Powering Sydney's Future

Potts Hill to Alexandria transmission cable project

Construction Environmental Management Plan (SSI 8583)

August 2020

TransGrid: State Significant Infrastructure - Powering Sydney's Future - Development and operation of a new 330 kV underground cable circuit

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
(CEMP)

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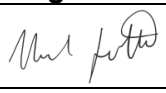
Prepared by:	Mark Favetta	B. Eng (Hons) Environment M.B.A.		19/08/2020
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Abbreviations and acronyms

Abbreviation/ Acronym	Expanded term
AMP	Asbestos Management Plan
ARTC	Australian Rail Track Corporation
ASSMP	Acid Sulfate Soils Management Plan
BC Act	*Biodiversity Conservation Act 2016*
CAQMP	Construction Air Quality Management Plan
CAMMsS	TransGrid's Compliance Audit Management System
CEMP	Construction Environmental Management Plan
CHMP	Construction Heritage Management Plan
CLMP	Contaminated Land Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CoA	Condition of Approval
CPIMP	Construction Public Infrastructure Management Plan
CNVIS	Construction Noise and Vibration Impact Statement
CSWMP	Construction Soil and Water Management Plan
CTTMP	Construction Traffic and Transport Management Plan
CVBMP	Construction Vegetation and Biodiversity Management Plan
CWMP	Construction Waste Management Plan
DPIE	Department of Planning, Industry and Environment
ECMs	Environmental Control Measure(s)
EES	DPIE Environment, Energy and Science Group
EMF	Electric and Magnetic Fields
EMMM	Environmental Management and Mitigation Measures
EMS	Environmental Management System
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence under the POEO Act
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ESCMP	Erosion and Sediment Control Plan
FM Act	*Fisheries Management Act 1997*
FMP	Flood Management Plan
FMS	Flood Mitigation Strategy
GMS	Groundwater Management Strategy
HDD	Horizontal Directional Drilling
MSDS	Material Safety Data Sheet
NP&W Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
OEMP	Operational Environmental Management Plan
OOHW Protocol	Out-of-hours work Protocol
PCT	Plant Community Type
POEO Act	*Protection of the Environment Operations Act 1997*
PSF	Powering Sydney's Future
SRZ	Structural Root Zone
SSLGMP	Site Specific Landfill and Gas Management Plan
SWMP	Surface Water Management Plan
TCP	Traffic Controls Plans
TMC	Transport Management Centre within TfNSW
TMP	Traffic Management Plan
TPP	Tree Protection Plan
TPZ	Tree Protection Zone
TfNSW	Transport for NSW
UCLAFP	Unexpected Contaminated Land and Asbestos Finds Procedure
WHS	Work Health and Safety

Definitions

Term	Definition
Ancillary facility	A temporary facility for construction of the SSI including an office and amenities compound, construction compound, material crushing and screening plant, materials storage compound, maintenance workshop, testing laboratory and material stockpile area
Completion of construction	The date upon which construction is completed and all requirements of the Planning Secretary (if any) have been met. If construction is staged, completion of construction is the date upon which construction is completed and all requirements of the Planning Secretary (if any) have been met, in respect of all stages of construction.
Construction	Includes all works required to construct the SSI as described in the EIS, including commissioning trials of equipment and temporary use of any part of the SSI, but excluding the following low impact work which is completed prior to approval of the CEMP: (a) survey works including carrying out general alignment survey, installing survey controls (including installation of global positioning systems (GPS)), installing repeater stations, carrying out surveys of existing and future utilities and building and road dilapidation surveys; (b) investigations including investigative drilling, contamination investigations and excavation; (c) site establishment works and ancillary facilities if the activities will have minimal impact on the environment and community; (d) minor clearing and relocation of native vegetation, as required for site establishment or ancillary facilities; (e) installation of mitigation measures including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments; (f) property adjustment works including installation of property fencing, and relocation and adjustments of utilities to property including water supply and electricity; (g) relocation and connection of utilities where the relocation or connection has a minor impact to the environment; (h) archaeological testing under the Code of practice for archaeological investigation of Aboriginal objects in NSW (2010) or archaeological monitoring undertaken in association with other low impact works to ensure that there is no impact on heritage items; (i) other activities to have minimal environmental impact which may include construction of minor access roads, temporary relocation of pedestrian and cycle paths and the provision of property access; and (j) maintenance of existing buildings and structures required to facilitate the carrying out of the SSI. However, where heritage items, or threatened species or threatened ecological communities (within the meaning of the BC Act, FM Act or EPBC Act) are affected or potentially affected by any low impact work, that work is construction, unless otherwise determined by the Planning Secretary in consultation with EES. Low impact work becomes construction with the approval of a CEMP. Where low impact work has already commenced, it remains as low impact work and is managed in accordance with the framework under which it commenced
Council	Canterbury Bankstown Council City of Sydney Inner West Council

EIS	The Environmental Impact Statement titled *Powering Sydney's Future: Potts Hill to Alexandria Transmission Cable Project Environmental Impact Statement*, prepared by AECOM Australia Pty Limited, dated October 2019, including the Proponent's: • *Powering Sydney's Future: Potts Hill to Alexandria Transmission Cable Project Submissions Report*, dated February 2020; and • *Powering Sydney's Future: Potts Hill to Alexandria Transmission Cable Project Amendment Report*, dated February 2020
Environmental Management and Mitigation Measures (EMMMs)	These are the Environmental Mitigation and Management Measures as outlined in the Project EIS documentation.
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
Environmental Control Measures (ECMs)	A detailed management and mitigation measure used to prevent or minimise environmental impacts. An ECM may be derived from risk assessment, the Project EIS (including EMMMs), Conditions of Approval, consultation, best-practice, a corrective or preventative action and/or continuous improvement. Responsibility is assigned to specific personnel, with a timeframe for implementation. Where monitoring is identified in the CEMP and Sub-plans, it may include the minimum performance level or criterion to be achieved.
Environmental Control Plans or Maps	These are an onsite reference tools indicating the location of: • environmentally sensitive areas adjacent to the site • waterways including drains • erosion and sediment controls • works areas, machinery or vehicle parking, spoil dumps, fuel and chemical stores • vegetation that requires protection • restrictions on traffic movement, and • monitoring locations
Feasible	Means what is possible and practical in the circumstances
Heritage Division	Heritage Division within the Department of Premier & Cabinet
Heritage item	A place, building, work, relic, archaeological site, tree, movable object or precinct of heritage significance, that is listed under one or more of the following registers: the State Heritage Register under the *Heritage Act 1977*, a state agency heritage and conservation register under section 170 of the *Heritage Act 1977*, a Local Environmental Plan under the EP&A Act, the World, National or Commonwealth Heritage lists under the EPBC Act, and an "Aboriginal object" or "Aboriginal place" as defined in section 5 of the NP&W Act
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a noncompliance.
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
Landscape Plan(s)	A detailed plan required by Condition of Approval E24(a) included in the CVBMP.
Landowner	Has the same meaning as "owner" in the *Local Government Act 1993* and in relation to a building means the owner of the building
Material harm	Is harm that: (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not negligible, or (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

	This definition excludes "harm" that is authorised under either this approval or any other statutory approval'
Maximise	Implement all reasonable and feasible mitigation measures to achieve the specified outcome
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the SSI
Minister	NSW Minister for Planning and Public Spaces, or delegate
Minor	Not very large, important or serious
Negligible	Small and unimportant, such as to be not worth considering
NML	Noise Management Level as defined in the EPA's *Interim Construction Noise Guideline* (2009)
Non-compliance	An occurrence, set of circumstances or development that is a breach of this approval and/or any other legal requirement
Non-conformance	A failure to comply with an environmental requirement, standard, or procedure.
Operation	The carrying out of the SSI (whether in full or in part) upon the completion of construction. *Note: There may be overlap between the carrying out of construction and operation if the phases of the SSI are staged. Commissioning trials of equipment and temporary use of any part of the SSI are within the definition of construction.*
Personnel	Means all TransGrid and its contractors' staff, sub-contractors involved in the construction of the Project.
Planning Secretary	Planning Secretary of the Department (or nominee, whether nominated before or after the date on which this approval was granted)
Privately-owned land	Land that is not owned by a public agency
Project area	The area subject to disturbance and/or infrastructure development, as shown on the Project layout plans
Project layout plans	The area of the SSI as depicted on the figures in the Conditions of Approval for SSI 8583 Appendix B available on the DPIE website at: https://www.planningportal.nsw.gov.au/major-projects/project/9956
Proponent	Means TransGrid
Project	Means SSI 8583. Further information is available on the DPIE website at: https://www.planningportal.nsw.gov.au/major-projects/project/9956
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas and fuel supply, electricity, telecommunications, etc.
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Relevant council	The council of the land on which works are to be carried out Relic Has the same meaning as the definition of the term in section
Residence	Existing or approved dwelling
Sensitive receiver	Includes residences, educational institutions (including preschools, schools, universities, TAFE colleges), health care facilities (including nursing homes, hospitals), religious facilities (including churches), child care centres, passive recreation areas (including outdoor grounds used for teaching), commercial premises (including film and television studios, research facilities, entertainment spaces, temporary accommodation such as caravan parks and camping grounds, restaurants, office premises, and retail spaces), and others as identified by the Planning Secretary

Special crossing	A crossing of infrastructure and watercourses within the Project area. This includes cable bridges and underboring.
SSI (State Significant Infrastructure)	The State Significant Infrastructure, as generally described in the Conditions of Approval for SSI 8583 Schedule 1, the carrying out of which is approved under the terms of this approval. Available on the DPIE website at: https://www.planningportal.nsw.gov.au/major-projects/project/9956
Standard construction hours	7 am to 6 pm Monday to Friday, and 8 am to 1 pm on Saturdays
Traffic Control Plan (TCP)	Outline the minimum traffic controls to be applied in a particular situation or specific site. They can be used to assist in the development and implementation of site and project-specific TCPs, in conjunction with a traffic management plan (TMP), risk assessment or similar. It is important that each TCP is checked against identified risks to ensure that the means of controlling or reducing these risks is in place. These TCPs are not approved until they are reviewed and signed by a qualified person.
Traffic Management Plan (TMP)	A plan detailing work to be undertaken and describing its effect on the general area, especially its effect on public transport and passengers, cyclists, pedestrians, motorists and commercial operations.
Tree Protection Plan(s) (TPPs)	A diagram showing signs and devices arranged to warn traffic and guide it around, past or, if necessary, through a work site or temporary hazard.
Transport Cluster	TfNSW, Sydney Buses, Sydney Trains, Sydney Metro, Sydney Light Rail Operator, applicable bus service operators (coordinated through TfNSW)
Tree	Long lived woody perennial plant greater than (or usually greater than) three metres in height with one or relatively few main stems or trunks
Unexpected heritage find	An object or place that is discovered during the carrying out of the SSI and which may be a heritage item but was not identified in the EIS or suspected to be present. An unexpected heritage find does not include human remains
Watercourse	A river, creek or other stream, including a stream in the form of an anabranch or tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: In a natural channel, whether artificially modified or not, or in an artificial channel that has changed the course of the stream. It also includes weirs, lakes and dams
Waterfront land	The bed of any river, lake or estuary, and the land within 40 metres of the river banks, lake shore or estuary mean high water mark
Work	All physical activities to construct or facilitate construction of the SSI, including environmental management measures and utility works

1 Introduction

1.1 Context

This Construction Environment Management Plan (CEMP or Plan) has been prepared for the construction of the Powering Sydney's Future – Potts Hill to Alexandria Transmission Cable Project (the Project). The Project involves the construction of 330kV underground cables between TransGrid's Rookwood Road substation in Potts Hill and the Beaconsfield West substation Alexandria. Associated works will also be completed at the Sydney South substation.

The NSW Department of Planning Infrastructure and Environment (DPIE) has assessed the State Significant Infrastructure (SSI-8583) and granted Infrastructure Approval on 14 May 2020 in accordance with Section 5.19 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

TransGrid and its contractors will construct the Project infrastructure.

Sound environmental management will be undertaken. Management and control measures will be implemented in a manner to minimise adverse impacts on the environment.

1.2 Purpose and objectives

The purpose of the CEMP and associated sub-plans is to address:

- the requirements of the Minister's Conditions of Approval (CoA) for SSI-8583 (refer Section 1.7.1);
- the Environmental Management and Mitigation Measures (EMMMs) listed in the *Powering Sydney's Future Potts Hill to Alexandria Transmission Cable Project* Environmental Impact Statement (EIS) as documented in the Amendments Report;
- applicable environmental legislation; and
- applicable contract requirements.

Specifically, this CEMP:

- details the environmental control measures, practices, resources, responsibilities and sequence of activities required to comply with all legislative requirements, applicable license conditions, approvals or permits; and
- covers the day-to-day environmental management, strategies and plans for avoiding, minimising or managing the impact of proposed work methods.

The environmental management objectives for this Project are:

- meet the requirements of the Project EMMMs.
- implement an environmental management system which measures, controls and records all environmental aspects of the Project and which complies, when applicable, with the TransGrid management systems requirements.
- comply with statutory environmental requirements, TransGrid's obligations under the *Environmental Planning and Assessment Act 1979*, to protect the environment and achieve *"best practice"* environmental incident performance on site.
- meet the functional and performance requirements of the Project specification and other relevant standards.

- facilitate adequate consultation with the community throughout the Project.
- define environmental roles and responsibilities of all Personnel involved in the Project.
- enable adequate environmental induction, auditing, monitoring and reporting during construction.

These objectives will be achieved by:

- providing a relevant induction to all Project Personnel, which outlines the environmental requirements, environmental control measures and procedures applicable to the works;
- advising Personnel and visitors on the key environmental risk areas associated with the works and the work sites;
- developing and implementing Project specific installation procedures and work instructions aimed at minimising the risk of damage to the environment; and
- implementing procedures to identify and rectify non-conforming works and environmental incidents, should they occur.

This CEMP is applicable to all TransGrid and its contractors associated with the construction of the Project. This CEMP and sub-plans have been prepared to satisfy the requirements of the CoA.

1.3 Environmental Management Sub-Plans

The following sub-plans are included as appendices to the CEMP.

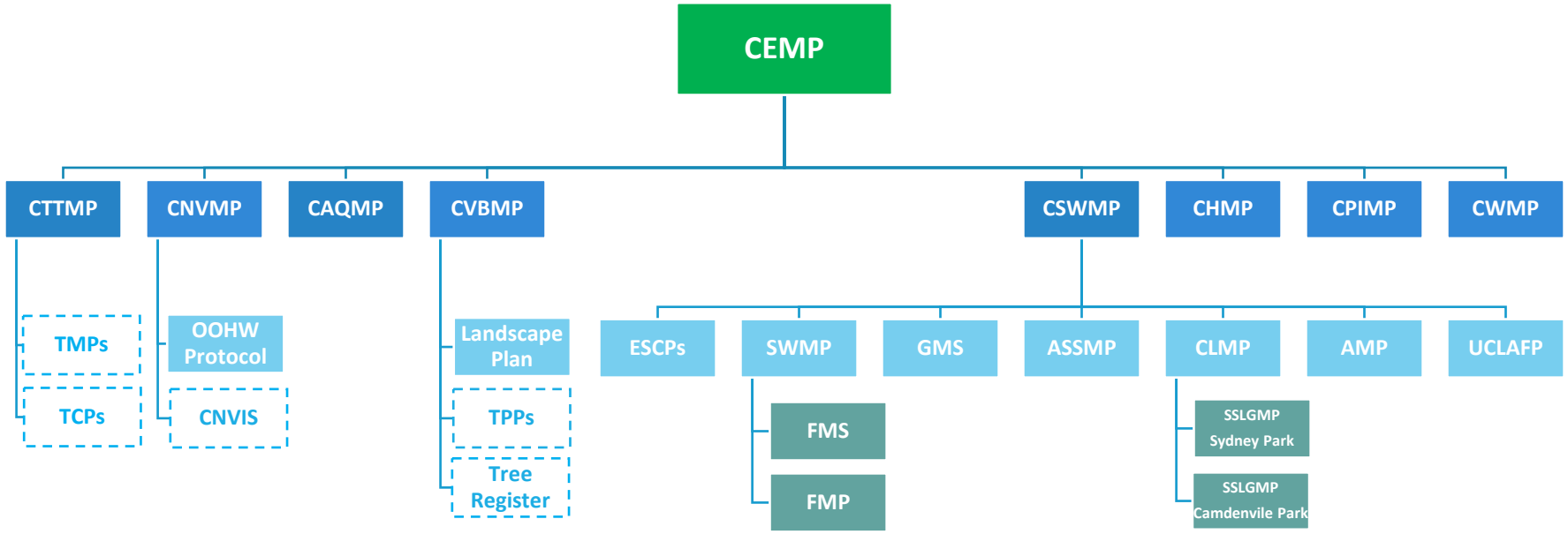
- Appendix C1 Construction Traffic and Transport Management Plan (CTTMP)
- Appendix C2 Construction Noise and Vibration Management Plan (CNVMP)
- Appendix C3 Construction Air Quality Management Plan (CAQMP)
- Appendix C4 Construction Vegetation and Biodiversity Management Plan (CVBMP)
- Appendix C5 Construction Soils and Water Management Plan (CSWMP)
- Appendix C6 Construction Heritage Management Plan (CHMP)
- Appendix C7 Construction Public Infrastructure Management Plan (CPIMP)
- Appendix C8 Construction Waste Management Plan (CWMP)

1.4 Environmental management system overview

The Project Environmental Management System (EMS) consists of environmental plans, including this Plan, procedures, protocols and tools. The EMS is presented in Figure 1-1.

The CEMP is the overarching management plan for a suite of environmental documents applicable to construction of the Project.

To achieve the intended environmental performance outcomes, TransGrid and its Contractors have established, implemented and are committed to maintaining the Project EMS.



CEMP
CEMP Sub-plans identified in Condition C3. These plans are appendices to the CEMP.
Appendices to CEMP Sub-plans. These plans and protocols required by various conditions are appendices to the relevant Sub-plan.
Additional plans identified in Conditions of Approval or the Project EIS EMMMs
Additional construction related documentation that will be developed during construction.

Figure 1-1 Project Environmental Management System

1.5 Consultation

In accordance with CoA A5, C3 and C4, consultation with the designated government agencies was undertaken during the development of this CEMP and sub-plans. The agencies and stakeholders consulted include:

- City of Canterbury Bankstown
- City of Sydney
- Inner West Council
- DPIE Environment, Energy and Science Group
- TMC
- TfNSW (Asset Management)
- Sydney Coordination Office
- Sydney Busses
- Sydney Trains
- Sydney Metro
- Sydney Light Rail
- ARTC
- Jemena
- Sydney Water
- Viva
- Caltex
- Relevant utility providers

Further consultation was undertaken with relevant public authority and service providers that own or operate public infrastructure that may be affected by the Project.

A copy of consultation comments relevant to each Sub-Plan is included in each Sub-Plan

1.6 CEMP Approval

CoA C2 and C4 identify that the CEMP must be submitted to the Planning Secretary for approval no later than one (1) month before the commencement of construction.

The Project has been classified as DPIE *Priority Project*.

1.7 Environmental Requirements

1.7.1 Conditions of Approval

A compliance matrix identifying how all conditions have been addressed is included in Appendix A2 for the CEMP and included in all Sub-Plans.

The CEMP (this Document) specifically addresses the Conditions of Approval (CoA) identified in Table 1-1.

Each Sub-plan identified in Section 1.3 also contains a compliance matrix.

