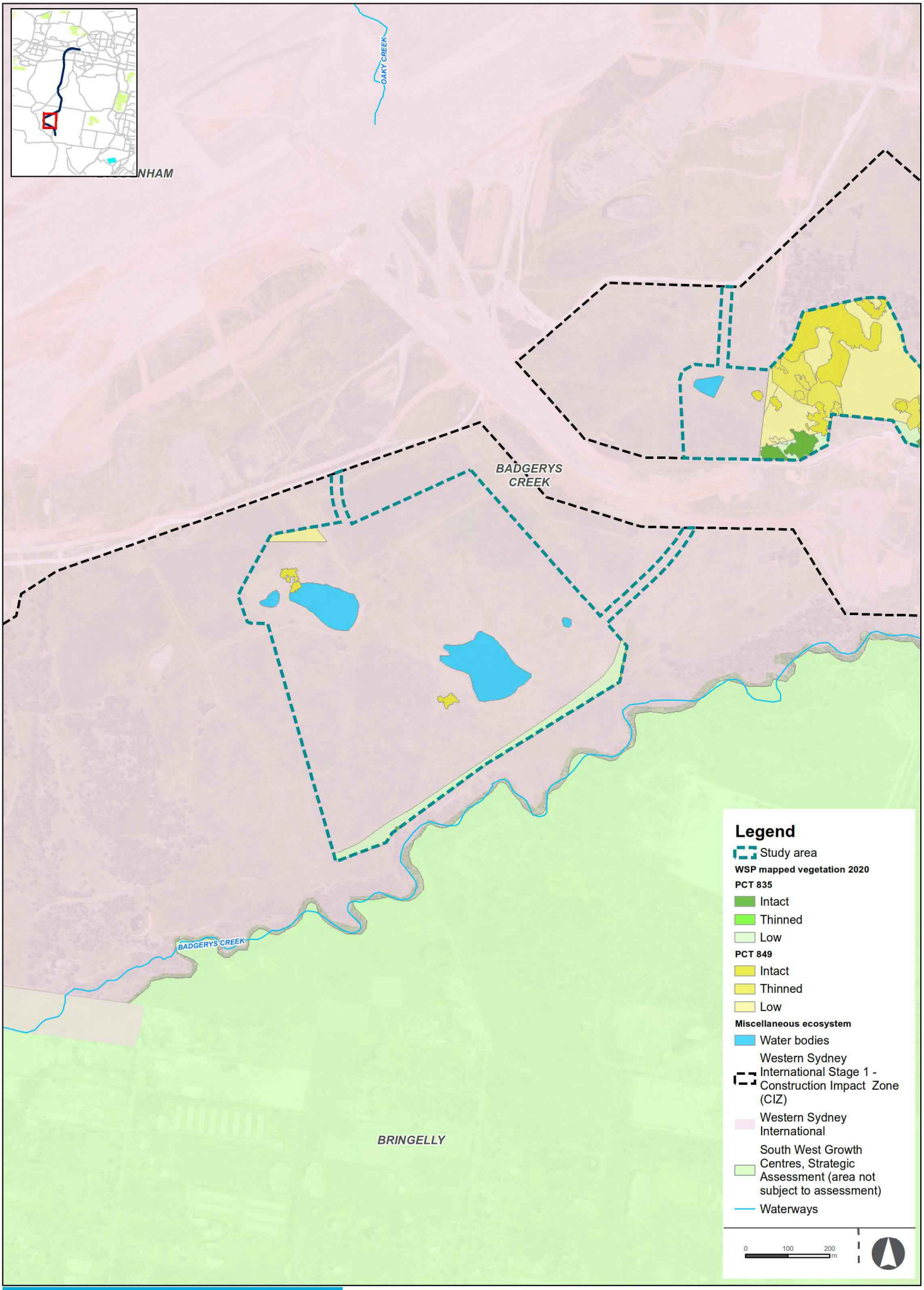
Vegetation types and zones

Figure 5-1i



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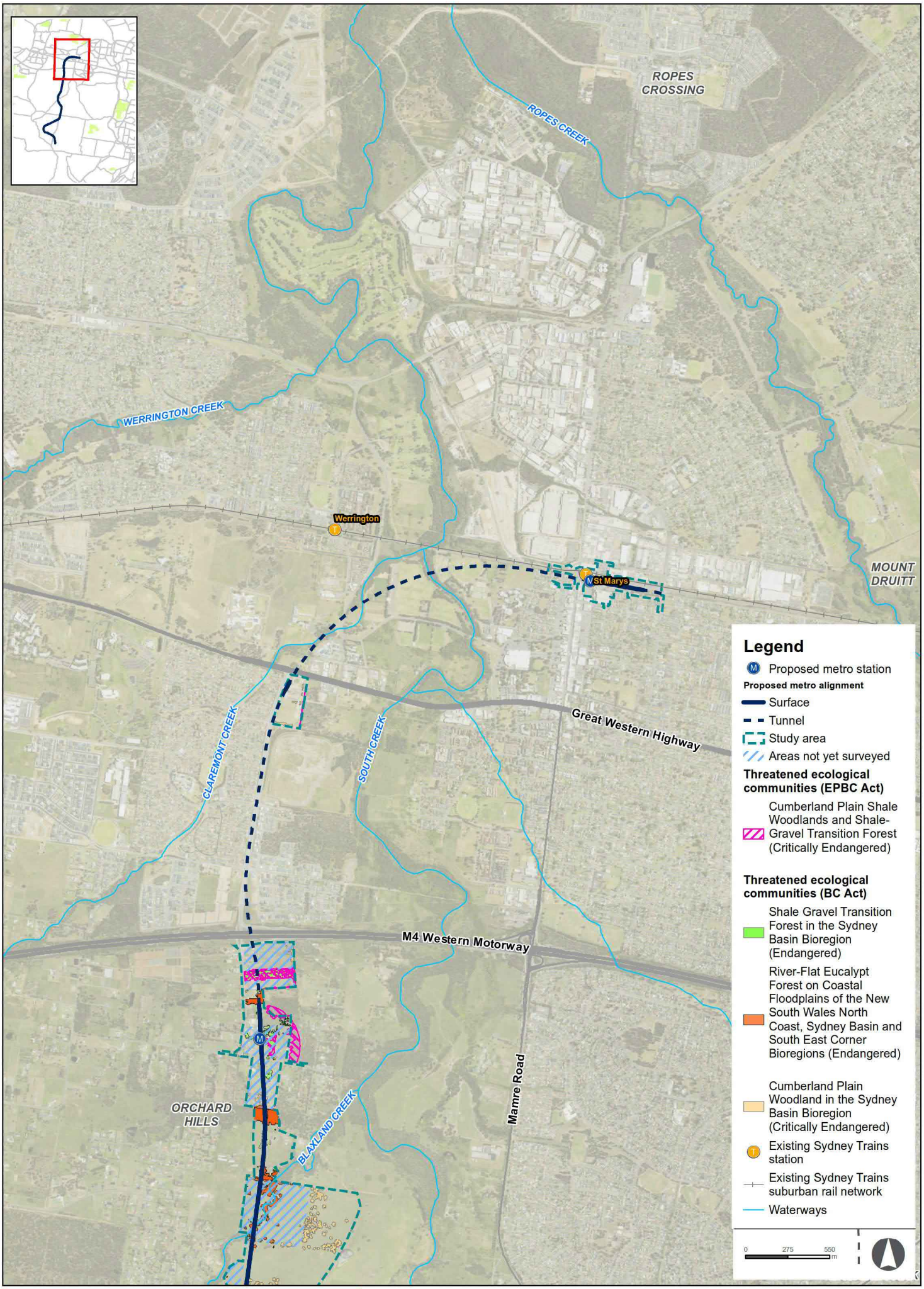
Vegetation types and zones

Figure 5-1j



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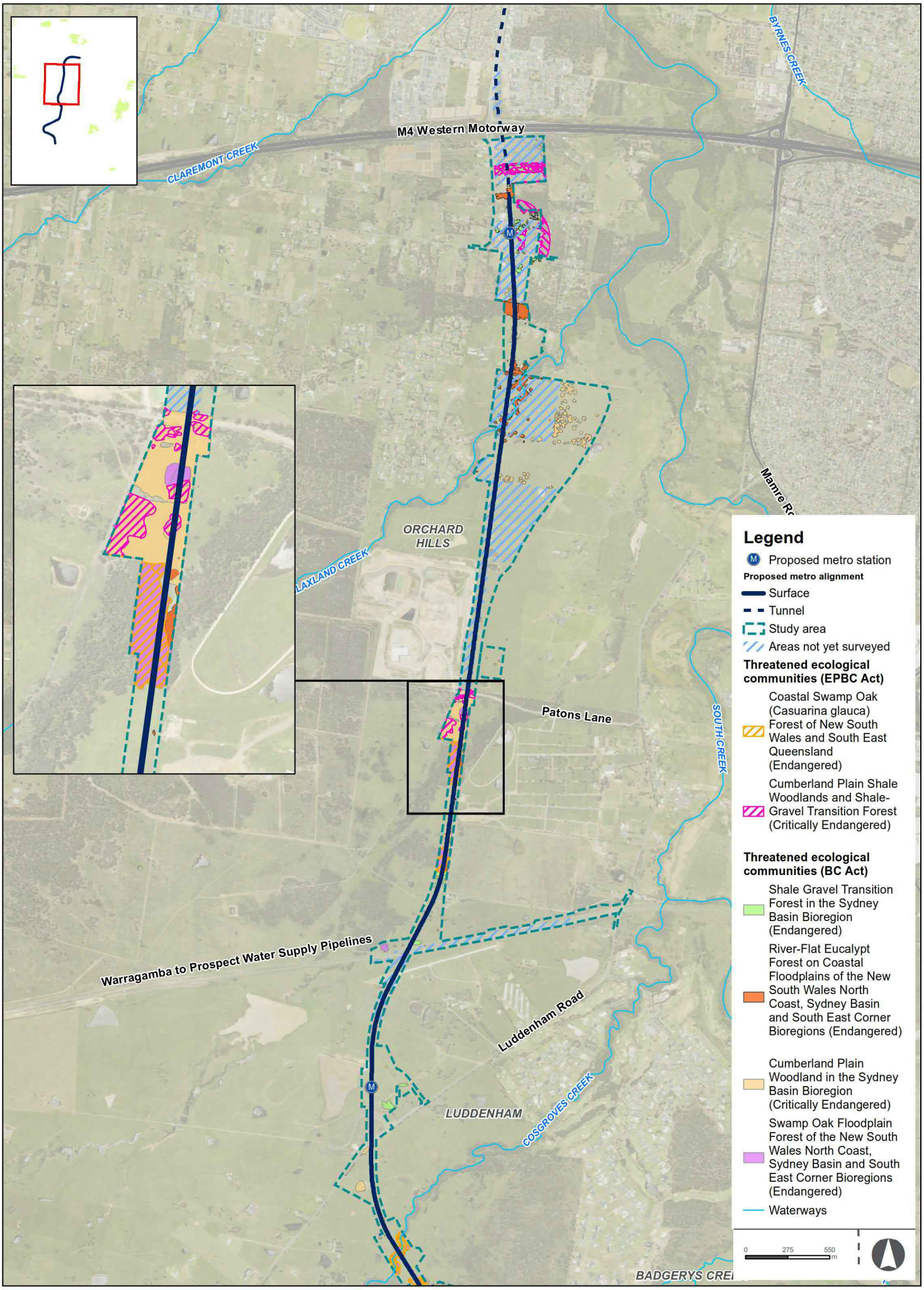
NSW Threatened Ecological Communities

Figure 5-2a



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NSW Threatened Ecological Communities

Figure 5-2b

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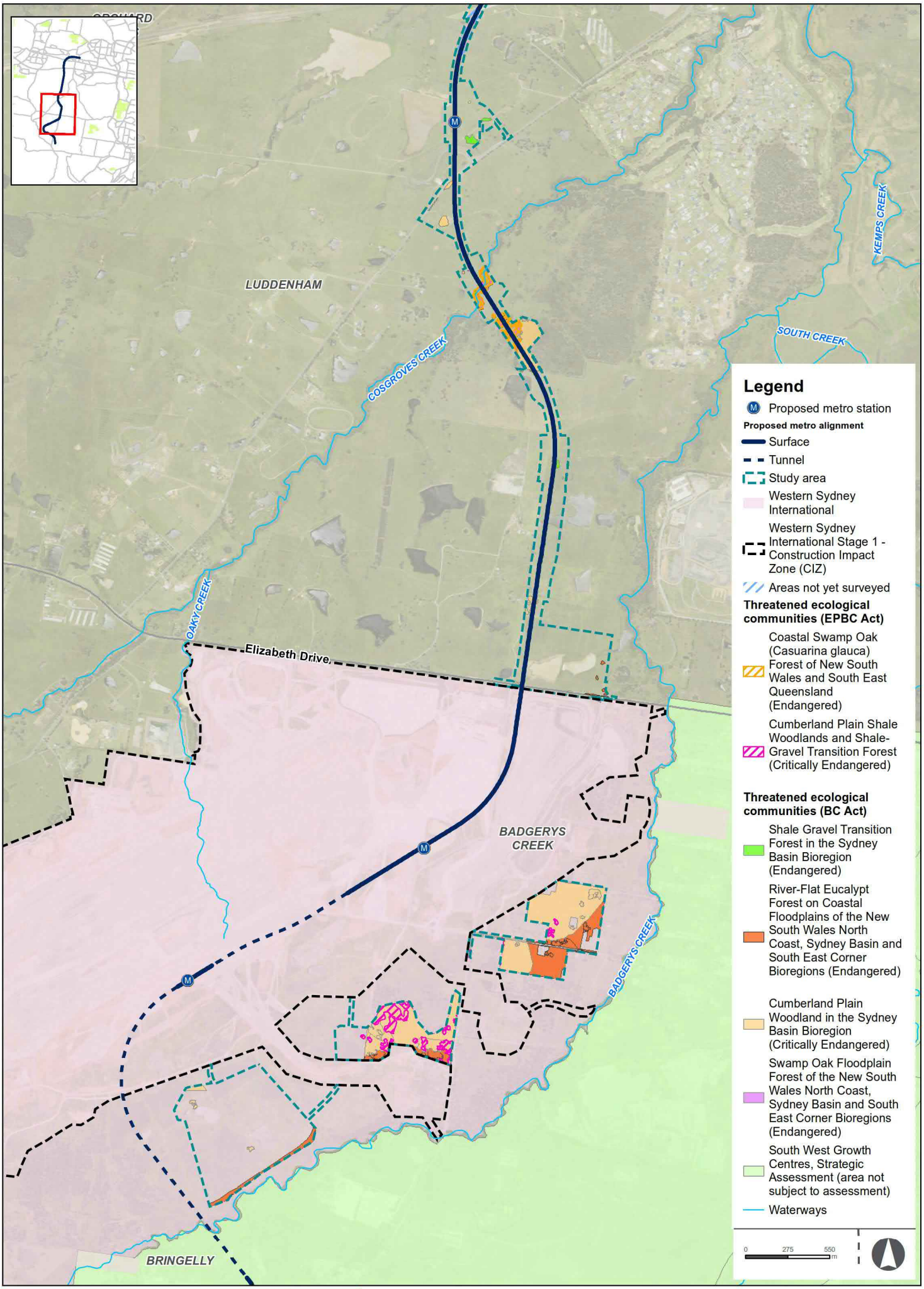

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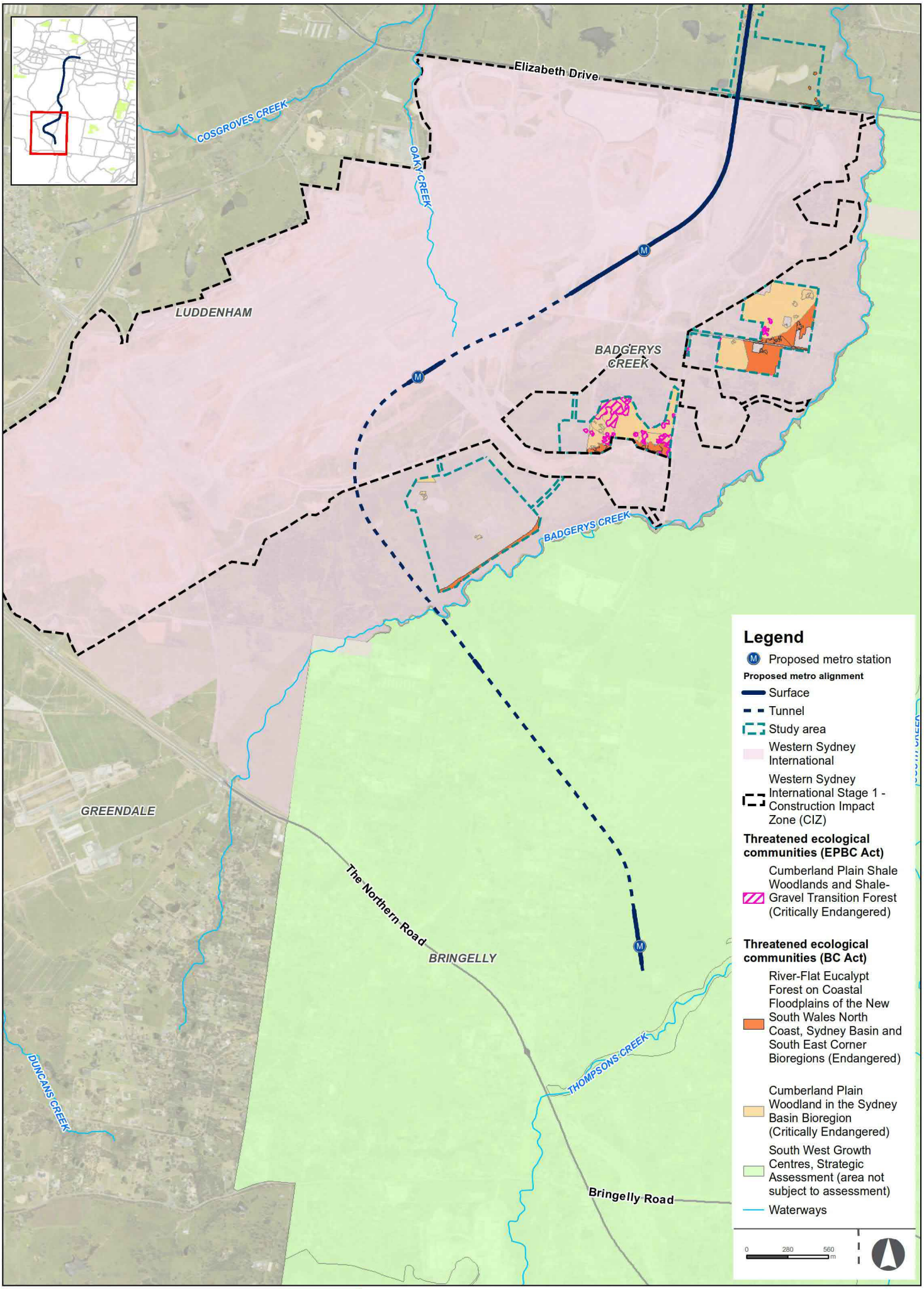
NSW Threatened Ecological Communities

