



Flora, Fauna and Biodiversity Management Sub-Plan - C2B

Line-wide Works Contract Sydney Metro City & Southwest

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Document Approval

	Environment and Sustainability Manager	Project Director
Signature:		
30/09/2021	M Billings	S Hunter

Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this Sub-Plan is reviewed and approved. The Environment and Sustainability Manager is responsible for updating this Sub-Plan to reflect changes to Environmental legal and other requirements, as required. A controlled version of this Sub-Plan will be available electronically at all Project locations.

Amendments

Any revisions or amendments must be approved by the Project Manager and/or client before being distributed / implemented.

Revision Details

Revision	Date	Prepared by	Details
A	29/11/2019	K Truscott	For stakeholder review. This version of this Sub-Plan addresses compliance requirements under CSSI 7400 and CSSI 8256 Planning Approvals as per the Sydney Metro Staging reports.
B	08/01/2020	A Taylor	Updated to address comments from Sydney Metro and the ER.
0	6/03/2020	K Truscott	Issued for Approval
1	15/10/2020	K Truscott	Scheduled review Update to Section 2.2 Compliance Requirements
2	30/09/2021	K Truscott	Scheduled review Minor edit to Section 6.5 and addition of Condition E7 to Element 4

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FFBMSP COMPLIANCE MATRIX

Construction Environmental Management Framework		
No.	Requirement	Reference
3.4a	<p>Subject to Section 3.3(b) and Section 3.2(b) the Principal Contractor will prepare issue specific environmental sub plans to the CEMP and SMP which address each of the relevant environmental impacts at a particular site or stage of the project. Issue specific sub plans will include:</p> <p>vi) Flora and fauna management</p>	This Sub-Plan - limited requirements according with the Staging Reports (only a CEMP Procedure required to address Flora and Fauna management)

Planning Approval CSSI - 7400 CoA		
No.	Requirement	Reference
C3	<p>The following CEMP sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP sub-plan and be consistent with the CEMF and CEMP referred to in Condition C1.</p> <p>(b) Biodiversity</p>	This Sub-Plan - limited requirements according with the Staging Reports (only a CEMP Procedure required to address Flora and Fauna management)
C5	<p>The CEMP sub-plans must be developed in consultation with relevant government agencies. Where an agency(ies) request(s) is not included, the Proponent must provide the Secretary justification as to why. Details of all information requested by an agency to be included in a CEMP sub-plan as a result of consultation and copies of all correspondence from those agencies, must be provided with the relevant CEMP sub-plan.</p>	Section 1.6
C6	<p>Any of the CEMP sub-plans may be submitted to the Secretary along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before commencement of construction.</p>	Section 1.6
C8	<p>Construction must not commence until the CEMP and all CEMP sub-plans have been approved by the Secretary. The CEMP and CEMP sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and sub-plans have been approved by the Secretary.</p>	Section 1.6

Glossary / Abbreviations

Abbreviations	Definition
Ancillary facility	Temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area.
BPS	Bulk Power Supply
C2B	Chatswood to Bankstown
C2S	Chatswood to Sydenham
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval as per State Significant Infrastructure Planning Approvals as issue by the NSW Department of Planning and Environment, relevant staging reports and as listed in Schedule E3 of the Line-wide Works Contract, (ITC 600)
CPB	CPB Contractors Pty Limited
CSSI 7400	Approval of application SSI 7400 provides for construction and operation of a metro line approximately 16.5 kilometers long (of which approximately 15.5 is in underground rail tunnels) between Chatswood and Sydenham (C2S) including construction of a tunnel under Sydney Harbour, links with the existing rail network, seven metro stations and associated ancillary infrastructure. The proposal is declared as Critical State Significant Infrastructure (CSSI)
CSSI 8256	Approval of application SSI 8256 provides for construction and operation of a metro line, approximately 13 kilometers long between Marrickville and Bankstown (S2B), including ten metro stations and associated infrastructure
DPIE	NSW Department of Planning Industry & Environment (formally Department of Planning and Environment)
EIS	Environmental Impact Statement
EMS	Environmental Management System (integrated as part of the PMS)
Environment and Sustainability Policy	Statement by an organisation of its intention and principles for environmental and sustainability performance.
Environmental aspect	Defined by AS/NZS ISO 14001:2004 as an element of an organization's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2004 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental incident	An occurrence or set of circumstances, as a consequence of which pollution (air, water, noise, and land) or an adverse environmental impact has occurred or is likely to have occurred.
Environmental Issue	An occurrence or set of circumstances where Environmental Harm or Non-compliance could occur if not rectified.
Environmental Non-Compliance (NC)	A breach of an Environmental Requirement originating from Planning Approvals, Environment Protection Licenses, lease agreements, and other requirements documented in environmental management plans.

Abbreviations	Definition
Environmental objective	Defined by AS/NZS ISO 14001:2004 as an overall environmental goal, consistent with the Environment Policy, that an organisation sets Line-wide to achieve.
Environmental target	Defined by AS/NZS ISO 14001:2004 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
EPA	NSW Environment Protection Authority
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999 (Cth)
FFBMSP	Flora, Fauna and Biodiversity Management Sub-Plan
Hold Point	Activities which are not to proceed without objective review and approval by the nominated authority
LW	Line-wide
LW Works	Line-wide Works (contract scope under ITC 0600)
POEO Act	Protection of the Environment Operations Act 1997 (NSW)
SC Project Environmental Representative	Refers to Systems Connect Environment and Sustainability Manager or someone delegated by him to perform a task, release a hold point or approve a document
SM	Sydney Metro
SMCSW	Sydney Metro City & Southwest
SMNW	Sydney Metro North West
SMTF	Sydney Metro Train Facility (formerly known as Rapid Transit Rail Facility)
SMTF South	Sydney Metro Train Facility South
Spoil	All material generated by excavation into the ground
SSI 5931	Approval of Application SSI 5931 provided for construction and operation of The Rapid Transit Rail Facility, now known as the Sydney Metro Train Facility (SMTF)
SWTC	Scope of works and technical criteria
TSC Act	Threatened Species and Conservation Act 1995
UGL	UGL Engineering Pty Limited

PART A - OVERVIEW

1. Plan Overview

1.1 Purpose

The purpose of the Flora, Fauna and Biodiversity Management Sub-Plan (this Sub-Plan) is to describe how Systems Connect will minimise and manage impacts on flora, fauna and biodiversity throughout the delivery of the Sydney Metro City & Southwest (SMCSW) Line-wide (LW) Works between Chatswood and Bankstown (C2B). Line-wide (LW) also referred to as the project, will be delivered by Systems Connect (a CPB Contractors and UGL Engineering joint venture).

This Sub-Plan has been prepared to address the requirements of relevant Minister for Planning's Conditions of Approval (CoA), including CSSI 7400 and CSSI 8256, the Revised Environmental Mitigation Measures (REMMs), applicable legislation, the Environmental Impact Statements (EIS), contractual requirements including Schedule C1 Scope of Works and Technical Criteria (SWTC) of ITC 600, the Sydney Metro Construction Environment Management Framework (CEMF) and the LW Works' Environment Protection Licences. Further details about the above-mentioned compliance requirements are provided in section 2 and in the Construction Environmental Management Plan – C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033).

Considering LW Works are expected to have limited interaction with Flora, Fauna and Biodiversity, the relevant Staging Reports (refer to Section 1.5.2) established that a Flora, Fauna and Biodiversity Sub-Plan is not required for the delivery of LW. The Staging Reports define that a CEMP Procedure could be developed instead. In order to maintain consistency across the management of all environmental aspects, Systems Connect has decided to follow the structure of a Sub-Plan to document the management of Flora, Fauna and Biodiversity. Nevertheless, this Sub-Plan is fit for purpose and only addresses applicable and relevant requirements to LW.

1.2 Background

The LW Works will potentially impact flora and fauna during the civil construction works. These potential impacts will require management and mitigation in accordance with relevant state legislation and government policies.

This Sub-Plan is based on the findings of Environmental Impact Statements (EIS) completed to inform development of the SMCSW. This Sub-Plan identifies potential flora and fauna related impacts of the LW Works and sets out an integrated management framework to eliminate, manage, mitigate or minimise the potential impacts.

Activities and aspects which may potentially impact on flora and fauna include:

- Clearing and ground disturbance
- Removal of street trees
- Disturbance or mortality of fauna during works
- Incorrect weed management

The sections below provide an overview from the EIS about the existing flora and fauna environments along the project alignment C2B. Further details about the existing environment and planned LW activities are provided in Section 4.

1.2.1 Chatswood to Sydenham

The existing environment varies throughout the Chatswood to Sydenham corridor. Much of the LW Works are located in a highly urbanised environment, which is characterised by residential and commercial buildings and infrastructure. Native and exotic vegetation typically occurs as fragmented vegetation stands within this environment, with the largest stands occurring within the existing rail corridor adjacent to the Chatswood worksite.