Table 1-1 Relevant Conditions of Approval

CoA ID	Requirement	Document	How addressed
A1	The SSI may only be carried out in accordance with the terms of this approval and generally in accordance with the EIS. *Note: The general layout of the SSI is shown on **Appendix B**.*	CEMP	This CEMP is the overarching document in the environmental management system for the Project and includes a number of management documents, including sub-plans and procedures. It is applicable to all personnel associated with the construction of the Project. The CEMP provides a framework for ensuring compliance with the requirements of the CoA, EMMMs and relevant legislative requirements.
A2	The SSI may only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the EIS unless otherwise specified in, or required under, this approval.	CEMP	This CEMP is the overarching document in the environmental management system for the Project and includes a number of management documents, including sub-plans and procedures. It is applicable to all personnel associated with the construction of the Project. The CEMP provides a framework for ensuring compliance with the requirements of the CoA, REMMMs and relevant legislative requirements.
A3	In the event of an inconsistency between the EIS documents, or any other document required under this approval, the most recent document prevails to the extent of the inconsistency. However, the terms of this approval prevail to the extent of any inconsistency. *Note: For the purpose of this condition, there will be an inconsistency between a condition of this approval and any document if it is not possible to comply with both the condition and the document.*	CEMP	Condition noted. In the event of an unreconcilable inconsistency, clarification will be sought from DPIE.
A4	The Proponent must comply with all written requirements or directions of the Planning Secretary, including in relation to: (a) the environmental performance of the SSI; (b) any document or correspondence in relation to the SSI; (c) any notification given to the Planning Secretary under the terms of this approval; (d) any audit of the construction or operation of the SSI; (e) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); and (f) the carrying out of any additional monitoring or mitigation measures.	CEMP	Condition noted.
A5	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	Section 1.5	Engagement has been conducted with all relevant stakeholders identified in the CoA C5 Table 1 CEMP Sub Plans. Stakeholders were

CoA ID	Requirement	Document	How addressed
	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 where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations; (d) outline of the issues raised by the identified party and how they have been addressed; and (e) a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.		provided a copy of all relevant documents, which also contains monitoring programs, where proposed. Where stakeholders raised a comment, the CEMP and sub plan documents were either amended in response to the comments or justification as to why no change is required was prepared. In instances where no feedback or comments have been received following repeated attempts and reminders, after a period of time, the evidence of requested feedback will be submitted along with the log of attempted contact with the stakeholder agency and a "no response" entry against the stakeholder will be included in the relevant plan. Each Sub-plan contains a correspondence log (evidence) identifying the document, version, stakeholder comment, how the comment was addressed and status of the comment. A summary of the issues raised and description of outstanding issues has also been provided in the Sub-Plans.
A6	This approval lapses five (5) years after the date on which it is granted, unless works are physically commenced on or before that date.	CEMP	Construction on this DPIE "high priority project" will commence immediately upon construction approval, It is not anticipated that this condition will be activated.
A7	References in the terms of this approval to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this approval.	CEMP	Condition noted. A register of legal and other requirements for the Project is contained in Appendix A1 identifying key legislations. References to any guideline, protocol, Australian Standard or policy of this approval is in the form they were in as at the date of the SSI approval, unless otherwise agreed with the Planning Secretary. Each Sub-plan identifies relevant standards or guidelines that were used in the preparation of the particular Sub-plan.
A8	Any document that must be submitted within a timeframe specified in or under the terms of this approval may be submitted within a later timeframe agreed with the Planning Secretary. This condition does not apply to the immediate written notification required in respect of an incident under **Condition A17**.	CEMP	Condition noted. Where a document requires the specific approval of the Planning Secretary of the DPIE, the document will be submitted to the DPIE for approval. An alternative approval timeframe may be requested for consideration by DPIE.
A9	The SSI may be constructed and operated in stages. Where staged construction or operation is proposed, a Staging Report (for either or both construction and operation as the case may be) must be prepared and submitted to the Planning Secretary for information. The **Staging Report** must be submitted to the Planning Secretary no later than one (1) month before the	CEMP	If it is identified that the SSI may be constructed and operated in stages, a Staging Report would be submitted to DPIE for information.

CoA ID	Requirement	Document	How addressed
	commencement of construction of the first of the proposed stages of construction.		
A10	The **Staging Report** must: (a) set out how the construction and/or operation of the whole of the SSI will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction and/or operation of each stage will commence and finish; (b) specify how compliance with conditions will be achieved across and between each of the stages of the SSI; and (c) set out mechanisms for managing any cumulative impacts arising from the proposed staging.	CEMP	Condition noted. A Staging Report, if required, would set out each of the details required with this condition.
A11	The SSI must be staged in accordance with the **Staging Report**, as submitted to the Planning Secretary.	CEMP	Condition noted. If it is proposed the project is staged, Staging would follow the most recently submitted Staging Report.
A12	Where staging is proposed, the terms of this approval that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage.	CEMP	Condition noted.
A13	Ancillary facilities that are not identified by description and location in the EIS can only be established and used in each case if: (a) they are located within the project area; and (b) they are not located next to a sensitive receiver (including where an access road is between the facility and the receiver), unless the sensitive receiver landowner and occupier have given written acceptance to the carrying out of the relevant facility in the proposed location; and (c) they have no impacts on heritage items (including areas of archaeological sensitivity), trees or threatened species, populations or EECs; and (d) the establishment and use of the facility can be carried out and managed within the outcomes set out in the terms of this approval, including in relation to environmental, social and economic impacts.	Section 2	Condition noted. Section 2 provides details on approved Ancillary Facilities.
A14	Compliance reports of the SSI must be carried out in accordance with the Department's *Compliance Reporting Requirements* for a minimum of one (1) year following commencement of operation, or other period as directed by the Planning Secretary. The Department must be notified of the commencement dates of construction and operation of the SSI at least one(1) month prior.	Section 8.1.4	Condition noted. Compliance reporting will be carried out in accordance with Department's *Compliance Reporting Requirements*. Further information is provided in Section 8.1.4.

CoA ID	Requirement	Document	How addressed
A15	Independent audits of the SSI must be carried out in accordance with the requirements for an Independent Audit Methodology and **Independent Audit Report** in the Department's Independent Audit Requirements. *Note: Ongoing operational audits (following an initial operational audit) will not be required for the SSI, unless otherwise required by the Planning Secretary.*	Section 8.1.3	Condition noted. Independent audit reports will be prepared and carried out in accordance with the DPIE *Independent Audit Requirements*.
A16	The Proponent must: (a) review and respond to each **Independent Audit Report** prepared under **Condition A15** of this approval; and (b) submit the response to the Planning Secretary in accordance with the Department's *Independent Audit Requirements*.	Section 8.1.3 Section 8.1.4	Condition noted. Independent audit reports will be prepared and carried out in accordance with the DPIE *Independent Audit Requirements*.
A17	The Department must be notified in writing via the Major Projects portal immediately after the Proponent becomes aware of an incident. The notification must identify the SSI (including the application number and the name of the SSI if it has one), and set out the location and nature of the incident. It must also describe any actual or potential non-compliance with this approval.	Section 7.3	TransGrid will immediately notify DPIE of all environmental incidents. The notification must identify the SSI (including the application number and the name of the SSI if it has one), and set out the location and nature of the incident. It must also describe any actual or potential non-compliance with this approval.
A18	Subsequent notification must be given and reports submitted in accordance with the requirements set out in **Appendix A**.	Section 7.3	All subsequent notifications related to environmental incidents will be given in accordance with the CoA Appendix A.
B1	A **Community Communication Strategy** must be prepared to provide mechanisms to facilitate communication between the Proponent, the relevant council(s) and the community (including adjoining affected landowners and businesses, and others directly impacted by the SSI), during the design and construction of the SSI.	Section 5.3.1 Community Communication Strategy	The Community Communication Strategy provides mechanisms to facilitate communication between the Proponent, the relevant council(s) and the community (including adjoining affected landowners and businesses, and others directly impacted by the SSI), during the design and construction of the SSI.
B2	The **Community Communication Strategy** must: (a) identify people and organisations to be consulted during the design and work phases; (b) set out procedures and mechanisms for the regular distribution of accessible information (including provisions for addressing linguistic diversity), about or relevant to the SSI. The information to be distributed must include information regarding current site construction activities, schedules and milestones at each construction site; (c) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant communities; (d) establish a public liaison officer(s) to engage with the local	Section 5.3.1 Community Communication Strategy	The Community Communication Strategy: (a) identifies people and organisations to be consulted during the design and work phases; (b) sets out procedures and mechanisms for the regular distribution of accessible information (including provisions for addressing linguistic diversity), about or relevant to the SSI. The information to be distributed must include information regarding current site construction activities, schedules and milestones at each construction site; (c) provides for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant communities; (d) establishes a public liaison officer(s) to engage with the local community; and

CoA ID	Requirement	Document	How addressed
	community; and (e) set out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent; (ii) through which the Proponent will respond to enquiries or feedback from the community; and (iii) to resolve any issues and mediate any disputes that may arise in relation to construction of the SSI.		(e) sets out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent; (ii) through which the Proponent will respond to enquiries or feedback from the community; and (iii) to resolve any issues and mediate any disputes that may arise in relation to construction of the SSI.
B3	The **Community Communication Strategy** must be published on the project's website prior to the commencement of construction.	Section 5.3.1 Community Communication Strategy	The Community Communication Strategy will be published on the project's website prior to the commencement of construction.
B4	A **Complaints Management System** must be prepared and implemented before the commencement of any works and maintained for the duration of construction and for a minimum of three (3) months following completion of construction of the SSI.	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	A Complaints Management System has been implemented and will be maintained for a minimum of three (3) months following completion of construction of the SSI.
B5	The following information must be available to facilitate community enquiries and manage complaints: (a) a 24- hour telephone number for the registration of complaints and enquiries about the SSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	The following information will be available to facilitate community enquiries and manage complaints: (a) a 24- hour telephone number for the registration of complaints and enquiries about the SSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.

CoA ID	Requirement	Document	How addressed
B6	The telephone number, postal address and email address required under **Condition B5** of this approval must be: (a) published in a newspaper circulating in the relevant local area before the commencement of construction; (b) provided on site hoarding or otherwise at each construction site during all construction works; (c) notified via mail to residents within streets on which SSI is to be located, at least two (2) weeks before the commencement of construction works in that street; and (d) published on the website required under **Condition B9** of this approval.	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	The telephone number, postal address and email address required under Condition B5 of this approval will be: (a) published in a newspaper circulating in the relevant local area before the commencement of construction; (b) provided on site hoarding or otherwise at each construction site during all construction works; (c) notified via mail to residents within streets on which SSI is to be located, at least two (2) weeks before the commencement of construction works in that street; and (d) published on the website required under Condition B9 of this approval.
B7	A **Complaints Register** must be maintained recording information on all complaints received about the SSI during the carrying out of any works and for a minimum of three (3) months following the completion of construction. The **Complaints Register** must record the: (a) number of complaints received; (b) number of people affected in relation to a complaint; and (c) means by which the complaint was addressed and whether resolution was reached, with or without mediation.	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	A Complaints Register has been established and will be maintained recording information on all complaints received about the SSI during the carrying out of any works and for a minimum of three (3) months following the completion of construction. The Complaints Register must record the: (a) number of complaints received; (b) number of people affected in relation to a complaint; and (c) means by which the complaint was addressed and whether resolution was reached, with or without mediation.
B8	The **Complaints Register** must be provided to the Planning Secretary or the relevant council(s) upon request, within the timeframe stated in the request.	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	The Complaints Register will be provided to the Planning Secretary or the relevant council(s) upon request, within the timeframe stated in the request.
B9	A website or webpage providing information in relation to the SSI must be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction. Up-to-date information (excluding confidential commercial information or other documents as agreed to by the Planning Secretary) must be published on the website before the relevant works commence, including: (a) information on the current status of the SSI; (b) a copy of the EIS, and any documentation relating to any	Section 5.3.2 Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	A website or webpage providing information in relation to the SSI will be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction. Up-to-date information (excluding confidential commercial information or other documents as agreed to by the Planning Secretary) must be published on the website before the relevant works commence, including: (a) information on the current status of the SSI; (b) a copy of the EIS, and any documentation relating to any modifications made to the SSI or the terms of this approval;

CoA ID	Requirement	Document	How addressed
	modifications made to the SSI or the terms of this approval; (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; (d) a copy of each statutory approval, licence or permit required and obtained in relation to the SSI; (e) a current copy of each document required under the terms of this approval that must be provided to the Planning Secretary for approval, which must be published before the commencement of any works to which they relate or before their implementation, as the case may be; and (f) a copy of the compliance reports required under **Condition A14** of this approval.		(c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; (d) a copy of each statutory approval, licence or permit required and obtained in relation to the SSI; (e) a current copy of each document required under the terms of this approval that must be provided to the Planning Secretary for approval, which must be published before the commencement of any works to which they relate or before their implementation, as the case may be; and (f) a copy of the compliance reports required under Condition A14 of this approval. Further information is available at https://www.transgrid.com.au/what-we-do/projects/current-projects/powering-sydneys-future/Pages/default.aspx
C1	A **Construction Environmental Management Plan (CEMP)** must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the EIS will be implemented and achieved during construction.	CEMP	The CEMP (this Plan) provides a central mechanism for all potential environmental impacts will be managed. It outlines the framework for the management of environment impacts. The CEMP has been prepared and will be implemented during construction. The CEMP incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report.
C2	The **CEMP** must be submitted to the Planning Secretary for approval no later than one (1) month before the commencement of construction.	CEMP	Condition noted.
C3	The following **CEMP Sub-plans** must be prepared in consultation with the relevant government agencies identified for each **CEMP Sub-plan** in Table 1.	Section 1.5 All Sub-plans (consultation section)	All Sub-Plans were provided to the relevant councils and agencies for consultation, as applicable. The outcomes of consultation have been incorporated into the final Sub-plans. A copy of the consultation undertaken for each Sub-Plan is included in the appendices of each Sub-plan.
C3(a)	Traffic and Transport	CEMP Appendix C1 - CTTMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(b)	Noise and Vibration	CEMP Appendix C2 - CNVMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(c)	Air Quality	CEMP Appendix C3 - CAQMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments

CoA ID	Requirement	Document	How addressed
			Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(d)	Vegetation and biodiversity	CEMP Appendix C4 - CVBMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(e)	Soil and Water	CEMP Appendix C5 - CSWMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(f)	Heritage	CEMP Appendix C6 - CHMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(g)	Public Infrastructure	CEMP Appendix C7 - CPIMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(h)	Waste	CEMP Appendix C8 - CWMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C4	Details of all information requested by an agency to be included in a **CEMP Sub-plan** as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant **CEMP Sub-Plan**.	Section 1.5 All Sub-plans (consultation section)	All CEMP Sub-plans have been developed in consultation with the required agencies. Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including copies of all correspondence from those agencies, are provided with the relevant CEMP Sub-Plan. A copy of the consultation undertaken for each Sub-Plan is included in the appendices of each Sub-plan.
C5	Any of the **CEMP Sub-plans** may be submitted along with, or subsequent to, the submission of the **CEMP** but in any event, no later than one (1) month before construction.	CEMP	Condition noted. All CEMP Sub-plans will be submitted to the DPIE no later than one month before construction.
C6	Construction must not commence until the **CEMP** and all **CEMP Sub-plans** have been approved by the Planning Secretary. The **CEMP** and **CEMP Sub-plans**, as approved by the Planning Secretary, must be implemented for the duration of construction. Where construction of the SSI is staged, construction of a stage must not commence until the CEMP and sub-plans for that stage have been approved by the Planning Secretary.	CEMP	Condition noted. Construction will not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, will be implemented for the duration of construction. If a future decision is made to stage construction of the SSI, construction of a stage will not commence until the CEMP and sub-plans for that stage have been approved by the Planning Secretary.
C7	The CEMP and CEMP Sub-plans required under this approval must be prepared by suitably qualified and experienced persons	CEMP	The CEMP and CEMP Sub-plans required under this approval have been prepared by suitably qualified and experienced persons in

CoA ID	Requirement	Document	How addressed
	in accordance with relevant guidelines, and include where relevant:		accordance with relevant guidelines, and include all required information where relevant. Credentials are provided on the Document Control (QA page)
C7 (a)	a summary of relevant background or baseline data;	Section 1.1	Project and Planning Background, requirements and Project response
C7 (b) i	details of: the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 1.5 Section 1.6 Section 1.7.1 Appendix A2	Section 1.5 contains information on Consultation requirements Section 1.6 contains information on Requirements for CEMP approval Section 1.7.1 contains information on Conditions of Approval requirements and responses. Appendix A2 contains information on all Conditions of Approval requirements and response for the CEMP and all Sub-plans.
C7 (b) ii	any relevant limits or performance measures and criteria; and	Appendix A3 Section 8	Appendix A3 contains information on Environmental Management and Mitigation Measures and outlines performance measures and criteria, as relevant Section 8 also outlines how performance is measured and reported.
C7 (b) iii	the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the SSI or any management measures;	Appendix A3 Section 8	Appendix A3 contains information on Environmental Management and Mitigation Measures outlines performance measures and criteria, as relevant The reporting sections and Trigger Action Response Plans in the Sub-Plans, as applicable, outlines how performance is measures and reported.
C7 (c)	any relevant commitments or recommendations identified in the EIS;	Appendix A3	Appendix A3 contains information on Environmental Management and Mitigation Measures included as commitments in the EIS.
C7 (d)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Appendix A & C	Environmental requirements and performance measures to comply with requirements from Traffic Management (Appendix C1) through to Waste Management (C8) are included. Refer Sub-Plans in Appendices C1 to C8.
C7 (e)	a program to monitor and report on the:	Section 8	Section 8 describes actions the project will take regarding monitoring, reporting and review
	(i) impacts and environmental performance of the SSI; and	Section 7 Section 8.1	Section 7 provides information regarding environmental incident and emergency response actions. Section 8.1 contains information regarding monitoring, inspections, auditing and reporting on environmental Management performance.
C7 (e) ii	(ii) effectiveness of the management measures set out pursuant to paragraph (d);	Section 8.3 Section 8.4	Section 8.3 provides information on management review actions. Section 8.4 details the CEMP update and revision process and triggers.
C7 (f)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce	Section 7 Section 8.5 to 8.7	Each Sub-plan provides information on managing unpredicted impacts Sections 8.5 to 8.7 provides the overarching details on the management and response framework.

CoA ID	Requirement	Document	How addressed
	to levels below relevant impact assessment criteria as quickly as possible;		
C7 (g)	a program to investigate and implement ways to improve the environmental performance of the SSI over time;	Section 8 Section 8.4	A number of events may trigger the update and revision of the CEMP, these are detailed in section 8
C7 (h)	a protocol for managing and reporting any:		
	(i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion;	Section 7	A protocol for CEMP incident and emergency response is included in the CEMP. Non-compliance management is also provided in Section 7.4.
C7 (h) ii	(ii) complaint; or	Community Communication Strategy Section 6 Complaints management system Section 5.3.2	In accordance with the Conditions of Approval Part B, all complaints will be managed in accordance with the Community Communication Strategy (Refer section 6 for protocol) and via the complaints management system. Complaint management is addressed in Section 5.3.2.
C7 (h) iii	(iii) failure to comply with other statutory requirements; and	Section 8.3 Section 8.4 Section 8.1 Section 7.3	TransGrid and its contractors are obliged to comply with all statutory requirements. In the event of failure to meet statutory requirements, these would be immediately recorded, reported to TransGrid consistent with CEMP Sections 8.3 and 8.4. and action would be taken. Investigations would be undertaken consistent with the triggers in Section 8.1 for continuous improvement, with immediate actions taken to address any incidents or emergencies consistent with the CEMP section 7.3
C7 (i)	a description of the roles and environmental responsibilities for relevant employees, as well as training and awareness; and	Section 7.2 Appendices C1-C8	Section 7.2 contains a description of roles and responsibilities for Incidents. Sub-Plan specific responsibility is set out in each Sub-plan.
C7 (j)	a protocol for periodic review of the CEMP and associated subplans and programs.	Section 8.1 Section 8.3 & 8.4	Refer Section 8.1 for information related to how continuous improvement Refer Section 83 & 8.4 for information on management reviews/ plan update & revision
E35	The Proponent must ensure that the storage, handling, and transport of dangerous goods is undertaken in accordance with the relevant Australian Standards and guidelines, particularly AS1940 and AS1596, the Dangerous Goods Code, and the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual.*	Section 6.1	The storage, handling, and transport of dangerous goods will be undertaken in accordance with the relevant Australian Standards and guidelines, particularly AS1940 and AS1596, the Dangerous Goods Code, and the EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual.
E36	The Proponent must ensure that the design, construction and operation of the SSI is managed to comply with the applicable EMF limits in the *International Commission on Non-Ionizing*	Section 6.2	TransGrid will ensure that the design, construction and operation of the SSI is managed to comply with the applicable EMF limits in the

CoA ID	Requirement	Document	How addressed
	Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ICNIRP, 2010).		*International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF* (ICNIRP, 2010).

1.7.2 Environmental Management and Mitigation Measures (EMMMs)

A compliance matrix documenting how the EMMMs identified in the Amendments Report are addressed is presented in Appendix A3.

1.8 Emergency Contacts

A list of emergency contacts is provided as Table 1-2. Appendix A2 includes the CEMP and all Sub-Plans.

Table 1-2 Emergency contacts

Contact	Phone number
Powering Sydney's Future – Dedicated Project Line	
Community Information Line (24 hour)	1800 222 537
Internal – TransGrid	
TransGrid PCBU	0408 514 424
TransGrid Project Manager	0418 259 529
TransGrid Environment and Sustainability Manager	0402 101 000
TransGrid WHS Manager	0428 956 029
Taihan PCBU	0403 092 999
Taihan Project Manager	0400 741 482
Taihan Site Manager	0481 115 730 0407 298 885
Taihan Environment and Sustainability Manager	0408 169 792
Taihan WHS Manager	0472 636 243
External	
EPA Environment Line	131 555
Canterbury Bankstown Council	9709 9000
Inner West Council	9392 5000
City of Sydney Council	9265 9300
SafeWork NSW	131 050
Fire and Rescue NSW	1300 729 579
Fire Brigade Service/HAZMAT	000
Sydney Water	132 090
Gas - Jemena	131 909
Electricity – Endeavour Energy	131 003
Electricity – Ausgrid	131 388
NSW Wildlife Information, Rescue and Education Service (WIRES)	1300 094 737
Roads and Maritime Services – TMC	131 700
SES Emergency	132 500

2 Project overview

2.1 The Project

TransGrid is the manager and operator of the major high-voltage electricity transmission network in New South Wales (NSW) and the Australian Capital Territory. TransGrid has obtained approval under Division 5.2 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) for the construction and operation of a new 330 kilovolt underground transmission cable circuit between the existing Rookwood Road substation in Potts Hill and the Beaconsfield West substation in Alexandria. Associated works will also be completed at the Sydney South substation.

The transmission cable route will be around 20 kilometres long, have a cable life of about 40 years and be constructed primarily by trenching. There are a number of special crossings[1].

2.2 Project location and area

2.2.1 Project location

The Project is located in the suburbs of Potts Hill, Yagoona, Chullora, Greenacre, Lakemba, Belmore, Belfield, Campsie, Croydon Park, Ashbury, Ashfield, Dulwich Hill, Marrickville, Newtown, St Peters, Alexandria and Picnic Point.