Figure 5-2c



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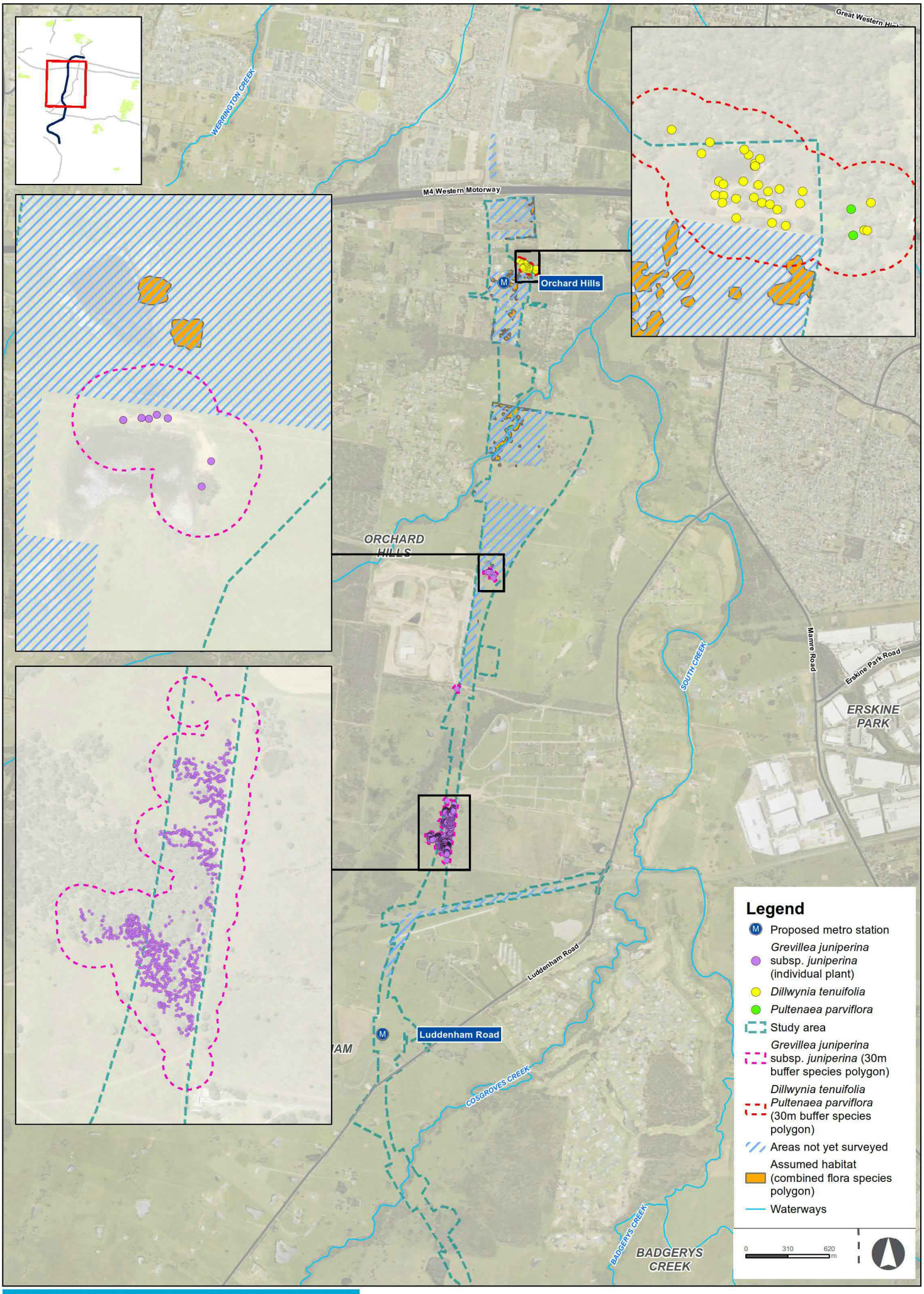
NSW Threatened Ecological Communities

Figure 5-2d

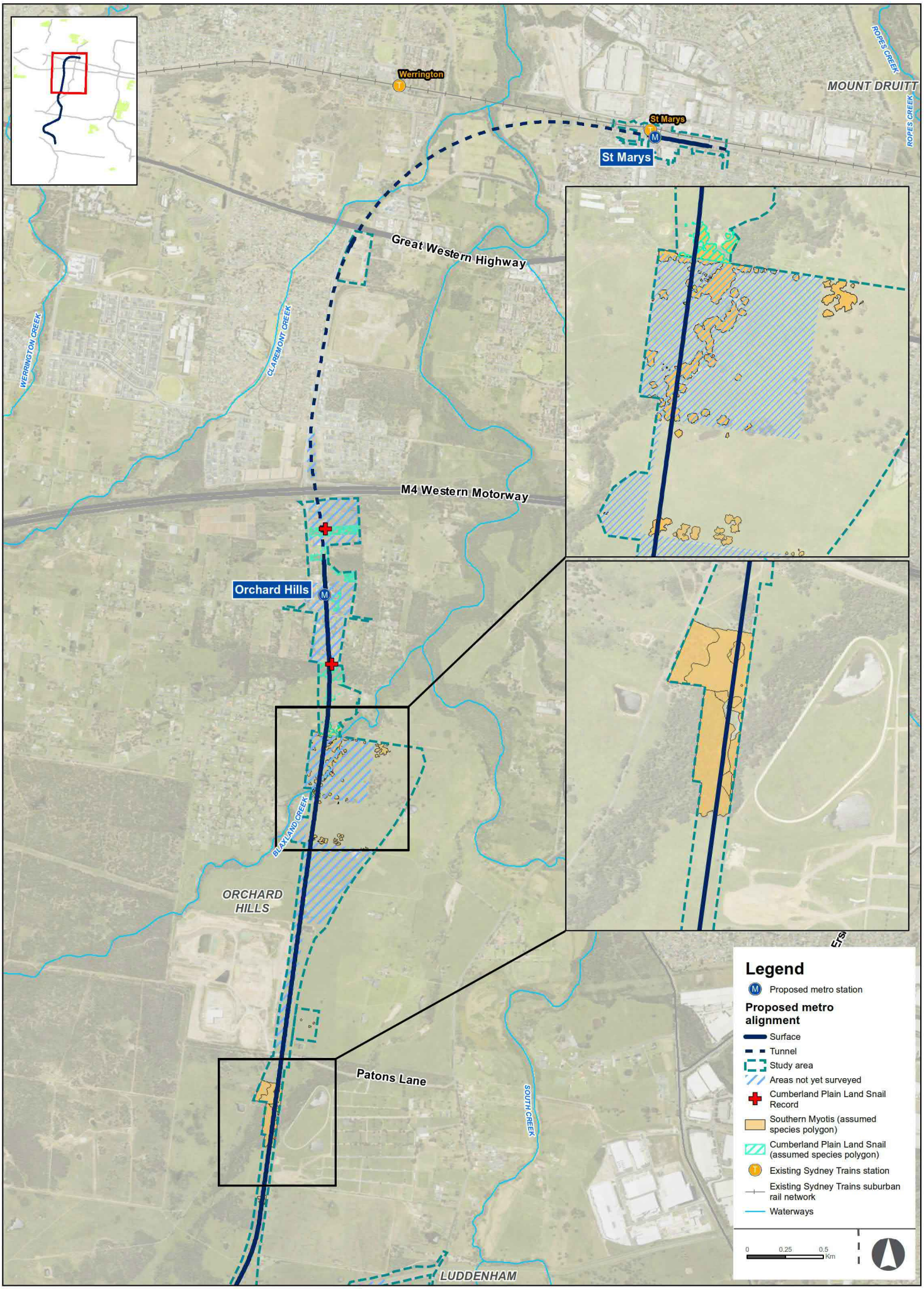


Sydney Metro – Western Sydney Airport

Threatened flora species polygons

Figure 6-1

Indicative only, subject to design development



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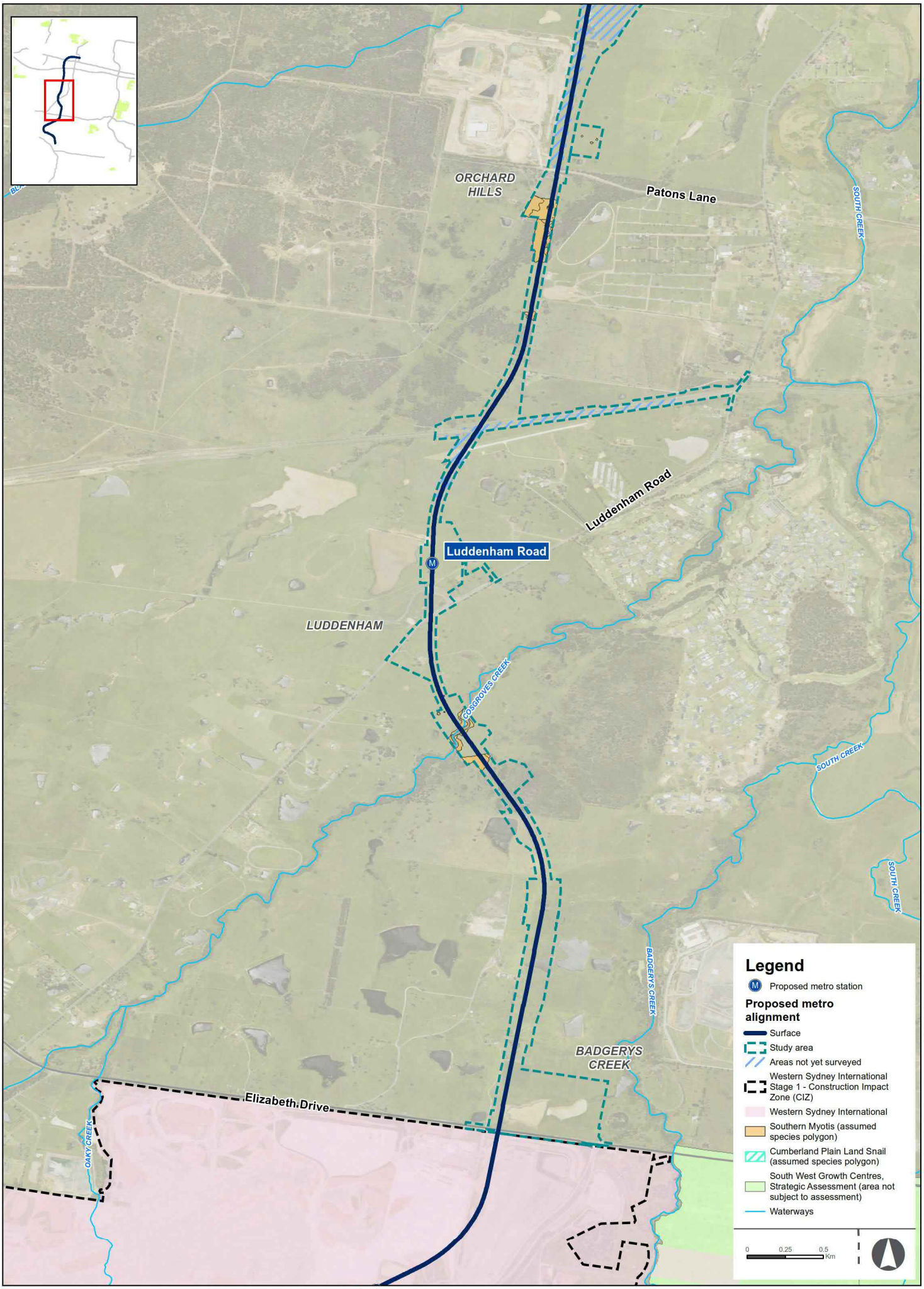
Indicative only, subject to design development

Threatened fauna species polygons

Figure 6-2a



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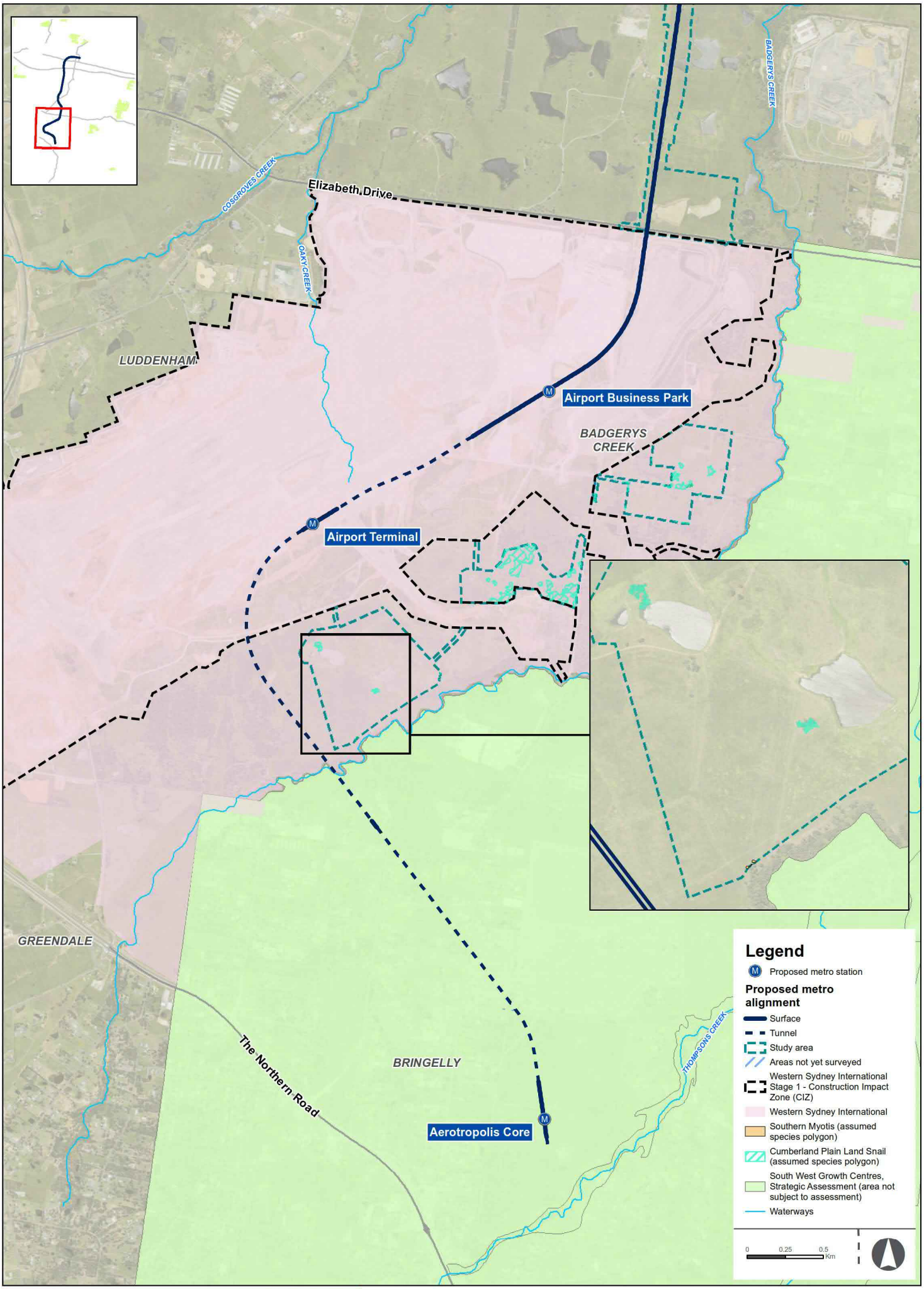
Threatened fauna species polygons

Figure 6-2b

Indicative only, subject to design development



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Sydney Metro – Western Sydney Airport

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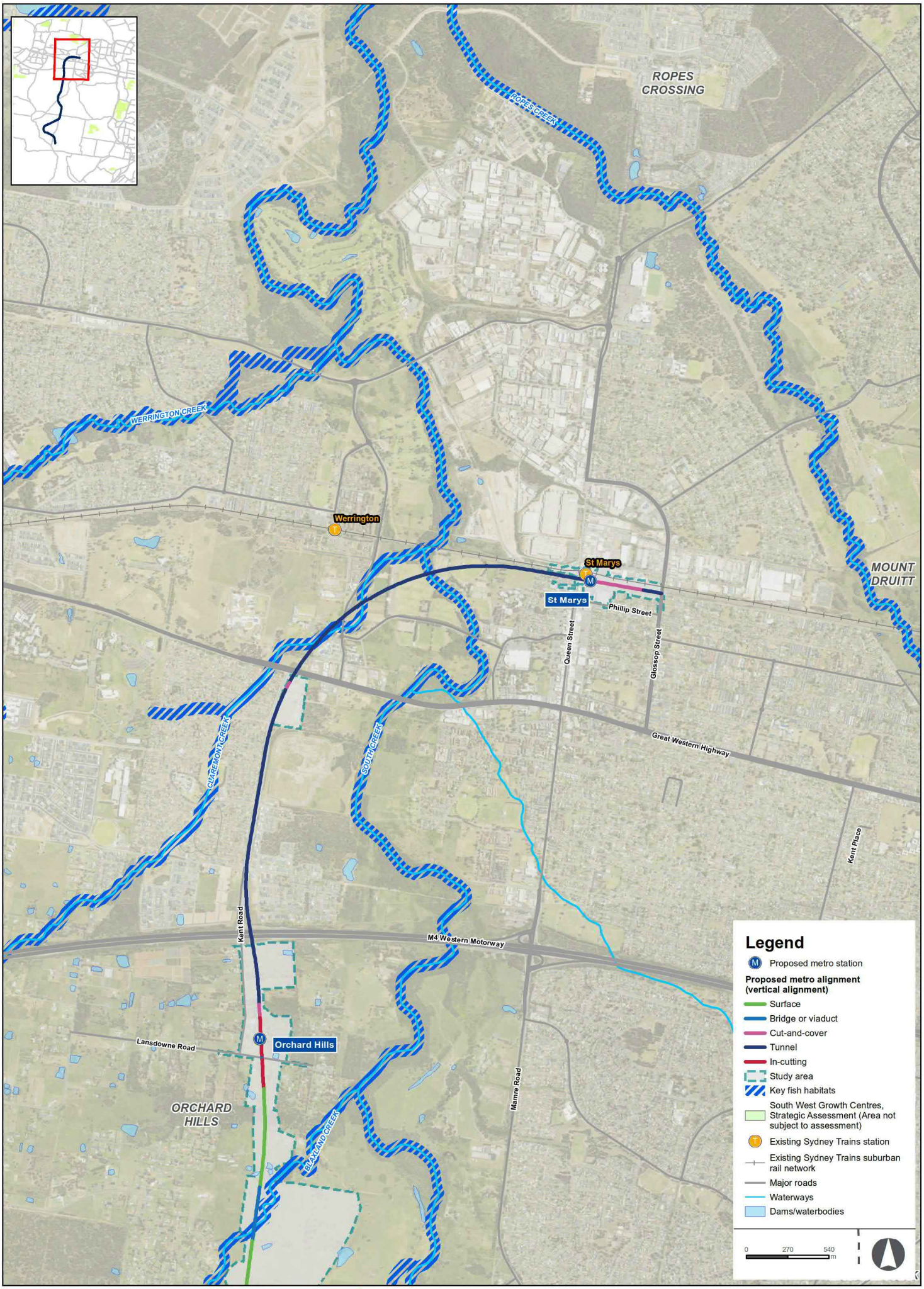
Threatened fauna species polygons