1.2.2 Sydenham to Bankstown

The Sydenham to Bankstown corridor has been heavily modified by past and ongoing disturbances associated with urban development and the active rail corridor. Urban development, clearing, and ongoing maintenance of the rail corridor has resulted in fragmentation, a high level of disturbance, and degradation of vegetation communities.

The majority of vegetation in the project area and surrounding study area comprises exotic or planted native species on highly modified landforms. There are small isolated patches of remnant or regrowth native vegetation in small areas associated with rail cuttings with less disturbed soil profiles. Native vegetation and habitat within the project area is in medium to poor condition, and features impacts from existing maintenance activities, edge effects, weed infestation, and exotic pests.

1.3 Objectives and Targets

Systems Connect’s objectives for management of flora, fauna and biodiversity during delivery of LW Works are aligned with the CEMF which states that the following management objectives will apply to construction:

- Minimise impacts on flora and fauna
- Design waterway modifications and crossings to incorporate best practice principles
- Retain and enhance existing flora and fauna habitat wherever possible
- Appropriately manage the spread of weeds and plant pathogens.

Based on the project requirements (listed in Section 2), the findings of project risk management processes and the potential impacts to the biodiversity, the following targets have been set. Any deviance from the targets will result in Project Management immediately implementing corrective actions.

Table 1 – Flora, Fauna and Biodiversity project targets

Metric/Measure	Objective	Timeframe	Accountability
Area of vegetation cleared without approval	Zero	At all times	Project Director
Number of actions taken by regulators and/or client	Zero	At all times	Project Director

1.4 Plan Structure

Table 2 - Plan structure

Plan Structure	Details
Part A: Overview	<p>This Part defines:</p> <p>Section 1 Purpose, Background, Objectives & Targets, Structure, Applicability Staging & Interface, Agency Consultation, Plan Revision& Update and Related Documents</p> <p>Section 2 Legal and other requirements</p> <p>Section 3 Roles and responsibilities with regards to Flora, Fauna and Biodiversity Management</p> <p>Section 4 Existing Environment</p> <p>Section 5 Aspects and Impacts</p> <p>Section 6 Flora, Fauna and Biodiversity Management Strategy</p>
Part B: Implementation	<p>This section outlines in detail the key processes and systems to support implementation of environmental management outcomes for the project:</p>

Plan Structure	Details
	Element 1. Training Element 2. Monitoring and Reporting Element 3. Auditing, Review and Improvement Element 4. Project Specific Requirements
Part C: Appendices	C1 – Flora and Fauna Management Procedure

1.5 Plan Applicability, Staging and Interface

1.5.1 Applicability

This Flora, Fauna and Biodiversity Management Sub-Plan is applicable to Portions 2, 3 and 4 of LW, which includes all works associated with the corridor from Chatswood to Bankstown (C2B). It is not applicable to Portion 1, SMTF expansion works. The SMTF expansion works have a separate series of Construction Environmental Management Plans and are approved under Planning Approval SSI 5931. An overview of LW scope and portions is provided in the CEMP C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033).

Table 3 below provides a summary of the scope of works covered under each Portion.

Table 3 - Summary of LW Scope for Portions 2, 3 and 4

LW Portions	Scope
Portion 2 – SMTF South (LW are Principal Contractor)	Construction of Sydney Metro Trains Facility South, in Marrickville, including: <ul style="list-style-type: none"> • Civil works • Track system comprising stabling, shunting and maintenance roads • Infrastructure maintenance facilities including a maintenance workshop, siding, materials storage facilities and parking • Train maintenance facilities • Overhead wiring for new track systems • Mechanical, hydraulic and electrical services for the facility • Administration buildings • Groundwater treatment plant
Portion 3 – Chatswood to Sydenham tunnels and stations works (LW are Principal Contractor for Northern Dive, Artarmon Substation, BPS routes, tunnels and a small area within Barangaroo site)	Tunnel and underground station works including the systems, services and building works within, and required for operation of the tunnels, Barangaroo crossover cavern, trackway and the Southern Dive. Open Northern Dive works including civil, structural and track systems work to incorporate SMCSW with SMNW systems. Construction of Artarmon bulk supply infeed substation. Bulk Power Supply works including cable routes of 33kV feeders from: <ul style="list-style-type: none"> • Ausgrid's Willoughby Sub-Transmission Substation to the Artarmon bulk supply infeed substation • Ausgrid's Surry Hills Sub-Transmission Substation to the bulk supply infeed substation within Waterloo Station
Portion 4 – Sydenham to Bankstown works (LW are Principal Contractors for Substation sites and BPS routes)	Bulk Power Supply works including cable routes of 33kV feeders from Ausgrid's Canterbury Sub-Transmission Substation to the Campsie bulk supply infeed substation. Southwest corridor power works from Sydenham to Bankstown, including: <ul style="list-style-type: none"> • a HV Reticulation System • a Traction Power System • a Power Control System • an Earthing and Bonding System, Electrolysis Control Measures and Lightning Protection

1.5.2 Staging

In order to address the staged nature of SMCSW project, Sydney Metro has developed two Staging Reports:

- Chatswood to Sydenham Staging Report (July 2019)
- Sydenham to Bankstown Upgrade Staging Report (March 2019).

Each Staging Report defines the Conditions of Approval (CoA), Revised Environmental Management Mitigation Measures (REMM's) and the Construction Environmental Management Framework (CEMF) requirements that Systems Connect (and the other Project Stage contractors) must address to deliver works between Chatswood and Bankstown under CSSI 7400 and CSSI 8256. The Staging Reports “turn on or off” whether each condition or requirement is “applicable”, “not applicable” or “partially applicable” to LW. If a requirement is applicable or partially applicable, it is included in the Element 4: table of Project Specific Requirements and addressed in this Sub-Plan.

The EIS assessments addressed all potential project impacts at all Project stages, including impacts during tunnel and station excavation and construction, being completed by other contractors. These activities will be in varying stages of completion at each worksite, by the time LW scope of works commence at each location (in accordance with the Staging Reports).

1.5.3 Interface

This Sub-Plan is applied when Systems Connect is the Principal Contractor at any SMCSW site. When Systems Connect is not the Principal Contractor, elements of this Sub-Plan will be implemented by Systems Connect where reasonable and feasible, to mitigate any impacts on flora, fauna or biodiversity and to prevent harm to the environment. In such cases, Systems Connect will conduct activities in accordance with the Principal Contractors' Regulatory and contractual obligations.

Systems Connect will liaise and work with other SMCSW delivery contractors to plan and carry out all works, aiming to achieve this objective and ensure any potential cumulative impacts are managed and harm to the environment does not occur.

1.6 Agency Consultation

Planning Approval consultation obligations, in line with the Staging Reports, are not fully applicable to this Sub-Plan, since the development of a Flora, Fauna and Biodiversity Sub-Plan is not required for the scope of LW Works (refer to Section 1.1). Applicable consultation requirements are outlined in Table 4.

This Sub-Plan will be submitted for information to the Planning Secretary before commencement of construction, be endorsed by the ER prior to implementation and be implemented for the duration of works.

Table 4 - Applicable consultation requirements

Plan	CSSI	Contractor's Internal Review & Approval	Sydney Metro Review	Government Agency	ER Review & Endorsement
Flora, Fauna and Biodiversity Sub-Plan	7400	✓	✓	•	✓
	8256	✓	✓	•	

• At the discretion of Sydney Metro (i.e. not strictly a project requirement).

1.7 Revision and Update

The document review process ensures that environmental documentation including this Sub-Plan is updated as appropriate for the specific works that are occurring on-site. This includes the management review process described in Element 3.

This Sub-Plan was developed to address the Flora, Fauna and Biodiversity compliance requirements throughout LW scope of works between C2B and it will be updated as the project progresses through each Portion.

Amendments would typically include those that:

- are editorial in nature e.g. staff and agency/authority name changes
- do not increase the magnitude of impacts on the environment when considered individually or cumulatively
- do not compromise the ability of the Project to meet approval or legislative requirements
- do not result in new environmental impacts.

Details of the plans and procedures revisions that will occur to address Planning Approval compliance requirements, across the delivery of all portions of LW Works, are provided in the project CEMPs.

Minor amendments to the Flora, Fauna and Biodiversity Management Plan will be submitted to the Environmental Representative (ER) and Sydney Metro for review and approval. Minor amendments would generally include changes to systems or processes.

Where the change will have the potential to result in an additional environmental or community impact that the ER cannot approve, then the plan would be submitted to DPIE for review and approval.

Where necessary, amendments to this Sub-Plan will also be provided to relevant stakeholders for review and comment and/or forwarded for approval.

1.8 Related Documents

This document is a Sub-Plan of the Construction Environmental Management Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033). Table 5 shows the interrelationships with other project plans and documents.