The Project is located in the following local government areas (LGAs):

- City of Canterbury-Bankstown;
- Inner West; and
- City of Sydney.

The Project will be located primarily within road reserves, at existing electrical infrastructure sites, within public open space and on previously disturbed areas. The main land uses within the Project include industrial, residential, commercial and public recreation.

Figure 2-1 provides an overview of the entire Project area in context with surrounding areas.

2.2.2 Project area

The Project area comprises the overall potential area of direct disturbance by the Project, which is temporary (for construction) or permanent (for operational infrastructure) and extends below the ground surface.

The Project area includes the location of operational infrastructure and construction work sites for:

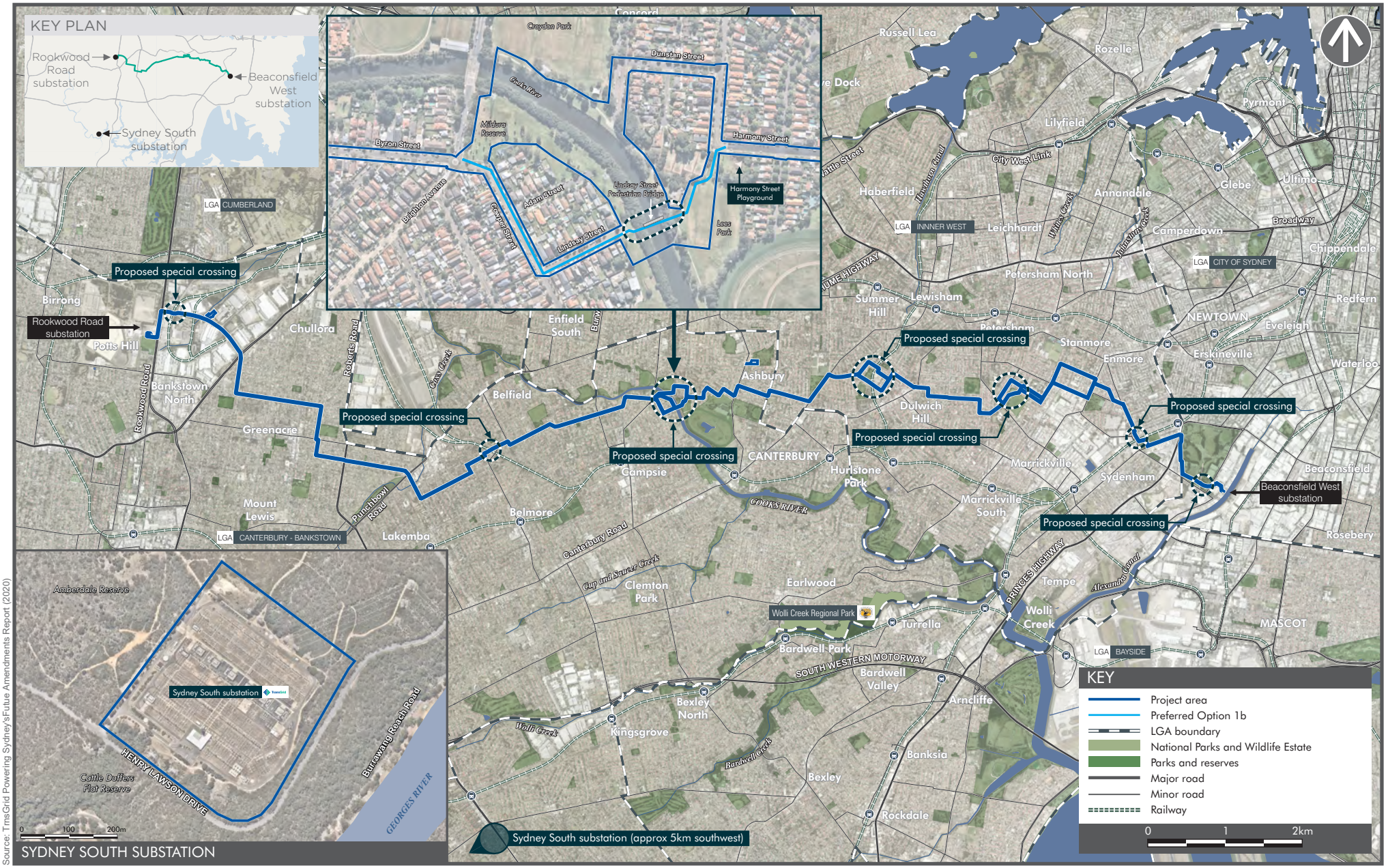
- the transmission cable route (including the entire road reserve of roads traversed);
- special crossings of infrastructure or watercourses;
- substation sites requiring upgrades (noting that all works would be contained within the existing site boundaries); and
- the construction laydown area at Camdenville Park.

The Project area is shown in Figure 2-2 to Figure 2-5. As part of the Project, the existing Rookwood Road, Beaconsfield West and Sydney South substations, operated by TransGrid,

[1] A special crossing is a crossing of infrastructure and watercourses within the project area. This includes cable bridges and underboring.

will be upgraded to enable the connections and operation of the transmission cable circuit as shown in Figure 2-6 to Figure 2-8.

The boundaries of the Project area represent the physical extent of the Project. Work sites are located within the boundaries of the project area assessed in this EIS.



Source: TransGrid Powering Sydney's Future Amendments Report (2020)

TransGrid

PROJECT OVERVIEW

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-1

ource: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

PROJECT AREA - MAP 1

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-2

ource: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

PROJECT AREA - MAP 2

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-3

Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

PROJECT AREA - MAP 3

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-4

Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

PROJECT AREA - MAP 4

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-5

Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

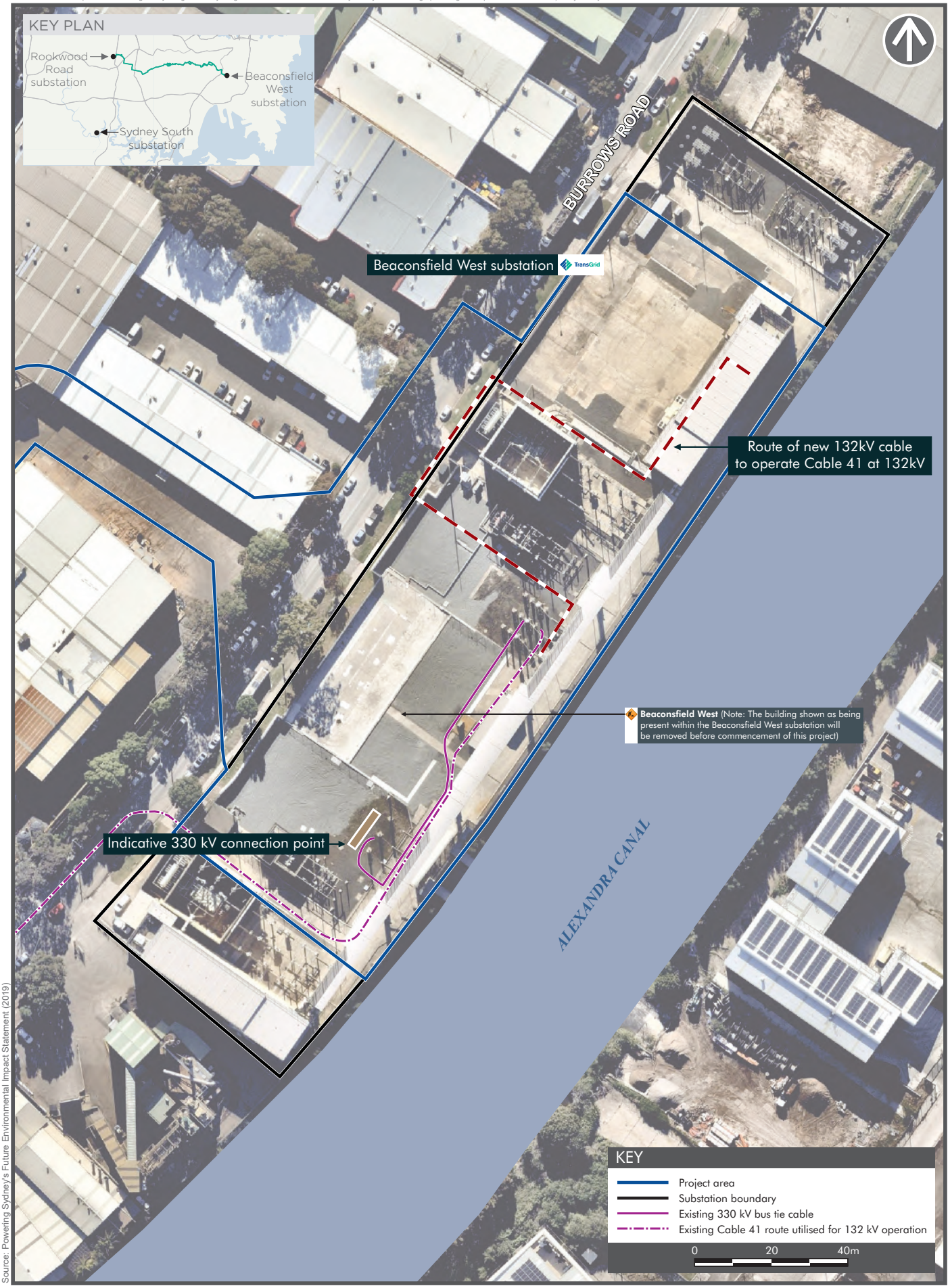
ROOKWOOD ROAD SUBSTATION LAYOUT AND PROPOSED UPGRADES

Powering Sydneys Future

Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-6



Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

BEACONSFIELD WEST SUBSTATION LAYOUT AND PROPOSED UPGRADES

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-7

Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

SYDNEY SOUTH SUBSTATION LAYOUT AND PROPOSED WORKS

Powering Sydney's Future
Potts Hill to Alexandria Transmission Cable Project

Note: The project area is confined to the roadway reserve with the exception of parks and existing substations
Source: Department of Finance, Services and Innovation - Spatial Services (2018), Nearmap (2018)

FIGURE 2-8

2.3 Planning Approval Pathway

The Project is State Significant Infrastructure under clause 14 of State Environmental Planning Policy (State and Regional Development) 2011.

The Environmental Impact Statement (EIS) for the Project (AECOM, 2019a) was placed on public exhibition for six weeks from 11 October to 22 November 2019. As outlined in Chapter 4 Project description of the EIS, the Project description and associated assessment presented in the EIS is based on an initial concept design which was subject to refinement as the Project design developed.

Subsequent to the EIS being exhibited, TransGrid proposed a number of refinements to the Project, which were included in the Amendment Report. TransGrid responded to submissions from the community and key stakeholders in a Submissions Report (AECOM, 2019b), which is available to view on the NSW Department of Planning, Industry and Environment (DPIE) Major Projects website[2]. The Infrastructure Approval was granted on 14 May 2020 in accordance with Section 5.19 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project alignment presented in the CEMP and sub-plans has been optimised to avoid and reduce potential impacts as far as reasonably practical.

2.4 Project Description

Key components of the Project are listed below.

- Cable works connecting Rookwood Road substation with the Beaconsfield West substation comprising:
    - a 330 kV underground transmission cable circuit comprising three cables installed in three conduits;
    - another set of three conduits for a possible future 330 kV transmission cable circuit, if required (subject to future EIS approval);
    - four smaller conduits for carrying optical fibres;
    - 23 joint bays, per circuit, where sections of cable will be joined together, located approximately every 600-800 metres along the transmission cable route;
    - link boxes and sensor boxes associated with each joint bay will be installed in a concrete pit with a removable lid to allow cable testing and maintenance; and
    - optical fibre cable pits for optical fibre cable maintenance.
- Special crossings of infrastructure, State and Regional Road crossings, watercourses, including two rail lines (at Chullora and St Peters), one freight rail line (Enfield Intermodal rail line at Belfield), one light rail line (at Dulwich Hill), the Cooks River and its associated cycleway (at Campsie/Croydon Park and Ashbury)and the southern wetland at Sydney Park (at Alexandria).
- Upgrade works at the Rookwood Road and Beaconsfield West substations to facilitate the new 330 kV transmission cable circuit.
- conversion works at the Beaconsfield West and Sydney South substations to transition the existing Cable 412 from a 330 kV connection to a 132 kV connection;
- a temporary construction laydown area at Camdenville Park.

[2] https://www.planningportal.nsw.gov.au/major-projects/project/9956

The Project components are described in detail in Table 2-1.

2.5 Site activities

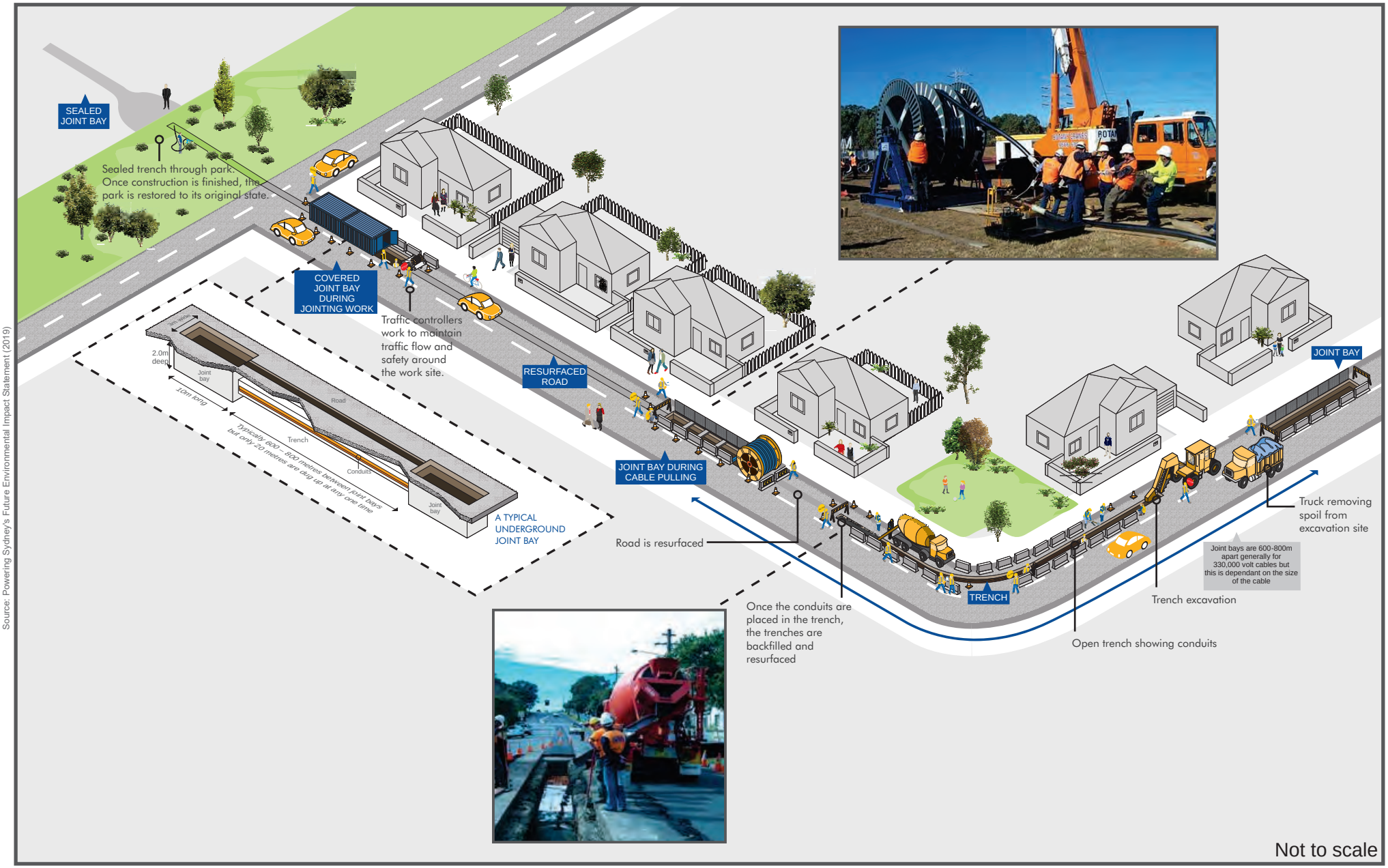
The works comprise linear progressive works along the entire cable length and works at discrete locations.

Construction activities would typically include:

- site preparation including establishment and securing of work sites and construction laydown areas;
- trenching and excavation of the transmission cable route;
- confirming the location of services/utilities and relocating these where necessary;
- conduit installation;
- restoration of trenched surfaces including backfill, reinstatement and rehabilitation activities;
- excavation and establishment of joint bays and concrete pits for ancillary infrastructure;
- cable pulling and jointing;
- construction of special crossings; and
- substation upgrades.

Figure 2-9 presents an overview of typical construction activities.

A full list of the activities required to deliver the respective Project components identified in Section 2.4 are detailed in Table 2-2 below.



Source: Powering Sydney's Future Environmental Impact Statement (2019)

TransGrid

OVERVIEW OF CONSTRUCTION ACTIVITIES

Powering Sydney's Future

Potts Hill to Alexandria Transmission Cable Project

Source: AusGrid (2018)

FIGURE 2-9

Table 2-1 Key Project components

Key project component	Description of project component
Conduit and cable circuit arrangement	The Project involves the installation of two sets of conduits. The 330 kV transmission cable circuit comprises cables within one set of conduits (i.e. three cables in three conduits), with a second set of conduits being installed for possible future use (i.e. three conduits with no cables). The diameter of each transmission cable conduit will be up to 250 millimetres. There will be four smaller ancillary conduits also installed amongst these transmission cable conduits for optical fibre cables. The small conduits for the optical fibres will be up to 80 millimetres in diameter. Each cable circuit comprises three single transmission cables. Additionally, smaller conduits will be installed alongside the cable conduits to carry optical fibres required for communication (i.e. for cable control and protection) and cable monitoring systems. Each transmission cable would have a diameter of up to 175 millimetres, with four main cable components being the conductor, insulation, sheath and serving
Joint bays	Joint bays are concrete lined pits, generally located every 600-800 metres along the transmission cable route, where sections of the transmission cable are connected. Joint bays are typically around 10 metres long, 3 metres wide and 2 metres deep. The Project allows for two cable circuits with each circuit having its own joint bays (around 26-30 per circuit). The joints for each circuit need to be separated by around 15 metres.
Link and sensor boxes	To enable access and routine maintenance on the cable, link boxes and sensor boxes will be installed near each joint bay. The link box will be installed in a concrete pit, around 1.5 metres wide, 1.4 metres long and 1 metre deep, with a removable metal lid for access. The link box is used to manage the cable earthing system and for future maintenance and testing of the transmission cables. Similarly, a sensor box would also be installed near the joint bay in a separate concrete pit, around a similar size to the link box pit, with a removable metal lid for access. The sensor boxes are required to test the integrity of the insulation on the cables. Wherever possible, link and sensor boxes will be located in the footpath to avoid disruption to road traffic during maintenance. However, in some cases, space constraints on the footpath or technical constraints may require the link and sensor boxes to be located in the roadway, next to the joint bays.
Optical fibre cable pits	Optical fibre cables will be installed in the trench. These cables are associated with cable control and protection signals and communications between equipment located at each substation. Optical fibre cable pits are required where the optical fibre cables are joined. The pits are also required to provide access to the optical fibre cables for maintenance. Approximately 30 pits will be required. The number of pits depends on, but it is not limited to, the length of the optical fibre cable sections, the size of the cable, and the installation technique. Similar to the link and sensor box pits, these pits would comprise a concrete pit around 1.5 metres wide, 1.4 metres long and 1 metre deep, with a removable metal lid for access. Access would only be required during planned maintenance or if there is an unplanned failure of equipment i.e. a fault. Wherever possible, these optical fibre cable pits will be located in the footpath, however, some may be required to be installed in the roadway and verge due to space constraints.
Special crossings – overview	The Project would involve the construction of special crossings that would involve either the installation of a cable bridge or underboring (i.e. an underground crossing).
Special crossings – Cable bridges	Cable bridges will be concrete trough structures into which the cables will be pulled and covered for protection or may be modular (pre-cast) with integrated conduits for the cables. Bedwin Road cable bridge would have public access. Muir Road cable bridge will have security gates to prevent unauthorised access. Limited vegetation clearance is required to facilitate access and construction.