Figure 6-2c



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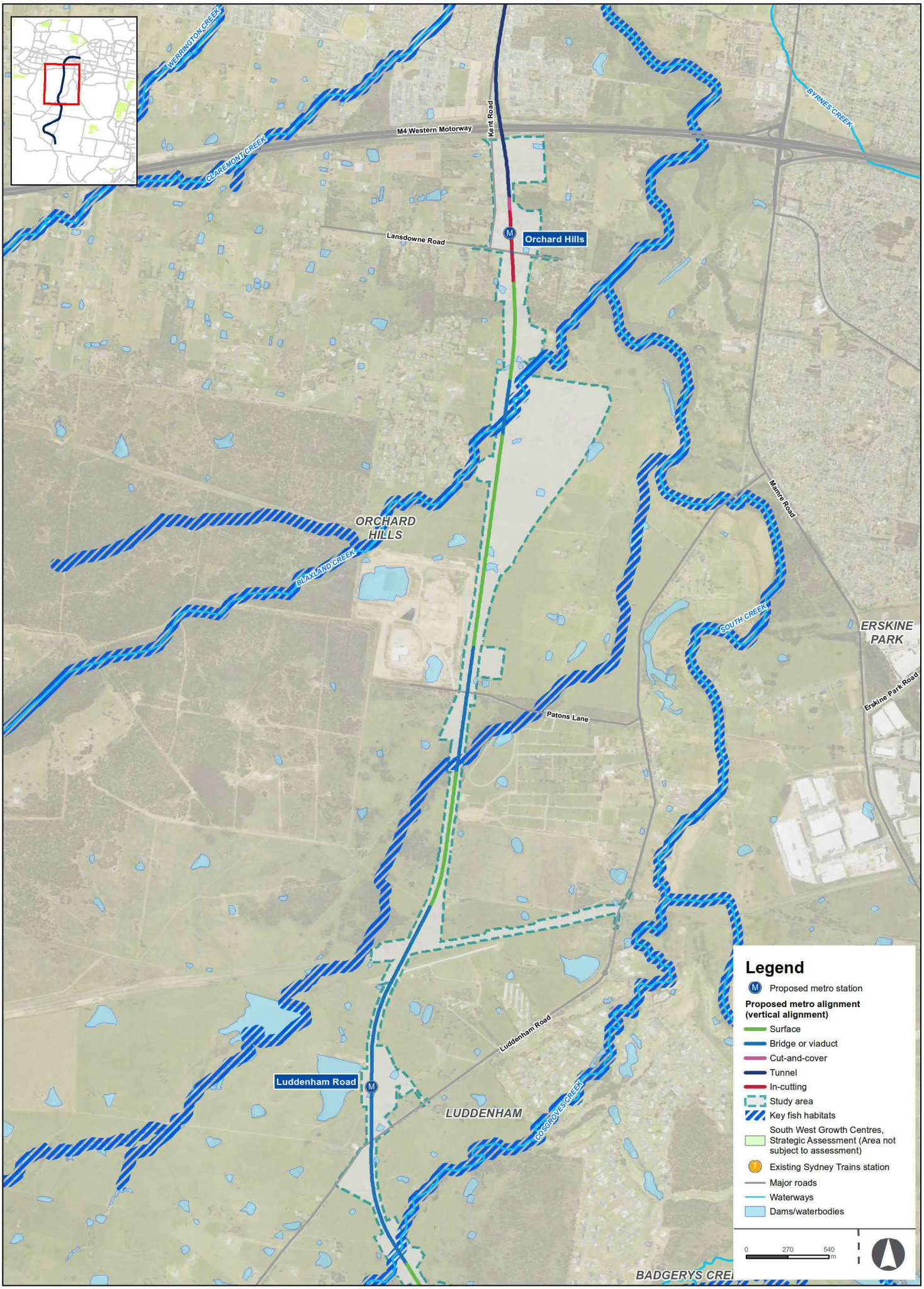
Aquatic habitats

Figure 6-3a



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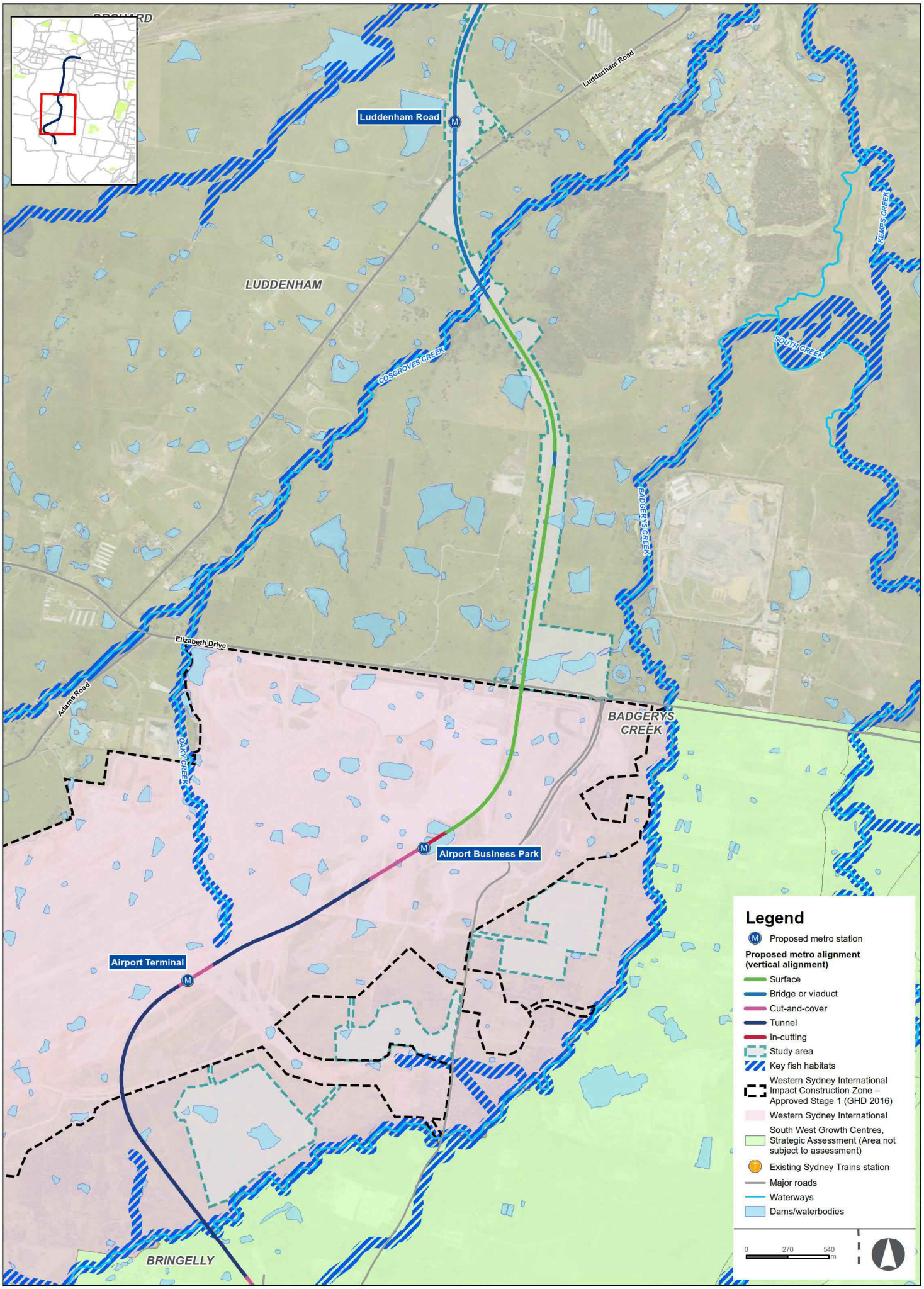
Aquatic habitats

Figure 6-3b



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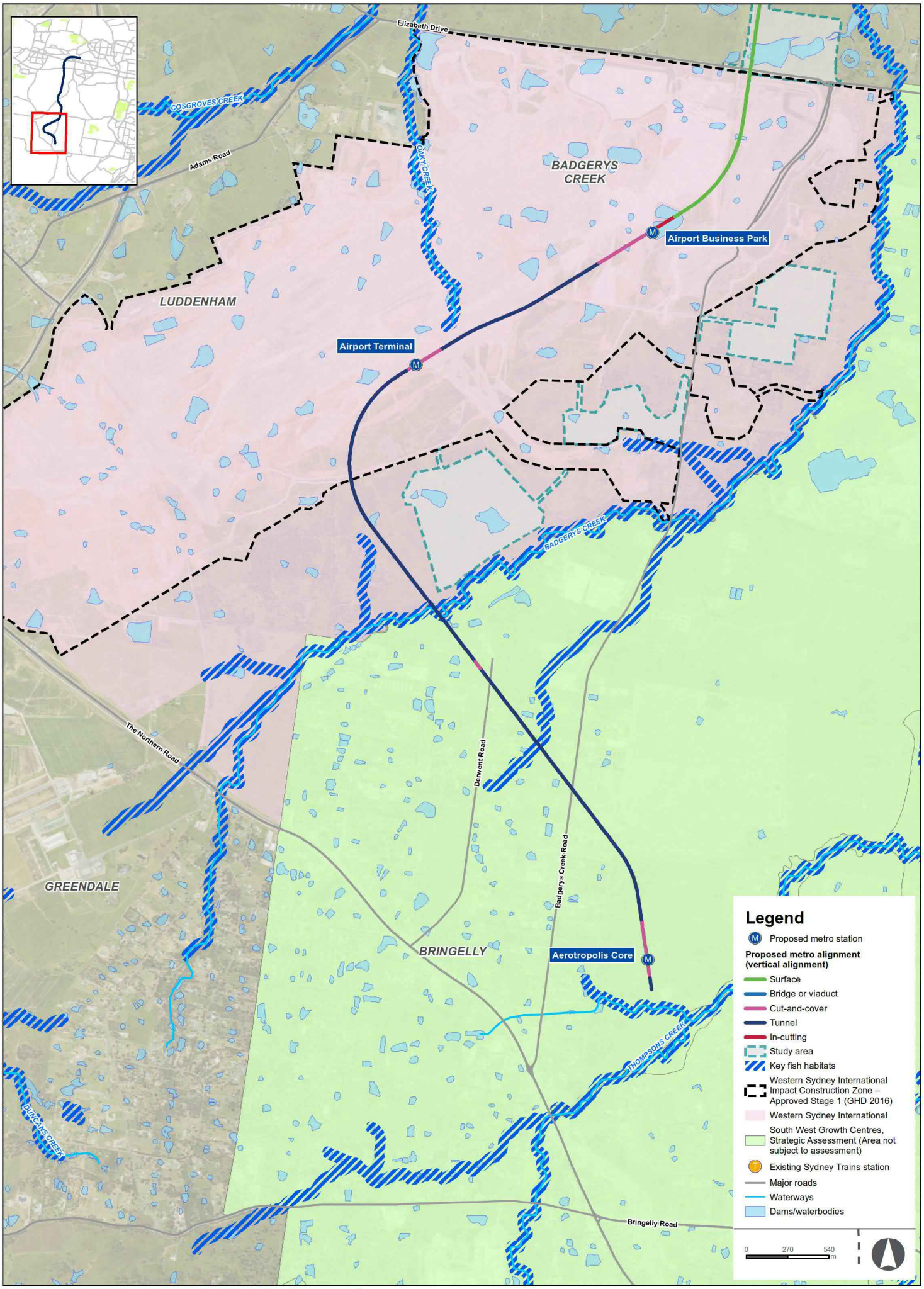
Aquatic habitats

Figure 6-3c



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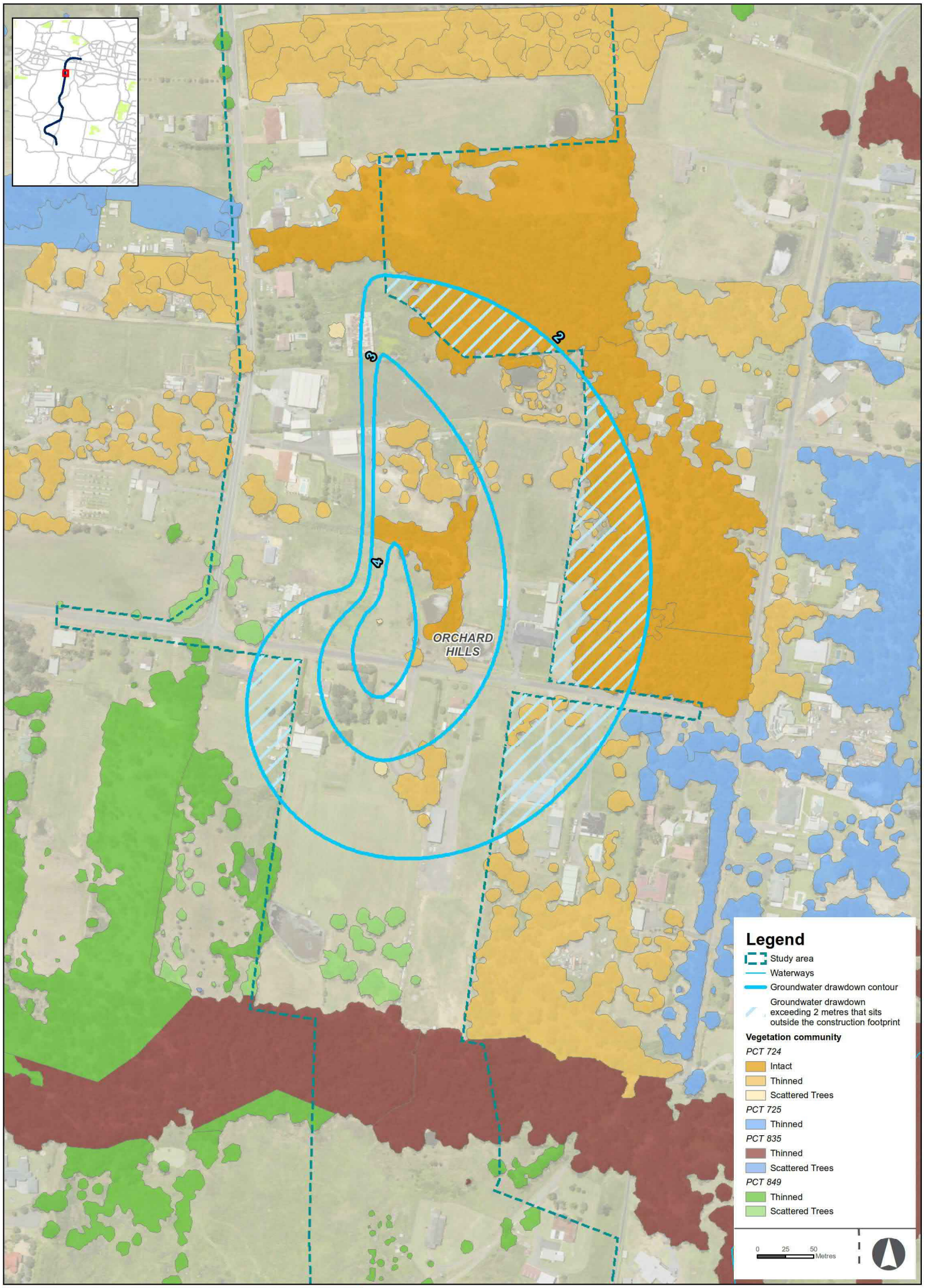
Aquatic habitats

Figure 6-3d

Indicative only, subject to design development



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Potential impacts from groundwater drawdown

Figure 8-1

Annexure J Consultation Report

SYDNEY METRO - WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

Consultation Report

Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works

Project number	WSA-200-SBT
Document number	SMWSASBT-CPG-SWD-SW000-EV-PLN-000001
Revision date	23/08/2022
Revision	A

Document approval

Rev	Date	Prepared by	Reviewed by	Approved by	Signature
A	23/08/2022	[redacted]	[redacted]	Nil	

Table of contents

Table of tables

Annexures

1. Introduction

1.1. Background

The Sydney Metro Western Sydney Airport (the Project) forms part of the broader Sydney Metro network. It involves the construction and operation of a 23km new metro rail line that extends from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaduct, bridges, surface and open-cut troughs between the two tunnel sections

The Sydney Metro Western Sydney Airport EIS was prepared in October 2020 to assess the impacts of construction and operation of the Project and was placed on public exhibition between 21 October 2020 and 2 December 2020. The Project was declared a Critical State Significant Infrastructure (CSSI) Project and is listed in Schedule 5 of State Environmental Planning Policy (State and Regional Development).

The Project was approved by the Minister for Planning and Public Spaces on 23 July 2021 (SSI 10051) under section 5.19 of the *Environmental Planning and Assessment Act 1997* (EP&A Act).

1.2. Scope of the report

Reflecting the requirements of the SSI 10051 Planning Approval, this report has been prepared to provide the evidence of consultation with the identified parties during the development of the NSW (Off-airport) Flora and Fauna Management Sub-Plan (Subject Document).

2. Consultation Requirements

2.1. SSI 10051 Planning Approval

The Conditions of Approval relevant to stakeholder consultation on the Subject Document are listed in Table 1.