Table 5 - Interaction with other project documents

Document	Description
Flora and Fauna Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386)	Describes the management actions and responsibilities to manage flora and fauna during the LW Works. It also covers obtaining a Permit to Clear Land or Vegetation if

Document	Description
	flora removal is required (tree removal not covered in this scope).
Tree Reports	Reports developed prior to removal of any trees that might be required during construction works, to address CoA E64 (CSSI 7400) and CoA E5 (CSSI 8256).
Visual Amenity Management Sub-Plan- C2B (SMCSWLWC-SYC-1NL-PM-PLN-000376)	Provides for the retention of vegetation within construction worksites, where practicable, to reduce impacts on visual amenity
Soil, Water and Groundwater Management Sub-Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000372)	Addresses the erosion and sedimentation impacts associated with vegetation clearing
Waste, Recycling and Spoil Management Sub-Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000374)	Provides a framework for waste management, including management of any green waste generated during construction.
Sustainability Management Plan (SMCSWLWC-SYC-1NL-PM-PLN-000024)	Contains biodiversity conservation objectives, targets and initiatives.
Health and Safety Management Plan (SWLWC-SYC-1NL-PM-PLN-0000010)	The Project Health and Safety Management Plan addresses the risks associated with the use of hazardous materials and dangerous goods (e.g. herbicides and pesticides). Safety Data Sheets (SDS) and product labels will also be referenced prior to application of herbicides and pesticides.

2. Legal and Other Requirements

2.1 Legislation

Key legislation relevant to flora, fauna and biodiversity management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act)
- National Parks and Wildlife Act 1974 (NPW Act)
- Biodiversity Conservation Act 2016 (BC Act) (the BC Act began on 25 August 2017 and replaces the Threatened Species and Conservation Act 1995 and amendments (TSC Act) and Native Vegetation Act 2003 (NV Act)
- Biosecurity Act 2015
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

Refer to the Construction Environmental Management Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033) for details of the relevant legislation.

2.2 Compliance Requirements

Line-wide Works (C2B) have been assessed and approved via a number of applications under the Environmental Planning and Assessment Act 1979 (EP&A Act) and are classified as Critical State Significant Infrastructure:

- CSSI 7400. Sydney Metro City & Southwest Chatswood to Sydenham and
- CSSI 8256. Sydney Metro City & Southwest Sydenham to Bankstown.

Detailed environmental assessments have been carried out to gain the necessary planning approvals.

Element 4: Project Specific Requirements contains a summary of the key compliance requirements for flora, fauna and biodiversity management which are applicable to the LW Works. This includes relevant Conditions of Approvals and associated mitigation measures to be implemented, as well as requirements under the Construction Environmental Management Framework (CEMF).

This plan will also deliver compliance with the Systems Connect EMS, contractual requirements including Schedule C1 Scope of Works and Technical Criteria (SWTC) of ITC 600 and any Environmental Protection License (EPL) issued to the Project. The EPA issued EPL 21423 to the Project on 31 July 2020 for the scheduled activity "Railway activities - railway infrastructure construction", which applies to certain prescribed premises between Chatswood Dive Site and Sydenham Dive Site.

2.3 Guidelines and Standards

Additional guidelines and standards which may be useful for the the management of flora, fauna and biodiversity (where applicable to LW scope) include:

- A Field Manual for the Surveying and Mapping of Nationally Significant Weeds (McNaught, I., Thackway, R., Brown, L. and Parsons, M 2008)
- Asparagus Weeds Best Practice Management Manual
- Australian Standard 4970–2009 Protection of trees on development sites
- Best Practice Guidelines for Blue Gum High Forest (DECC 2008)
- Best Practice Guidelines Sydney Turpentine-Ironbark Forest (DECC 2008)
- Best Practice Management Guidelines for *Phytophthora cinnamomi* within the Sydney Metropolitan Catchment Management Authority Area (Suddaby, T. and Liew, E. 2008).
- Control Manual for Lantana (Van Oosterhout 2004)
- Cumberland Plain Recovery Plan (DECCW 2011)
- Guidelines for Threatened Species Assessment (DEC and Department of Primary Industries, 2005)
- Noxious and Environmental Weed Control Handbook, 4th Edition, NSW Industry & Investment Management Guide

- Protection and Restoring Blue Gum High Forest (DECC 2008)
- Recovering Bushland on the Cumberland Plain. Best practice guidelines for the management and restoration of bushland (DECC 2005)
- Survey Guidelines for Australia's Threatened Frogs (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010)
- Threatened Biodiversity Survey and Assessment Guidelines (working draft, DEC, 2004)
- Weed Management Guide, Weed of National Significance Madiera Vine (*Androderacordifolia*) Caring for Our Country (<http://www.weeds.org.au/WoNS/madeiravine/>)

3. Roles and Responsibilities

3.1 Systems Connect Team

The roles and responsibilities of key Systems Connect personnel with respect to flora, fauna and biodiversity are detailed in Table 6.

Table 6 - Key roles, authority and responsibility

Role	Authority and responsibility
Project Director	Managing the delivery of the LW Works including overseeing planning approval and environmental management Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts Act as the Contractor's Representative
Environment and Sustainability Manager	Oversee the implementation of all flora, fauna and biodiversity management initiatives Prepare and implement this Sub-Plan Oversee flora, fauna and biodiversity monitoring, inspections and auditing
Environmental Advisor	Assists the Environment Manger in the day to day environmental management of LW
Commercial Manager	Ensure that relevant flora, fauna and biodiversity management requirements are considered in procuring materials and services
Design Team Manager	Ensure relevant flora, fauna and biodiversity management requirements are addressed in design development
Construction Manager and delegates	Manage the delivery of the construction process in relation flora, fauna and biodiversity management for their work activity in conjunction with the Project Environment and Sustainability Manager and Environment Coordinators Ensure compliance with this Sub-Plan and associated procedures.
Sustainability Manager	Track and report flora, fauna and biodiversity elements against sustainability targets
Environment Coordinators	Manage the on-ground application of flora, fauna and biodiversity management measures during construction Monitor and report on flora, fauna and biodiversity management during construction
Superintendents	Construction delivery in relation to environmental management and compliance in conjunction with the Project Environment and Sustainability Manager Authority to direct personnel and/or subcontractors to carry out actions to avoid or minimise unintended environmental impacts
Project Managers Project Engineers Site Engineers Supervisors	Implement and monitor onsite environmental management and compliance measures across all sites in conjunction with environmental coordinators Undertake site inspections
Stakeholder and Community Relations Manager	Assist in response to and management of complaints relating to flora, fauna and biodiversity
Plant Manager	Ensuring that inspections of plant and vehicles are undertaken for all new plant/equipment coming on to sites to ensure no soil, mud or organic material is brought to LW worksites.

Project Ecologist	Specialist consultant providing advice on implementation of this plan and conducting associated services relating to flora and fauna management.
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Further details on roles and responsibilities are provided in the Construction Environment Management Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033).

3.2 Specialist Consultants

An experienced and qualified Project Ecologist has been engaged to provide expert advice to LW, which has been incorporated into this Plan. During construction, the Project Ecologist will continue to provide specialist advice and services to implement requirements in this Plan, to ensure that impacts to flora and fauna can be avoided, minimised or appropriately mitigated including:

- Pre-clearing surveys
- Vegetation/habitat tree clearance
- Fauna management
- Advice on the management of the weeds and plant pathogens
- Unexpected finds of threatened or endangered species
- Tree replacement.

4. Existing Environment

This section provides an overview of the existing environment surrounding the LW C2B construction sites. As detailed in section 1.2 this information is based on the comprehensive assessment and analysis work performed for the EIS that cover LW scope of works. Considering the area covered by this project (C2B) the existing environment is described over two sections based on each Planning Approval:

- CSSI 7400 Chatswood to Sydenham
- CSSI 8256 Sydenham to Bankstown

4.1 Chatswood to Sydenham

Table 7 provides a description of the existing and surrounding environments of the LW worksites between Chatswood and Sydenham that have the potential to impact biodiversity, as described in the EIS, and includes potential impacts on flora, fauna and biodiversity.