Special crossings – Underboring	The methods of underboring may include thrust boring and horizontal directional drilling (HDD) or others appropriate to site conditions and to minimise environmental impacts. Following installation of the transmission cables via an underboring construction methodology, disturbed areas will be reinstated similar to their pre-construction state. No permanent aboveground infrastructure will be required at underboring sites.
Cable operation and maintenance	Once the transmission cables have been installed, generally only visual inspections will be required. This would involve regularly driving along the transmission cable route to check for hazards or activities (such as excavation works in the vicinity) that could impact the underground cables or cable bridges and to check for missing or warn cable markers. Ongoing physical access to the transmission cables is not required. Routine maintenance will be through access to the link and sensor boxes located near the joint bays. Where the transmission cable circuit will be located in a roadway, link boxes and sensor boxes will be located in the nature strip or footpath, where possible, to enable technicians to undertake routine testing work without exposure to passing traffic or requiring disruption to traffic movements. Regular checks would ensure that link boxes are accessible and that the pit does not contain water or tree roots. Cable bridge structures will be inspected to ensure their structural integrity and aesthetics are being maintained. Maintenance crews would utilise appropriate traffic management measures when undertaking work at the roadside to ensure public and worker safety. This may include erecting temporary barricades to restrict access by the public. Appropriate signage will be put in place and traffic controllers used, where necessary.
Substation upgrades – overview	The existing Rookwood Road, Beaconsfield West and Sydney South substations, operated by TransGrid, will be upgraded to enable the connections and operation of the proposed transmission cable circuit. Each substation typically includes a range of electrical infrastructure such as transformers, switchgear, reactors, control buildings and ancillary infrastructure. Additional works are required at Sydney South and Beaconsfield West substations to repurpose an existing cable (Cable 41) that connects these two substations. Cable 41 will operate at a lower voltage (reduced from 330 kV to 132 kV). The upgrade works would occur within the existing footprint of these substation sites. Following construction of the Project, operation and maintenance activities at the substations will be undertaken as part of the current maintenance program, with no special requirements related to the Project alone.
Substation upgrades – Rookwood Road substation	The Rookwood Road substation is located at the intersection of William Holmes Street and Rookwood Road in Potts Hill. To facilitate the installation of the new 330 kV transmission cable circuit, the following minor upgrade works will be completed: • modification of the existing 330 kV GIS switchbay within the existing GIS building to allow connection of the cable; • installation and modification of secondary systems (control and protection equipment), as required; and • cabling and cable connections within the substation site. The site includes an existing driveway to the south onto William Holmes Street that will be used for the exit of the new 330 kV conduits from the substation.
Substation upgrades – Beaconsfield West substation	The Beaconsfield West substation is located between Burrows Road and the Alexandra Canal in Alexandria. Electricity infrastructure currently connects to the site from the west via trenched cables and from the east via an existing cable bridge over Alexandra Canal. To facilitate the installation of the new 330 kV transmission cable circuit, the following upgrade works will be completed: • installation of a new cable sealing ends; • modifications to the 330 kV switchgear; • installation and modification of secondary systems (control and protection equipment), as required; and • cabling and cable connections within the substation site.

	Additional works are also required along Burrows Road and at the substation to convert the voltage of the existing Cable 41 (which links to the Sydney South substation). This involves conversion of the existing Cable 41 to 132 kV operation, requiring modifications to existing high voltage equipment or replacement of switchgear. The substation upgrades would occur within the footprint of the existing substation. No new building works are proposed.
Substation upgrades – Sydney South substation	The Sydney South substation is located at Picnic Point, surrounded by Georges River National Park. To facilitate the conversion of Cable 41 from 330 kV to 132 kV operation, the following works will be completed: • installation of a new set of three cable sealing ends; • installation of a new section of 132 kV cable connecting into the existing series reactor; • installation of a 132 kV switchbay for connection of the new section of 132 kV cable; • installation and modification of secondary systems (control and protection equipment), as required; and • cabling and cable connections within the substation site. Cable 41 would continue to be used for 132 kV operation and no new building works are proposed at the substation.

Table 2-2 Key Activities

Key activity	Description of key activity
Site preparation	Prior to construction of the trench, site preparation activities will be undertaken. These works will include: • implementation of traffic management changes to facilitate access and egress to/from the work sites; • installation of environmental control measures (such as sediment barriers); • localised clearing works (such as vegetation/tree removal); • establishing construction laydown areas and ancillary facilities including temporary offices and worker amenities, site fencing and provision of power/services; and • delivery and storage of plant and equipment at construction laydown areas and work sites. Before excavation commences at each work site within the road reserve, the location of the trench will be marked (with chalk or spray paint) and if required, any surface vegetation will be cleared. Non-destructive identification of utilities and services along the route will be undertaken, where required. The recorded location of known existing services crossing the trench will be marked for reference.
Trenching and excavation	Transmission cables will be installed using pre-laid conduits. On average, the trench is 1.6m wide by 2.0m deep, however at some locations is up to 3 metres and more than 2.0 metres deep. Conduit installation typically will only require the opening of short sections of trench at a time (generally around 20 -40 metres at any one location), with backfilling occurring as soon as each section of the conduits has been installed. Road plates will be placed over the backfilled trench until temporary road surface restoration, typically the following day while the next section of trench is excavated. Depending on the number of work crews, it is expected that trenching and excavation would occur concurrently at multiple work sites along the transmission cable route. A 20 metre long trench would generally require a work site of between 55-95 metres depending on the speed of the road. Pruning may be required along the transmission cable route to safely operate equipment and for possible traffic diversions. Some initial excavation and root trimming, prior to trench excavation, will be required at certain locations to allow for the underground cables to be installed and to establish and maintain minimum separation distances between the cables and tree roots. Minimal tree removal is required at select identified locations. Any tree removals or pruning will be undertaken in accordance with the CVBMP. Prior to trenching commencing, saw cutting of the road surface/pavement will be undertaken to expose the underlying material. Generally, an excavator will be used to lift up these materials (generally asphalt or concrete) and to scoop up any topsoil or spilled spoil material. If hard material or rock is encountered, it may be initially treated (through for example, ripping) prior to being loosened (through use of a rock breaker). Following the identification and relocation of services (if required), an excavator will be used to remove materials down to the base of the trench. Spoil would not be stockpiled at work sites but rather placed directly into trucks for transport to either the construction laydown areas for temporary storage or to an off-site appropriately licensed waste facility for disposal. The excavator would typically be positioned directly over the trench with the spoil trucks located in the lane adjacent to the trench. In constrained locations such as narrow roadways where full road closure is not possible, the truck may be positioned behind the excavator. This method results in a slower rate of progress. This approach would mean impacts in that location may be experienced over a longer period but will be balanced against the traffic disruption associated with road closure. As the trench is excavated, an assessment will be made of the stability of the sides of the trench. Where necessary, shoring will be installed as a precaution against slump or collapse, particularly where deeper sections of trench are required, such as excavations deeper than 1.5 metres. Barricades will be placed around open excavations whenever work is not being carried out at that location for an extended period of time. Barricades and safety lights will be monitored and maintained, particularly during and following adverse weather conditions, to ensure adequate protection is provided to road users and the community. Excavation of trenches in roadways would generally occupy up to two traffic lanes and depending on the width of the roadway, may require lanes to be closed, or road closures with diversion routes implemented, while excavation is in progress. The transmission cable route would vary from a kerbside lane to a non-kerbside lane arrangement depending on various factors (such as the presence of subsurface utilities and services), with the final alignment determined during detailed design. Where feasible and reasonable, works will be undertaken during low traffic periods, to minimise traffic impacts.

Key activity	Description of key activity
Service/utility relocation	Relevant service/utility providers within the Project area have been engaged with regarding the possible interaction with and relocation of services and utilities during the construction of the Project. This includes consultation with other energy providers (Ausgrid, Jemena), telecommunication providers (Telstra, Optus) and other major service providers (Sydney Water, Viva Energy). The need for major service/utility relocation will be minimised through the design of the transmission cable route, with the conduits planned to go over or under existing services. Minor relocations, if required, would occur within the road reserve and will be subject to consultation with the relevant asset owner/operator. During construction, TransGrid would liaise closely with other asset owners to ensure the safety and security of services.
Conduit installation	Installation of the conduits for the proposed and possible future transmission cable circuits would generally involve: • laying the conduits on plastic spacers to provide the required clearance from the side walls and bottom of the trench; • placing the optic fibre communication and Distributed Temperature Sensing cable conduits into position; • covering the conduits and backfilling the trench with engineered backfill material. Backfilling would occur as soon as practicable following conduit installation to minimise the risk of erosion; and • laying polymeric covers and warning tape (at various levels over the conduits) marked with appropriate warnings in case of accidental excavation.
Restoration of surfaces	Restoration activities within the road reserve will be: • temporary, while trenching and cable pulling is still underway; and • permanent, once cable pulling is complete. The initial restoration of the road surface would include installing road base and a temporary road surface to allow vehicles and other road users to safely travel across the area. Permanent restoration of the road surface would involve: removing the temporary road surface; backfilling with road base up to surface level, where required; reinstating the road surface; and reinstating the remaining areas with spoil or other fill material to pre-construction levels and final finishing as appropriate (including footpath and/or kerb and gutter). The restored road surface would match what was there previously i.e. an asphalt or concrete roadway, or as otherwise agreed with the relevant roads authority. TransGrid would only reinstate the area that was excavated and not entire lanes or roadways. Reinstating an asphalt type surface could occur at an average rate of about 50 metres per day while reinstatement of a concrete road surface will be an average of around 30 metres per day. TransGrid would work with required transport authorities and local councils to ensure the requirements for road reinstatement are met. Areas disturbed by construction of the Project will be reinstated, in consultation with relevant stakeholders. Where sections of grassland (such as at construction laydown areas or work sites in public open space) will be disturbed by the Project, the restored surface will be turfed or seeded to match the adjoining grassed areas as closely as possible . Restored areas will be monitored for a period of about 12 months, with particular focus on any locations where deterioration of restoration work is evident, such as trench consolidation, failure of vegetation regrowth or erosion. Special attention will be paid to the restored banks of watercourses. Where evidence of deterioration is present, works to rectify these areas will be undertaken.
Cable markers	Once restoration activities have been completed, cable markers will be installed along the transmission cable route to provide warning of the presence of the cables and the need to make enquiries with TransGrid before undertaking any excavation. The location of the cable circuit will also be registered on Dial-Before-You-Dig prior to construction commencing. Markers may include: small signs attached to road kerbs; concrete marker posts (between 800-900 millimetres tall) along the transmission cable route in vegetated areas where surface markers will be difficult to see; or flush markers constructed of concrete that are around 50-100 millimetres.

Key activity	Description of key activity
Excavation and establishment of joint bays	Joint bays will be excavated via open trenching. Erosion and stormwater flow controls will be installed around the work site to prevent inundation, while hard barriers will be installed to protect the work site from traffic movements and unauthorised pedestrian access. The exact location of joint bays is determined with the aim of avoiding driveways and other access points wherever possible. However, where this is not possible and vehicle access to adjacent properties is required across open joint bays, they will be temporarily covered with trafficable steel plates. The joint bay sites would also require provision for construction vehicle parking as well as worker amenities and equipment storage space. Temporary security fencing is installed around the joint bay, a security fence may be installed around the work site in addition to hard safety barriers. Link box and sensor box pits will be excavated and equipment installed either in the roadway or kerbside.
Cable pulling and jointing	Once the joint bays have been established, the cables can be pulled through the conduits. The cables are fed from large cable drums holding around up to 1000 metres of cable. The sections of cable on either side of the joint bays are then connected at the joint bays. As jointing of cables is very precise and must be carried out in clean and environmentally controlled working conditions, a tent or demountable building will be installed over the joint bay to provide a controlled work environment and dry work space. Jointing works could include work at night and could take up to three weeks to complete, however jointing is not a high noise generating activity
Cable bridges	Activities for the construction of cable bridges include the following: • establishment of the work site and access; • clearing and removal of vegetation (where required); • piling and earthworks for the bridge piers; • construction of bridge abutments; • installation of the pre-cast beams and structural steel framing; • earthworks for integration of conduits in the road reserve; and • reinstatement of the work site and fencing installation The cable bridges proposed at Muir Road and Bedwin Road will be a single span over the rail corridor, meaning that it does not require the installation of supporting piers in the middle of the rail corridor, only at the ends. This would limit the footprint of disturbance and potential disruption of rail services.
Underboring	The preferred method of underboring will be confirmed by the appointed design and construction contractor and will depend on factors such as local geotechnical conditions, location of utilities, discussions with property owners, proximity of sensitive receivers and general engineering constructability. (Note: Consistent with EMMM, HR14, for all rail underbores, a geotechnical settlement analysis, required by the rail authority, will determine the risk of settlement based on the depth of cover of the underbore and the cross sectional area).). The underbore will typically occur around 4 to 10 metres below the ground surface. Horizontal directional drilling (HDD) involves using a surface-launched drilling rig to drill a pilot bore under the crossing location and then passing the conduits through the bore hole. For HDD, send and receive pits will be required typically to a depth of around 1.5 metres to accommodate the drill cutting head. The work site required at the launch end is at the surface and will be of sufficient size to accommodate plant and equipment including: an area to lay out the boring pipes and the drill rig; vehicle entry and parking; worker amenities; potentially, a water management plant; and sediment containers. The drill rig is used to bore an opening in the substrate through which a pipe is passed through. The hole is opened by a drill cutting head and the use of progressively larger pipes through the bore hole until a sufficient diameter is reached to allow the conduits to be passed through. back reaming to the required size, then drawing the conduits into the annulus. Drilling fluid is used in the process of HDD, which comprises a mixture of water and drill additives (such as bentonite or polymer). This fluid is continuously pumped through the bore and serves multiple purposes, including cooling the drill cutting head, removing cuttings, stabilising the bore hole and lubricating the passage of the conduits. Waste slurry is generated from the drilling fluid which will be collected and appropriately disposed of.

Key activity	Description of key activity
Substation upgrades	To facilitate the installation of new or upgraded substation infrastructure, equipment will be trucked into each of the three existing substation sites, generally on a low loader and offloaded into place. Works at each of the substation sites would generally include: • site establishment; • earthworks and excavations needed for cable entries, cable pits and footings for new equipment; • construction of formwork, steelfixing and concrete placement for footings • installation of new infrastructure (such as switchbays and busbars); • removal of redundant infrastructure; • installation and connection of new cables; • commissioning; and • demobilisation. Additional excavation works at Sydney South substation are associated with the installation of the new section of 132 kV cable. This cable would require a trench of around 1 metre wide by around 1.3 metres deep. The cable connection into the existing series reactor would also require excavation of around 5 cubic metres (of not more than 1 metre deep). The installation of the new switchbay would require an area of around 20 cubic metres to be excavated. These excavation works will be restricted to the existing substation site and would not occur in the vicinity of any sensitive receptors. With respect to the timing of the substation upgrades at the Rookwood Road and Beaconsfield West substations, works at these substation sites would occur in advance of cable pulling along the transmission cable route, to avoid delays when cable pulling reaches the substations.
Ancillary Facilities (temporary laydown areas)	As part of the construction of the Project, temporary construction laydown areas are required to store materials, equipment, excavated spoil and provide space for other ancillary facilities such as site offices. Camdenville Park is the only required laydown area, that is not within an existing substation site. The following may occur at Camdenville Park. • Stockpiling of excavated spoil at would be ongoing for the duration of the civil works (around 15 months). • Transportable roadside facilities for individual work sites, provision for temporary site offices may be located within Camdenville Park for the duration of construction (up to two years). • Camdenville Park would be fenced and would have lighting for security and to facilitate night works. • Driveways may need to be created from gravel or similar material to enable heavy vehicles to enter/exit the site. • Temporary infrastructure, including noise mitigation controls (such as hoardings), driveways and stockpile areas, would involve minimal subsurface ground disturbance (i.e. excavation) and would be removed once construction is complete. For works at the Rookwood Road and Sydney South substation sites, sufficient space exists at each location to store materials and equipment; therefore, no additional laydown areas would be required.

2.6 Indicative program

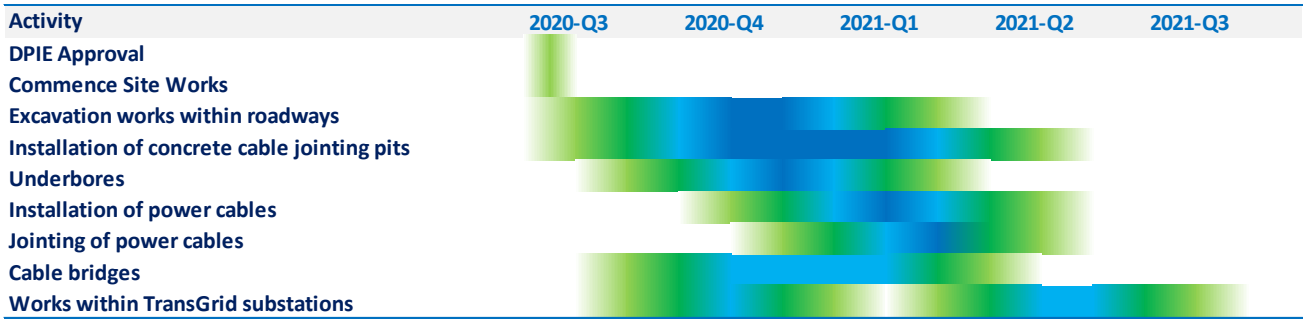
Figure 2-10 presents an indicative program of the key activities[3]. The timing of activities is influenced by many external factors including: the granting of Road Occupancy Licences (refer CTTMP), approvals to undertake Out of Hours works (refer CNVMP), notifications and management of public infrastructure (refer CPIMP).

Linear progressive works will be in the following sequence: (1) trenching and excavation; (2) installation of conduits; and (3) restoration of road surfaces. These works may occur at multiple locations along the transmission cable route at any one time.

Works such as joint bays, underbores, cable bridges, cable pulling, jointing, works within substations will occur at discrete locations.

The Camdenville Park laydown area will be in use for the duration of construction until construction completion.

[3] Indicative program dated August 2020.



Note: Indicative program is subject to change. Some activities may extend to late 2022.

Figure 2-10 Indicative program

Up to date details of the construction program will be made available via TransGrid's Project website[4]. Current construction completion is estimated to be late 2022.

2.7 Working hours

2.7.1 Standard Construction Hours

CoA E1, defines the Project's approved working hours to be:

- 7:00am to 6:00pm Mondays to Fridays, inclusive;
- 8:00am to 12:00pm Saturdays; and
- At no time on Sundays or public holidays.

However, four further CoA apply to the applicable construction hours in relation to (respectively):

- CoA E4 in terms of the nature of the work being undertaken;
- CoA E5 as to whether the works are Highly Noise Intensive Works;
- CoA E6 allows for Variation to Work Hours ; and
- CoA E8 allows for an approved Out of Hours work Protocol.

The effect of each of these Conditions on work hours is outlined below.

Note: The current COVID-19 Orders further extend 'Standard Construction Hours' as outlined in the CNVMP (Section 6.1.1).

[4] https://www.transgrid.com.au/what-we-do/projects/current-projects/powering-sydneys-future

2.7.2 Nature of Works

Table 2-3, which is reproduced from the CoA (Table 4) amends the standard construction hours depending on the nature of the works as set out below.

Table 2-3 Construction hours

	Works	Hours
(a)	Linear infrastructure – Site preparation, trenching and excavation, joint bays, restoration of road surfaces, other	**Standard construction hours**
(b)	Substation upgrade works	
(c)	Linear infrastructure – Works in classified road reserves and signalised intersections, cable pulling and jointing	**Anytime**
(d)	Special crossings – cable bridges and	
(e)	**Construction laydown areas**	

Notes
*1 . Classified roads in the Project area are identified in **Condition E29**."*
2. Table reproduced from Conditions of Approval Table 4.

Thus, for example, activities associated with 'linear infrastructure works', can only be undertaken in the standard construction hours defined above (see Section 3.5.1), unless allowed by the following sub sections.

2.7.3 Highly Noise Intense Works

The CoA E5 further amends the applicable construction hours as it related to highly noise intense works (i.e. exceeding 75dB(a) at sensitive receivers) only being permissible when two conditions, simultaneously, apply, vis:

- Firstly, only during standard construction hours; and
- Secondly, with a minimum respite being applied (i.e. of not less than one hour between continuous works (not exceeding 3 hours duration)).

2.7.4 Variation to Work Hours

CoA 6 indicates that despite the provision of the *nature of work* or *Highly Noise intense Works*, some works can be undertaken outside hours in a number circumstances that include emergency (to avoid injury damage or harm), in accord with the Out of Hours Work Protocol (see Sect. 3.5.5) and some lower noise and/or vibration emitting works. The specific details and requirements are outlined in CoA E6.

2.7.5 Out of Hours Work Protocol (OOHW Protocol)

Having accounted for the construction hours allowable due the nature of the works (CoA E4, see Section 3.5.2) and satisfying the requirements if these works are *Highly Noise Intense works* (CoA E5, see Section 3.5.3), a protocol to allow Out of Hours Work to be undertaken is applicable (under CoA E8). In effect the protocol assesses the risk of activities (relating to the noise and vibration criteria), calls for residual risk impact mitigation measures (such as

respite), coordination with third parties working in the vicinity and respective approval responsibilities.

Details of the OOHW Protocol for the Project are contained in the CNVMP, (see Appendix C2).

2.7.6 Construction laydown area – Camdenville Park

The Camdenville Park laydown area may receive deliveries anytime[5].

3 Structure, Roles and Responsibility

This section provides details on the key roles and responsibilities of TransGrid and its contractors environmental Personnel. The key environmental roles are shown in Figure 3-1.

[5] Works within construction laydown areas are permitted anytime under CoA E4, subject to the application of CoA E5 and E8.