Table 1: Conditions of Approval

<table>
<tr><th>Ref</th><th>Condition</th></tr>
<tr><td>A6</td><td>Where the terms of this approval require a document or monitoring program to be prepared, or a review to be undertaken, in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include:

(a) documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval;

(b) a log of the dates of engagement or attempted engagement with the identified party and a summary of the issues raised by them;

(c) documentation of the follow-up with the identified party(s) where feedback has not been provided to confirm that the party(s) has none or has failed to provide feedback after repeated requests;

(d) outline of the issues raised by the identified party(s) and how they have been addressed; and

(e) a description of the outstanding issues raised by the identified party(s) and the reasons why they have not been addressed.</td></tr>
<tr><td>C5</td><td>Of the CEMP Sub-plans required under Condition C1, the following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan. Details of issues raised by a government agency during consultation (as required by Condition A6) must be provided with the relevant CEMP Sub-plan when submitted to the Planning Secretary / ER (whichever is applicable). Where a government agency(ies) request(s) is not included, the Proponent must provide the Planning Secretary / ER (whichever is applicable) justification as to why.

<table>
<tr><th></th><th>Required CEMP Sub-plan</th><th>Relevant government agencies to be consulted for each CEMP Sub-plan</th></tr>
<tr><td>(a)</td><td>Noise and vibration</td><td>Relevant Councils and WaterNSW (in relation to its assets)</td></tr>
<tr><td>(b)</td><td>Flora and fauna</td><td>DPIE EES, DPI Fisheries, and Relevant Councils</td></tr>
<tr><td>(c)</td><td>Soil and Water</td><td>DPI Fisheries, and Relevant Councils</td></tr>
<tr><td>(d)</td><td>Non-Aboriginal heritage</td><td>Relevant Councils, WaterNSW and Heritage NSW</td></tr>
</table>
</td></tr>
</table>

2.2. Revised Environmental Mitigation Measures

There are no Revised Environmental Mitigation Measures (REMMs) relevant to stakeholder consultation on the Subject Documents.

3. Consultation summary

In accordance with the SSI 10051 Planning Approval and the REMMs, the Subject Documents have been prepared in consultation with the identified parties. A summary of the consultation is provided in Table 2.

Table 2: Stakeholder consultation summary

Stakeholder	Consultation Summary	Status	Reference
Department of Planning and Environment (DPE) Environment and Heritage Group	Issues raised have been adequately addressed in the Subject Documents; there are no outstanding issues.	Addressed and closed	Annexure A
Department of Primary Industries (DPI) Fisheries	Stakeholder confirmed that there are no issues with the Subject Document.	No action required	Annexure B
Penrith City Council	Stakeholder confirmed that there are no issues with the Subject Document.	No action required	Annexure C
City of Liverpool Council	Issues raised have been adequately addressed in the Subject Documents; there are no outstanding issues.	Addressed and closed	Annexure D

Annexure A DPE Environment and Heritage Group Consultation Evidence

Table 3: Consultation Log

In/out	Date and time	Method of contact	Details of contact
Out	26-May-22 4:56pm	Email	Subject Document provided to stakeholder
In	22-June-22 10:04am	Email	Request for extension of time to review Subject Document
Out	22-June-22 7:12pm	Email	Response acknowledged and request that Subject Documents are reviewed as soon as practicable
Out	20-July-22 3:17pm	Email	Request for stakeholder to provide comments
In	20-July-22 3:51pm	Email	Stakeholder confirmed comments would be sent through shortly
In	22-July-22 3:51pm	Email	Stakeholder provided feedback

Table 4: Issues raised by Stakeholder on Subject Documents

Ref	Issues raised	How addressed	Subject Document ref
NSW (Off-airport) Flora and Fauna Management Sub-Plan			
01	The requirements for the FFMP in the Conditions of Approval (CoA) have not been met by this draft FFMP. Part C of the conditions outline the requirements in relation to Construction Environmental Management and Construction Monitoring Programs. The list of conditions should be reviewed prior to the amendment of the FFMP to ensure any updates comply with the CoA.	A compliance table for the primary requirements for the FFMP are included prior to Section A and include specific cross references to where condition has been addressed. Other relevant Planning Approval Conditions and the Revised Environmental Outcomes and Revised Environmental Mitigation Measures (REMMs) from Section 7 of the Submissions Report are addressed in Element 4 Package specific requirements of Part B. Element 4. Section references have been reviewed and updated throughout.	Compliance table (after table of content) Part B Element 4

Ref	Issues raised	How addressed	Subject Document ref
02	**Figures** Figure 1 (EMS Overview) which is listed in the Table of Contents is not included in the FFMP. EHG recommends scaled figures are included in the FFMP which clearly show: • the proposed Station Boxes and Tunnelling (SBT) works footprint • the boundary of SSI-10051 • remnant native vegetation/EEC • watercourses and top of bank • riparian corridor widths • the proposed clearing boundary • native vegetation to be retained • threatened flora and fauna species locations • Cumberland Plain Lands Snail habitat • farm dams to be dewatered • potential microbat roosting structures • areas to be covered by the pre-clearing surveys etc.	The cross-reference error within the Table of Figures, for Figure 1 (EMS Overview) has been amended. The EMS overview is contained in Section 1.2. A new annexure has been prepared (Annexure H) to address feedback on the recommendation to include figures within the FFMP. Scaled figures within Annexure H identify the boundary of SSI-10051, Plant Community Types, Threatened Ecological Communities, Threatened Flora, Fauna Habitat, Watercourses, Aquatic habitat and predicted groundwater drawdown contours on GDEs outside the construction footprint. The start of Section 6 includes a specific cross reference to Annexure H. Details around potential microbat roosting structures and pre-clearing surveys are discussed in Section 6.5 (Fauna Habitat) and Section 8.3 (Pre-clearing inspections) respectively.	Annexure H Section 6 (Existing and surrounding environment) Section 8.3 (Pre-clearing)
03	**Definitions** There is a typing error for BAM it should be Biodiversity Assessment Method	Description for BAM in the definitions Table has been updated to “Biodiversity Assessment Method”	Definitions Table

Ref	Issues raised	How addressed	Subject Document ref
04	**1.3 Objectives and performance outcome** Section 1.3 states "objectives and performance outcomes for noise and vibration management are to ensure". Is the reference to 'noise and vibration management' meant to be 'flora and fauna management'? Section 1.3 states "CPBG (CPB Contractors Ghella Joint Venture) will target 100% reuse of all vegetative waste material (excluding weeds). Where it cannot be used on site as mulch, it will be transferred to a recycling facility". Native trees removed by the project should only be mulched as a last resort. The FFMP should outline that tree trunks greater than 25-30cm in diameter and 2-3m in length, root balls and tree hollows should be salvaged and reused as habitat for fauna in accordance with Condition E12.	Section 1.3 (Objective and performance outcomes) has been updated to amend the incorrect reference to noise and vibration management. Section 1.3 (Objective and performance outcomes) has been updated to include reference to the retention of habitat features for use in site rehabilitation (by future contractors) or by stakeholders identified in Condition E12 for habitat enhancement and rehabilitation work elsewhere. A cross reference to Section 8.5 (Retention of habitat features) has also been included.	Section 1.3 (Objective and performance targets) Section 8.5 (Retention of habitat features)
05	**1.4.1 Relevant government agencies and council(s)** Section 1.4.1 refers to Condition C5(a) – should this be C5(b)? The former EES (now EHG) is also required to be consulted by Condition C5(b).	Section 1.4.1 updated as follows: *Reflecting the requirements of Conditions A6, C5(~~ba~~) and C6, this Sub-Plan will be prepared in consultation with* ***DPE Environment and Heritage Group (EHG) (formerly DPIE EES), DPI Fisheries,*** *Penrith City Council and City of Liverpool Council.*	Section 1.4.1 (Relevant government agencies and councils)
06	**1.5 Sub-Plan structure** Section 1.5 has several errors which need to be amended.	Cross reference errors within Section 1.5 and throughout the document have been amended.	Section 1.5 (Sub-Plan structure)

Ref	Issues raised	How addressed	Subject Document ref
07	**5.3 SBT Works flora and fauna scope** Section 5.3 notes the SBT Works include additional pre-clearing inspections where required to supplement the survey already undertaken by Sydney Metro. Section 8.3 notes areas requiring a pre-clearing/construction survey will be identified by the Environmental Manager or Environmental Advisor, in consultation with the Project Engineer or Site Supervisor. The FFMP needs to clearly identify what additional pre-clearing inspections are required and when and where these surveys are to be undertaken. It is recommended Section 5.3 is cross referenced to Sections 8.3 and 8.7 (also see comments below on section 8.3).	The FFMP has been updated to clarify that: • Pre-clearing surveys of sites not assessed during the Project BDAR are the responsibility of Sydney Metro. It is noted that these pre-clearance surveys have been undertaken and are documented in Appendix A of the Sydney Metro – Western Sydney Airport EPBC Approval 2020/6887 – Off-airport Biodiversity Management Plan. • Pre-clearing inspections and associated reports will be undertaken by the CPBG Project Ecologist for all areas PCTs and habitat features areas to be cleared. The purpose of the pre-clearing report is to summarise data collected during pre-clearing inspections and provide recommendations that directly relate to Planning Conditions, REMMs and EPBC Act Conditions of Approval covering the SBT Project. The majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation. Cross references to Section 8.3 (Pre-clearing) and Section 8.7 (Dam dewatering) have been included in Section 5.3 (SBT Works flora and fauna scope)	Section 5.3 (SBT Works flora and fauna scope) Section 8.3 (Pre-clearing) Section 8.7 (Dam dewatering)
08	**5.4 Flora and fauna management system overview** Table 4 in Section 5.4 indicates there is a CPBG Dam Dewatering Plan and separate CPBG Nest Box Strategy. It is suggested these are included as appendices to the FFMP	Dam dewatering will be undertaken in accordance with the Dam Dewatering Procedure. This is described in Section 8.7 (Dam dewatering supervision and aquatic fauna management), and included in Annexure E.	Section 8.7 (Dam dewatering supervision and aquatic fauna management)' Annexure E

Ref	Issues raised	How addressed	Subject Document ref
09	**6.1 Plant Community Types, Threatened Ecological Communities and other Vegetation Communities** • It is not possible to complete a proper review of the FFMP because the CEMP, of which the FFMP is a sub-plan, was not supplied and there is incomplete information in the FFMP. For example: • Section 6.1 of the FFMP states "the location of PCTs and TECs in relation to the SBT off airport project footprint is shown on the Sensitive Area Plans included at Annexure D of the CEMP" • Section 6.2 of the FFMP states "the location of threatened flora in relation to the SBT off airport project footprint is shown on the Sensitive Area Plans included at Annexure D of the CEMP • Section 6.4 of the FFMP states "the location of Cumberland Plain Land Snail habitat in relation to the SBT off airport project footprint is shown on the Sensitive Area Plans included at Annexure D of the CEMP. It is suggested these plans are included in the FFMP for ease of reference.	A new annexure has been prepared (Annexure H) to address feedback on the recommendation to include figures within the FFMP. Scaled figures within Annexure H identify the boundary of SSI-10051, Plant Community Types, Threatened Ecological Communities, Threatened Flora and Fauna Habitat including the location of Cumberland Plain Land Snail habitat.	Annexure H
10	**Table 9: Fauna habitats on the SBT off-airport project footprint (M2A 2021)** Table 9 refers to fauna habitats on the SBT off-airport project footprint. It is recommended the FFMP includes scaled figures which show the location of these habitat features and the boundary footprint of the SBT construction works	A new annexure has been prepared (Annexure H) to address feedback on the recommendation to include figures within the FFMP. Scaled figures within Annexure H identify the associated PCTs that provide fauna habitats are present. As identified in Section 6.5 (Fauna Habitat) potential microbat roosting structures are present at St Marys, Orchard Hills and the Bringelly Services Facility.	Annexure H

11	**6.6 Aquatic flora, fauna and habitats** Section 6.6 notes “no mapped streams of any order are located on the SBT off-airport project footprint but a riparian buffer has been identified within the southern portion of the Orchard Hills site, corresponding to the vegetation adjacent to a tributary of Blaxland Creek”. It indicates “the status of the tributary along the southern boundary of the Orchard Hills SBT site is not known, however it is most likely a 1st order stream”. The FFMP needs to provide details on this tributary and it should clarify if the creek/riparian corridor will be impacted by the proposed works. EES in its submissions on the EIS (dated 18 Nov 2020), draft Submissions Report (dated 31 March 2021) and Submissions Report (dated 5 May 2021) requested scaled plans are provided which show: • the location of watercourses • top of bank • width of proposed riparian corridors • existing remnant vegetation / EEC • associated works including the footprint of the project, length and location of temporary and permanent crossings. It is recommended this scaled plan is included in the FFMP. EHG considers further details are required particularly as the EIS for SSI-7127 for the Northern Road Upgrade – Mersey Road- Bringelly to Glenmore Parkway, Glenmore Park noted that the tributaries of Blaxland Creek at Orchard Hills are among the least disturbed catchments remaining in the Cumberland Plain and are regarded as possibly the most pristine creek system on Wianamatta Shale left in Western Sydney (page 316). The EIS for the Northern Road Upgrade also outlined these tributaries are richer in aquatic macroinvertebrate genera than most other creeks of western Sydney and that the macroinvertebrate community of this catchment has a high representation of disturbance–sensitive species (Table 6.28, page 537). Section 6.6 the FFMP appears to indicate the opposite stating macroinvertebrate communities in these waterways are composed of taxonomic groups that have a high tolerance to severe	The tributary crosses the very southern portion of the Orchard Hills Project Area where its expression has been transformed into a farm dam with an overflow swale. A scaled plan of aquatic habitats has been included in Annexure H. In accordance with Condition E131, drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions will be carried out in accordance with relevant guidelines and designed by a suitably qualified and experienced person. Site-specific Erosion and Sediment Control Plans (ESCPs) will be progressively developed for each of the SBT worksites . Initial ESCPs will be developed with input from the Project Soil Conservationist and will be regularly updated by the Soil Conservationist or CPBG environmental personnel following changes in the site layout or phase of works. All ESCPs will require sign-off by the Environment Manager and Site Supervisor prior to implementation. The Soil Conservationist will conduct regular reviews of all ESCPs developed for the SBT Works, and site inspections where necessary, to ensure they meet best practice (i.e. the Blue Book). A cross reference to the Soil and Water Management Sub-Plan which includes baseline water quality information within the surface water monitoring program has been added in Section 6.6	

Ref	Issues raised	How addressed	Subject Document ref
	pollution levels with an absence of taxa sensitive to poor water quality (DIRD, 2016e). The FFMP should address where the proposed SBT works are to be in terms of the location of the pristine tributaries of Blaxland Creek as noted in the EIS for SSI-7127.		
12	**6.8 Groundwater Dependent Ecosystems** Section 6.8 indicates potential GDE's occur within the SBT off-airport project footprint and one GDE could be potentially impacted by the proposed SBT construction works. It is suggested the FFMP includes details on this including a scaled plan which locates the GDEs and the boundary of the SBT construction works.	A new annexure has been prepared (Annexure H) to address feedback on the recommendation to include figures within the FFMP. Scaled figures within Annexure H identifies the predicted groundwater drawdown contours on GDEs outside the construction footprint.	Annexure H
13	**8.2 Project boundaries and environmentally sensitive areas** Section 8.2 indicates that prior to the planned vegetation clearing, dam dewatering and preclearing surveys, the project area boundaries and Environmentally Sensitive Area (ESA) exclusion zones must be identified and marked. It notes the Project area boundaries are shown on maps which include the Environmentally Sensitive Areas in Annexure D of the Project CEMP. It is suggested these maps are also included in the FFMP as an appendix for ease of reference.	As detailed in Section 1.2 (Sup-plan context) and Figure 1 (EMS Overview), the FFMP is a Sub-Plan to the CEMP. A new annexure has been prepared (Annexure H) specific to the FFMP to provide flora and fauna constraints.	Annexure H

14	**8.3 Pre-clearing Inspections** EHG recommends the FFMP includes specific sections which deal with: • tree hollow surveys (these surveys should be undertaken prior to the pre-clearing surveys) to identify and count the number of tree hollows and the required number of replacement nest boxes • pre-clearing surveys • pre-demolition surveys of buildings and structures. These surveys are required to be undertaken prior to the removal of any vegetation. The FFMP should provide details on what these surveys/ inspections entail and when and where these surveys will be undertaken. The purpose of these surveys is to identify and mark hollow bearing trees and any other habitat features (stags, hollow logs, birds' nests or possum dreys). Hollow bearing trees should be flagged and counted to indicate the number and type of replacement nest boxes to be identified, obtained, and installed. To meet Condition E11 the nest boxes must be installed one (1) month prior to any removal of existing tree hollows and/or the release of any captured hollow dependent fauna. Section 8.3 notes that "pre-clearing/construction inspections will be undertaken by the Project Ecologist, ideally at least 7 days prior to the clearing of vegetation". While Section 8.11 states "the number of hollows on each hollow bearing tree will be confirmed during clearing supervision. If more hollows are identified, additional nest boxes will be installed at a ratio of one nest box per additional hollow identified". EHG supports the confirmation of tree hollows as part of the pre-clearing survey and the installation of additional nest boxes to account for any hollows initially missed in the survey for hollows. Even though this would not meet the 30-day requirement of Condition E11, it meets the intention of providing replacement habitat. EHG recommends that the FFMP address how the initial survey of hollows and other habitat features will deliver on the Condition E11 and the additional pre-clearance survey measure 7 days out from vegetation clearing is a safety measure to ensure no hollows have been missed. Any	Section 8.3.1 (Pre-clearing inspection) identifies that pre-clearing inspections of PCTs and habitat features will be undertaken by the Project Ecologist. This inspection includes the identification of tree hollows to inform the number of replacement nest boxes and is documented in the pre-clearing reports. The majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation. Pre-clearing surveys of sites not assessed during the Project BDAR are the responsibility of Sydney Metro. It is noted that these pre-clearance surveys have been undertaken and are documented in Appendix A of the Sydney Metro – Western Sydney Airport EPBC Approval 2020/6887 – Off-airport Biodiversity Management Plan. Section 8.3.2 (Targeted microbat surveys) has been created to specifically address the pre-demolition surveys of abandoned dwellings, structures, culverts and other under road structures. It is noted that surveys undertaken so far have not identified any microbats. The majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation to inform the nest boxes to be installed (one month prior to removal in accordance with Condition E11). Section 8.3 timing has been updated to reflect at least 30 days prior to clearing of vegetation. In the unlikely event that additional hollows are identified following the pre-clearing inspection (Section 8.3.1), additional nest boxes will be installed. This has been included in Section 8.4 (Clearing supervision). The reference to 7 days has been amended to at least 30 days prior to clearing of vegetation.	Section 8.3.1 (Pre-clearing inspection) Section 8.3.2 (Targeted microbat surveys)

Ref	Issues raised	How addressed	Subject Document ref
	additional hollows identified during the pre-clearance survey must be replaced by a nest box before the tree containing the hollow is felled.		