Table 7 - Surrounding environment and potential biodiversity impacts between Chatswood and Sydenham

Worksite	Existing/Surrounding Characteristics	LW Works Activities Potentially Affecting Flora, Fauna and Biodiversity
Chatswood dive site and Northern Connection	<p>There is vegetation within the rail corridor between Albert Avenue and Brand Street, associated road bridges and the Ausgrid depot site to the west of the rail corridor, between Mowbray Road and Nelson Street. This vegetation includes planted natives mixed with invasive exotic species.</p> <p>This site has limited fauna habitat value due to the lack of native vegetation, urban development and disturbance from road and rail traffic. Scattered trees are present within the Ausgrid depot, including a potential hollow-bearing tree and nest box on the southern boundary of the depot. The rest of the depot contains buildings and hardstands, with no microbats recorded during surveys of this area.</p> <p>Two concrete over bridges in this site have crevices that could provide roosting habitat for microbats, however, the level of road and rail traffic is suboptimal for microbats and thus none were observed.</p>	<p>Removal of individual trees, Minor clearing and ground preparation within rail corridor.</p> <p>Potential for fauna interactions during construction activities.</p>
Artarmon substation And Bulk Power Supply Route	<p>The Artarmon Substation is located adjacent to Reserve Road between Whiting Street and Curry Lane, within an industrial zoned area. The Gore Hill Freeway is to the north.</p> <p>Vegetation in this area comprised cleared grassland lined by trees and shrubs, providing foraging and nesting habitat for common urban fauna. The level of disturbance has reduced habitat value due to urban development and roads.</p>	<p>Removal of individual trees for BPS route.</p> <p>No clearing at Artarmon for LW scope.</p> <p>Potential for fauna interactions during construction activities.</p>
Barangaroo	<p>Vegetation consists of planted trees along Hickson Road between the southern extent of High Street and the Munn Street tunnel to the north. Fauna habitats are restricted to these scattered planted trees and a small area of landscaped vegetation, which includes palm trees, succulents and grasses. Street trees provide foraging habitats and shelter for common urban fauna, with fig trees in the area potentially providing foraging habitat for the Grey-headed Flying-fox when fruiting.</p>	<p>This site will have been cleared prior to LW Works commencing in this location.</p> <p>Potential for fauna interactions during construction activities.</p>

Worksite	Existing/Surrounding Characteristics	LW Works Activities Potentially Affecting Flora, Fauna and Biodiversity
Central Station and Surry Hills Bulk Power Supply Route	Between the suburban and country railway lines is mostly hardstand with a platform, a few planted or regenerating trees and buildings. Due to the highly disturbed and developed nature of the site, there is limited habitat value. Whilst buildings could provide roosting habitats for microbats, it is unlikely due to the busy railway activity. The bulk power supply route passes street trees and through Frog Hollow Reserve, which provide foraging habitats and shelter for common urban fauna.	Removal of individual trees along services route and ground preparation. Potential for fauna interactions during construction activities.
Waterloo	Industrial and commercial buildings are located between Botany Road, Raglan Street, Cope Street and Buckland Street. This site has no observed vegetation. The buildings are not suitable for microbats due to high activity, lack of insulation and low accessibility.	This site will have been cleared prior to LW Works commencing in this location. Potential for fauna interactions during construction activities.
Marrickville dive site (inc. SMTF south)	This is mainly an industrial area with a small strip of planted natives. The site has a long history of disturbance and as such, vegetation would be highly modified, with low native flora biodiversity values.	Ground preparation only. Potential for fauna interactions during construction activities.

4.1.1 Terrestrial Threatened Flora Species

The EIS identified that all vegetation in the study area was urban-exotic / native. There were no native vegetation communities observed during inspections, and no listed threatened ecological communities were observed. The closest threatened ecological community is the Blue Gum High Forest, which is found in patches approximately 250 meters west of the Chatswood dive site. This threatened ecological community will not be affected by LW

No threatened flora species were recorded in the site area. There is a low likelihood of any threatened flora species due to the low native habitat values of the area, with the exception of planted non-local native specimens.

4.1.2 Terrestrial Threatened Fauna Species

In the EIS, up to 59 threatened fauna species and 78 migratory fauna species listed under the EPBC Act are known or likely to occur within 10 kilometres of the site. The following threatened fauna species have a moderate-to-high likelihood of occurring in the vicinity of LW Works:

- The Grey-headed Flying-fox – This is a vulnerable species and is found in urban gardens, feeding on the fruit of rainforest trees and vines. The Chatswood dive site and Barangaroo station site have a high likelihood of encountering this species, as fig trees in these areas provide a foraging habitat. There is a moderate likelihood of this species occurring at Central Station. It is unlikely the species will occur at other LW worksites.
- The Eastern Bent-wing Bat - This is a vulnerable species occurring along the east coast of Australia. The species forages in forested areas, primarily roosting in caves, is sometimes observed in a range of built structures. There were 82 records of the species within 10 kilometres of the site. Buildings at Sydenham, Chatswood and Waterloo, and crevices within two bridges within the rail corridor adjacent to the Chatswood dive site, may provide roosting habitat for the species outside the birthing period, but are within a highly modified environment subject to high levels of disturbance and are therefore suboptimal for this species. The species has a moderate likelihood of occurrence within the Chatswood, Central, Waterloo and Marrickville dive sites.
- The Eastern Freetail Bat – This is a vulnerable species found east of the Great Dividing Range, from Brisbane to Sydney and is most commonly recorded in dry eucalypt forest and woodland, where it prefers open spaces and forests. This species forages in openings and gaps in forests

and mainly roosts in tree hollows but can also roost in exfoliating bark or built structures. There are 10 records of this species within 10 kilometres of the project. The Eastern Freetail Bat could be observed in hollow-bearing trees in Chatswood, though it is unlikely due to high levels of disturbance. There is a moderate likelihood of the species occurring at Chatswood, Waterloo, Central Station and Marrickville dive sites.

4.1.3 Noxious Weeds

Seventeen exotic species, described in the EIS as having been recorded in the study area, are declared noxious under the NSW Noxious Weeds Act 1993 for either the Willoughby, North Sydney, Sydney and/or Marrickville Local Government Authorities. Their common names are Madeira Vine, Giant Reed, Asparagus fern, Balloon Vine, Chinese Hackberry, Green Cestrum, Boneseed, Camphor-laurel, Broom, Montperlier Broom, Blue Morning Glory, Lantana, Broad-leaved Privet, Small-leaved Privet, Mickey Mouse Plant, African Olive and Castor Oil Plant. Further information on locations, control classes and control requirements can be found in the EIS Technical Paper 9: Biodiversity Assessment, Section 3.6.

4.2 Sydenham to Bankstown

Table 8 provides a description of the existing and surrounding environments of the LW worksites between Sydenham and Bankstown that have the potential to impact biodiversity, as described in the EIS, and includes potential impacts on flora, fauna and biodiversity.

Table 8 - Surrounding environment and vegetation communities between Sydenham and Bankstown

Worksite	Existing/Surrounding Characteristics	Activities Potentially Affecting Flora, Fauna and Biodiversity
Bulk Power Supply Route (external to rail corridor)	<p>The bulk power supply route is trenched from the existing Ausgrid substation in Earlwood to the rail corridor between Canterbury and Campsie Stations. From the substation, the route initially goes through Pat O'Conner Reserve and through residential areas to the rail corridor. Street trees and vegetation in the reserve provide foraging habitats and shelter for common urban fauna.</p> <p>The route will cross Cup and Saucer Creek, requiring construction of a cable bridge crossing. In this location the creek is formed by concrete channel walls on each bank. It is noted that the area is highly disturbed and urbanised, mostly constituted of turf, with minimal remaining riparian vegetation. There will be no impact to riparian vegetation as part of the works. The current preferred creek crossing design involves the use of prestressed concrete girders, which will eliminate the need for in-stream works in the culvert.</p>	<p>Installation of services will require removal of individual trees and ground preparation. Potential for fauna interactions during construction activities.</p>
Punchbowl Traction Substation (within rail corridor)	<p>Works for the traction substations will be within the rail corridor, at the traction substation location, which is to the north of the roundabout at the north end of Scott Street. At the Punchbowl Traction Substation location, the vegetation communities are exotic grassland and planted native vegetation. In the vicinity of this substation, there is an area of <i>Acacia pubescens</i> which is excluded from the footprint.</p>	<p>Installation of Substations will require clearing and ground preparation within the rail corridor. Potential for fauna interactions during construction activities.</p>
Lakemba Traction Substation (within rail corridor)	<p>Works for the traction substations will be within the rail corridor, at the traction substation location, which is near the junctions of Dennis Street and Taylor Street and The Boulevard. At the Lakemba Traction Substation location, the vegetation communities are exotic grassland and planted native vegetation. There is an area of Degraded Turpentine - Grey Ironbark open</p>	<p>Installation of Substations will require clearing and ground preparation within the rail corridor. Potential for fauna interactions during construction activities</p>

Worksite	Existing/Surrounding Characteristics	Activities Potentially Affecting Flora, Fauna and Biodiversity
	forest on shale (EEC) on the other side of the track in the vicinity of this substation, which will not be impacted by the works.	
Campsie Traction Substation (within rail corridor)	Works for the traction substations will be within the rail corridor, at the traction substation location, which is around 250m west of Campsie Station, within the Campsie local town centre. At the Campsie Traction Substation location, the vegetation communities are a patchy mix of exotic grassland and exotic scrub/forest.	Installation of Substations will require clearing and ground preparation within the rail corridor. Potential for fauna interactions during construction activities.
Canterbury Traction Substation (within rail corridor)	Works for the traction substations will be within the rail corridor, at the traction substation location, which is to the north of Hutton Street, west of the intersection with Hurlston Avenue. At the Canterbury Traction Substation location, the vegetation communities are exotic grassland and exotic scrub/forest.	Installation of Substations will require clearing and ground preparation within the rail corridor. Potential for fauna interactions during construction activities.
Dulwich Hill Traction Substation (within rail corridor)	Works for the traction substations will be within the rail corridor, at the traction substation location, which is near the end of Randall Street. At the Dulwich Hill Traction Substation location, the vegetation communities are exotic grassland and exotic scrub/forest.	Installation of Substations will require clearing and ground preparation within the rail corridor. Potential for fauna interactions during construction activities.
High Voltage Cable Installation Bankstown to Sydenham (within rail corridor)	High voltage cable will be pulled through existing conduit in the rail corridor between each substation from Bankstown to Sydenham. The rail corridor consists of the following Vegetation communities: Exotic Grassland Exotic scrub or forest Broad-leaved Ironbark - Melaleuca decora grassy open forest Degraded Turpentine - Grey Ironbark open forest on shale Planted native vegetation Turpentine - Grey Ironbark open forest on shale	Cable installation will have minimal/no impacts to vegetation. Potential for fauna interactions during construction activities.
Station Sites: Marrickville Dulwich Hill Hurlstone Park Canterbury Campsie Belmore Lakemba Wiley Park Punchbowl Bankstown	Package substation installation within the station sites using franna crane to lift into place and hand tools	Minimal/no impacts to vegetation expected. Potential for fauna interactions during construction activities.