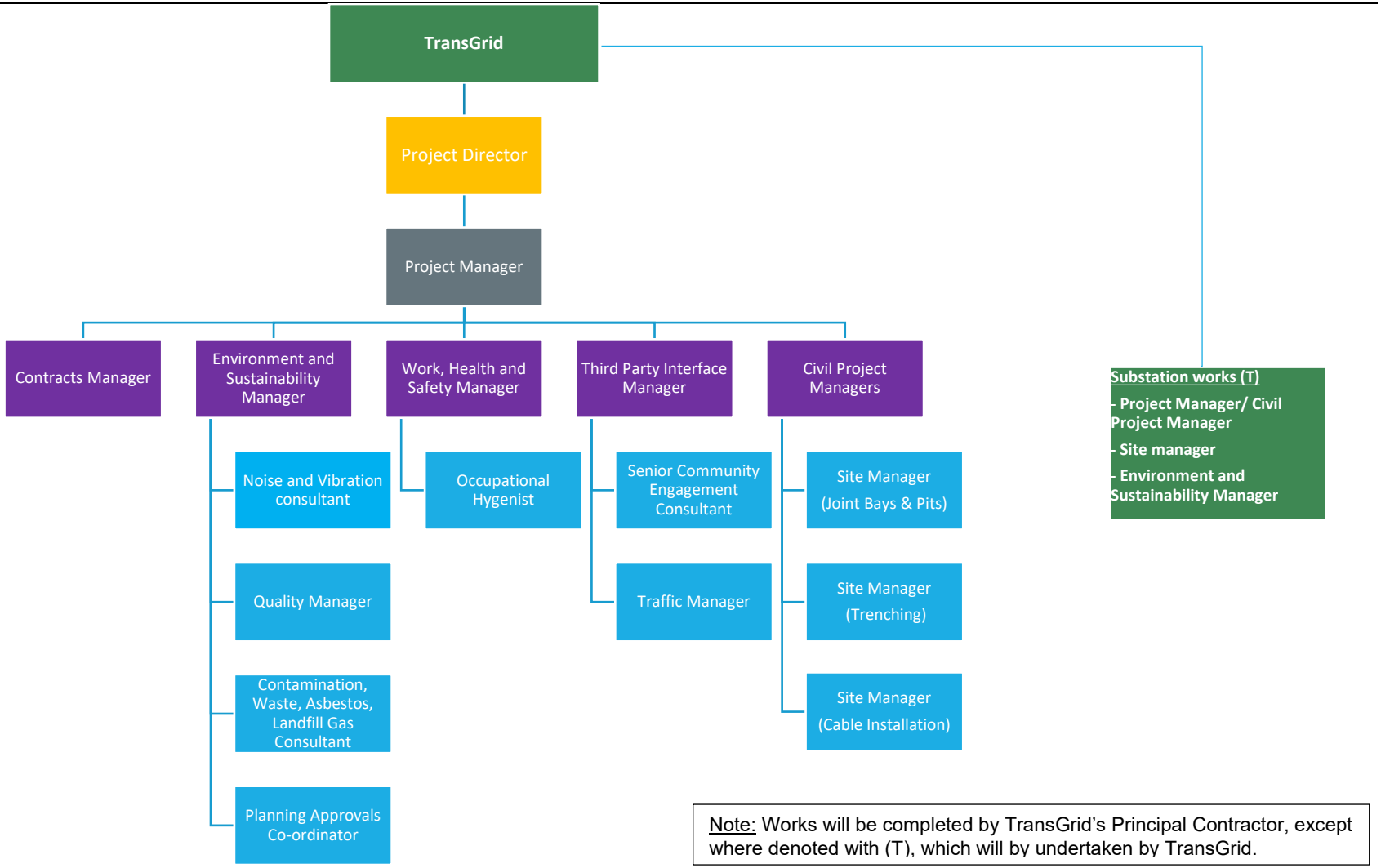


Figure 3-1 PSF Delivery Team Structure

3.1 On-site structure and responsibility

During the construction period, all Personnel have environmental management responsibility. Key role responsibilities are listed below;

Table 3-1 Description of Roles and Responsibilities

Title	Responsibility
Principal (TransGrid)	• Act as the Principal's Representative
Project Director	• Act as Contractor's Representative.
Project Manager	• Managing the delivery of the Project. • Ensure Personnel are adequately trained in the emergency response strategies • Make available resources for implementation of the sub plans • Ensure works are undertaken in accordance with relevant legislation, standards & specifications • Require the undertaking of non-statutory audits as required.
Interface Manager	• Coordination with Public Authorities & Service Providers throughout the Project.
Civil Project Manager	• Comply with the requirements of this CEMP and subsequent plans • Ensure all Personnel are aware that works must be carried out in accordance with this CEMP • Prepare all reports and records as detailed in this CEMP • Obtain all relevant permits prior to commencement of works • Comply with all permit requirements • Undertake consultation in accordance with this CEMP, including suitable negotiations with land owners where necessary • Issue non-conformances to Principal Contractor • Review and provide resources to implement the controls identified in the ECMs • Manage the delivery of the construction process, in relation to noise and vibration management in conjunction with the Environment & Sustainability Manager • Classify all waste generated on site during construction in accordance with NSW EPA Waste Classification Guidelines prior to transporting offsite • When transporting waste to a premise other than a licensed facility, ensure the premises can lawfully accept this waste
Site Manager	• Visual surveillance of dust • Daily visual observations • Modify or cease work activities in response to air quality issues • Keep site free of litter and maintain good housekeeping • Do not cause, permit or allow waste generated outside of the Project site to be received for storage, treatment processing or disposal on the Project site except as expressly permitted under licence of the Protection of the Environment Operations Act 1997 • Obtain and provide waste dockets/receipts for waste removed to the Environment and Sustainability Manager • Ensure waste is collected and stored as stipulated in the applicable Environmental Work Method Statement (EWMS) • Reuse excavated spoil and other waste material onsite where possible • Ensure portable toilets are emptied regularly • When transporting waste to a premises other than a licensed facility, ensure the premises can lawfully accept this waste • Install and maintain environmental control in accordance with ESCPs, ECMs and this Plan • Implement corrective actions raised during environmental inspections in agreed timeframes • Notify the Environmental Coordinator of any observations of Visual difference in water quality (turbidity) from upstream to down of works or site discharge or other pollution event evident in waterway including discolouration, fish kill or strong odour • Ensure access and other requirements for working in the proximity of public infrastructure is complied with. • Erect exclusion fencing to protect trees from indirect impacts where specified in table 5.1 of the CHMP.

	• Mitigate and manage impacts under the guidance of the Project Arborist and implement a tree replanting strategy • Select suitable plant and equipment that will not cause damage to the brick paving. • Conduct vibration monitoring in accordance with CNVMP • Implementation of all noise and vibration management initiatives including inductions, toolbox talks and response to noise and vibration complaints • Minimise vehicle, plant and equipment use in vibration sensitive areas as per the CNVMP • Observe minimum working distances in vibration sensitive areas as per the CNVMP • Implementation of the CVBMP plan onsite • Ensure Condition of Approval E21, 'avoidance of tree impacts', is complied with onsite • Ensure all ECMs are complied with onsite • Notification of unexpected tree removals or impacts • Implementation of visual delineation of works outside of the road reserve
Environment and Sustainability Manager	• Be available during construction and present on-site during any critical construction activities • Provide advice and environmental support as detailed by this CEMP, including : o Approve any changes to the CEMP. o Manage review and continual improvement of this plan o Identify additional ECMs relevant to work activities involved with construction activities o Oversee implementation of ECMs o Prepare and update Erosion and Sediment Control Plans Responsible for ensuring any update to this plan is communicated adequately and approved by the Planning Secretary, if required • Consider and advise on matters specified in the requirements in this plan and compliance with such • Carry out environmental audits during construction work to verify compliance with this CEMP, and report findings to the Project Manager • Responsible for environmental inspections and reporting, including o Monthly Environmental Monitoring Report o Quarterly Environment Report (Compliance Tracking Program) o Annual Environment Report o Weather forecasts o Weather observations o Weekly Inspections o Monthly Review of Dust Control Measures o Visual Dust Deposition Monitoring o Confirmation that CAMP is being implemented through regular inspections • Effective Waste Management , including: o Promote waste hierarchy across the Project o Keep and maintain waste register o Deliver toolbox talks and education training on best practise waste management to site staff • Facilitate an induction and training program for all key Personnel involved with construction activities; including : o Facilitate an induction and training program for all key Personnel o Deliver toolbox talks and education training on best practise waste management to site staff • Oversee the implementation of all noise and vibration management initiatives, including: o inductions, toolbox talks o coordinating contractor response to noise and vibration complaints o manage notifications and consultation for noise and vibration and liaise with the SCEC as required • Oversee the work completed by the Project Arborist and Project Ecologist Review for Tree Protection Plans and review compliance with this plan • Responsible for managing monitoring, auditing and ongoing compliance with the CoA and environmental document requirements, including: o Overseeing implementation of this Sub-plan o Monitoring and reporting on compliance o Carry out environmental audits during construction work to verify compliance with this CEMP, and report findings to the Project Manager o Respond to environmental incidents and non-conformances

	○ Recommend and direct undertaking non-statutory audits.
Work Health and Safety Manager (WHS Manager)	• Monitoring health and safety risks and hazards in the workplace • Advising employees on how to minimise or ultimately avoid risks and hazards in the workplace • First aid / nursing duties • Ensuring the business is legally compliant with all health and safety legislation • Working with and training all employees to manage, monitor and improve the health and safety standards in the workplace • Being responsible for all safety inspections in the workplace (for example, monitoring noise levels in a warehouse) • Assisting with the creation and management of health and safety monitoring systems and policies in the workplace • Managing emergency procedures (such as fire alarm drills) and organising emergency teams such as fire marshals and first aiders • Offering general health and safety advice to all employees • Issuing audit schedules • Compliance tracking • Deliver environmental training and inductions. • Maintain the Induction Register. • Environmental Auditing requirements as set out in this plan
Senior Community Engagement Consultant	• Leadership and management of the Principal Contractor's communications, stakeholder and community relations team • Build and maintain effective working relationship with TransGrid's representative and stakeholder and community liaison team • Assist in implementing TransGrid's Community Consultation Strategy as it applies to the Project • Responsible for a stakeholder and community relations induction and training program for Personnel involved in the performance of Taihan's activities • Ensures the applicable community liaison plan and key activities are integrated into the Project schedule • Report on Taihan's activities, strategies and issues • Develops and oversees the implementation of the Community Liaison Implementation Plan
Traffic Manager	• Manage and implement the Construction, Traffic & Transport Management Plan (CTTMP) • Develop and implement site-specific Traffic Management Plans, (TMPs), Traffic Control Plans (TCPs), where required • Identify, assess, apply for Road Occupancy Licenses (ROLs), road opening permits and notifications under applicable legislation, where required • Manage and coordinate Personnel, vehicles, plant, equipment, temporary road user relocations and traffic management measures to minimise construction traffic impacts on the local and regional road network, public transport, disabled, pedestrian and cyclists, parking, schools, businesses and other sensitive receivers • Ensure strict compliance with safety and incident response requirements
Contracts Manager	• Where possible, implement agreements with suppliers to return excess construction materials or packaging for future reuse • Establish list of preferred suppliers of waste management services
Asbestos Occupational Hygienist	• Asbestos fibre air monitoring • Landfill gas monitoring • Display of daily reports from the previous day on site safety notice boards • Person who conducts asbestos clearances and air monitoring. • Must be a Competent Person or Licensed Asbestos Assessor as defined in SafeWork NSW Codes of Practice
Noise and Vibration specialist	• Conduct noise and vibration monitoring in accordance with CNVMP and CPIMP • Ensure minimum working distances in vibration sensitive areas are adhered to
Contaminated Land Consultant	• Assess dewatering discharge water quality objectives and treatment requirements • Assess design requirements to mitigate impacts on groundwater contamination

	• Field pH testing of potential ASS for re-use at request of contractor • Person who conducts assessments of contaminated land, including asbestos as required by the contractor
Plant Operators	• Daily Plant Inspections
All Employees	• Carry out work in accordance with the requirements of this CEMP • Exercise due care, skill and foresight when carrying out task; • Immediately report all environmental incidents to TransGrid's representative • Comply with all permits, approvals and subsequent plans associated with these works • Be able to locate a copy of this CEMP on site if requested • Implement corrective actions which have been approved by the appointed site supervisor • Stop works and notify Site Supervisor if dust control measures are ineffective • Notify Site Supervisor of any observations of Visual difference in water quality (turbidity) from upstream to down of works or site discharge or other pollution event evident in waterway including discolouration, fish kill or strong odour. • Carry out work in accordance with the requirements of this CEMP in conjunction with the latest drawings issued for construction • Exercise due care, skill and foresight when carrying out tasks • Immediately report all environmental incidents to TransGrid's representative • Comply with all permits, approvals and subsequent plans associated with these works • Be able to locate a copy of this EMP on site if requested • Implement corrective actions which have been approved by the appointed site supervisor • Follow the unexpected heritage finds procedure on discovery of an unexpected Aboriginal site and/or human remains • Undergo inductions in accordance with the CEMP and any other training commitments agreed as part of the Project approval • Strictly adhere to limits on plant, equipment and machinery use identified in the CNVMP
Hydrogeologist	• Assess nature and extent of dewatering required • Assess design requirements to mitigate impacts on groundwater flow • Prepare Discharge management plan (if required)
Driller	• Appropriate construction of monitoring wells and underbores in accordance with Minimum Requirements for Water Bores in Australia (NUDLC, 2011).
Suitably qualified and experienced engineer	• Design groundwater flow mitigation systems (e.g. drainage blankets), if required.
Project Arborist AQF Level 3	• Develop and oversee implementation of tree protection plans • Pruning
Project Arborist AQF Level 5	• In addition to AQF Level 3 responsibilities: • Review design changes • Pre construction monitoring • Post construction monitoring
Project Ecologist	• Pre clearance surveys • Removal of nest trees • Capture and relocation of fauna • Habitat Tree assessment – if required • Nest box monitoring – if required • Clearing supervision

Roles and responsibilities may be filled by Personnel with alternative suitable experience or authority or delegated within TransGrid and its Contractors as approved by the Principal.

4 Competence, training and awareness

The Project Director has overall responsibility for ensuring the requirements of this CEMP are fully implemented.

The WHS Manager will coordinate environmental training in conjunction with other training and development activities.

The Environment and Sustainability Manager will establish an annual environmental training and awareness program to support implementation of the CEMP and Sub-plans and maintain a high level of awareness among all workers, including subcontractors. The program, developed in coordination with other training and development activities (e.g. safety), will detail the minimum environmental training requirements, experience and qualification requirements, scheduled training dates and delivery procedures. The environmental training and awareness program will be reviewed twice per year (approximately every six months) for effectiveness. In addition, regular reporting against the following metrics will be undertaken to assess compliance with program objectives:

- training programs delivered (number and topic);
- awareness initiatives delivered; and
- number of attending workers.

In addition to role-specific training, the program will consist of an environmental induction, toolbox talks, daily pre-start meetings and awareness initiatives, each of which are detailed in the sections that follow.

An environmental training register will also be established and maintained, including delivery dates, attendee names and details of the trainer.

4.1 Training and induction

As a mandatory practice all Personnel shall undergo an induction prior to starting work on the Project. The WHS Manager, and in his absence either the Environmental and Sustainability Manager, Civil Project Managers or the Project Manager, shall conduct this induction in accordance with this induction plan.

4.1.1 Induction plan

The provisions of this CEMP will form the basis for the environmental portion of the induction process and particular emphasis will be given to tree protection, biodiversity management, public infrastructure, heritage, traffic and transport, pollution control (air quality, noise and vibration, soil and erosion and sediment control, contamination), waste management and community consultation.

The Environmental and Sustainability Manager (or delegate) will conduct the environmental component of the site induction. The environmental component will include an overview of:

- relevant details of the CEMP including purpose and objectives
- key environmental issues, i.e. protection of sensitive areas, dust and noise management
- conditions of approval, licences, permits and other approvals
- specific environmental management requirements and responsibilities
- mitigation measures for the control of environmental issues
- incident response and reporting requirements
- information relating to the location of environmental constraints.

A record of all inductions will be maintained and kept as a Project record. The Environment and Sustainability Manager may authorise amendments to the induction where required to address Project modifications, legislative changes or amendments to this CEMP or related documentation.

An Induction Register is maintained within the Project Safety Records[6].

4.2 Toolbox Talks, Training and Awareness

Toolbox talks provide a mechanism for communicating environmental risks and controls to workers. The toolbox talks will discuss safety, the daily work activities, promote awareness of environmental issues and build partnerships with environmental Personnel. Relevant issues addressed in toolbox talks include:

- tree protections;
- threatened species, no-go areas, and site-specific flora and fauna sensitivities;
- Aboriginal and non-Aboriginal heritage, including what to with unexpected finds;
- hours of work, out of hours work permits and restrictions on high noise intensive works;
- erosion and sedimentation controls;
- emergency and spill response and incident reporting;
- dust control and stop work procedure;
- wet weather shutdown procedure and responsibilities;
- community awareness (e.g. highly sensitive areas); and
- recent incidents, near misses, and potential issues relating to upcoming works.

Regular toolbox talks will be undertaken onsite daily, at the beginning of shifts.

Records of toolbox attendance will be maintained by the Site Manager and the topics covered.

4.3 Daily Pre-start meetings

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues, hazards and other relevant information.

The Site Manager will conduct a daily pre-start meeting with the site workforce before the commencement of work each day, or shift.

The environmental component of pre-starts will be determined by the Site Manager and environmental Personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. All attendees will be required to sign on to the pre-start and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered, and a register of attendees will be recorded and maintained within the Project records.

[6] A record of inductions will be kept by the contractor within the companies project database.

5 Communication

5.1 Internal Communication

Clear communication throughout all levels and functions (TransGrid and its Contractors) is key to ensuring compliance with environmental obligations and continual improvement. Internal environmental communications will be led by the Environment and Sustainability Manager.

The environment team members will participate regularly in toolbox talks to communicate to the wider Project Personnel on environmental performance including sensitive environmental matters for future work areas, and to receive feedback from on-site Personnel.

Information relating to Toolbox talks and daily pre-start meetings is provided in Sections 4.2 and 4.3.

Key aspects to be communicated include:

- progress against objectives and targets;
- environmental incidents and non-compliances;
- lessons learned; and
- significant risks and opportunities.

5.2 Communication with relevant Agencies and Authorities

The Interface Manager will be the main point of contact regarding specific environmental issues, with the support of the Environment and Sustainability Manager. The Environment and Sustainability Manager has the responsibility to report on the ongoing environmental performance of the Project to TransGrid. The Environment and Sustainability Manager will prepare monthly reports, addressing all key environmental matters and performance.

The Project Manager and the Environment and Sustainability Manager are 24-hour contacts. They have the authority to halt the progress of the works if necessary. They are also the key emergency response Personnel during an environmental site emergency.

5.3 Stakeholder and Community Communication

5.3.1 Community Communication Strategy

A Community Communications Strategy (CCS) has been prepared in accordance with the Conditions of Approval for the Potts Hill to Alexandria Transmission Cable Project.[7]

The CCS outlines the approach to consulting with key stakeholders and the community about construction activities and potential impacts during the construction and operation of the Project. It contains a list of stakeholders relevant to the Project which has been informed by previous stakeholder and community consultation during Project planning and the EIS phases.

The strategy that will be implemented to support the Project's detailed design, construction and operation, following planning approval in May 2020. It will be reviewed quarterly and updated as new information is made available and evaluated to ensure it is achieving the intended objectives.

[7] Refer Conditions of Approval Part B Community Information and Reporting, conditions B1 to B3

5.3.2 Complaints Management System

A Complaints Management System has been prepared and Implemented in accordance with Conditions of Approval Part B Community Information and Reporting, conditions B4 to B8.

The procedures for resolving stakeholder and community enquiries and complaints are aligned with TransGrid's overarching Complaints and Enquiries Management Policy (2018). How complaints and enquiries are defined is outlined in the Project's Community Communications Strategy, though summarised in the table below.

Table 5-1 Complaint and Enquiry definitions

Term	Definition
Complaint	A complaint is defined as an expression of dissatisfaction made toward TransGrid and their contractors, related to its actions, services, or complaints handling process itself, where a response or resolution is explicitly or implicitly.
Enquiry	An enquiry is defined as a community/stakeholder interaction with TransGrid and their contractors, requesting information through the nominated enquiry channels.

The aforementioned Community Communications Strategy (Section 6) details the Project's procedures for resolving stakeholder and community enquiries and complaints.

TransGrid is responsible for its Complaint and Enquiry Management System (CEMS) which includes, for example, the 1800 number and the complaints management system. TransGrid's contactors have direct access to the CEMS and are responsible for being the first point of contact and resolving complaints and enquiries by applying the prescribed procedures (as detailed in the CCS, Section 6.3 & 6.4).

When responding to enquiries for the Project, TransGrid and its contractors must:

- record details of enquiries, along with responses provided to close out the enquiry;
- provide a response to the enquirer acknowledging receipt of the enquiry within 24 hours from the time of the enquiry; and
- provide a full response to all issues raised in the enquiry within five business days from receipt of the enquiry (unless otherwise agreed by the enquirer). Where the enquiry is not able to be responded to within five business days, an update must be provided to the enquiry on the progress of the enquiry every five business days until the enquiry is resolved.

Protocols for communicating the status of a complaint to a complainant include:

- providing an oral response to the complainant, where the complaint is received by phone, regarding what action is proposed as soon as possible and within a maximum of two hours from the time of the complaint (unless the complainant requests otherwise) within standard construction hours; or when received during periods of out-of-hours work, the hours of work for the activity occasioning the complaint. Where complaints are received by email and letter, the complaint must be responded to, acknowledging the complaint and advising what action is

proposed, within a maximum of 24 hours for emails and one week for letters from time of receipt; and
- providing a detailed written or oral response to the complainant within five business days outlining the details of the issue and the remedial action that has been taken.

In most cases, complaints will be received by the contractor in the first instance as part of their role as first responders for all construction related activities.