Ref	Issues raised	How addressed	Subject Document ref
15	Sections 7.1.1, 7.1.3, 8.3 and 8.7 of the FFMP indicates the pre-clearing surveys and/or pre-demolition surveys will include the following: • a search for living Cumberland Plain Land Snails within 3.01 ha of Cumberland Plain Land Snail habitat on the SBT off-airport project footprint • targeted microbat surveys of abandoned dwellings, structures, culverts and other under road structures proposed for demolition within the construction footprint will be undertaken prior to works, including sites at St Marys, Orchard Hills, Bringelly and the Aerotropolis which could be colonised by threatened microbat species as many of these buildings were still in use when the BDAR was undertaken • pre-clearing inspections of five dams that require dewatering on the SBT Off-airport project footprint at Orchard Hills and Bringelly, will be undertaken prior to commencing dam dewatering • identifying and marking habitat features such as hollow bearing trees, stags, hollow logs or rockpiles • identifying and marking fauna roosting features such as birds' nests and possum dreys • pre-clearance surveys to confirm no roosts of Grey-headed Flying Fox are present within the PCTs • identifying potential release sites if fauna require capture and relocation during clearing. EHG recommends the pre-clearance survey also include: • a qualified ecologist identifying, numbering and flagging hollow bearing trees and other habitats features such as nests or hollow logs proposed to be removed, at least one week before the removal of vegetation • the submission of the results of the pre-clearance survey to the project manager to inform tree clearance protocols.	Section 8.3.1 (Pre-clearing inspection) has been updated to identify that pre-clearing inspections of PCTs and habitat features will be undertaken by the Project Ecologist at least 30 days prior to clearing of vegetation. As part of the pre-clearing inspection, habitat features or habitat trees (trees containing nests, dreys or hollows) will be marked with red and white tape which will be tied around the tree or structure that has the habitat feature. Outcomes of the pre-clearing inspection will be documented in pre-clearing reports. The purpose of the pre-clearing report is to summarise data collected during pre-clearing inspection and provide recommendations that directly relate to Planning Conditions, REMMs and EPBC Act Conditions of Approval covering the SBT Project. The majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation.	Section 8.3.1 (Pre-clearing inspection)

Ref	Issues raised	How addressed	Subject Document ref

16	The FFMP should include scaled figures which locate the areas to be covered by the tree hollow surveys and pre-clearing surveys.
	
	Section 8.3 states pre-clearing/construction inspections will be undertaken by the Project Ecologist, "ideally at least 7 days prior to the clearing of vegetation" and Section 8.4 implies a further survey will be undertaken prior to the commencement of clearing as it states, "prior to the commencement of clearing, the Project Ecologist will complete a brief survey to ensure no fauna have moved into the area since the initial pre-clearing inspection". EHG recommends the pre-clearing survey includes:
	
	• the ecologist checking the tree hollows for the presence of native fauna
	• covering the tree hollows once the hollows have been checked and it is verified that fauna are not present to ensure the hollows are not reoccupied prior to removal of the trees and/or the project ecologist endeavours to individually remove sections of a tree containing a hollow or other habitat features for relocation and reuse by the project (see EHG comments below under section 8.4 - tree removal)
	• where hollow dependent native fauna are found using tree hollows that are to be removed
	  ▪ the fauna should be captured and relocated prior to felling the tree
	  ▪ compensatory tree hollows should be provided prior to removing the tree hollows and prior to the release of the hollow dependent fauna.
		Section 8.3.1 (Pre-clearing inspection) has been updated to identify that pre-clearing inspections of PCTs and habitat features will be undertaken by the Project Ecologist at least 30 days prior to clearing of vegetation.
		
		As part of the pre-clearing inspection, habitat features or habitat trees (trees containing nests, dreys or hollows) will be marked with red and white tape which will be tied around the tree or structure that has the habitat feature.
		
		Outcomes of the pre-clearing inspection will be documented in pre-clearing reports. The purpose of the pre-clearing report is to summarise data collected during pre-clearing inspection and provide recommendations that directly relate to Planning Conditions, REMMs and EPBC Act Conditions of Approval covering the SBT Project.
		
		Section 8.4 (Clearing supervision) identifies the two stage clearing process for habitat trees. Stage 2 clearing will be supervised by the Project Ecologist (on the day of clearing) and involve the removal of remaining habitat trees and features.
		
		Should fauna be identified during these surveys, the fauna handling and rescue procedure will be followed.
			Section 8.3.1 (Pre-clearing inspection)
			
			Section 8.4 (Clearing supervision)

17	**Re-use of Native trees to be removed** Section 8.3 indicates one of the key objectives of the pre-clearing survey is to determine if vegetation within the clearing boundary is suitable for mulching and re-use, or if it is required to be treated as green waste. EHG recommends this key objective is amended and a note is included that the mulching of removed native trees should only be undertaken as a last resort. In accordance with Condition E12 of the project approval the pre-clearing survey should identify where it is practicable to reuse native trees and vegetation that are to be removed to enhance habitat. If it is not possible for the CSSI to reuse all the removed native trees and vegetation, the proponent must consult with the relevant council(s), NSW National Parks & Wildlife Service, Western Sydney Parklands Trust, Greater Sydney Local Land Services, Landcare groups, DPI Fisheries and any additional relevant government agencies to determine if: (a) hollows, tree trunks (greater than 25-30cm in diameter and 2-3m in length), mulch, bush rock and root balls salvaged from native vegetation impacted by the CSSI; and (b) collected plant material, seeds and/or propagated plants from native vegetation impacted by the CSSI, could be used by others in habitat enhancement and rehabilitation work, before pursuing other disposal options. It is unclear if the applicant has contacted local councils and other authorities to determine if there is an interest for the reuse of suitable timber. The FFMP should clarify this. As advised in the EES submission on the draft Submissions Report (dated 31 March 2021) this detail including consultation with the community groups and their responses should be documented in the CEMP/FFMP. As noted by EES the reuse and salvage of tree trunks is important, particularly as the Cumberland Plain Land Snail can be found under logs and the snail was detected in two areas at Orchard Hills during the survey and it has been	Section 1.3 (Objective and performance outcomes) has been updated to include reference to the retention of habitat features for use in site rehabilitation (by future contractors) or by stakeholders identified in Condition E12 for habitat enhancement and rehabilitation work elsewhere. A cross reference to Section 8.5 (Retention of habitat features) has also been included. CPBG are working with Sydney Metro for the use habitat features for the Project in the first instance. CPBG will liaise with stakeholders in accordance with Condition E12. Features that are deemed to be valuable for retention, are being marked with pink flagging tape and will be stored on site.	Section 1.3 (Objective and performance outcomes)

Ref	Issues raised	How addressed	Subject Document ref
	assumed to be present within the study area. The FFMP need to address the importance of salvaging and reusing tree trunks, root balls etc.		

18	Microbat surveys Section 8.3 states "targeted microbat surveys of abandoned dwellings, structures, culverts and other under road structures within the construction footprint that are proposed for demolition will be undertaken prior to works in accordance with 'Species credit' threatened bats and their habitats NSW survey guide for the Biodiversity Assessment Method (OEH, 2018). Specifically, signs of bats will be searched for at entrances to roof spaces or wall cavities and microbat echolocation recording units will be deployed prior to planned demolition." Environmental management measure (EMM) FF4 for this SSI requires that a Microbat Management Plan be developed as part of the Biodiversity Construction Management Plan if threatened microbats are detected but the FFMP makes no mention of this other than it includes EMM FF4 in the revised Environmental Mitigation Measures in Part B: Implementation Systems and Tool (see page 51). The revised Environmental Mitigation Measure for FF4 in Part B indicates that the requirement for FF4 is met in Section 8.3. The FFMP needs to include details as to how the Biodiversity Construction Management Plan relates to this FFMP as according to EMM FF1 the Biodiversity Construction Environmental Management Plan is for on-airport and the Flora and Fauna Management Plan is for off-airport. The FFMP states "several vacated dwellings will be present on the SBT project footprint, including sites at St Marys, Orchard Hills, Bringelly and the Aerotropolis. Abandoned buildings can quickly be colonised by a variety of threatened microbat species. Many of these buildings were still in use when the BDAR for the Project was undertaken" (section 7.1.1). The FFMP only refers to targeted microbat surveys of abandoned dwellings, structures, culverts and other under road structures within the construction footprint (section 8.3) and the installation of nest boxes for the removal of structures where hollow-using microbats have been detected and the removal of under-road structures where microbats have been detected (Section 8.11). EES in its previous submission on the draft conditions for this SSI advised in relation to EMM FF4 that there is a need to allow enough time to consult with EES and including EES microbat specialists on the MMP and that the preparation of the FFMP (including the MMP) should be completed to the satisfaction of EES before it is submitted to the Planning Secretary. The	Section 8.3.2 (Targeted microbat surveys) has been created to specifically address the pre-demolition surveys of abandoned dwellings, structures, culverts and other under road structures. This section includes reference to FF4. Text has been included to identify details of what the Microbat Management Plan would contain, in the event that threatened microbats. It is noted that surveys undertaken so far have not identified any microbats. It is noted, the majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation. At the time of writing, no threatened microbats have been identified. Pre-clearing inspections of PCT and habitat features are being undertaken at least 30 days prior to clearing to enable nest box installation and development of of a Microbat Management Plan as required. REMM FF4 was revised in the Project Submissions Report as follows: *If threatened microbats are detected, a Microbat Management Plan would be developed as part of the* ***Flora and Fauna*** *~~Biodiversity Construction~~ Management Plan and implemented by a suitably qualified bat* Part B FF4 has been updated to reflect this revision to the REMM.	Section 8.3.2 (Targeted microbat surveys)

	FFMP needs to outline that a MMP is to be prepared if threatened microbats are detected. Section 8.3 notes that "preclearing/construction inspections will be undertaken by the Project Ecologist, ideally at least 7 days prior to the clearing of vegetation" but the FFMP needs to address the time frame that is proposed for the microbat surveys to be undertaken of the abandoned dwellings, structures, culverts and other under road structures and if microbats are found, allow enough time for the preparation of a MMP including consultation with EHG. The MMP, if required, will include details on: i. measures to avoid and minimise impacts ii. details of potential impacts from construction iii. an adaptive management plan, which includes a decision-making framework that: a. defines performance criteria and thresholds, including 'impact trigger' and 'unacceptable impact' thresholds to be used as triggers for intervention, that are ecologically based and adhere to SMART principles b. details monitoring techniques, timing, duration and frequency/intensity and equipment to be used c. in the event that an impact trigger, unacceptable impact or other threshold is detected, the actions and mitigation measures to be implemented iv. ongoing monitoring and reporting requirements during construction and operation; and v. contingency measures to address impacts attributable to the construction of the CSSI The plan must be developed in consultation with an appropriately qualified expert in microbat biology and behaviour, EHG, relevant council(s) and be submitted to the Planning Secretary for approval prior to work that may impact microbat species. The approved plan must be implemented during construction and operation of the CSSI		

Ref	Issues raised	How addressed	Subject Document ref
19	**8.4 Clearing supervision** Section 8.4 states "Prior to the commencement of clearing, the Project Ecologist will complete a brief survey to ensure no fauna have moved into the area since the initial pre-clearing inspection". EHG recommends the FFMP includes the following.		
20	Tree Removal • During any tree removal, an experienced and qualified ecologist is to be present to re-locate any displaced fauna that may be disturbed during this activity.	Section 8.3.1 (Pre-clearing inspection) has been updated to identify that pre-clearing inspections of PCTs and habitat features will be undertaken by the Project Ecologist at least 30 days prior to clearing of vegetation. As part of the pre-clearing inspection, habitat features or habitat trees (trees containing nests, dreys or hollows) will be marked with red and white tape which will be tied around the tree or structure that has the habitat feature Section 8.4 (Clearing supervision) identifies the two stage clearing process for habitat trees. Stage 2 clearing will be supervised by the Project Ecologist (on the day of clearing) and involve the removal of remaining habitat trees and features. Should fauna be identified, the fauna handling and rescue procedure will be followed.	Section 8.3.1 (Pre-clearing inspection) Section 8.4 (Clearing supervision)

Ref	Issues raised	How addressed	Subject Document ref
21	• All non-habitat vegetation should be cleared first to allow appropriate space for the felling of habitat trees and retrieval of any fauna that may be present within habitat trees.	As noted in Section 8.4 of the FFMP, "*Clearing will be undertaken using the 2-stage clearing process described in Transport Roads and Traffic Authority Biodiversity Guidelines. Stage 1 of the clearing process will be designed to remove shrub and ground cover and most non-habitat trees. All habitat trees must be retained. Stage 1 clearing is designed to protect habitat features that could support fauna and while encouraging them to naturally disperse after the disturbance*." This process is outlined in Annexure B which states that "*all non-marked trees and features will be removed first*" and that "*at least 48 hours after the clearance of non-marked vegetation, each habitat tree will be carefully removed in the presence of the project ecologist, and thoroughly searched for the presence of animals*" As such, no updates to the FFMP or supporting procedures have been made as this requirement has already been addressed.	Section 8.4 (Clearing supervision)
22	• Native trees that are approved for removal (including tree trunks greater than approximately 25-30cm in diameter and 2-3m in length, tree hollows and rootballs) and other habitat features (such as logs and bush rock) are relocated and reused by the project.	Section 8.5 has been updated to state that: ***Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation*** ~~*Hollow logs, limbs containing hollows, large logs and bush rock*~~ *will be evaluated during pre-clearing surveys inspections to determine suitability for use in habitat rehabilitation (refer Section 8.13) or habitat enhancement and rehabilitation work by other stakeholders in accordance with Condition E12.* *Felled habitat trees would be left for 24 hours (or inspected by ecologist) and features that are deemed to be valuable for retention, will be marked with pink flagging tape and will be stored on site.*	Section 8.5 (Retention of habitat features)

Ref	Issues raised	How addressed	Subject Document ref
23	• Where hollow dependent native fauna are found using tree hollows that are to be removed - the fauna should be captured and relocated prior to felling the tree - compensatory tree hollows should be provided prior to removing the tree hollows and prior to the release of the hollow dependent fauna.	Stage 2 clearing will be supervised by the Project Ecologist and involve the removal of remaining habitat trees and features. If the feature is a hollow, nest or drey, the machine that is clearing the vegetation will gently tap the feature, to see if any fauna are disturbed. If fauna are disturbed, the Project Ecologist will attempt to capture the animal or corral it off the impact area into an area of suitable habitat. After this, the habitat tree will be pushed (or cut) down. The Project Ecologist will then inspect the feature to determine if any fauna are using the structure.	Section 8.4 (Clearing supervision)
24	• Any nocturnal fauna found must be captured and re-released to nearby suitable habitat, at a time suitable for the subject species they should not be released during daylight hours.	Section 8.4 has been updated to state: *Any fauna present will be captured by the Project Ecologist and have its health assessed. If veterinarian care is required, the Project Ecologist will organise delivery of the animal. If care is not required, the Project Ecologist will relocate the animal to a suitable release area close to the clearing site**. If the species is nocturnal, it will be released after dark. In such cases, the animal will be kept in a cool dark and quite area prior to release.***	Section 8.4 (Clearing supervision)
25	• The clearing of trees and shrubs should be avoided where possible in late winter/spring during breeding/nesting period for birds.	The Tree Clearing and Grubbing Procedure (Annexure B) has been updated to note that "*where practical, the clearing of trees and shrubs should be avoided where possible in late winter/spring during breeding/nesting period for birds*". The application of this measure may be constrained by construction methodologies and timeframes. The Environmental Coordinator will liaise with the Project Manager and / or Project Engineer to implement this measure where possible.	Annexure B

Ref	Issues raised	How addressed	Subject Document ref
26	• Trees with hollows shall be lopped in such a way that the risk of injury or mortality to fauna is minimised, such as top-down lopping, with lopped sections gently lowered to the ground, or by lowering whole trees to the ground with the "grab" attachment of a machine.	The Clearing of all habitat trees and features will be supervised by the Project Ecologist as detailed in Section 8.4. Additionally, Annexure B of the FFMP states that h*ollow-bearing trees will be slowly pushed over to avoid damage to hollows* and that *Fauna rescue personnel will instruct the equipment operators regarding how and which side to fell the trees so that hollows can be quickly checked. In some circumstances, sections of a tree containing a hollow or habitat may be individually removed prior to felling.* These measures will be implemented during clearing to minimise the risk of injury or mortality to fauna during habitat tree clearing.	Section 8.4 (Clearing supervision) Annexure B
27	• Any injured fauna is to be placed into the hands of a wildlife carer (please note only appropriately vaccinated personnel are to handle bats) and released on site when rehabilitated	Section 8.4 has been updated as follows: *Any fauna present will be captured by the Project Ecologist and have its health assessed**. If the animal appears injured or unwell*** ~~*If veterinarian care is required*~~*, the Project Ecologist will* ***~~organise~~ implement the Fauna Handling Procedure described in Section 8.6*** ~~*delivery of the animal*~~*.* Cross-reference to Section 8.6 has been included as it states: *"If the animal appears injured or unwell (and is not a bat or snake) the Environmental Advisor will organise to have the animal captured and placed in a cool dark holding container and they will be immediately taken to the nearest veterinarian, WIRES representative or Sydney Wildlife for treatment in accordance with the fauna handling procedure… No attempt will be made to touch or confine Microbats or Flying-foxes identified on the Project area… Microbats and Flying-foxes must only be handled by the Project Ecologist who has had a vaccination for Rabies within the last 2 years or has had their titre levels tested."*	Section 8.4 (Clearing supervision) Section 8.6 (Fauna rescue and release)

Ref	Issues raised	How addressed	Subject Document ref
28	**8.5 Retention of habitat features** Section 8.5 should also state native trees that are approved for removal (i.e., trees that have tree trunks greater than approximately 25-30cm in diameter and 2-3m in length and rootballs) should be marked and stored on site for reuse as habitat	Section 8.5 has been updated to state that: ***Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation*** ~~*Hollow logs, limbs containing hollows, large logs and bush rock*~~ *will be evaluated during pre-clearing surveys inspections to determine suitability for use in habitat rehabilitation (refer Section 8.13) or habitat enhancement and rehabilitation work by other stakeholders in accordance with Condition E12.* *Felled habitat trees would be left for 24 hours (or inspected by ecologist) and features that are deemed to be valuable for retention, will be marked with pink flagging tape and will be stored on site.*	Section 8.5 (Retention of habitat features)