4.2.1 Terrestrial Threatened Flora Species

According to the EIS (Section 22.2), no listed threatened flora species were recorded in the project area. One threatened plant species Downy Wattle (*Acacia pubescens*) listed as vulnerable under the EPBC Act and TSC Act, was recorded in the study area for the EIS. Around 650 stems are located near the project area. The patches of stems recorded are located mainly in the vicinity of

Punchbowl Station, with around two stems recorded in the rail corridor, and one stem in a Council reserve around 100 metres east of the Yagoona substation. The project has been designed to avoid impacting on the recorded locations of this species.

4.2.2 Terrestrial Threatened Fauna Species

According to the EIS (Section 22.2), the Grey-headed Flying-fox, which is listed as vulnerable under the TSC Act and EPBC Act, was recorded in the study area. No microbats were recorded during anabat surveys. Nevertheless, the following species listed as vulnerable under the TSC Act are considered likely to occur:

- Eastern Bent-wing Bat
- Large-footed Myotis
- Eastern Freetail Bat
- Yellow-bellied Sheath-tail Bat.

Although the Long-nosed Bandicoot population in inner western Sydney is known or predicted to occur in the study area, no evidence of the population was found, either from searches for diggings or camera surveys, and there have been no records of the population or any recent sightings since 2014. Spotlighting undertaken during the assessment did not identify any records of this species. The biodiversity assessment concluded that the Long-nosed Bandicoot is unlikely to occur in the project area, as a result of:

- the lack of evidence of the species in the project area and surrounding area, despite recent targeted surveys
- limited presence of shelter habitat
- high abundance of introduced predators
- difficulty of access to the rail corridor.

4.2.3 Noxious Weeds

Noxious weeds observed in the EIS study area are listed in Technical Paper 9: Biodiversity Assessment Report, Section 3.3.3, Table 3-8 along with their locations (generally Bankstown, Canterbury, Marrickville and the Inner West), control category and control requirements. Common names of these weeds are African Olive, Asparagus Fern, Blackberry, Boneseed, Bridal Creeper, Castor Oil Plant, Fireweed, Flaxleaf Broom, Green Cestrum, Honey Locust, Lantana, Mother of Millions, Pampas Grass, Broad-leaf Privet and Rhizomatous Bamboo. Many of these noxious weed species are also listed as 'weeds of national significance' which are recognised as Australia's worst invasive plants.

5. Aspects and Impacts

Activities potentially affecting flora, fauna and biodiversity described in the section above are described in further detail in this section.

The key aspects and potential impacts in relation to the overall management of flora, fauna and biodiversity during the LW Works are listed in Table 9 below.

Table 9 - Summary of overall aspects and potential impacts

Aspects	Potential Impacts
Worksite establishment – civil works for compound layout, vegetation clearance	Disturbance of native fauna and flora habitats Habitat loss or degradation (e.g. hollow bearing trees, potential roosts in man-made features i.e. buildings, under bridges etc.)
Spoil handling, storage and transport	Spread of weeds, pests and pathogens
General construction activities and handling of fuels and hazardous materials, spills	Contamination of existing habitats affecting surrounding flora and fauna

6. Flora, Fauna and Biodiversity Management Strategy

6.1 Flora and Fauna Management Procedure

The Flora and Fauna Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386) has been specifically developed to address the risks associated with management of flora and fauna for LW Works and is included in Appendix C1.

The procedure is available at all sites during construction works, at all times. The procedure outlines:

- Training via inductions and tool box talks
- Clearing and grubbing process
- Stop works procedure in the event of unexpected find
- Fauna handling process
- Notification, consultation and reporting requirements in the event of an unexpected find of flora and fauna.

6.2 Vegetation Clearing

If vegetation clearing is necessary, the Flora and Fauna Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386) must be followed. The clearing and grubbing process should be implemented, which requires completion of a Pre-Clearing Inspection Checklist (Appendix C2). Final checks and sign-off must be completed by the Environmental Coordinator after all of the checklist items have been completed. Other environmental aspects such as weed management and sediment and erosion control are also addressed using the Pre-Clearing Inspection Checklist.

Prior to any disturbance of vegetation, a Permit to Clear Land or Vegetation must also be obtained. The Permit to Clear Land or Vegetation may be signed off by the Site Environmental Representative or the Project Manager to authorise removal of vegetation. Operators involved in clearing activities must be advised of permit conditions and understand all applicable clearing requirements and boundary, documented by signing on to the permit.

Disturbance area and clearing limits will be clearly delineated with flagging. Areas to be retained and adjacent habitat areas will be fenced off prior to works to prevent damage or accidental over clearing. No-go zones should be clearly identified with signage. Areas to be cleared/retained as per design is confirmed by survey and documented in the Pre-Clearing Inspection Checklist.

If any clearing of native vegetation is required, or removal of potential fauna habitat (e.g. hollow-bearing trees), an ecologist will be present during clearing to assist with management of potential impacts to resident fauna and provide advice on opportunities to salvage habitat where feasible.

If habitat trees are identified, clearing will follow a two-stage process as follows:

- Non-habitat trees and other vegetation will be cleared first after sign-off of the pre-clearing inspection.
- Habitat trees will be cleared no sooner than 48 hours after non-habitat trees have been cleared, where feasible. 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.

If any pre-clearing surveys and inspections for endangered and threatened flora and fauna species are required, these will be undertaken by qualified ecologists prior to any clearing occurring. The surveys and inspections, and any subsequent relocation of species, would be undertaken in accordance with the Flora and Fauna Management Procedure (Appendix C1).

After clearing of native vegetation, 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. Due to scope of LW Works, offsetting of impacts and installation of nest boxes is not expected.

Records of all clearing permits and inspections will be kept for the duration of construction.

6.3 Fauna Handling

Any fauna that is encountered during construction will be managed in accordance with the fauna handling process, within the Flora and Fauna Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386), included in Appendix C1. This is applicable to any fauna, however contains specific requirements for management of bats and snakes.

6.4 Biodiversity Management

Direct impacts to areas of biodiversity value, including vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box, will be avoided.

Before undertaking works in locations where these vegetation types are known to be present, the locations of these species and communities will be identified on Site Environmental Plans (SEP), fenced on site, and avoided. Systems Connect will endeavour to retain and enhance existing flora and fauna habitat wherever possible.

Where impacts to threatened ecological communities or endangered species cannot be avoided, they will be offset in accordance with the requirements of the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014) in agreement with OEH. Due to LW scope of work, offsetting is not expected.

If any threatened species of flora and fauna is identified, which was not assessed in the EIS is encountered, SC will seek advice from the Project Ecologist and liaise with Sydney Metro on recommended management measures.

6.5 Tree Management

During design and construction, Systems Connect will avoid removal of trees wherever possible. Where tree removal or impact is unavoidable, a tree report will be provided by a qualified arborist, which will include condition of trees, any visual amenity value, a discussion of options considered to avoid and ensure retained trees are stable and not damaged. This includes details of any proposed canopy or root pruning, root protection zone, excavation, site controls on waste disposal, vehicular access, materials storage and protection of public utilities. The report will be developed in consultation with the relevant local council and submitted to the Secretary prior to any tree impacts and any recommendations implemented. Tree Reports will be arranged as necessary as the works progress, if and when any tree removal is necessary.

For each tree removed, two replacement trees will be planted. Replacement trees will be planted within the project boundary or on public land up to 500 metres from the project boundary. Replacement tree plantings can be undertaken beyond 500 metres on public land within the local government areas to which the CSSI approval applies if requested by the relevant council(s) or where no more practicable land for planting can be found within and up to 500 metres from the CSSI boundary. The location of replacement trees will be determined in consultation with the relevant council(s).

Replacement trees will have a minimum pot size of 75 litres except where the plantings are consistent with the pot sizes specified in a relevant council's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant council. Prior to operation, a report detailing replacement tree type, size, number and location will be submitted to the Secretary.