6 Hazards and Risk

6.1 Dangerous Goods

A standard operating procedures, *('Hazardous Chemical Handling, Storage and Transport, Rev 8, 2020)* and Environmental Guidance Note: *Transportation of Harmful Material and Spills Response* have been developed by TransGrid (refer Appendix D) and will be applied to the storage, handing and transportation of dangerous goods across the Project. This Procedure is in accordance with CoA E35.

Appropriate fuel and chemical handling procedures shall be adopted which aims to avoid spills to land or water. In order to prevent a potential spill, the following summary steps will be taken:

- All chemicals and fuels will be stored and kept as per MSDS;
- On-site storage of fuel shall be as minimal as practicable; and
- All fuels, chemicals and hazardous liquids would be stored away from drainage lines, within an impervious bunded area in accordance with Australian Standards (AS 1940 and AS 1596) the *Dangerous Goods Code*, and the EPA's *Storing and Handing of Liquids: Environmental Protection-Participants Manual*.

In the event of a spill, the following summary steps to be taken includes:

- Raise the alarm;
- Cease work and evacuate work area IMMEDIATELY;
- If the spill can be contained or the source of the discharge stopped use the dedicated spill kit;
- Notify Project Manager IMMEDIATELY;
- Notify Relevant Authorities, Emergency Services, SafeWork and TransGrid when applicable;
- Refer to the MSDS for the most appropriate response;
- Isolate and barricade area, 20m or further from material;
- If persons have been splashed by chemicals, immediately wash down with clean water, do not remove clothes;
- If injured, treat injuries by qualified first aiders; and
- Review SDS, isolate and contain spill.

6.2 Electric and Magnetic Fields (EMF)

The cable system design has been developed to comply with the applicable EMF limits in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ICNIRP, 2010). TransGrid has adopted an approach of *'prudent*

avoidance' in accordance with good industry practice with respect to cable system design and operational objectives, which are :

- maximise cable separation to property boundaries, in particular normally occupied buildings (such as businesses and residences) by locating the cable in the centre of the roadway where practical;
- optimise the trench cross-section (i.e. the conduit arrangement with the trench) to maximise the cancellation of magnetic fields by adopting a trefoil cable arrangement where practical;
- maximise the magnetic field cancellation effect, such as by reducing the spacing between individual cable phases as far as technically practical through the use of thermally engineered; and
- backfill along the route and installing field cancellation measures at non-typical trench configuration locations, such as joint bays, where practical.

In addition to the above *prudent avoidance* measures that will be implemented during detailed design, a number of general mitigation measures have been identified as outlined below.

Table 6-1 Electric and Magnetic Fields Environmental Mitigation and Management Measures

ID	Impact/issue	Environmental management and mitigation measures	Timing
EMF1	Generation of magnetic fields	A revised EMF calculation will be undertaken once the final cable details are known to ensure consistency with the initial assessment undertaken and to confirm that magnetic field levels for the project are still below the ICNIRP reference levels for human exposure.	Detailed design
EMF2	Generation of magnetic fields	The project will operate within the limits set in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ICNIRP, 2010).	Operation
EMF 3	Verification of magnetic fields	Within six months of operations commencing, magnetic field levels will be measured at selected locations close to receptors along the transmission cable route to verify that levels are below the ICNIRP reference levels.	Operation
SE6	EMF impacts	Information about potential EMF levels and the relevant health guidelines will continue to be provided to stakeholders in proximity to the cable route as part of community consultation undertaken for the project.	Construction

6.3 Environmental hazards and risks

Details of the environmental hazards and risks associated with different construction activities are included in each of the Sub-plans. Where relevant, TransGrid environmental guidance notes have also been included.

A risk assessment has been completed and will be continually updated and shared with Project Personnel, to identify and communicate new risks or hazards and risks or hazards that have changed profiles.

6.4 Ancillary Facilities and worksites

All work sites and construction laydown areas will include delineation or barrier/perimeter fencing and signage notifying unauthorised persons not to enter and of the potential hazards at the site.

Fencing and hoardings (where required) will take into consideration the landscape character of the local environment and proximity of sensitive receptors in selecting suitable materials and designs.

Fencing around laydown areas within heritage conservation areas and public open space will prevent visibility of the internal works area where practical.

Night lighting at construction laydown areas will be minimised adjacent to residential properties. Where lighting is required, and a construction laydown area is positioned close to residences, lighting will be directed away from residential properties to avoid light spill into adjacent properties.

Construction laydown areas will be reinstated to their pre-existing condition as soon as practicable (i.e. once the laydown area is no longer required), in consultation with the relevant landowner.

6.5 Hot works and bushfire

Hot works (such as welding or other activities generating heat or sparks) will be restricted on days of declared catastrophic fire danger or Total Fire Ban at the Sydney South substation.

Further information on how hot works will be managed is included in the CEMP Appendix D.

6.6 Electrical safety

During construction, appropriate warning in the form of surface markers and subsurface tape will be installed along the transmission cable route to warn third parties conducting excavations in the area of the presence of the cable circuit. The cable circuit will also be registered on DBYD prior to construction commencing.

6.7 Underboring

The risk of subsidence and/or frac-out has been minimised during underboring by:

- designing the depth of the underbore around local geotechnical conditions;
- appointing a suitably qualified and experienced drilling contractor; and
- ensuring contingency plans are in place to deal with drilling fluid in the event of a frac-out.

Modelling of underbores has been undertaken to determine the risk of frac-out and has included a geotechnical evaluation and construction risk assessment. Proposed construction methods would be evaluated to determine the lowest risk method.

For all rail underbores, a geotechnical settlement analysis is being undertaken for the rail authority. This analysis determines the risk of settlement based on the depth of cover of the underbore and the cross sectional area.

7 Environmental Incidents, Non-Compliances and Emergency Response

7.1 General

Environmental incident and associated emergency response is to follow the procedures contained herein. Responsibilities and lines of communications are defined for an effective response.

Potential hazards that may initiate an incident and emergency response strategy include, but are not necessarily limited to:

- road user or personal injury
- fire
- sedimentation entering into stormwater drains
- explosion
- hazardous substance release
- flooding
- damage to flora/ fauna
- harm to any endangered species
- electric shock
- spill

The emergencies that evolve if one of these hazards occurs may require immediate action by the Personnel on site at the time or by external emergency services to prevent or limit the loss of life, damage to property or the environment. Personnel may be required to evacuate the site.

7.2 Responsibilities

The Project Manager will ensure Personnel are adequately trained in the emergency response strategies.

The Site Manager on site at the time of an emergency will assume the responsibility for managing the incident at the site.

The Site Manager or relevant person in control of the site, will be responsible for:

- Confirming the nature and exact location of the emergency/ incident.
- Accounting for all Personnel on site, including subcontractors and visitors.
- Assessing and determining an emergency action.
- Contacting emergency services (if required).
- Notifying the Project Manager, Environmental and Sustainability Manager, notifying the Civil Project Managers.
- Implementing emergency action/handover control to Emergency Services.

The Civil Project Manager on duty at the time of the incident will be responsible for:

- Contacting required emergency TransGrid/contractor nominated contacts.
- Assisting with the debriefing and reporting of the emergency.

All remaining Personnel on site in the case of an emergency will assume responsibilities as follows:

- Notify details of the emergency to the Site Manager or relevant person in control of the site.
- Assist and follow the Site Manager or relevant person in control of the site directions.
- When not required to assist the Site Manager or relevant person in control of the site, assemble in the designated Muster area.
- If trained, assume the responsibilities of a First Aider.
- Attend debriefing meeting.

Subcontractors and visitors on site must alert the Site Manager or relevant person in control of the site to any emergency situation and must immediately assemble in the designated muster areas.

7.3 Incident and emergency response procedure

On discovery of any environmental incident, the Site Manager or relevant person in control of the site shall:

- make the scene safe and restrict access;
- prevent any further pollution or damage;
- act in accordance with relevant Incident Response Procedure (Figure 7-1), and
- report the incident to TransGrid and Its Contractors Project Manager and other nominated contacts.

In the event of an environmental incident, the response procedure documented in Figure 7-1 will be followed.

Once an incident has been reported to TransGrid, DPIE must be informed immediately of the incident by TransGrid in accordance with CoA A17 and A18. Contact is to be made immediately via the Major Projects portal.

Incidents are logged in the contractors tracking tool and uploaded to TransGrid's incident management database (CAMMs).

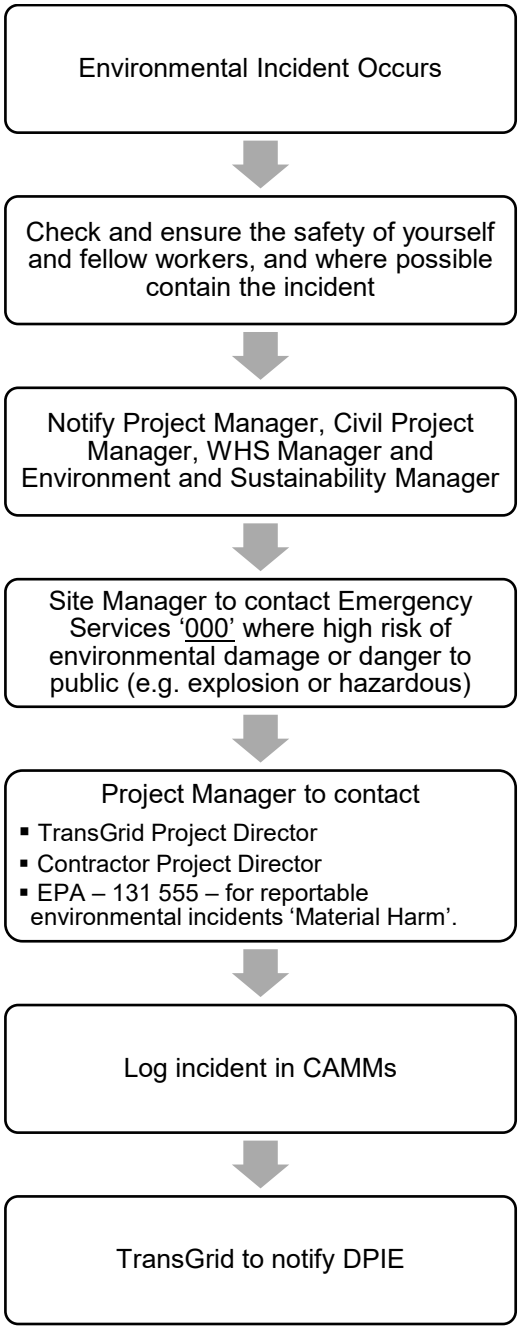


Figure 7-1 Emergency Response Flowchart

The written incident notification must address the following criteria in accordance with Appendix A of the Conditions of Approval.

Written incident notification

1. A written incident notification addressing the requirements set out below must be submitted to the Department (via the major projects portal at https://www.planningportal.nsw.gov.au/majorprojects) within seven days after the Proponent becomes aware of an incident. Notification is required to be given under this condition even if the Proponent fails to give the notification required under Condition A18 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   (a) identify the SSI and application number;
   (b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   (c) identify how the incident was detected;
   (d) identify when the Proponent became aware of the incident;
   (e) identify any actual or potential non-compliance with conditions of approval;
   (f) describe what immediate steps were taken in relation to the incident;
   (g) identify further action that will be taken in relation to the incident; and
   (h) identify a project contact for further communication regarding the incident.
3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Proponent must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   (a) a summary of the incident;
   (b) outcomes of an incident investigation, including identification of the cause of the incident;
   (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   (d) details of any communication with other stakeholders regarding the incident.

7.4 Non-compliance reporting procedure

Overview of TransGrid incident and non-compliance management

TransGrid has established an internal *Environmental Incident Management* procedure as part of its certified Environmental Management System[8], which details the requirements for notifying and investigating environmental incidents. All environmental incidents, no matter

[8] Refer Section 7.3. TransGrid *Environmental Incident Management* (2017).

how minor must be managed using the Environmental Management System and details reported.

TransGrid's central incident reporting system CAMMs[9] is used to record, investigate and track all incidents and non-compliances. all incidents and non-compliances will be entered into CAMMs.

Project compliance reporting requirements

The Project's requirements for compliance reporting is set out in CoA, A14, namely:

> *Compliance reports of the SSI must be carried out in accordance with the Department's Compliance Reporting Requirements for a minimum of one (1) year following commencement of operation, or other period as directed by the Planning Secretary. The Department must be notified of the commencement dates of construction and operation of the SSI at least one(1) month prior.*

CoA 14 will apply once the Project has entered its operational phase and, in the manner, required by DPIE"s recently introduced (May, 2020), *Post-approval Requirements for State-Significant Projects.*

The CEMP has established a project specific Compliance Tracking Program (CTP) (refer Section 8.1.4). The CTP establishes compliance monitoring and reporting requirements and includes for non-compliances, the following.

- Provisions for periodic review of the compliance status of the SSI against the requirements of this approval.
- Provisions for periodic reporting of compliance status to the Secretary, including but not limited to an Operational Compliance Report, required prior to the commencement of operations.
- Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.
- Provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

Thus, where a non-compliance is identified, through environmental inspection, incident management or audit, it will be entered into CAMMS, investigated and a response program to address the non-compliance will be developed and implemented. Progress in implementing this response program will be monitored (through CAMMs) until the non-compliance is satisfactorily resolved. Further details on corrective and preventative actions with respect to non-compliances is detailed in Section 8.7.

[9] TransGrid *Environmental Incident Management* (2017) procedure was updated by TransGrid's *HSE Hazard and Incident Management* (2020) procedure, which is part of TransGrid's Environmental Management System.

8 Monitoring and Review of the CEMP

The measurement of environmental performance shall be achieved by periodic reviews, scheduled and unscheduled audits, and by processing non-conformances & corrective actions raised and from other less formal surveillance measures.

TransGrid and its contractors have integrated management systems that are accredited to the requirements of following standards, AS/NZS 9001 for Quality, AS/NZS 4801 for Safety and AS/NZS 14001 for Environment standards.

An audit checklist form is used to monitor all the issues related to the site safety and environment matters. Results from the site audits are reviewed by management to ensure the ongoing environment management system suitability.

An internal communication system will be maintained where Project Manager will report the progress on the Project, typically at least once a week. Fortnightly meetings will usually be conducted as agreed by the Project Manager.

8.1 Monitoring, inspections, auditing and reporting

This section describes the site inspection, compliance monitoring and auditing procedures including the process to be followed in the event of a non-compliance.

8.1.1 Environmental inspections and monitoring

Environmental inspections will be undertaken for the duration of construction across the worksites. The type and frequency of environmental inspections will be determined by ongoing environmental risk assessments and reflect the minimum requirements established in Table 8-1, which has been extracted from the CEMP sub-plans.

Environmental inspections undertaken will be documented on an inspection form. Copies of all environmental inspection reports (completed form) will be kept with the Project records and closed out within the agreed timeframes.

Any findings by TransGrid from site inspections will be actioned within the agreed timeframes.

Environmental monitoring will be undertaken to validate the predicted impacts of the works, to measure the effectiveness of environmental controls and to assess implementation of this CEMP. The monitoring requirements for nominated aspects are included in the relevant environmental management sub-plans and summarised in Table 8-1.

Environmental monitoring results are analysed by the Environment and Sustainability Manager (or a nominated delegate) to identify actual and potential non-compliances and events that may result in nuisance, environmental harm, unacceptable loss of amenity or community complaints. Corrective actions are taken immediately, where required.

Detailed sampling and analytical methods for the Project are defined in relevant procedures, and work instructions stored on TransGrid and its contractors file management system. These have been prepared in line with relevant statutory requirements, and industry standards.

All sampling strategies and protocols undertaken as part of the monitoring program will be conducted in line with industry *best practice*. Sampling will be performed as directed by the Environment and Sustainability Manager (or nominated delegate) or specialist consultants in

accordance with the requirements set out in this CEMP and supporting sub-plans, where required.

All technical sample analysis for compliance reporting will be performed in a NATA registered laboratory, site measurements may also be undertaken.

Where monitoring and measuring devices are used to provide evidence of conformity of product to determined requirements, these devices will be calibrated in accordance with the manufacturer's recommendations. Records of calibration will be maintained, and the calibration status of the device will be clearly communicated. Depending on the equipment to be calibrated such as analysers and/or laboratory equipment, the calibration process will be scheduled and performed using a variety of methods as per various work instructions or supplier manuals.

If the results of a calibration are not satisfactory (if the required accuracy is not reached) or if an item of testing equipment is out of service, the equipment shall be removed from use and marked out of calibration / for repairs.

Table 8-1 Inspection and Monitoring requirements

Monitoring Details	Scope	Record	Timing	Responsibility *	Frequency	KPI, where applicable
Informal – active work sites	Site cleanliness Erosion and sediment controls Tree protection Dust mitigation	Daily diary	Construction	Site Manager	Daily	-
Formal – active work sites	Significant environmental aspects and impacts	Environmental Checklist	Construction	Environmental and Sustainability Manager	Daily	-
Heritage areas	Heritage exclusion zones and protections	Environmental Checklist	Construction	Environmental and Sustainability Manager	Weekly	-
Prior to rain event	Erosion and sediment controls	Environmental Checklist	Construction	Site Manager	Weekly (or prior to rainfall events)	In accordance with Managing Urban Stormwater ('Blue Book)
Post rain event	Erosion and sediment controls	Environmental Checklist	Construction	Site Manager	Event (or post rainfall events)	In accordance with Managing Urban Stormwater ('Blue Book)
Tree protection	Tree protection works	Tree Protection Works Inspection	Construction	Arborist	Event	Installed prior to construction for works in the vicinity of the relevant tree
Meteorological data including daily rainfall, temperature, relative humidity, wind (direction and speed) and barometric pressure	All	Weather forecasts from BOM Daily rainfall records	Construction	Environment and Sustainability Manager	Daily	-

Visual observations during daily site inspections, including activities observed outside of the Project that may impact on dust levels near sensitive receivers	All	Strong Wind Work Modification Record, where wind is in excess of 40km/h Complaints records	Construction	Site Manager Environment and Sustainability Manager	Daily	Number of pollution complaints per month related to dust or mud on public roads
Operator-attended Noise	The nearest noise sensitive receivers	Verify CNIS noise prediction. Verify compliance.	Construction	Environment and Sustainability Manager	Upon commencement of each construction activity. Monthly	CNVIS predictions
Operator-attended Vibration	All heritage listed area/structure	Establish safe working distances for vibration intensive equipment. Verify compliance.	Construction	Environment and Sustainability Manager	Upon commencement of vibration generating activity. Monthly.	CNVIS predictions
Real-time Continuous Noise and Vibration	The nearest noise sensitive receivers	Ensure ongoing compliance and provide real-time data to Taihan.	Construction	Environment and Sustainability Manager	Upon commencement of highly intrusive construction works.	CNVIS predictions
"Roving" Real-time Continuous Noise and Vibration	Roving monitor to be rotated between affected receivers as predicted in the CNVIS. Where there are multiple receivers in different localities with high noise or vibration impacts predicted, multiple monitors may be required. Specific receivers for ongoing complaints management.	Ensure ongoing compliance and provide real-time data to Taihan.	Construction	Environment and Sustainability Manager	Predicted high noise or vibration impacts. In response to complaints or concern for ongoing management.	CNVIS predictions

	Where there are multiple receivers in different localities with high noise or vibration impacts predicted, multiple monitors may be required. Specific receivers for ongoing complaints management.					
Operator-attended Noise and/or Vibration)	At complainant or representative location	To quantify noise and/or vibration emissions relating to complaints.	Construction	Environment and Sustainability Manager	In response to complaints or as required	CNVIS predictions
Habitat Tree Assessment for Nest Boxes	Assessment of habitat trees and structures within SSI footprint to determine number of hollows likely to be removed to calculate the nest box requirements	Tree register	Prior to works at the affected worksite	AQF Level 5 Arborist Ecologist	As required	-
Nest Box Monitoring,	Monitoring of nest boxes to assess utilisation, effectiveness of this mitigation measures and any maintenance requirements.	As required	Construction	Ecologist	As required	-
Pre-clearing Survey	Pre-clearing survey of vegetation / habitat / trees / structures 12-48 hrs prior to clearing.	As required	Prior to works at the affected worksite	Ecologist	As required	-
Clearing Supervision	Supervision of vegetation clearing for fauna rescue and salvage of habitat features.	As required	Construction	Ecologist	As required	-
Tree pruning assessment	Assessment of tree pruning	As required	Prior to works at the affected worksite	AQF Level 5 Arborist	As required	Conducted prior to construction for works in the vicinity of the relevant tree
Tree protection works inspections	Inspections of tree protection works to assess compliance with the approved Tree Protection Plan and the health of the tree and identify supplementary watering / nutrient program to improve	As required	Construction	AQF Level 5 Arborist	As required	Included in daily dairy

	the overall tree health and offset the pruning impacts.					
Post Construction Tree Inspections	Post-construction inspection of the high tree retention value trees and trees to be avoided trees that were retained and protected or pruned.	As required	Post Construction	AQF Level 5 Arborist	As required	Conducted post construction for works in the vicinity of the relevant tree
Environmental site inspections	Environmental site inspections to check: • Stockpile management • Waste bin labels, capacity • cross contamination • Waste storage • Covering of loads • Concrete washout • Housekeeping • Wastewater treatment from rainwater in excavations • Leachate monitoring • Groundwater dewatering	Environmental inspection checklist	Construction	Environment and Sustainability Manager	Weekly	-
Spoil Tracking	Reconciliation of mass haul Total volume %'s contaminated/uncontaminated %'s reused onsite/reused offsite/disposed to landfill	Monthly Progress Reports	Construction	Civil Project Manager	Monthly	-
Topsoil	Total topsoil won %'s topsoil contaminated / uncontaminated % topsoil remaining productive at completion of construction.	Monthly Progress Reports	Construction	Civil Project Manager	Monthly	-
Construction Waste Tracking	Construction Waste (excluding spoil) reused/recycled	Monthly Progress Reports	Construction	Environment and Sustainability Manager	Monthly	-