Ref	Issues raised	How addressed	Subject Document ref
29	**8.9 Weed Management** Section 8.9 states “ongoing weeding will occur throughout the construction phase, where required”. The Weed Management Procedure in Annexure G implies ongoing weed management is to occur (periodic inspections to assess weed regrowth), but it does not specify the time frame that ongoing weeding is to be undertaken and when it is proposed to cease. As advised in the EES submission of 31 March 2021 on the draft Submissions Report and revised BDAR EES recommended a mitigation measure is included to address ongoing weed management/maintenance in areas disturbed by the project (including areas downslope of, and/or adjoining the disturbed areas) both during and following construction until the disturbed areas are stabilised and/or rehabilitated. EHG recommends ongoing weeding / weed management continues after the completion of construction especially in areas that have been disturbed by construction works and/or adjoining the disturbed areas including in the vicinity of watercourses /riparian corridors/ corridor connections and areas adjoining remnant native vegetation. Section 8.9 and the Weed Management Procedure should outline the duration that ongoing weed management is proposed to be undertaken from the completion of construction works. It is noted Condition E80 requires ongoing operational maintenance of open space and landscaping which implies that this would need to incorporate ongoing operational weed management	As detailed in Section 1.1 of the FFMP, this management plan is applicable to the construction of the SBT works package for the Project. The weed management procedure in Annexure G will be implemented during the delivery of the SBT works package which is a major civil enabling works package and is limited to site establishment works within defined worksites and excavation and lining of station boxes, shafts and mainline tunnels. As such construction of the Project would continue beyond the delivery of the SBT works. Construction activities to be undertaken subsequent to the delivery of the SBT works would be managed under a FFMP to be developed and implemented for the subsequent construction stages of the Project. As detailed in Section 3.2.6 of the Staging Report, the Stations, Systems, Trains, and Operations (SSTOM) works package is the only stage of the Project with an operational component. As such any weed management procedures to be carried over into the Project’s operation would be the responsibility of the contractor delivering the SSTOM works package.	Section 8.9 (Weed Management)

Ref	Issues raised	How addressed	Subject Document ref
30	**8.11 Nest box strategy** As noted above, EHG recommends the FFMP includes a specific section which deals with tree hollow surveys and that these surveys are undertaken prior to the pre-clearing surveys to identify and count the number of tree hollows to be removed and the required number and type of replacement nest boxes. To meet Condition E11 the nest boxes must be installed one (1) month prior to any removal of existing tree hollows and/or the release of any captured hollow dependent fauna. Section 8.3 notes that "pre-clearing/construction inspections will be undertaken by the Project Ecologist, ideally at least 7 days prior to the clearing of vegetation". While Section 8.11 states "the number of hollows on each hollow bearing tree will be confirmed during clearing supervision. If more hollows are identified, additional nest boxes will be installed at a ratio of one nest box per additional hollow identified". EHG supports the confirmation of tree hollows as part of the pre-clearing survey and the installation of additional nest boxes to account for any hollows initially missed in the survey for hollows. Even though this would not meet the 30-day requirement of Condition E11, it meets the intention of providing replacement habitat. EHG recommends that the FFMP address how the initial survey of hollows and other habitat features will deliver on the Condition E11 and that the pre-clearance survey 7 days out from vegetation clearance is a safety measure to ensure no hollows have been missed. Any additional hollows identified during the pre-clearance survey must be replaced by next box before the tree holding hollow is felled.	Initial pre-clearing surveys have been undertaken by the Project Ecologist in which the objectives were: • Ground-truthing of PCT boundaries and TEC boundaries; • Searches for threatened plant species; • Searches for noxious weeds; • Searches for tree features e.g. Hollows, arboreal termite nests, decorticating bark; • Searches for nests and dreys; • Searches of abandoned buildings for evidence of roosting microbats; and, • Searches for rocks, logs or other features that might be suitable for re-use or relocation. The results of these pre-clearing surveys are being used to inform the Nest Box Strategy currently being prepared. The pre-clearance / construction inspections to be undertaken at least 7 days prior to clearing are to verify the results of these pre-clearing surveys. Section 8.3 has been updated to communicate this process more clearly. This process allows for CPBG to comply with Condition E11 and ensure that nest boxes are installed at least one month prior to the removal of any tree hollows. The Environmental Advisor will coordinate with the Project Ecologist to ensure that any additional hollows identified during pre-clearing inspections are not removed prior to the installation of a replacement nest box.	

Ref	Issues raised	How addressed	Subject Document ref
31	Section 8.11 notes nest boxes will be installed as a mitigation measure for the removal of tree hollows, removal of structures where hollow using microbats have been detected and the removal of under-road structures where microbats have been detected. It is unclear what is proposed for microbats potentially using the abandoned buildings and structures as habitat if they do not use nest boxes. The MMP will need to address how abandoned buildings and structures will be demolished if microbats are using them as habitat and what actions are required to ensure minimal impacts to these microbats. The MMP should have options for the relocation of any individuals found in preclearance /pre-demolition surveys. The provision of nest boxes and their installation should be undertaken in consultation with appropriately qualified and experienced experts on the fauna species that use or potentially use the tree hollows and the replacement nest boxes, including experts in microbat biology and behaviour.	The provision of nest boxes and their installation is being undertaken under the guidance of the Project Ecologist. If microbats are found utilising abandoned buildings as habitat, nest boxes will be installed in adjacent foraging habitat prior to demolition of the building. The number of nest boxes will be determined upon evaluation of the number of microbats using the structure, in consultation with the Project Ecologist and detailed within the Microbat Management Plan (Section 8.3.2). It is noted that surveys undertaken so far have not identified any microbats.	

32	The FFMP states “nest boxes will be monitored annually for the duration of the project” but it also states, “nest boxes that are deteriorating prior to the completion of construction will be repaired or replaced”. Based on these statements it is unclear if monitoring of the nest boxes is proposed long term or only up until the completion of construction. The FFMP needs to clarify this. If monitoring of the nest boxes is only proposed during construction EHG does not consider this to be adequate. Nor does EHG consider the proposed replacement and maintenance of nest boxes only during the construction period is adequate. It is important that adequate preconstruction, construction and post construction monitoring is undertaken to confirm the species that will potentially use the nest boxes are using them. Contingency measures/corrective actions should also be put in place in case monitoring indicates the nest boxes are not effective. EHG recommends a long-term monitoring program is undertaken to evaluate the effectiveness of the nest boxes and that the monitoring covers all seasons (spring, summer, winter and autumn) and it is not just undertaken annually. Nest boxes should preferably be monitored for any repair /maintenance /replacement requirements for a minimum of 5 years. At the end of the 5 years the proponent needs to provide the results of the nest box monitoring and their use or lack thereof to DPE and provide recommendations as to the ongoing use of the nest boxes and any future maintenance requirements. If the land the subject of the FFMP remains in Sydney Metro ownership then EHG recommends the FFMP should take an adaptive management approach which responds to the results of the monitoring program, including the monitoring of nest boxes. Once the construction period is complete, the monitoring program can inform ongoing management actions required during the operation of the Sydney Metro. If the land the subject of the FFMP does not remain in Sydney Metro ownership at the completion of construction, the monitoring program can end at the completion of construction.	Section 8.11 of the FFMP has been updated to make the nest box monitoring requirements to be implemented by CPBG clearer. The monitoring program included in the Nest Box Strategy will be implemented by CPBG for the duration of the delivery of the SBT works scope. The monitoring program will monitor the location, survival and use of nest boxes and will coincide with nesting seasons for target species, occurring annually. Should monitoring activities indicate that the nest boxes are not effective, the Environmental Advisor will liaise with the Project Ecologist to determine appropriate corrective actions. Results would be reviewed holistically and recommendations identified which may include replacement or repaired nest boxes, additional monitoring and would consider nest box strategies being undertaken in future stages of works (for SCAW and SSTOM) to provide integrated outcomes. For each recorded nest box, the monitoring data will include: • The name of the observer • Date • Prevailing weather conditions • Assessment of hollow replacement condition (eg structural integrity, evidence of rot or termite activity, condition of fastenings etc) • Evidence of fauna activity and presence of pest activity • Identification and implementation of any corrective actions, as required Monitoring of nest boxes installed by CPBG during the SBT works will become the responsibility of the contractor delivering the subsequent construction and operational stages of the Project. The Nest Box Strategy for the SBT works scope will include reporting requirements to ensure the location of nest boxes and outcomes of any monitoring undertaken by CPBG is provided to	

Ref	Issues raised	How addressed	Subject Document ref
		Sydney Metro and can be utilised to inform their ongoing management during the subsequent stages of the Project.	

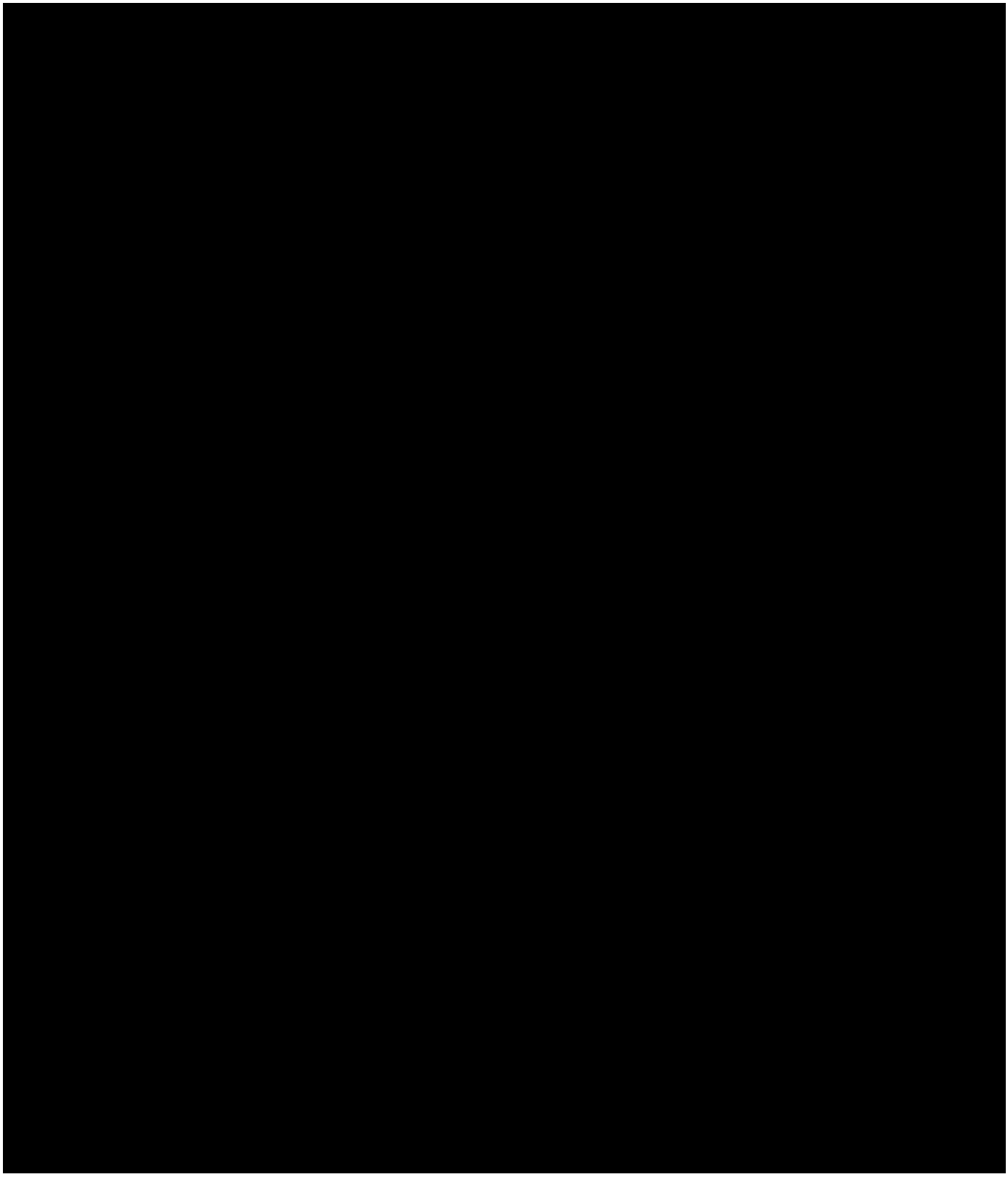
33	EHG recommends the nest box monitoring includes details on:
	• the number of nest boxes to be monitored
	• the GPS locations of the nest boxes
	• the characteristics of all nest boxes to be monitored / the native fauna species that the boxes are designed for
	• the duration and frequency of monitoring
	• how the nest boxes are to be monitored (e.g., visual checks, installation of wildlife cameras which are motion activated)
	• the reporting of monitoring results
	  ▪ nest box installation details (date installed, direction the box entrance faces, height above ground)
	  ▪ the time of year, date and time that boxes are checked
	  ▪ what was found in the nest box – the species and the number of individuals
	  ▪ occupancy rates
	  ▪ frequency of use
	  ▪ pattern and timing of use
	  ▪ maintenance needs.
	The full monitoring data should be made publicly available in annual reports and made available online and published in scientific literature. It is important that TfNSW makes its monitoring data available for other projects to benefit. If the data is collected under licence, then this should be imported into BioNet which can then be used in the future.
		Section 8.11 has been updated to demonstrate the information to be included in the Nest Box Strategy which will the reflect the requirements of the *Sydney Metro – Western Sydney Airport – Off-airport Biodiversity Management Plan*.
		• Pre-clearing inspections to be conducted by a suitably qualified ecologist to mark and map hollow-bearing trees, logs, existing nest boxes, and other habitat features present (such as avian nests, borrows, dreys etc.) That would require fauna management during removal
		• Maps and catalogued data to show hollow-bearing trees proposed to be removed and the number of hollows associated with each tree
		• Provisions for the installation of nest boxes within pre-determined dedicated areas prior to clearing areas of native vegetation off-airport
		• Reuse of hollows and fallen debris within conservation areas
		• The location, number and type of nest boxes to be installed, commensurate with the number of hollows proposed to be removed (based on the results of the pre-clearing survey)
		• Provisions for salvage of native fauna from existing nest boxes prior to their removal and translocation
		• A guide on the installation of nest boxes and the appropriate design specifications
		• A monitoring program for the monitoring of the nest boxes
		Nest box installation details (date installed, direction the box entrance faces, height above ground) will be documented in the post clearing report as required under Section 10.2 (b) of the CEMF.
		The following monitoring data will be submitted to the Environmental Manager for inclusion in the Monthly Environmental Compliance Report (Section 7.13.2 of the CEMP):
		• The name of the observer
		• Date	

Ref	Issues raised	How addressed	Subject Document ref
		• Prevailing weather conditions • Assessment of hollow replacement condition (eg structural integrity, evidence of rot or termite activity, condition of fastenings etc) • Evidence of fauna activity and presence of pest activity • Identification and implementation of any corrective actions, as required	
34	**8.13 Habitat Rehabilitation** Section 8.13 should reference the installation and reuse of tree trunks, tree hollows and root balls salvaged from native tree removed by the project in accordance with Condition E12. Trees removed by the project should not be mulched but used in habitat rehabilitation.	Section 8.5 (Retention of habitat features) specifically address Condition E12. Section 8.13 (Habitat Rehabilitation) has been amended to specifically mention the retainment of habitat features for use in site rehabilitation (PUDCLP) and the consultation with stakeholders where habitat features are unable to be reused (in accordance with Condition E12).	Section 8.5 (Retention of habitat features) Section 8.13 (Habitat rehabilitation)

Ref	Issues raised	How addressed	Subject Document ref
35	**Native vegetation seed collection** Section 8.13 notes "CPBG will co-ordinate site access with Sydney Metro to facilitate a native vegetation seed collection and salvage program. CPBG will investigate opportunities for use of collected and salvaged seed for propagation of plants ….". The EES submission of 18 November 2020 on the EIS advised seed collection should commence as soon as possible so that local native provenance plant species are available to be planted, and the trees are advanced and established in size to improve the urban tree canopy and local biodiversity. EES also previously recommended a suitably qualified bush regenerator is engaged to provide advice on the collection of local native seed, the use of local native provenance species and to prepare a landscape plan for the project. EHG notes EMM FF11 in the FFMP requires that a native vegetation seed collection and salvage program would be developed prior to the commencement of construction and implemented during construction (see page 53 of FFMP). The earlier the seed is collected and propagated the more established the plants will be for use by the project in landscaping/revegetation.	Sydney Metro have commenced the native vegetation seed collection and salvage program. Sydney Metro will investigate opportunities for use of the collected and salvaged seed, which will be detailed in the Place, Urban Design and Corridor Landscape Plan.	Section 8.13 (Habitat rehabilitation)

Ref	Issues raised	How addressed	Subject Document ref
36	**Use of local native species** Section 8.13 also indicates CPBG will investigate enhancing the habitat provided because of revegetation through the provision of native shrubs for foraging and shelter within revegetated areas. EES recommended in its submissions on the EIS, RtS and draft conditions that landscaping/planting uses a diversity of local provenance native species from the relevant native vegetation community (or communities) that occurs, or once occurred in the locality of the proposed works rather than use exotic species or non-local native species. It is recommended the FFMP states that local provenance plant species are to be used as this is consistent with the proposed collection, salvage and propagation of native seed referred to in this section of the FFMP.	Section 8.13 has been updated to clarify that Sydney Metro and / or their contractors of the future stages (SCAW, SSTOM) are responsible for habitat rehabilitation. The SBT scope of works does not include landscaping/rehabilitation. Notwithstanding, CPBG will co-ordinate site access with Sydney Metro to facilitate the native vegetation seed collection and salvage program. Sydney Metro will investigate opportunities for use of the collected and salvaged seed and will be detailed in the Place, Urban Design and Corridor Landscape Plan The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with stakeholders and the design review panel, including consultation on the chosen native species.	Section 8.13 (Habitat Rehabilitation)