6.6 Weed Management

Seventeen of the 51 exotic species recorded in the Chatswood to Sydenham area are declared noxious under the NW Act for either the Willoughby, Sydney and / or Marrickville local government areas. The NW Act (replaced by the Biosecurity Act 2015) imposes obligations on occupiers of land to control noxious weeds declared for their area.

Fifteen species of noxious and environmental weeds are broadly distributed throughout the Sydenham to Bankstown area. Many of these are also listed as 'weeds of national significance', which are recognised as Australia's worst invasive plants.

Priority weeds would be managed in accordance with the Biosecurity Act 2015. Weeds of national environmental significance would be managed in accordance with the applicable Weeds of National Significance Weed Management Guide, if encountered during the LW scope of work. Systems Connect will endeavour to appropriately manage the spread of weeds and plant pathogens by implementing all applicable mitigation measures.

When Systems Connect take control of a site, an inspection will be undertaken to check that weeds have been appropriately managed by preceding contractors, or that weeds are not present. Weeds encountered will be managed as necessary to control their spread. Weed management is to be completed prior to vegetation removal where practicable and feasible within schedule. Ongoing weeding will occur throughout the construction phase, where required.

6.7 Flora, Fauna and Biodiversity Mitigation Measures

The key flora, fauna and biodiversity mitigation measures to be implemented during the LW Works are listed in Table 10 below. These are the key mitigation measures for the overall management of flora, fauna and biodiversity during the LW Works.

Table 10 – Flora, fauna and biodiversity management and mitigation measures

Management and Mitigation Measures	Responsibility
<p>Prior to any disturbance, clearing or grubbing activities in any locations the following must be in place:</p> <ul style="list-style-type: none"> • A Permit to Clear Land or Vegetation (or equivalent) • No-go Zones for native or significant flora and fauna must be established, fenced/flagged and sign posted prior to commencement of clearing • A wildlife catcher/spotter or the Environmental Coordinator needs to conduct a search for any wildlife that may need to be removed and relocated. • Tree reports (as described in Section 6.4) 	<p>Construction Manager Environmental Coordinator</p>
<p>Pre-clearing surveys will be undertaken to identify the presence of:</p> <ul style="list-style-type: none"> • Hollow bearing trees and other habitat features • Threatened flora and fauna. 	<p>Construction Manager Environmental Coordinator</p>
<p>Any waterway modifications and crossings will be designed to incorporate best practice principles.</p>	<p>Design Manager Environmental Manager</p>
<p>If a threat to an animal is evident onsite you must contact your supervisor and/or Environmental Coordinator immediately. Works may need to cease if the animal is in danger or harmed, until it has been relocated.</p>	<p>Site Superintendent</p>
<p>The local WIRES group and / or veterinarian will be contacted if any fauna is injured on site or require capture and / or relocation.</p>	<p>Environmental Coordinators</p>
<p>The site speed limits must be obeyed at all times, especially areas where vehicle/fauna interactions are identified as high risk.</p>	<p>Site Superintendent</p>
<p>All plant should remain on haul roads/designated routes as much as possible so as to minimise damage to vegetation.</p>	<p>Site Superintendent</p>
<p>No-go zones must be obeyed at all times without a Permit to Enter No-go Zone. Any damage to no-go zone fencing or signage must be reported to your supervisor or Environmental Coordinator immediately.</p>	<p>Site Superintendent</p>
<p>Cleared/removed vegetation will be beneficially used either on or off the project where possible (e.g. for habitat, chipped for mulch and reused).</p>	<p>Construction Manager</p>
<p>Where possible revegetation activities will preferentially use only species that are indigenous to the area.</p>	<p>Design Manager</p>

Management and Mitigation Measures	Responsibility
Boundaries of allowable disturbance areas on the project are clearly marked and delineated.	Construction Manager
Equipment storage and stockpiling would be restricted to identified compound sites and already cleared land.	Construction Manager
Weed Management	
<p>To prevent establishment or spread of weeds:</p> <ul style="list-style-type: none"> • Machinery will be cleaned before entering work sites • Weeds will be removed from within any mapped native vegetation areas at least 10m from the edge of the construction footprint (where access allows) • Cleared weed material will be disposed of at a site licensed to receive green waste. 	Site Superintendent
Weed management is to be undertaken in areas affected by construction prior to any clearing works.	Construction Manager
Training	
<p>Induction must include information about:</p> <p>Flora and fauna on site</p> <p>Requirements for management of unexpected finds</p> <p>Sensitivity of threatened fauna species</p> <p>Emergency and incident response / spill management (chemical spills, fire, injured fauna).</p>	Environmental Manager
Toolbox training on management of Fauna and Flora that will reinforce and reiterate information from inductions.	Environment Coordinators
Training in the Ecological Unexpected Finds Procedure developed for the management of Flora and Fauna encounters, including hold points.	Environmental Manager

PART B - IMPLEMENTATION

Elements and Expectations

Part B of this Sub-Plan explains how potential flora, fauna and biodiversity impacts during the LW Works will be minimised and managed. Compliance with all elements 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 Systems Connect to implement the objectives of the Environment and Sustainability Policy Statement:
 - **Element** – Key aspects for managing this function in delivering the LW Works
 - **Expectation** – The outcomes achieved as part of each Element.
- **Requirements:** These are the specific actions required to demonstrate compliance with the Elements and Expectations.
- **Responsibility and Key Contributor:** Designation of responsibility for achieving compliance with the stated Expectation. Key contributors assist/contribute to achieving compliance.
- **Deliverables:** Tangible outcomes produced to demonstrate compliance with the environmental Elements and Expectations.

Element 1: Training

Systems Connect will ensure that LW personnel can competently perform their duties and meet environmental obligations.

Expectations	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Deliverables
<p>1.1. All personnel have completed an induction containing relevant environmental information before they are authorised to work on the Project</p>	<p>Induction presentation will include:</p> <ul style="list-style-type: none"> • Flora and fauna on site • Requirements for management of unexpected finds • Sensitivity of threatened fauna species (birds and bats) • Weed control • Emergency and incident response / spill management (chemical spills, fire, injured fauna). 	<p>Human Resources Manager Environment and Sustainability Manager Environmental Advisor Environmental Coordinators</p>	<p>Induction presentation Induction records</p>
<p>1.2. Toolbox talks are used to reinforce key management requirements and lessons learnt</p>	<p>Toolbox talks will be held regularly during site establishment and throughout construction. They will reinforce and reiterate information from inductions. Training in the Flora and Fauna Management Procedure (SMCSWLWC-SYC-1NL-EM-PRO-000386) developed for the management of Flora and Fauna encounters, including hold points.</p>	<p>Environment and Sustainability Manager Site Supervisors Environmental Advisor Environmental Coordinators</p>	<p>Toolbox records</p>

Element 2: Monitoring and Reporting

All staff, employees and subcontractors will actively drive compliant environmental performance of LW.

Expectations	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Deliverables
<p>2.1. Worksites are regularly inspected to ensure the adequacy of controls</p>	<p>Systems Connect will regularly review the LW sites to ensure compliance with legal and contract requirements and to identify potential non-compliances before they occur, as below:</p> <ul style="list-style-type: none"> • Site inspection checklist will include reference to flora and fauna. Inspections will be documented in System Connect's electronic system. • Details of inspections undertaken by the Site Supervisor will be logged in their respective site diaries. • ER inspections will include review of implementation of flora, fauna and biodiversity management and mitigation measures 	<p>Environment and Sustainability Manager Site Supervisors Environmental Advisor Environmental Coordinators</p>	<p>Environment and Sustainability Inspection Checklists Site Diary entries</p>

Element 3: Auditing, Review and Improvement

Systems Connect will continually improve its environmental systems and environmental performance by monitoring and reviewing their effectiveness.