Weather forecasts	Monitoring of Bureau of Meteorology Canterbury Detailed Forecast and MetEye or other relevant forecasts when adverse weather is predicted. Issue notifications to Project Manager, Civil Project Manager and Site Manager if • adverse weather is forecast; or rainfall depth exceeding the 5-day 80th %tile (24.4mm) is forecast. [a]	Email alerts Pre-starts	Construction	Environment and Sustainability Manager	Weekly forecast Daily updates when adverse weather is predicted	-
Weather observations	Weather observations from Bureau of Meteorology IDN60901 for Canterbury or other relevant gauge.	Monthly Environmental Monitoring Report	Construction	Environment and Sustainability Manager	Monthly	
Visual water quality (Turbidity) surveillance	Surveillance of discharges or downgradient watercourses for visual alteration of receiving water quality.	Daily dairy Notification of issues / incidents / non-compliance to Environment and Sustainability Manager	Construction	Site Manager	Continual	
Erosion and sediment control measures pre- and post-rainfall Inspection	Pre- and Post-rainfall event forecast to exceed 24.4mm [a] to ensure erosion and sediment controls functionality is maintained.	Environmental Inspection Checklist	Construction	Environment and Sustainability Manager	Within 5 days of the cessation of the rainfall event.	
Visual inspections	Daily site checks of maintenance of soil water management measures.	Environmental Inspection Checklist	Construction	Site Manager	Daily	Erosion and Sediment controls are correctly installed, maintained and functioning
Trench, joint bay and cat pit, underbore pit overtopping inspections	Inspection of trench, joint bay, cat pit and underbore pit overtopping inspection during	Environmental Inspection Checklist	Construction	Site Manager	as soon as reasonably possible during or	No overtopping in event less than 24.4mm

	rainfall events that exceed 24.4mm [a] that may result in the overtopping of untreated water .			Environment and Sustainability Manager	following a rainfall event	
Review of ESCPs	Review and revision by the Environment and Sustainability Manager and Site Managers to ensure • coverage of all active work areas; • the ESCPs are relevant to the areas of disturbance; and • the suitability of planned controls.	Updated or reviewed ESCPs	Construction	Site Manager	As required	In accordance with Managing Urban Stormwater *('Blue Book')*
Traffic management measures	Ensure all measures identified in the following are implemented and being adhered to: • CTTMP • site-specific o TMPs o TCPs • Conditions in o ROLs o road opening permits.	Checklist	Construction	Traffic Manager	Daily or and site changes are implemented	Compliance with the plans

Table 8-2 Reporting Requirements

Report	Scope	Timing	Frequency	Responsibility	Sub-plan reference
Monthly Progress Reports	Progress against the requirements of the Sub-plans including: • Spoil Tracking • Topsoil preservation Construction Waste Tracking and audit results	Monthly, within seven Business Days after the end of the relevant calendar month.	Monthly	Environment and Sustainability Manager.	All sub-Plans

Report	Scope	Timing	Frequency	Responsibility	Sub-plan reference
Daily Prestart Meetings	Place on Noticeboard Civil Project Manager (CPM) Environment & Sustainability Manager (ESM)		Daily	Site Managers (SM	All sub-Plans
Toolbox Meeting	As documented in sub-Plans, covering all relevant risks		As required	CPM	All sub-Plans
Monitoring Reports	As documented in sub-Plans		As occurs	Environment and Sustainability Manager	CAQMP
Monthly Environmental Monitoring Report	Summary of months: • Weather observations • Key dust control measures and actions • Asbestos fibre air monitoring Issues / incidents / non-compliances	Within 7 days of the end of the month	Monthly	Environment and Sustainability Manager	CAQMP
Asbestos fibre air monitoring reports	Daily reports from the previous day to be displayed on site safety notice boards	During any works involving disturbance of asbestos	Daily Reporting to be provided within 24hrs	Occupational Hygienist	CAQMP
Monthly Progress Reports	Status of • Any unexpected impacts • Any tree removals that may be required for the delivery of the Project • Tree planting • Fauna relocation • Pre clearing assessments • Habitat identified • Design modifications and the impact on trees • Key data from tree pruning assessments • Any non-conformances	Construction	Monthly	Environment and Sustainability Manager	CVBMP

Report	Scope	Timing	Frequency	Responsibility	Sub-plan reference
Monthly Progress Reports	Progress against the requirements of the Sub-plan including: • Spoil Tracking • Topsoil preservation • Construction Waste Tracking and audit results	Monthly, within seven Business Days after the end of the relevant calendar month	Monthly	Environment and Sustainability Manager.	CWMP

Note:

*Or delegate

8.1.2 Action Tracking Register

All actions identified during environmental inspections will be tracked in an action tracking register and closed out within the required timeframes by the allocated Personnel. The register will list the required action, date raised, status, and close out date. This register will be updated by the Environment and Sustainability Manager (or delegate) and monitored for on-time completion.

8.1.3 Auditing

Consistent with CoA A15 and A16, Independent audits of the SSI will be carried out in accordance with the requirements for an Independent Audit Methodology and Independent Audit Report in the DPIE's *Independent Audit Post Approval Requirements (2020).*

The audit program will be in accord with the overall Project's commencement and completion timetable (see Section 2.6) and TransGrid's *"Compliance Reporting Program: Powering Sydney's Future SSI 8583, June 2020".*

Key elements of the program, including internal and external audits and the annual review process, are detailed in the sections below.

Internal Audits

The WHS Manager (or as delegated role by the Project Manager) shall issue an internal audit schedule for carrying out regular audits on the worksites. At least one complete site audit will be carried out every month on the sites.

Internal auditing will also be carried out as proposed in the audit schedule and/ or when requested by the Project Manager or TransGrid. The WHS Manager will be responsible for organising of the site audits. The auditors will make use of the company's auditing checklist '*Site Inspection Checklist'*. The checklist has been developed keeping into consideration the company's management systems, and the checklist not only covers the environmental monitoring, but also the quality and safety requirements.

Feedback from the site audits shall be forwarded to the WHS Manager and Environment and Sustainability Manager, who will, respectively, be responsible for issuing of the necessary corrective action requests to the Project Manager. The Project Manager assisted by the WHS Manager shall ensure that all the highlighted corrective action requests are timely actioned and closed off. The audit results will also be forwarded to the TransGrid, if requested.

In addition to the planned site audits, the WHS Manager will also be responsible for organising the unscheduled audits. The unscheduled audits will be carried out using relevant checklists.

The Site Supervisors will be responsible for the daily implementation, inspection and monitoring of the routine environmental control measures. Daily site risk assessment exercise shall take into consideration the environmental hazards with their proposed controls.

The Project Manager may also request the WHS Manager to carry out unscheduled audits should the need arise due to an environmental non-compliance or at the request of the Taihan Project Manager.

Independent Environmental Audits

As per CoAs A15 and A16, Independent audits of the Project must be carried out in accordance with the requirements for an Independent Audit Methodology and Independent Audit Report in the DPIE's*. Independent Audit Post Approval Requirements (2020).*

Ongoing operational audits are not required unless required by the Planning Secretary.

Annual Review

The audit schedule will be reviewed annually to ensure the program remains relevant and focussed on significant risks and controls. Key inputs to the review include:

- the risk register;
- findings of internal and external audits;
- incident investigations and corrective actions; and
- stakeholder feedback.

8.1.4 Compliance Tracking

A Compliance Tracking Program (CTP) has been developed, to deliver compliance monitoring and reporting ,for the Project in accordance with the requirements of:

- CoA A14
- *Independent Audit Post Approval Requirements (DPIE, May, 2020) and*
- *Compliance Reporting, Requirement 1, Post Approval Requirement (*DPIE May 2020)

The CTP contains:

- Provisions for the notification of the Secretary prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged);
- Provisions for periodic review of the compliance status of the SSI against the requirements of this approval;
- Provisions for periodic reporting of compliance status to the Secretary, including but not limited to an Operational Compliance Report, required prior to the commencement of operations;
- A program for independent environmental auditing in accordance with AS/NZS ISO 19011:2014 - Guidelines for Auditing Management Systems;
- Mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;
- Mechanisms for reporting and recording incidents and actions taken in response to those incidents;
- Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and
- Provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

The CTP describes how the requirements of CoA A14 will be met and identifies the frequency for the Project's compliance reporting and independent auditing.

8.1.5 Other Reporting

Prior to, during and following construction, various reports will be prepared to fulfil contractual obligations and the requirements of the Planning Approval.

8.2 Records and Documentation

This Plan specifically details the management systems established for the delivery of the Project and assigns the responsibilities of key Personnel to conduct environmental assurance, control and measurement activities.

This documentation including procedures, work instructions and forms will be used to define instructions to project teams relating to the implementation of the Project ensuring that the completed work complies with the Project requirements and relevant environmental standards, codes and regulations.

All Personnel will fully comply with the provisions contained therein and will be inducted into the environmental requirements of the Project.

This Project documentation will be controlled (maintained current) only for the period of the Project. Authorised amendments will be formally issued to controlled copyholders whose responsibility will be to maintain their documentation fully amended.

8.3 Management Review

The Project Manager assisted by the WHS Manager and Environment and Sustainability Manager shall conduct quarterly reviews of the audits reports, non-conformance reports, corrective action reports and complaints. The findings of these reviews shall be recorded and reported to TransGrid/contractors, as applicable.

The Project Manager may make recommendations and raise corrective actions as appropriate. The WHS Manager shall then implement these recommendations and process the corrective actions.

The Project Manager and Environment and Sustainability Manager will review the CEMP during the course of contract at quarterly intervals to ensure its applicability and suitability. If there is a need of any change in the existing controls or if new ones are to be implemented, then Project Manager will notify the changes to WHS Manager and Environment and Sustainability Manager.

8.4 CEMP/Sub Plan Update and Revision

The CEMP and Sub-Plans will be updated as required. Updates or revision of the CEMP and Sub-plans may be triggered by:

- the processes described in supporting Sub-plans;
- any non-compliance with the conditions of consent or other legal requirement;
- any non-conformance with any other environmental requirements;
- result of any investigations into any exceedances or non-conformances that determine changes to this plan are required to prevent reoccurrences;
- to take into account changes to the environment or generally accepted environmental management practices, new risks to the environment or changes in law;
- Project modifications approved by the consent or approval authority

- where requested or required by the NSW Department of Planning, Industry and Environment or
- in response to internal or external audits.

The updated plan will be provided to the Secretary of DPIE for approval.

Continuous improvement of this CEMP and Sub-Plans will be achieved through the ongoing evaluation of performance against environmental policies, objectives and targets.

A review of relevant plans will be undertaken annually (at minimum) and within three months of the following events:

- Reportable environmental incidents
- Identification of new risks, including risks identified during risk register updates
- Non-compliances
- Environmental audit findings
- Material Project changes (including modifications)
- Legislative changes
- As part of a continuous improvement process.

Where one or more of the above events present a risk of material harm, relevant plans will be revised within one month.

8.5 Unpredicted impacts

Unpredicted impacts will be managed in accordance with CoA C7(f).

Each Sub-plan provides information on identifying and managing unpredicted impacts. An overview of the measures included in all Sub-plans is included as Table 8-3.

Table 8-3 Summary of measures to identify, monitor and respond to unpredicted impacts in CEMP Sub-plans

Sub-Plan	Appendix	How unpredicted impacts will be identified, monitored and managed
CTTMP	C1	Incident response and the approach to managing unplanned lane closures is included in the CTTMP.
CNVMP	C2	Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory, or complaints are received are included in the CNVMP.
CAQMP	C3	A comprehensive program to respond to and avoid unpredicted impacts is identified in the Trigger, Action and Response Plan (TARP) in the CAQMP.
CVBMP	C4	A comprehensive program to identify unpredicted impacts including supervision and management of unexpected impacts, supported by environmental controls, training and monitoring inspection to prevent or reduce levels of impact is included in the CVBMP.
CSWMP	C5	A comprehensive program to identify unpredicted impacts including: • environmental controls • training and monitoring inspection to prevent or reduce levels of impact • water quality monitoring • un Unexpected Contaminated Land and Asbestos Finds Procedure • specific measures with respect to monitoring landfill gas.
CHMP	C6	A comprehensive program to identify unpredicted impacts includes the Heritage Unexpected Finds Protocol supported by environmental controls, training and monitoring inspection to prevent or reduce levels of impact is included in the CHMP.
CPIMP	C7	Works will be delivered to meet the relevant standards identified in the CPIMP. During construction some utility interruptions may be required. Arrangements with affected organisations or persons will be made ahead of working near utilities to manage potential service impacts. The effectiveness of the management of utility interruptions will be managed by monitoring complaints and through stakeholder reference groups.
CWMP	C8	A comprehensive program to identify unpredicted impacts including supervision and management of unexpected impacts, supported by environmental controls, training and monitoring inspection to prevent or reduce levels of impact is included in the CWMP.

Additionally, continuous improvement will be implemented in accordance with Sections 7 and 8.

Sections 8.5 to 8.7 provides the overarching details on the management and response framework.

8.6 Cumulative impacts

Key stakeholders, including relevant government agencies, councils and developers (including Project proponents), will be kept informed of construction progress and scheduling in an effort to minimise community impacts. The frequency and method of this communication will be outlined in the Community Communication Strategy.

Consultation and construction planning will be undertaken with relevant stakeholders, particularly proponents for other developments within proximity to the Project to coordinate works, where reasonable and feasible.

8.7 Corrective and preventative actions

A *non-conformance* is defined to be a failure to comply with an environmental requirement, standard, or procedure.

A *non-compliance* is defined as an occurrence and/or set of circumstances that breach the conditions of consent and/or any other legal requirement.

In the event a non-conformance and/or non-compliance is identified, a corrective and preventative action process will be undertaken. This will involve:

1. Documenting the Project position involved in the review of the non-conformance and/or non-compliance and in the development of corrective and preventative actions to address it.
2. Containing the problem/issue/incident (interim plan) until the corrective or preventative action can be implemented.
3. Determining the root cause of the of the problem/issue/incident.
4. Identifying preventative and corrective actions that target the root causes of the problem/issue/incident.
5. Determining the timeframe. The timeframes to implement identified corrective and preventative actions will be decided on a case-by case basis considering aspects such as:
    a. the nature of the issue;
    b. a risk assessment of the incident occurring again;
    c. relevant aspects related to potential for environmental harm, cost and reputation;
    d. the construction program; and
    e. the complexity of implementation.
6. Communicating the plan internally
7. Preventing reoccurrence by implementing changes to systems, processes, procedures, protocols or the implementation of additional management and mitigation measures (environmental control measures).
8. Conducting a debrief with Personnel to share any lessons learned.

9 Reference Documents

Required public documents will be made available for the duration of the contract.

The following reference documents have been used or referred to in the preparation of this document: .:

- Australian Standards:
    - AS 1940 and AS 1596 the *Dangerous Goods Code*,

  - AS/NZS 9001 for *Quality*,
  - AS/NZS 4801 for *Safety,* and
  - AS/NZS 14001 for *Environment standards*.
- *Environmental Planning and Assessment Act 1979* (EP&A Act, 1979).
- *Compliance Reporting, Requirement, Post Approval Requirement* DPIE May 2020
- Guidelines for limiting exposure to EMF International Commission on Non-Ionizing Radiation Protection, (ICNIRP, 2010)
- *Independent Audit Post Approval Requirements (DPIE, 2020)*
- *Minimum Requirements for Water Bores in Australia* (NUDLC, 2011).
- *State Significant Infrastructure Approval (SSI-8583): Powering Sydney's Future - Potts Hill to Alexandria Transmission Cable Project*, 14 May 2020
- Powering Sydney's Future - Potts Hill to Alexandria Transmission Cable Project, TransGrid :
  - *Community Communications Strategy*, (July 2020)
  - *Compliance Reporting Program*, (June 2020)
- Powering Sydney's Future - Potts Hill to Alexandria Transmission Cable Project, AECOM :
  - *Amendment Report* (2019)
  - *Environmental Impact Statement* (2019)
  - *Submissions Report* (2019)
- *State Environmental Planning Policy (State and Regional Development)* (2011).
- *Storing and Handing of Liquids: Environmental Protection-Participants Manual*. (EPA, 2019)

Other relevant TransGrid Documentation :

- Complaints and Enquiries Management Policy (2018).
- HSE Hazard and Incident Management (2020)
- Environmental Incident Management (2017)
- Environmental Procedures
  - Asbestos Management Plan
  - Work Instructions -
    - Disposal of Asbestos
    - Sampling of Asbestos
    - Removal of Asbestos
    - Contaminated Land Management
  - Environmental Guidance Note - Excavation and Machine Work
  - Environmental Guidance Note - Flora Fauna Ecological Communities and Sensitive Habitats
  - Environmental Guidance Note - Habitat trees
  - Environmental Guidance Note – Heritage
  - Environmental Guidance Note - Transport of Harmful Materials and Spill
  - Environmental Guidance Note - Working Near Watercourses
  - Environmental Incident Management (2017)
  - Hazardous Chemicals Storage and Transport
  - Hot Work and Fire Risk Work -
    - Hot Work Permit
    - Fire Risk Assessment and Control Measures
  - Waste Management
  - Waste Management of Spoil

Appendices

Appendix A – Environmental Requirements

Appendix A1 – Legal Requirements Register

Legal Requirements Register relevant to the CEMP

Instrument	Activity/Aspect	Requirement	Reference	Relevant to the Project
Environmental Planning and Assessment Act 1979	All	Comply with the terms Minister for Planning and Public Spaces Infrastructure's approval for the project. Obtain the Minister's approval for any project modifications that are not consistent with the planning approval.	S5.19	The terms of the Project Approval have been reflected in the CEMP and Sub-plans together with details on how the requirements will be implemented. A modification would be sought if variations are proposed which result in impacts that are inconsistent with the Planning Approval.
Protection of the Environment Operations Act 1997 (POEO Act)	All	The Protection of the Environment Operations Act 1997 (PoEO Act) provides for the issue of an Environment Protection Licence (EPL) for premises-based scheduled activities pursuant to section 48 of the PoEO Act, and non-premises based scheduled activities pursuant to section 49 of the PoEO Act. Activities requiring an EPL are listed in Schedule 1 of the PoEO Act.	Schedule 1	The project would not involve any scheduled activities and therefore would not require an EPL. If it is subsequently determined an EPL is required to carry out scheduled activities in accordance with the POEO Act, the CEMP will be modified as required to address the licence conditions.
Protection of the Environment Operations Legislation Amendment (Waste) Regulation 2018	Construction	The Protection of the Environment Operations Legislation Amendment (Waste) Regulation 2018 requires written consent to be obtained from the NSW EPA before the exhumation of waste within a landfill site (such as Sydney Park).		Prior to excavation activities at Sydney Park, the NSW EPA would be notified in accordance with Clause 110A of the Regulation and excavation activities would not commence until written approval is received from the NSW EPA.
Environmentally Hazardous Chemicals Act 1985	All	The manufacture, processing, storage, distribution, conveyance, use, sale or disposal of an environmental hazardous chemical or waste (prescribed activity) is prohibited except under the provisions of a chemical control or a licence.		The Project is not proposing to manufacture, process, store, distribute, convey, use, sell or dispose of environmentally hazardous chemicals or waste.
Water Management Act 2000 With the exception of controlled activity approvals, the Water Management Act 2000 (WM Act) only applies in relation to those water sources covered by operational water sharing plans – these areas cover most of the State's major regulated river systems.	Water access and use.	Do not take water from a water source (a lake, river or estuary or place where water occurs naturally on or below the surface of the ground, including coastal waters) without an access licence. Do not use water on land (unless supplied by a water utility, irrigation corporation or in accordance with basic landholder rights) without a water use approval. The NSW Aquifer Interference Policy (Department of Primary Industries, 2012b) outlines the requirement for approval of 'aquifer interference activities' under the *Water Management Act 2000*. The project would likely intercept the Botany Sands and Sydney Basin central aquifers managed under the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011.	S56 S60A S89 S91A	An assessment of potential groundwater impacts was undertaken in accordance with the NSW Aquifer Interference Policy (refer to the Project EIS Groundwater Technical Report in Appendix N). The groundwater assessment notes that temporary dewatering may be required during construction. Licensing of groundwater extraction through Department of Industry-Water in accordance with the NSW Aquifer Interference Policy will be required if the extracted groundwater exceeds three megalitres/year. The outcomes of this assessment as well as proposed management and mitigation measures are provided in Chapter 18 Groundwater. The Project has developed a Ground Water Management Strategy that describes the procedures and protocols that TransGrid and its contractors will implement for investigating, assessing and managing groundwater dewatering for the SSI. Specifically, this GMS addresses the approach to mitigate environmental impacts that relate to groundwater during construction and operation of the project.
Water Management Act 2000	Water management works	Do not construct/use a water supply work, drainage work or flood work without the appropriate approval.	S90 S91B S91C S91D	A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than a groundwater interference approval) under section 91 of the Water Management Act 2000 is not required. The Project is not proposing to construct/use water supply work, drainage work or flood work. Where utility relocations are required, all approvals will be obtained.
Water Management Act 2000	Waterfront land	Do not deposit material, excavate, or remove material within a watercourse bank, shore or bed, or on land 40 metres inland, or interfere with the likely flow of water to such a body, without a controlled activity approval.	S91	The project is exempt from needing a separate controlled activity approval.
Water Act 1912 Note that this Act is being progressively repealed by the Water Management Act 2000 (WM Act).	Surface water	Obtain a licence or permit for construction or use of 'work' for purposes including the taking and using of water.	S21B	The Project is not proposing to take or use water.
	Groundwater	Obtain a licence where interference with groundwater is likely to occur.	S112 S121A	If required this would be obtained.