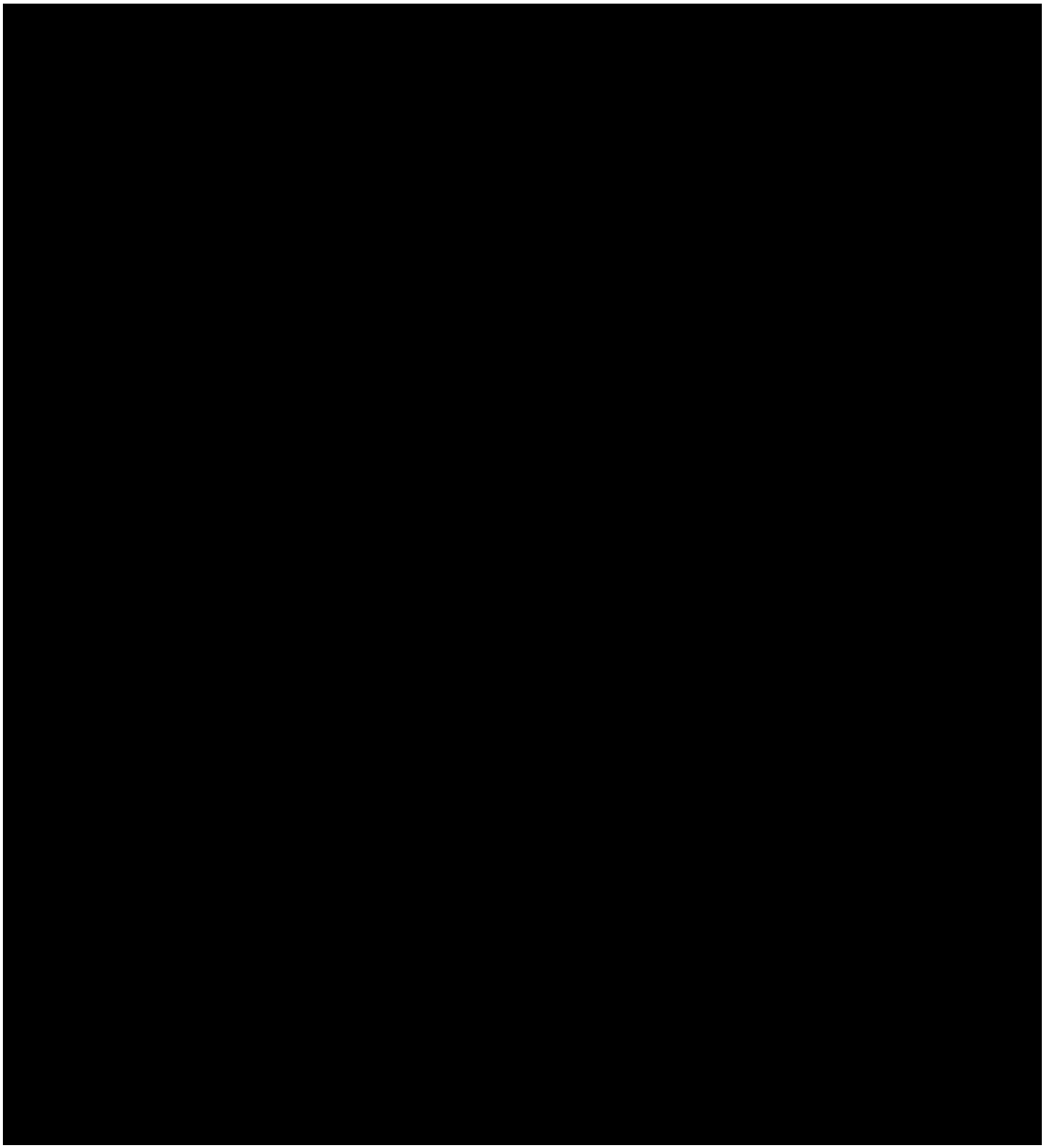
Ref	Issues raised	How addressed	Subject Document ref
37	**Part B: Implementation Systems and Tools Element 2** Monitoring and reporting Element 2 in Part B notes compliance records will be retained by CPBG and will include pre-clearing survey reports. EHG recommends evidence of the pre-clearing surveys and inspections for fauna and any relocation of fauna is provided to DPE prior to any clearing of vegetation and demolition works commencing. The FFMP should address this. This recommendation is consistent with EES previous advice on the draft conditions for this SSI.	Pre-clearing inspections and associated reports will be undertaken by the CPBG Project Ecologist for all PCTs and habitat features areas to be cleared. The majority of the pre-clearing inspections for PCTs and habitat features of the SBT scope of works have been undertaken and pre-clearing reports are in preparation. Evidence of pre-clearing inspections are provided to Sydney Metro. As detailed in Section 8.4 and Section 8.14, the clearing of native vegetation that conforms to a PCT will not be undertaken until Sydney Metro have advised CPBG that the required biodiversity offsetting credits have been retired (Section 8.14). This hold point can only be released by the Environmental Manager. This forms part of a robust process in accordance with Project Approval requirements.	Section 8.4 (Clearing supervision)
38	**Part C: Annexures** **Annexure B Clearing and grubbing procedure** A full copy of this procedure should be provided as the right side of the page has been cut off.	Annexure B page formatting has been amended to landscape and the procedure has been enlarged so that it is legible.	Annexure B



Annexure B DPI Fisheries Consultation Evidence

Table 5: Consultation Log

In/out	Date and time	Method of contact	Details of contact
Out	26-May-22 4:56pm	Email	Subject Documents provided to stakeholder
In	31-May-22 11:16am	Email	Stakeholder confirmed no issues with the Subject Documents.



NSW GOVERNMENT Department of Primary Industries

Our Ref: C22/334 30 May 2022

Your Ref: SSI-10051 (CoA C5 &C13)

[redacted]

Consultation for Sydney Metro Western Sydney Airport – Substation Boxes & Tunnelling (SSD1-25/2020) – Conditions of Approval C5 & C13 – Soil & Water Management Sub-plan (RevA) and Flora & Fauna Management Sub-plan (RevA)

Thank you for your referral of 26/05/2022 seeking comment on the proposal from DPI Fisheries, a division of NSW Department of Primary Industries on the proposed works stated above.

DPI Fisheries is responsible for ensuring that fish stocks are conserved and that there is no net loss of key fish habitats upon which they depend. To achieve this, DPI Fisheries ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (FM Act) (namely the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act, respectively), and the associated *Policy and Guidelines for Fish Habitat Conservation and Management (2013)*. DPI Fisheries is also responsible for ensuring the sustainable management of commercial, recreational and Aboriginal cultural fishing, aquaculture, marine parks and aquatic reserves within NSW.

DPI Fisheries has reviewed *Substation Boxes & Tunnelling SBT Flora and Fauna Management Sub-Plan (Revision A)*. In light of the above provisions makes the following comments:

1. No marine vegetation is to be harmed in these works.
2. Predicted threatened species that could occur within the project footprint were assessed to have a very low likelihood of occurrence.
3. A Dam Dewatering Procedure (Annexure E) has been prepared.
4. Fauna rescue actions have been planned and are covered under an appropriate Permit and meet relevant legislation under the NSW Fisheries Management Act 1994 and the NSW Biosecurity Act 2016

If you require any further information, please contact me on (02) 4222 8311 or *josi.hollywood@dpi.nsw.gov.au*

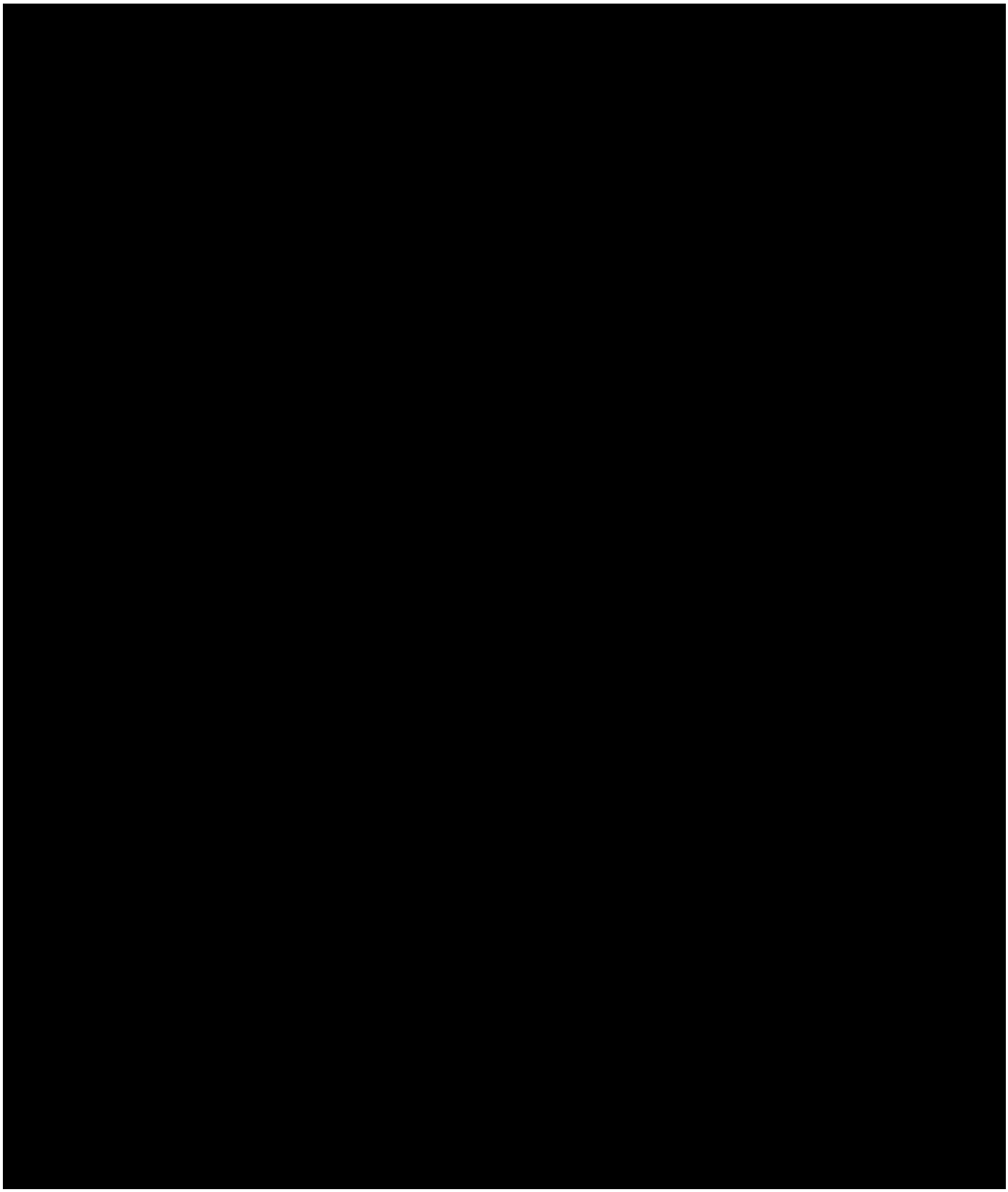
Yours sincerely,

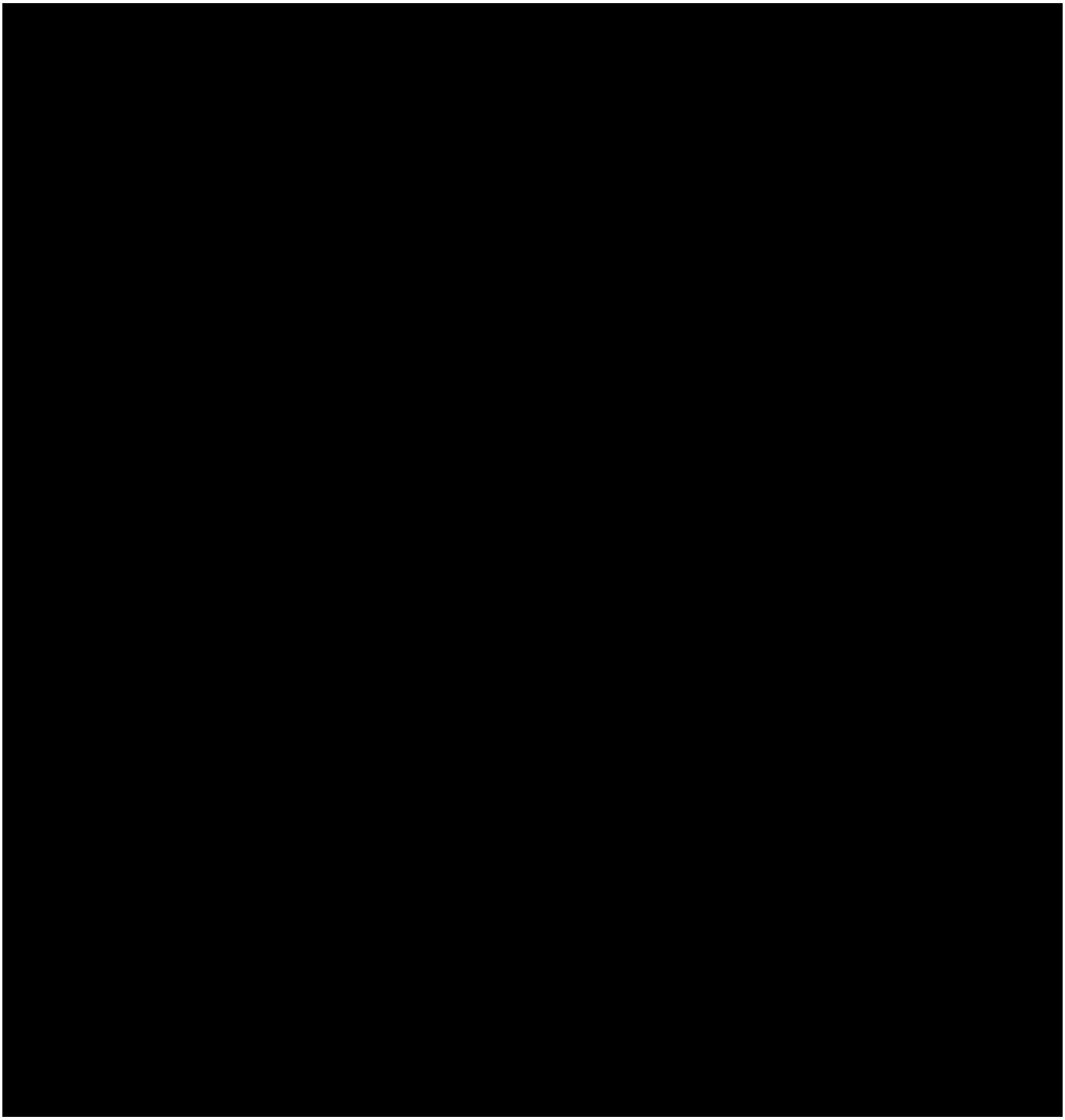
[redacted]

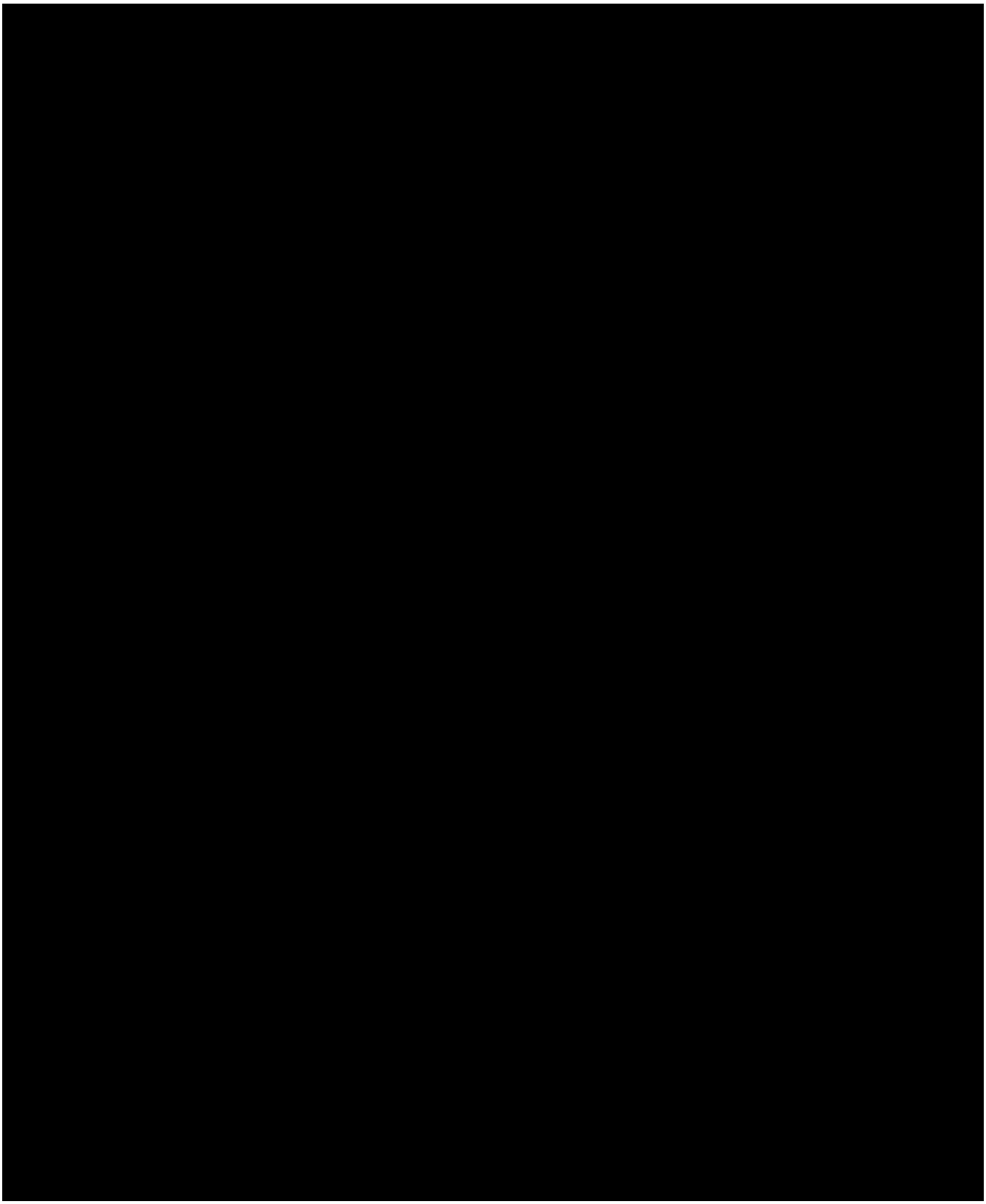
Annexure C Penrith City Council Consultation Evidence

Table 6: Consultation Log

In/out	Date and time	Method of contact	Details of contact
Out	22-May-22 3:27pm	Email	Subject Document provided to stakeholder
Out	23-May-22 3:28pm	Email	Subject Document provided to stakeholder
In	23-May-22 4:08pm	Email	Stakeholder sought clarification regarding workflow process and number of days available to make comments
Out	23-May-22 4:45pm	Email	Workflow process and number of days available clarified to stakeholder
In	24-May-22 8:11am	Email	Workflow process and number of days available acknowledged by stakeholder
Out	20-July-22 4:18pm	Email	CPBG requested comments be sent through
In	21-July-22 8:49am	Email	Stakeholder confirmed they had no comments on the Subject Document.