Expectations	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Deliverables
<p>3.1. Audits are undertaken to ensure compliance with the requirements of this Sub-Plan</p> <p>3.2. All non-compliances are reported and actioned</p>	<p>Procedures for corrective actions are addressed in the Construction Environmental Management Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033). Audits will be performed in accordance with the CEMP and this Sub-Plan and/or associated documents or procedures will be updated if required.</p> <p>A flora, fauna and biodiversity non-compliance can generally be defined as a failure to comply with:</p> <ul style="list-style-type: none"> • Relevant environmental legislation • Project Planning Approvals • Environment Protection Licence • Deed (including SWTC) • Flora, Fauna and Biodiversity Management Sub-Plan and related documents <p>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.</p> <p>Corrective and Preventative Actions may also be raised in accordance with the Construction Environmental Management Plan - C2B (SMCSWLWC-SYC-1NL-PM-PLN-000033).</p>	<p>Environment and Sustainability Manager Environmental Advisor Environmental Coordinators Sustainability Manager</p> <p>Environment and Sustainability Manager Sustainability Manager Environmental Advisor Environmental Coordinators</p>	<p>Audit Reports Corrective Action Reports</p> <p>Audit Reports Corrective Action Reports</p>

Element 4: Project Specific Requirements

Planning Approval CSSI 7400 – Chatswood to Sydenham (CoA)

Planning Approval CSSI-7400 (CoA)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
E6	<p>The CSSI must be designed to retain as many trees as possible and provide replacement trees such that there a net increase in the number of trees. The Proponent must commission an independent, experienced and suitably qualified arborist to prepare a comprehensive Tree Report before removing any trees as detailed in the EIS, as amended by the documents listed in A1. The Tree Report must include:</p> <ul style="list-style-type: none"> a) a description of the conditions of the tree(s) and its amenity and visual value; b) consideration of all options to avoid tree removal, including relocation of services, redesign or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services; and c) measures to avoid tree removal, minimise damage to, and ensure the health and stability of those trees to be retained and protected. This includes details of any proposed canopy or root pruning, root protection zone, excavation, site controls on waste disposal, vehicular access, materials storage and protection of public utilities. <p>In the event that tree removal cannot be avoided, then replacement trees are to be planted within, or in close proximity to the CSSI or other location in consultation with the Relevant Councils and agreed by the Secretary. The size of the replacement trees will be determined in consultation with the relevant Council. A copy of the Tree Report must be submitted to the Secretary before the removal,</p>	Refer to Section 6.5	Environment and Sustainability Manager	Pre-construction and Construction

Planning Approval CSSI-7400 (CoA)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
E7	<p>damage and/or pruning of any trees, including those affected by the site establishment works. All recommendations of the Tree Report must be implemented by the Proponent, unless otherwise agreed by the Secretary. The Tree Report may be prepared for the entire CSSI or separate reports may be prepared for individual areas where tree removal and/or pruning is proposed.</p> <p>The large fig tree at the end of Blues Point Reserve (approximate coordinates latitude 3.848764 and longitude 151.204568) must be retained. Any proposal to prune either the canopy or the roots of the tree must be submitted to the Secretary for approval and accompanied by an assessment of the potential impact to its long term viability and a suitably qualified arborist consistent with Condition E6</p>	Refer to Section 6.5	Environment and Sustainability Manager	Construction

Planning Approval CSSI 8256 – Sydenham to Bankstown (CoA)

Planning Approval CSSI-8256 (CoA)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
E3	<p>Where impacts to threatened ecological communities or endangered species cannot be avoided, they must be offset in accordance with the requirements of the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014) in agreement with OEH. Note: the SPIR proposal does not require offsetting under the Framework for Biodiversity Assessment as it does not have any impacts to threatened ecological communities or threatened species.</p>	Refer to Section 6.4 – Threatened ecological communities will not be impacted for LW.	Environment and Sustainability Manager	During construction

Planning Approval CSSI-8256 (CoA)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
E4	The CSSI must be designed to retain as many trees as possible. Where trees are to be removed, the Proponent must provide a 2:1 ratio replacement of trees. Replacement trees must be planted within the project boundary or on public land up to 500 metres from the project boundary. Replacement tree plantings can be undertaken beyond 500 metres on public land within the local government areas to which the CSSI approval applies if requested by the relevant council(s) or where no more practicable land for planting can be found within and up to 500 metres from the CSSI boundary. The location of replacement trees must be determined in consultation with the relevant council(s)	Refer to Section 6.5	Environment and Sustainability Manager	During Design and prior to construction
E5	<p>The Proponent must commission an independent experienced and suitably qualified arborist, to prepare a comprehensive Tree Report(s) before removing any trees as detailed in the documents listed in Condition A1. The Tree Report may be prepared for the entire CSSI or separate reports may be prepared for individual areas where trees are required to be removed. The report(s) must identify the impacts of the CSSI on trees and vegetation within and adjacent to the Construction footprint. The report(s) must include:</p> <p>a) a description of the conditions of the tree(s) and its amenity and visual value;</p> <p>b) consideration of all options to avoid tree removal, including relocation of services, redesign or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services; and</p> <p>c) measures to avoid the removal of trees or minimise damage to existing trees and ensure the health and stability of those trees to be protected. This includes details of any proposed canopy or root pruning, root protection zone, excavation, site controls on waste disposal, vehicular</p>	Refer to Section 6.5	Environment and Sustainability Manager	If and when required, prior to any tree impacts

Planning Approval CSSI-8256 (CoA)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
	<p>access, storage of materials and protection of public utilities.</p> <p>A copy of the report(s) must be submitted to the Planning Secretary before the removal or pruning of any trees, including those affected by site establishment Work. All recommendations of the report must be implemented by the Proponent, unless otherwise agreed by the Planning Secretary.</p>			<p>If and when required, prior to any tree impacts</p>
E6	<p>Replacement trees are to have a minimum pot size of 75 litres except where the plantings are consistent with the pot sizes specified in a relevant council's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant council. In areas not subject to council plans / programs / strategies, pot sizes should be informed through consultation with the relevant council(s).</p> <p>Note: For the purposes of Conditions E5 and E6, consultation with relevant council(s) encompasses consultation undertaken with those councils on the Station Design and Precinct Plan required by Condition E56, and any agreements reached on replacement pot sizes during consultation.</p>	Refer to Section 6.5	Environment and Sustainability Manager	If and when required, prior to operation
E7	<p>The Proponent must submit to the Planning Secretary a report which details the type, size, number and location of replacement trees. The report must demonstrate how any replacement plantings with a pot size less than 75 litres are consistent with the requirements of Condition E6. The report must be submitted to the Planning Secretary before Operation unless otherwise agreed by the Planning Secretary.</p>	Refer to Section 6.5	Environment and Sustainability Manager	If and when required, prior to operation

Planning Approval CSSI 7400 – Chatswood to Sydenham (REMMs)

Planning Approval CSSI-7400 (REMMs)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
B3	The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation.	Refer to Section 6.7 and Appendix C1	Environmental Coordinators	If and when required

Planning Approval CSSI 8256 – Sydenham to Bankstown (REMMs)

Planning Approval CSSI-8256 (REMMs)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
B1	Detailed design and construction planning would avoid direct impacts to vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box.	Refer to Section 6.4 – Threatened ecological communities will not be impacted for LW.	Environment and Sustainability Manager	During design and construction
B2	Pre-clearing surveys and inspections for endangered and threatened flora and fauna species would be undertaken by qualified ecologists prior to any clearing occurring. The surveys and inspections, and any subsequent relocation of species, would be undertaken in accordance with the measures provided in the biodiversity assessment report.	Refer to Section 6.2 and Appendix C1	Environment and Sustainability Manager	If and when required
B3	Areas of biodiversity value outside the project area would be marked on plans, and fenced or signposted where practicable, to prevent unnecessary disturbance.	Refer to Section 6.7	Environment and Sustainability Manager	During construction

Planning Approval CSSI-8256 (REMMs)				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
B4	Impacts to Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box would be avoided. The locations of these species and communities would be marked on plans, fenced on site, and avoided.	Refer to Section 6.4	Environment and Sustainability Manager	During design and construction
B5	Equipment storage and stockpiling would be restricted to identified compound sites and already cleared land.	Refer to Section 6.7	Construction Manager	During construction
B6	A trained ecologist would be present during the clearing of native vegetation or removal of potential fauna habitat to avoid impacts on resident fauna and to salvage habitat resources as far as is practicable.	Refer to Section 6.2 and Appendix C1	Environment and Sustainability Manager	If and when required
B7	Priority weeds would be managed in accordance with the Biosecurity Act 2015. Weeds of national environmental significance would be managed in accordance with the Weeds of National Significance Weed Management Guide.	Refer to Section 6.6	Environment and Sustainability Manager	If and when required

Construction Environmental Management Framework

Construction Environmental Management Framework				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
11.1a	The following flora and fauna management objectives will apply to construction: <ul style="list-style-type: none"> i) Minimise impacts on flora and fauna ii) Design waterway modifications and crossings to incorporate best practice principles 	Refer to Section 1.3	Environment and Sustainability Manager	During construction

Construction Environmental Management Framework				
No.	Requirement	How we will meet the Expectations (minimum requirements)	Responsibility Key Contributor	Timing
	<ul style="list-style-type: none"> iii) Retain and enhance existing flora and fauna habitat wherever possible; and iv) Appropriately manage the spread of weeds and plant pathogens. 			
11.3a	<p>Examples of flora and fauna mitigation measures include:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> * 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. iii) Weed management is to be undertaken in areas affected by construction prior to any clearing works in accordance with the Noxious Weeds Act 1993. 	Refer to Section 6	Environment and Sustainability Manager	During construction If and when required

PART C – APPENDICES

Appendix C1 – Flora and Fauna Management Procedure

FLORA AND FAUNA MANAGEMENT PROCEDURE

RESPONSIBILITY

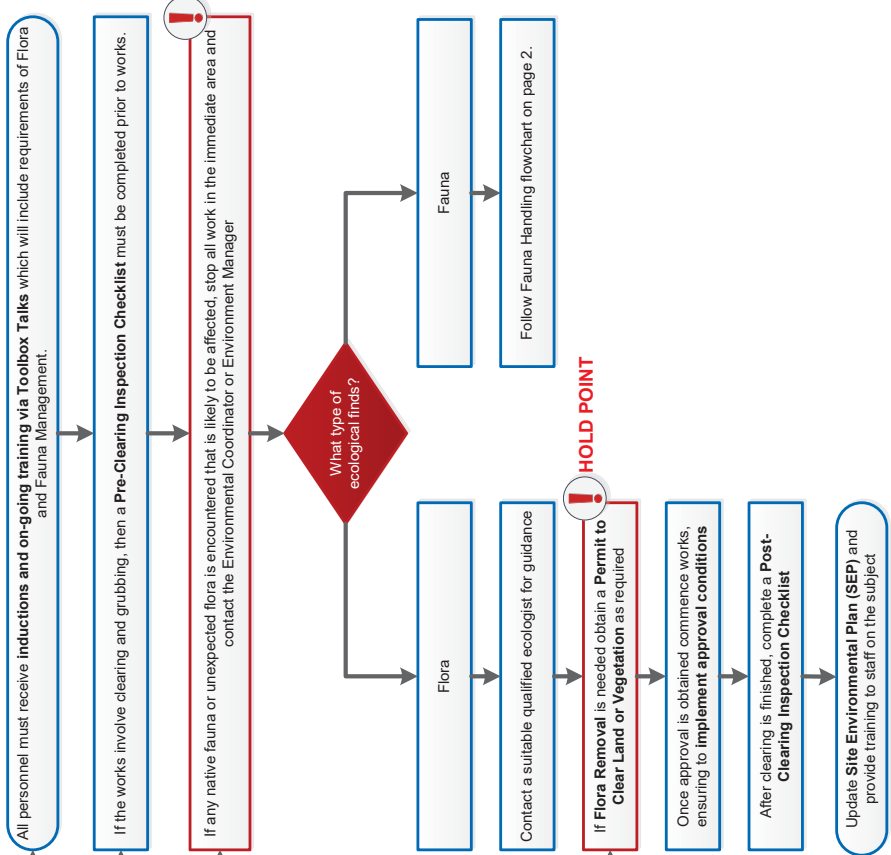
Site Supervisor
Environmental Coordinator

All Personnel

All Personnel

Site Environmental Representative
Project Manager

CLEARING AND GRUBBING PROCESS



NOTES

Protected or 'No-Go' Areas

- If works in these areas are required, obtain a Permit to Enter Protected or 'No-Go' Areas.

Monitoring

- Workers inspect work areas prior to start of work each day.

Recording

- All records relating to clearing and grubbing or unexpected flora must be retained. For further details refer to the Flora and Fauna Management Procedure in the part D of the CEMP for SMTF (SMCSWLWC-SYC-INL-PLN-000370); the CEMP C2B (SMCSWLWC-SYC-INL-PM-PLN-000039), or the Flora, Fauna and Biodiversity Management Sub-Plan (SMCSWLWC-SYC-INL-PM-PLN-002579).

RESPONSIBILITY

All Personnel

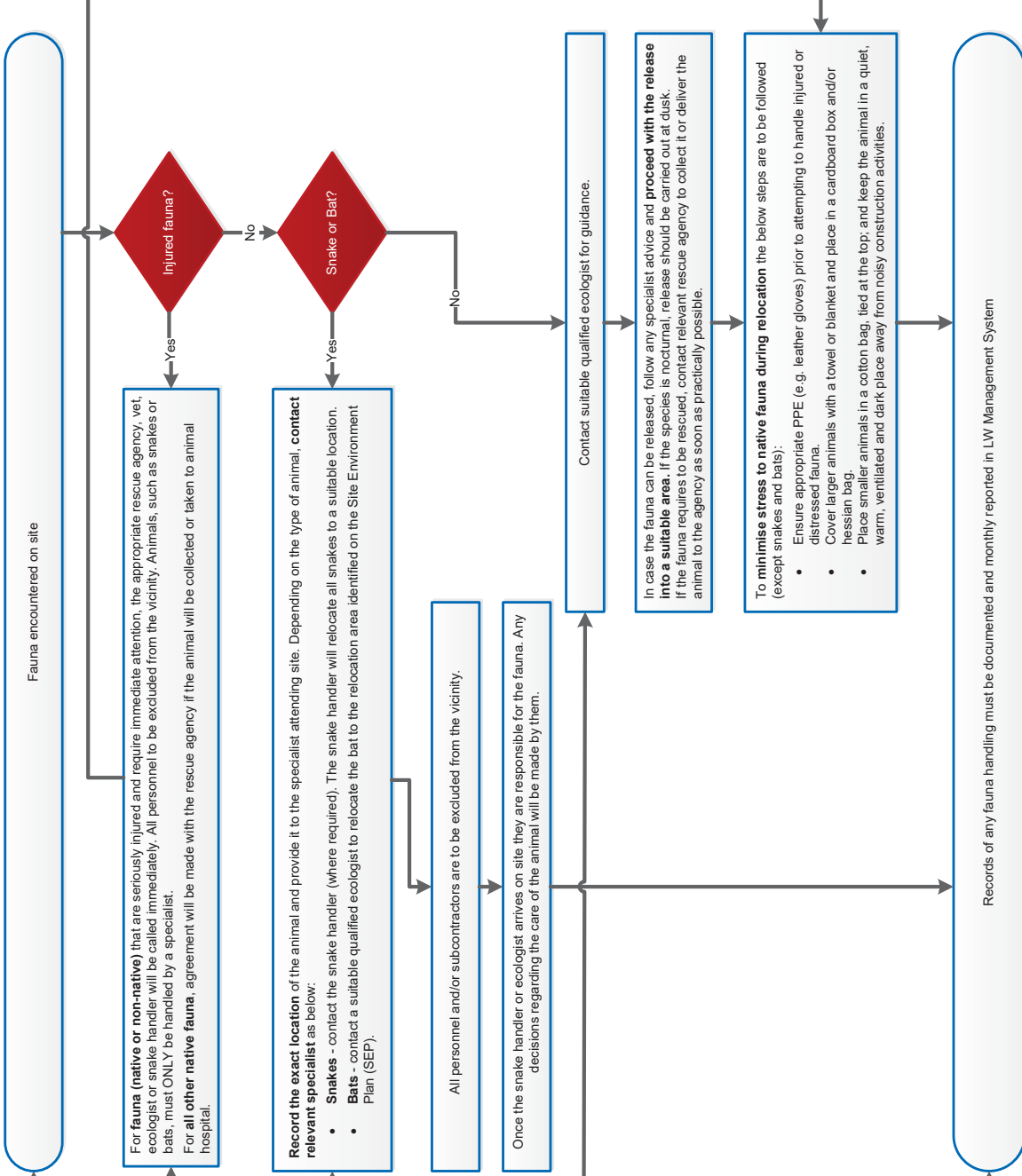
Environmental Coordinator
Environmental Manager

Environmental Coordinator
Environmental Manager
Site Supervisor

Environmental Coordinator
Environmental Manager

Environmental Coordinator
Environmental Manager
Site Supervisor

FAUNA HANDLING PROCESS



NOTES

Monitoring

- Workers inspect work areas prior to start of work each day

Recording

- Records of fauna management on site will be documented (e.g. in Daily Diaries and emails) and filed, along with any reports from wildlife handler
 - Relocation areas are identified on SEP
- For further details refer to the Flora and Fauna Management Procedure in the part D of the CEMP for SMTF (SMCSWLWC-SYC-1NL-PM-PLN-000370), or the Flora, Fauna and Biodiversity Management Sub-Plan (SMCSWLWC-SYC-1NL-PM-PLN-002579).

Appendix C2 – Pre-Clearing Inspection Checklist

Pre-Clearing Inspection Checklist



Project: _____ **Project No:** _____

Requested By: _____ **Lease / Lot Number:** _____

Planned Clearing Start Date: _____ **Expected Completion Date:** _____

VEGETATION CLEARING LOCATIONS – ATTACH DRAWINGS / SKETCHES IF NECESSARY

GPS Coordinates	Location	Comments

Has the vegetation to be cleared been clearly delineated? Yes No

All trees / vegetation to be retained identified and No-Go Areas fenced off? Yes No

State how identified: _____

Have habitat trees been identified and appropriately marked? Yes No N/A

State how identified: _____

Is there risk of weed infestation or spread? Yes No

Were any animals observed? (If Yes, relocation required) Yes No

Are any active nests present? (If Yes, relocation required) Yes No

If soil disturbance is to occur, have ERSED controls been installed? Yes No

Are the proposed works covered by an existing Approval? Yes No

If yes, note permit number; _____ expiry date _____ and attach a copy

Have relevant workers been shown limit of clearing, advised of fauna handling procedures and any other SHE controls? Yes No

Comments

Inspection completed by: _____ **Date:** _____
Signature/Role

Approval by Environmental Representative/Advisor: _____ **Date:** _____
Signature/Role