Annexure D City of Liverpool Council Consultation Evidence

Table 7: Consultation Log

In/out	Date and time	Method of contact	Details of contact
Out	23-May-22 3:27pm	Email	Subject Documents provided to stakeholder
In	17-June-22 6:21pm	Email	Stakeholder provided feedback

Table 8: Issues raised by Stakeholder on Subject Documents

Ref	Issues raised	How addressed	Subject Document ref
NSW (Off-airport) Flora and Fauna Management Sub-Plan			
There are some issues (predominantly formatting and referencing errors) that should be rectified to ensure clarity, including the following:			
01	Reference source errors throughout document (e.g., sections 1.2 and 1.5)	Cross references throughout document have been amended.	Throughout document
02	The referenced report sections in the compliance table (starting on page iv) and table for Element 4 Package Specific Requirements (starting on page 45) appear to be incorrect for many items (e.g. reference to section numbers in chapter 7 that don't exist)	Cross references throughout document have been amended.	Throughout document
03	Section 1.3 (objectives and performance outcomes) erroneously refers to noise and vibration management in first sentence	This error has been amended. Section 1.3 identifies the objectives and performance outcomes for flora and fauna management.	Section 1.3
04	Section 1.3 should recognise additional uses of vegetative material, and consultation with other parties for potential reuse of material, as required by condition E12 of the conditions of approval and discussed within section 8.5 of the Sub-plan.	Section 1.3 has been amended to specifically recognise CoA E12. The following text has been included: *Prior to vegetation clearing, CPBG will explore opportunities to reuse native trees and vegetation that is to be cleared. As outlined in Section* ***Error! Reference source not found.****, this process will include consultation with relevant stakeholders identified in Condition E12*	Section 1.3
05	Figure 2 (project overview) legend is illegible	Figure 2 has been updated with a higher quality resolution so that the legend is legible.	Figure 2
06	Annexure B (clearing and grubbing procedure) is incomplete due to page formatting, and the text is difficult to read due to poor resolution	Annexure B page formatting has been amended to landscape and the procedure has been enlarged so that is legible.	Annexure B
07	Annexure C (clearing permit) has been omitted	Annexure C has been included.	Annexure C

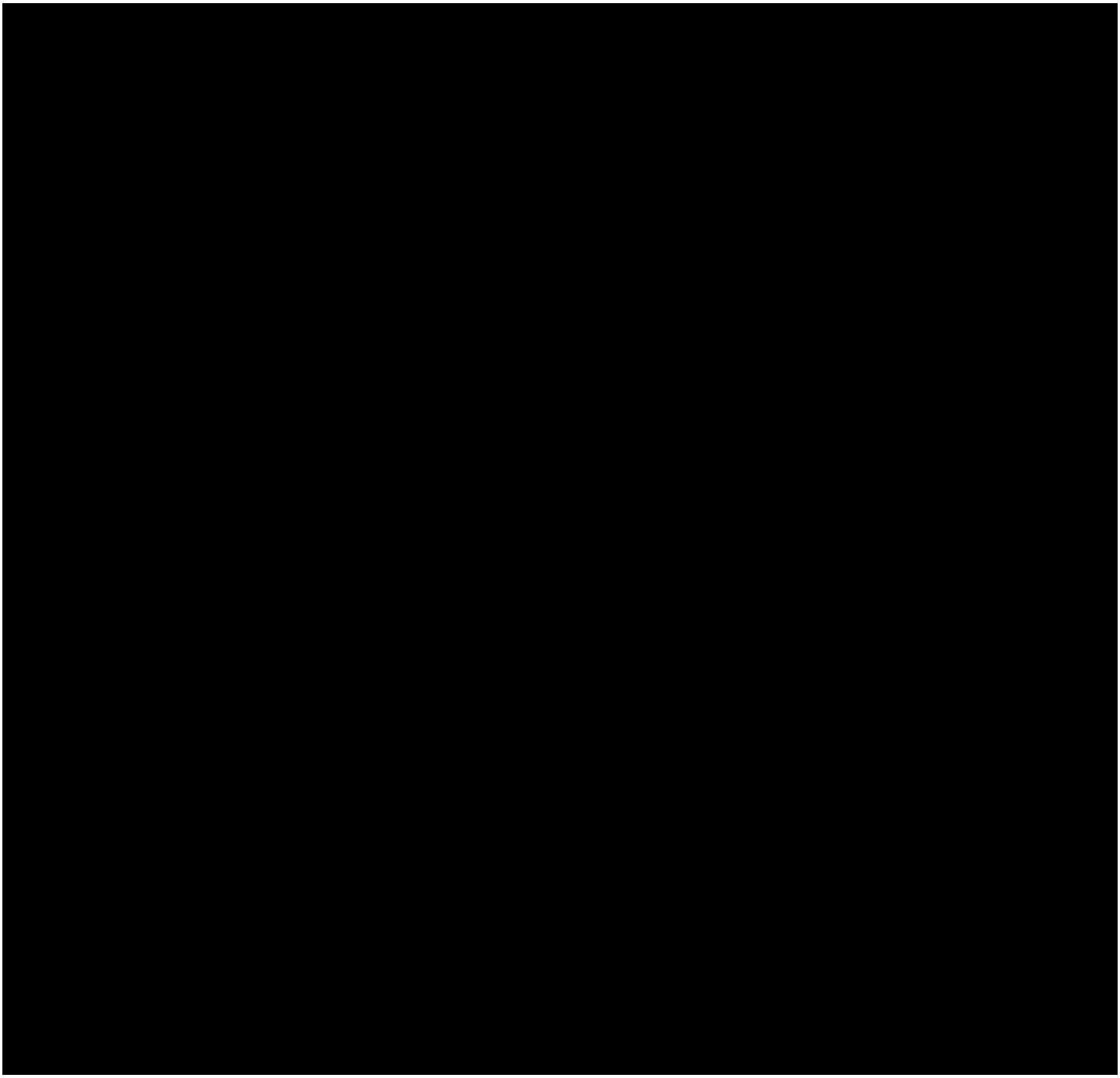
Ref	Issues raised	How addressed	Subject Document ref
08	Annexure D (fauna handling procedure), Annexure E (dam dewatering procedure) and Annexure G (weed management procedure)- the text is difficult to read due to poor resolution	Higher quality resolution procedures have been incorporated.	Annexure D, Annexure E and Annexure G
CPBG note that City of Liverpool Council raised comments in relation to the urban design of the Project. These fall outside the scope of the NSW (Off-airport) Flora and Fauna Management Sub-Plan. However, these comment and responses have been included below:			
01	It is noted that a detailed landscape plan still needs to be prepared and assessed by Council. The plan will need to be reviewed by the Design Review Panel as per Condition E63 of the Conditions for Approval.	The scope of this Project (SBT package of work) encompasses temporary works, and underground works (tunnels, station box excavations and excavations for the service facilities). The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	N/A
02	The proposal still needs to identify how it will mitigate the effects of urban heat island and address the premier's priority of 40% canopy coverage.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	N/A

Ref	Issues raised	How addressed	Subject Document ref
03	The Flora and Fauna Management Plan addresses the requirement to develop a salvage program however, there needs to be greater clarity regarding the targets and how the 0.78ha will be offset as per Condition C11 of the Conditions for Approval.	CPBG note that the native seed collection and salvage program (REMM FF11) and biodiversity offsetting are the responsibility of Sydney Metro. As identified in Section 5.3, CPBG will facilitate access for the native vegetation seed collection and salvage program. Offsetting requirements that relate to Matters of National Environmental Significance under the EPBC Act have been summarised in the "Sydney Metro – Western Sydney Airport - EPBC Biodiversity Offset Strategy for off-airport lands". This document outlines the staged approach to offsetting required under the EPBC Act Approval (EPBC 2020/8687). As detailed in Section 8.4, the clearing of native vegetation that conforms to a PCT will not be undertaken until Sydney Metro have advised CPBG that the required biodiversity offsetting credits have been retired (Section 8.14).	N/A
04	In circumstances where extensive vegetation clearing occurs, ensure that an equivalent or greater quantity of native vegetation, specifically trees are to be replanted as part of the proposed works. Where the proposal disrupts an existing vegetated area, ensure enough proposed plantings occur within proximity to the site of removal to re-establish/strengthen the existing landscape character and TECS; It is noted that this issue [the above text] was not addressed. It is assumed that this issue will be addressed in the future planning report and provided along with a Tree Survey undertaken during detailed design as per E13 of the Conditions for Approval.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils. Tree Surveys will be undertaken by SBT and provided to Sydney Metro. These will identify the number, type and location of any trees to be removed.	

Ref	Issues raised	How addressed	Subject Document ref
05	The proposal has considered the noise impacts from the proposal however, these should be referenced in the provision of landscape architectural plans.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	
06	The proposal still needs to identify how it will mitigate the effects of climate change and address the premier's priority of 40% canopy coverage.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	
07	Provide an assessment of the existing/proposed tree canopy cover for the project including a comparison between the extent of vegetation to be removed as part of the overall works and the proposed canopy coverage to be incorporated within the proposal. To meet the premier's priority of 40% canopy coverage, demonstrate a significant increase in overall vegetation within the project footprint. It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils. Tree Surveys will be undertaken by SBT and provided to Sydney Metro. These will identify the number, type and location of any trees to be removed.	
08	New fill batters should incorporate low-maintenance native plantings to soften the transition from the proposed metro line to the existing ground plane. A well-designed landscape will help stabilise slopes and minimise erosion. Where possible, canopy trees should be included in fill batters, particularly if removal of trees has occurred. It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	

Ref	Issues raised	How addressed	Subject Document ref
09	Incorporate groundcovers, hedges and grasses as part of a layered planting palette around the proposed line. These are generally preferred to short cut grass in rural areas for ecological and aesthetic reasons as well as ongoing maintenance costs. It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	
10	The proposal should explore the opportunity to integrate public art, to enhance the overall character and provide alternate points of interest along the Metro Line. A public art consultant should be engaged to prepare a public art strategy for the project, which includes consideration to various forms of art, availability of local artists and identification of key locations for public art within the project site. It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development proposal and needs to be referenced in any accompanying planning reports. The provision of public art is a requirement for station precincts as per Condition E79 of the Conditions for Approval. Any proposed public art should be consulted with Council's Public Art Officer.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	
11	As part of any Landscape and Visual Impact Assessment, proposals should be demonstrated through a visual representation (artists impression before/after). Proposed vegetation and tree plantings should be included It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the future planning report. As per Condition A24 of the Conditions for Approval.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	

Ref	Issues raised	How addressed	Subject Document ref
12	Consideration of the evolving nature of landscape must be included within a Landscape and Visual Impact Assessment. Unlike other elements proposed as part of a project, the landscape will continue to change over several years after completion, greatly affecting the visual characteristics of a site. It is noted that this item [above text] has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the future planning report. As per Condition A24 of the Conditions for Approval.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils.	
13	Removal of one tree should be replaced by planting 3 x the number of trees removed. It is noted that this item [above text] has not been addressed in the documentation provided. Condition E13 of the Conditions of Approval requires a Tree Survey to be undertaken as part of the submitted Place, Urban Design and Corridor Landscape Plans.	The Place, Urban, Design and Corridor Landscape Plan (PUDCLP) will be addressed in subsequent stages of the Project (i.e. SCAW and SSTOM) as these packages relate to the permanent built surface works and/or landscaping. This will include consultation with councils. It is noted that Condition E13 identifies, Where trees are to be removed, the Proponent must provide a net increase in the number of replacement trees at a ratio of 2:1, except trees that are offset under Condition E4.	



[redacted]

In relation to your recent correspondence, seeking collaboration with Council as required by the Instrument of determination, Council provides the following response:

NSW (Off-airport) Flora and Fauna Management Sub-plan

There are some issues (predominantly formatting and referencing errors) that should be rectified to ensure clarity, including the following:

- Reference source errors throughout document (e.g. sections 1.2 and 1.5)
- Section 1.3 should recognise additional uses of vegetative material, and consultation with other parties for potential reuse of material, as required by condition E12 of the conditions of approval and discussed within section 8.5 of the Sub-plan.
- Figure 2 (project overview) legend is illegible
- Annexure B (clearing and grubbing procedure) is incomplete due to page formatting, and the text is difficult to read due to poor resolution
- Annexure C (clearing permit) has been omitted
- Annexure D (fauna handling procedure), Annexure E (dam dewatering procedure) and Annexure G (weed management procedure)- the text is difficult to read due to poor resolution

Urban Design Response

The proposed State Significant Development (SSD) application for the construction and operation of a new metro railway line around 23 kilometres in length between the T1 Western Line at St Marys in the north and the Aerotropolis in the south was assessed previously from an Urban Design and Public Domain perspective with consideration to nine design principles. These are; Context, Built Form and Scale, Density, Sustainability, Landscape, Amenity, Safety, Housing Diversity & Social Interaction and Aesthetics. The comments have been categorised under these nine headings:

The majority of the 'Sydney Metro – Western Sydney Airport' proposal is outside of the Liverpool LGA, with Elizabeth Drive being the northern LGA boundary. Relevant sections of this proposal suitable for LCC assessment, largely consist of the Western Sydney International Airport and Aerotropolis sites.

The following Re-Referral comments are in relation to the previous comments provided by the City Design and Public Domain team in December 2020. The comments determine if the previous advice provided have been considered in the design.

Previous Re-Referral Comments (11 December 2020)	Latest Re-Referral Comments (26 May 2022)
1. A detailed landscape plan should be prepared for the entire project site, with the goal of providing large canopy trees to maximise the extent of canopy coverage within the region. The landscape plans must be prepared by a suitably qualified AILA registered Landscape Architect in accordance with latest industry standards and best practice guidelines;	It is noted that a detailed landscape plan still needs to be prepared and assessed by Council. The plan will need to be reviewed by the Design Review Panel as per Condition E63 of the Conditions for Approval.
2. Liverpool LGA currently has less than 10% canopy coverage, resulting in severe urban heat island effect. The premier's priority of 40% canopy coverage should be achieved within all new proposals.	The proposal still needs to identify how it will mitigate the effects of urban heat island and address the premier's priority of 40% canopy coverage.

	Where existing canopy coverage does not meet 40%, additional native tree plantings should be incorporated to strengthen the existing landscape character and reduce the effects of the urban heat island;	
3.	With the potential clearing of Threatened Ecological Communities (TECs), including around 16 hectares of Cumberland Plain Woodland. Ensure the proposal includes an equal or greater quantity of Cumberland Plain woodland species to be planted within the vicinity of their original location;	The Flora and Fauna Management Plan addresses the requirement to develop a salvage program however, there needs to be greater clarity regarding the targets and how the 0.78ha will be offset as per Condition C11 of the Conditions for Approval.
4.	In circumstances where extensive vegetation clearing occurs, ensure that an equivalent or greater quantity of native vegetation, specifically trees are to be replanted as part of the proposed works. Where the proposal disrupts an existing vegetated area, ensure enough proposed plantings occur within proximity to the site of removal to re-establish/strengthen the existing landscape character and TECS;	It is noted that this issue was not addressed. It is assumed that this issue will be addressed in the future planning report and provided along with a Tree Survey undertaken during detailed design as per E13 of the Conditions for Approval.
5.	Potential noise impacts of the proposal should be mitigated through vegetation and tree plantings. Any required noise mitigating structures should incorporated as part of a detailed landscape proposal where layered vegetation and tree plantings are incorporated as the primary component for noise reduction;	The proposal has considered the noise impacts from the proposal however, these should be referenced in the provision of landscape architectural plans.
6.	Achieving the premier's priority of 40% canopy coverage wherever possible within the project boundary will help mitigate the identified potential climate change impacts associated with extreme heat both during construction and operation of the proposal;	The proposal still needs to identify how it will mitigate the effects of climate change and address the premier's priority of 40% canopy coverage.
7.	Provide an assessment of the existing/proposed tree canopy cover for the project including a comparison between the extent of vegetation to be removed as part of the overall works and the proposed canopy coverage to be incorporated within the proposal. To meet the premier's priority of 40% canopy coverage, demonstrate a significant increase in overall vegetation within the project footprint;	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports.

8. New fill batters should incorporate low-maintenance native plantings to soften the transition from the proposed metro line to the existing ground plane. A well-designed landscape will help stabilise slopes and minimise erosion. Where possible, canopy trees should be included in fill batters, particularly if removal of trees has occurred;	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports.
9. Incorporate groundcovers, hedges and grasses as part of a layered planting palette around the proposed line. These are generally preferred to short cut grass in rural areas for ecological and aesthetic reasons as well as ongoing maintenance costs;	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development of the landscape architectural plans and referenced in any accompanying planning reports.
10. The proposal should explore the opportunity to integrate public art, to enhance the overall character and provide alternate points of interest along the Metro Line. A public art consultant should be engaged to prepare a public art strategy for the project, which includes consideration to various forms of art, availability of local artists and identification of key locations for public art within the project site;	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the development proposal and needs to be referenced in any accompanying planning reports. The provision of public art is a requirement for station precincts as per Condition E79 of the Conditions for Approval. Any proposed public art should be consulted with Council's Public Art Officer.
11. As part of any Landscape and Visual Impact Assessment, proposals should be demonstrated through a visual representation (artists impression before/after). Proposed vegetation and tree plantings should be included; and	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the future planning report. As per Condition A24 of the Conditions for Approval.
12. Consideration of the evolving nature of landscape must be included within a Landscape and Visual Impact Assessment. Unlike other elements proposed as part of a project, the landscape will continue to change over several years after completion, greatly affecting the visual characteristics of a site.	It is noted that this item has not been addressed in the documentation provided. It is assumed that this item will be considered as part of the future planning report. As per Condition A24 of the Conditions for Approval.
13. Removal of one tree should be replaced by planting 3 x the number of trees removed.	It is noted that this item has not been addressed in the documentation provided. Condition E13 of the Conditions of Approval requires a Tree Survey to be undertaken as part of the submitted Place, Urban Design and Corridor Landscape Plans.

Should you have any questions, please let me know.

[redacted]

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