With the exception of controlled activity approvals, the WM Act only applies in relation to those water sources covered by operational water sharing plans – these areas cover most of the State's major regulated river systems.				
Roads Act 1993	Road works	Obtain the consent of the appropriate roads authority for the erection of a structure, or the carrying out of a work in, on or over a public road, or the digging up or disturbance of the surface of a public road. Approval from the relevant roads authority is required under section 138 of the Roads Act as the project would involve works within public road reserves on both classified and unclassified roads.	S138	In the case of classified roads, consent is required from Roads and Maritime Services (Roads and Maritime). Approval is obtained in the form of a Road Occupancy Licence (ROL). The Transport Management Centre (TMC) assesses, manages and issues ROLs for state roads within the Sydney region on behalf of Roads and Maritime. The project would require ROLs for works conducted on state roads. In the case of unclassified roads, consent from the road authority (local council) is not required, as under Clause 5 of Schedule 2, TransGrid is an Authorised Network Operator under the Electricity Supply Act 1995 and can therefore carry out works as part of network operator functions, in, on or over an unclassified road, other than a Crown road.
Rural Fires Act 1997	Hot works	Hot works are not permitted to be undertaken on Total Fire Ban days unless a suitable exemption is sought and obtained.	S99	An exemption to allow hot works to be undertaken on Total Fire Ban days as detailed under the Rural Fires Act 1997 will be sought.
Contaminated Land Management Act 1997	Excavation works	Provides a regime for investigating and, where appropriate, remediating land affected by contamination, which represents a significant risk of harm to human health or the environment. Under this act, the EPA has the power to: - Declare an investigation site and order an investigation - Declare a remediation site and order remediation to take place - Agree to a voluntary proposal to investigate or remediate a site.		The areas assessed as high contamination risk were located where the transmission cable route would intersect former landfills in Camdenville Park and Sydney Park, as well as a metal refinery site between Euston Road and Burrows Road. The process by which high risk sites will be investigated and, if necessary, remediated, is detailed in the Contaminated Land Management Sub-plan.
Fisheries Management Act 1994	Works in waterways	The relevant objectives of this Act are to conserve threatened species, populations and ecological communities and promote sustainable development.		Assessed under Part 5.1 (now Division 5.2) of EP&A Act and therefore permits are not required. Specifically a permit under section 201, 205 or 219 of the Fisheries Management Act 1994 (FM Act) to carry out dredging and reclamation works, to harm marine vegetation in a protected area or to block fish passage is not required; Note that dredging or removal of marine vegetation is not part of the scope of works.
Heritage Act 1977	Heritage works / excavation	Approval must be gained from the Heritage Council when making changes to a heritage place listed on the State Heritage Register, or when excavating any land in NSW where you might disturb an archaeological relic.		Assessed under Part 5.1 (now Division 5.2) of EP&A Act and therefore permits are not required. Specifically approvals under Part 4 to disturb or excavate a place, building, work, relic, moveable object, precinct or land to which an interim heritage order or listing on the State Heritage Register applies and an excavation permit under section 139 of the Heritage Act 1977 is not required;
National Parks and Wildlife Act 1974	Heritage works / excavation	Aboriginal Heritage sites are managed under this Act by the Office of Environment and Heritage (OEH). Unexpected finds of heritage require stop work proceedings and approval sought from the OEH to disturb site.		Assessed under Part 5.1 (now Division 5.2) of EP&A Act therefore permits not required. Specifically an Aboriginal heritage impact permit to harm an Aboriginal object or place under section 90 of the National Parks and Wildlife Act 1974 is not required;
Native Vegetation Act 2003	Clearing and grubbing works	For the purposes of the EP&A Act, the Minister for Planning and Infrastructure is the consent authority for any development application made under that Act for any clearing of native vegetation that requires development consent because of this Act.		Assessed under Part 5.1 (now Division 5.2) of EP&A Act and approval from Minister of Planning received. *Note: Condition E21 requires certain vegetation to be agreed with the Planning Secretary prior to removal.*
Noxious Weeds Act 1993 (Now repealed by the Biosecurity Act but is still referenced due to the timing of the Projects' EIS)	Clearing and grubbing works	Noxious weeds are to be managed in a way to restrict their dispersal and establishment.		Noxious weeds will be disposed of and managed in accordance with assigned control categories under this Act. Relevant management and mitigation measures are detailed in the Vegetation and Biodiversity Management Sub-plan.
Pesticides Act 1999	Clearing and grubbing works	This Act promotes the protection of human health, environment, property and trade in relation to the use of pesticides.		Pesticides may be used in the eradication of weeds.

Sydney Water Act 1994	Dewatering	Approval to discharge wastewater to sewer and trade Waste Agreement.		Should a connection to sewer be required, for example a Trade Waste connection. This would be obtained from Sydney Water.
Biodiversity Conservation Act 2016	Construction	The Biodiversity Conservation Act 2016 (BC Act) identifies threatened species, ecological communities and key threatening processes and establishes a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. Under section 7.9 of the BC Act, any state significant infrastructure application is to be accompanied by a BDAR, unless it is determined by the Planning and Environment Agency Heads that the proposed development is not likely to have any significant impact on biodiversity values.		The Project will be managed to avoid impacts on threatened species and endangered ecological communities, as necessary. Relevant controls are detailed in the Construction Vegetation and Biodiversity Sub- plan.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	Waste Management	Establishes the waste hierarchy. Promotes waste avoidance and resource recovery by developing waste avoidance and resource recovery strategies		The Construction Waste Management Sub-plan details processes and controls to adhere to the waste hierarchy.
Water Management Act 2000	Construction	The objective of this Act is to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.		The Project is assessed under Part 5.1 (now Division 5.2) of the EP&A Act and as such approvals are not required under Section 89 for water use, or Section 90 for water management work In addition, activities generally requiring permits under the Water Management Act are exempt from aquifer interference approval under Section 91.
NSW Code of Practice for Authorised Network Operators (the Code)	Construction	The Code is approved under clause 244K of the Environmental Planning and Assessment Regulation 2000 and enables Authorised Network Operators to assess the impacts of activities under Part 5 of the EP&A Act.	Section 1.2	The Project is assessed under Part 5.1 (now Division 5.2) of the EP&A Act and therefore the Project, or parts thereof, cannot be self-determined by an Authorised Network Operator. As such, the requirements of the NSW Code of Practice for Authorised Network Operators do not apply to the works.
Electricity Supply Act 1995	Construction	TransGrid is considered a network operator under the Electricity Supply Act 1995. Clause 45(2) states that a network operator may erect, install, alter, extend, maintain and remove electricity works including on a public road or reserve, and is exempt from the requirement for an approval under the Local Government Act 1993, except in relation to buildings.		Although approval is not required from local council, under clause 45(4), the local council must be notified of works (on local roads and reserves) and given reasonable opportunity (being not less than 40 days from the date on which the notice was given) to make submissions in relation to the proposed works. The network operator must then give due consideration to any submissions made.
Land Acquisition (Just Terms Compensation) Act 1991	Operation	The Land Acquisition (Just Terms Compensation) Act 1991 would apply to the acquisition of easements required for the project. While the project is primarily located within road reserves and public land, there are two sections of the transmission cable route that would cross private properties.		An easement would be required to provide adequate clearance and access along the transmission cable route for construction, operation and maintenance work and to preserve certain property rights in perpetuity. Where the transmission cable route crosses private lands, it is TransGrid's policy to obtain easements by negotiating with the landowner. Easements also ensure that future land development does not impede access to the cable, while the landowner retains ownership of the easement land and the right to undertake certain permitted activities within the easement area. No freehold land acquisitions are required. Refer to Project EIS Chapter 20 Land use and property for more detail.
Environment Protection and Biodiversity Conservation Act 1999		The Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) provides a framework to protect and manage matters of national environmental significance (MNES) and impacts on Commonwealth land. The Act identifies the following as MNES: • World Heritage properties; • National Heritage places; • wetlands of international importance (including Ramsar Wetlands); • listed threatened species and ecological communities; • listed migratory species protected under international agreements; • Commonwealth marine areas; • the Great Barrier Reef Marine Park;		The significance assessment undertaken for the Grey-headed Flying fox (Pteropus poliocephalus) concluded that the project is not likely to have a significant impact on the Grey-headed Flying-fox and therefore a referral under the EPBC Act is not required (refer to Annexure D of the BDAR in Appendix H of the Project EIS).

		• nuclear actions (including uranium mines); and • water resources, in relation to coal seam gas development and large coal mining development. Under the EPBC Act, a referral to the Commonwealth is required for proposed actions that have the potential to significantly impact MNES or Commonwealth land. If the project is declared a 'controlled action', approval from the Commonwealth Minister for the Environment and Energy would be required, in addition to the approval required from the NSW Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.		
Airports Act 1996		Under section 183 of the Airports Act 1996, a controlled activity must not be undertaken in relation to 'prescribed airspace' without the approval of the Secretary of the Commonwealth Department of Infrastructure, Transport, Cities and Regional Development (DITCRD). Controlled activities include: • the construction of buildings and structures that intrude into prescribed airspace; and • any other activity that causes a thing attached to, or in physical contact with, the ground to intrude into the prescribed airspace. 'Prescribed airspace' is the airspace above any part of either an Obstruction Limitation Surface (OLS) or a 'procedures for air navigation systems – aircraft operations' surface for an airport.		The project would include the use of cranes at Beaconsfield West substation, however, as the boom height of cranes are likely to be less than 50 metres, the OLS is unlikely to be penetrated and airport authority approval is not required. In the event that cranes with boom heights of 50 metres Australian Height Datum (AHD) or greater are required, approval/permits would be required.

Appendix A2 – Conditions of Approval relevant to CEMP

CoA ID	Requirement	Document	Reference	How addressed
	PART A ADMINISTRATIVE CONDITIONS			
	GENERAL			
A1	The SSI may only be carried out in accordance with the terms of this approval and generally in accordance with the EIS. *Note: The general layout of the SSI is shown on **Appendix B**.*	CEMP		This CEMP is the overarching document in the environmental management system for the Project and includes a number of management documents, including sub-plans and procedures. It is applicable to all personnel associated with the construction of the Project. The CEMP provides a framework for ensuring compliance with the requirements of the CoA, EMMMs and relevant legislative requirements.
A2	The SSI may only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the EIS unless otherwise specified in, or required under, this approval.	CEMP		This CEMP is the overarching document in the environmental management system for the Project and includes a number of management documents, including sub-plans and procedures. It is applicable to all personnel associated with the construction of the Project. The CEMP provides a framework for ensuring compliance with the requirements of the CoA, REMMMs and relevant legislative requirements.
A3	In the event of an inconsistency between the EIS documents, or any other document required under this approval, the most recent document prevails to the extent of the inconsistency. However, the terms of this approval prevail to the extent of any inconsistency. *Note: For the purpose of this condition, there will be an inconsistency between a condition of this approval and any document if it is not possible to comply with both the condition and the document.*	CEMP		Condition noted. In the event that unreconcilable inconsistency, clarification will be sought from DPIE.
A4	The Proponent must comply with all written requirements or directions of the Planning Secretary, including in relation to: (a) the environmental performance of the SSI; (b) any document or correspondence in relation to the SSI; (c) any notification given to the Planning Secretary under the terms of this approval; (d) any audit of the construction or operation of the SSI; (e) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); and (f) the carrying out of any additional monitoring or mitigation measures.	CEMP		Condition noted.
A5	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 where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations; (d) outline of the issues raised by the identified party and how they have been addressed; and (e) a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.	CEMP	Section 1.5	Engagement has been conducted with all relevant stakeholders identified in the CoA C5 Table 1 CEMP Sub Plans. Stakeholders were provided a copy of all relevant documents, which also contains monitoring programs, where proposed. Where stakeholders raised a comment, the CEMP and sub plan documents were either amended in response to the comments or justification as to why no change is required was prepared. In instances where no feedback or comments have been received following repeated attempts and reminders, after a period of time, the evidence of requested feedback will be submitted along with the log of attempted contact with the stakeholder agency and a “no response” entry against the stakeholder will be included in the relevant plan. Each Sub-plan contains a correspondence log (evidence) identifying the document, version, stakeholder comment, how the comment was addressed and status of the comment. A summary of the issues raised and description of outstanding issues has also been provided in the Sub-Plans.
A6	This approval lapses five (5) years after the date on which it is granted, unless works are physically commenced on or before that date.	CEMP		Construction on this DPIE "high priority project" will commence immediately upon construction approval, It is not anticipated that this condition will be activated.

CoA ID	Requirement	Document	Reference	How addressed
A7	References in the terms of this approval to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this approval.	CEMP		Condition noted. A register of legal and other requirements for the Project is contained in Appendix A1 identifying key legislations. References to any guideline, protocol, Australian Standard or policy of this approval is in the form they were in as at the date of the SSI approval, unless otherwise agreed with the Planning Secretary. Each Sub-plan identifies relevant standards or guidelines that were used in the preparation of the particular Sub-plan.
A8	Any document that must be submitted within a timeframe specified in or under the terms of this approval may be submitted within a later timeframe agreed with the Planning Secretary. This condition does not apply to the immediate written notification required in respect of an incident under **Condition A17**.	CEMP		Condition noted. Where a document requires the specific approval of the Planning Secretary of the DPIE, the document will be submitted to the DPIE for approval. An alternative approval timeframe may be requested for consideration by DPIE.
	STAGING			
A9	The SSI may be constructed and operated in stages. Where staged construction or operation is proposed, a Staging Report (for either or both construction and operation as the case may be) must be prepared and submitted to the Planning Secretary for information. The **Staging Report** must be submitted to the Planning Secretary no later than one (1) month before the commencement of construction of the first of the proposed stages of construction.	CEMP		If it is identified that the SSI may be constructed and operated in stages, a Staging Report would be submitted to DPIE for information.
A10	The **Staging Report** must: (a) set out how the construction and/or operation of the whole of the SSI will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction and/or operation of each stage will commence and finish; (b) specify how compliance with conditions will be achieved across and between each of the stages of the SSI; and (c) set out mechanisms for managing any cumulative impacts arising from the proposed staging.	CEMP		Condition noted. A Staging Report, if required, would set out each of the details required with this condition.
A11	The SSI must be staged in accordance with the **Staging Report**, as submitted to the Planning Secretary.	CEMP		Condition noted. If it is proposed the project is staged, Staging would follow the most recently submitted Staging Report.
A12	Where staging is proposed, the terms of this approval that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage.	CEMP		Condition noted.
	ANCILLARY FACILITIES			
	Ancillary facilities			
A13	Ancillary facilities that are not identified by description and location in the EIS can only be established and used in each case if: (a) they are located within the project area; and (b) they are not located next to a sensitive receiver (including where an access road is between the facility and the receiver), unless the sensitive receiver landowner and occupier have given written acceptance to the carrying out of the relevant facility in the proposed location; and (c) they have no impacts on heritage items (including areas of archaeological sensitivity), trees or threatened species, populations or EECs; and (d) the establishment and use of the facility can be carried out and managed within the outcomes set out in the terms of this approval, including in relation to environmental, social and economic impacts.	CEMP	Section 2	Condition noted. Section 2 provides details on approved Ancillary Facilities.
	COMPLIANCE REPORTING			
A14	Compliance reports of the SSI must be carried out in accordance with the Department's *Compliance Reporting Requirements* for a minimum of one (1) year following commencement of operation, or other period as	CEMP	Section 8.1.4	Condition noted.

CoA ID	Requirement	Document	Reference	How addressed
	directed by the Planning Secretary. The Department must be notified of the commencement dates of construction and operation of the SSI at least one(1) month prior.			Compliance reporting will be carried out in accordance with Department's Compliance Reporting Requirements. Further information is provided in Section 8.1.4.
	AUDITING			
A15	Independent audits of the SSI must be carried out in accordance with the requirements for an Independent Audit Methodology and **Independent Audit Report** in the Department's Independent Audit Requirements. *Note: Ongoing operational audits (following an initial operational audit) will not be required for the SSI, unless otherwise required by the Planning Secretary.*	CEMP	Section 8.1.3	Condition noted. Independent audit reports will be prepared and carried out in accordance with the DPIE *Independent Audit Requirements*.
A16	The Proponent must: (a) review and respond to each **Independent Audit Report** prepared under **Condition A15** of this approval; and (b) submit the response to the Planning Secretary in accordance with the Department's *Independent Audit Requirements*.	CEMP	Section 8.1.3 Section 8.1.4	Condition noted. Independent audit reports will be prepared and carried out in accordance with the DPIE *Independent Audit Requirements*.
	INCIDENT NOTIFICATION AND REPORTING			
A17	The Department must be notified in writing via the Major Projects portal immediately after the Proponent becomes aware of an incident. The notification must identify the SSI (including the application number and the name of the SSI if it has one), and set out the location and nature of the incident. It must also describe any actual or potential non-compliance with this approval.	CEMP	Section 6	TransGrid will immediately notify DPIE of all environmental incidents. The notification must identify the SSI (including the application number and the name of the SSI if it has one), and set out the location and nature of the incident. It must also describe any actual or potential non-compliance with this approval.
A18	Subsequent notification must be given and reports submitted in accordance with the requirements set out in **Appendix A**.	CEMP	Section 7.3	All subsequent notifications related to environmental incidents will be given in accordance with the CoA Appendix A.
	PART B COMMUNITY INFORMATION AND REPORTING			
	COMMUNICATION AND COMPLAINTS MANAGEMENT			
	Communication Strategy			
B1	A **Community Communication Strategy** must be prepared to provide mechanisms to facilitate communication between the Proponent, the relevant council(s) and the community (including adjoining affected landowners and businesses, and others directly impacted by the SSI), during the design and construction of the SSI.	CEMP Community Communication Strategy	Section 5.3.1	The Community Communication Strategy will be prepared to provide mechanisms to facilitate communication between the Proponent, the relevant council(s) and the community (including adjoining affected landowners and businesses, and others directly impacted by the SSI), during the design and construction of the SSI.
B2	The **Community Communication Strategy** must: (a) identify people and organisations to be consulted during the design and work phases; (b) set out procedures and mechanisms for the regular distribution of accessible information (including provisions for addressing linguistic diversity), about or relevant to the SSI. The information to be distributed must include information regarding current site construction activities, schedules and milestones at each construction site; (c) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant communities; (d) establish a public liaison officer(s) to engage with the local community; and (e) set out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent; (ii) through which the Proponent will respond to enquiries or feedback from the community; and (iii) to resolve any issues and mediate any disputes that may arise in relation to construction of the SSI.	CEMP Community Communication Strategy	Section 5.3.1	The Community Communication Strategy will: (a) identify people and organisations to be consulted during the design and work phases; (b) set out procedures and mechanisms for the regular distribution of accessible information (including provisions for addressing linguistic diversity), about or relevant to the SSI. The information to be distributed must include information regarding current site construction activities, schedules and milestones at each construction site; (c) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant communities; (d) establish a public liaison officer(s) to engage with the local community; and (e) set out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent; (ii) through which the Proponent will respond to enquiries or feedback from the community; and (iii) to resolve any issues and mediate any disputes that may arise in relation to construction of the SSI.

CoA ID	Requirement	Document	Reference	How addressed
B3	The **Community Communication Strategy** must be published on the project's website prior to the commencement of construction.	CEMP Community Communication Strategy	Section 5.3.1	The Community Communication Strategy will be published on the project's website prior to the commencement of construction.
	Complaints Management System			
B4	A **Complaints Management System** must be prepared and implemented before the commencement of any works and maintained for the duration of construction and for a minimum of three (3) months following completion of construction of the SSI.	CEMP Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	Section 5.3.2	A Complaints Management System has been implemented and will be maintained for a minimum of three (3) months following completion of construction of the SSI.
B5	The following information must be available to facilitate community enquiries and manage complaints: (a) a 24- hour telephone number for the registration of complaints and enquiries about the SSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.	CEMP Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	Section 5.3.2	The following information will be available to facilitate community enquiries and manage complaints: (a) a 24- hour telephone number for the registration of complaints and enquiries about the SSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.
B6	The telephone number, postal address and email address required under **Condition B5** of this approval must be: (a) published in a newspaper circulating in the relevant local area before the commencement of construction; (b) provided on site hoarding or otherwise at each construction site during all construction works; (c) notified via mail to residents within streets on which SSI is to be located, at least two (2) weeks before the commencement of construction works in that street; and (d) published on the website required under **Condition B9** of this approval.	CEMP Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	Section 5.3.2	The telephone number, postal address and email address required under Condition B5 of this approval will be: (a) published in a newspaper circulating in the relevant local area before the commencement of construction; (b) provided on site hoarding or otherwise at each construction site during all construction works; (c) notified via mail to residents within streets on which SSI is to be located, at least two (2) weeks before the commencement of construction works in that street; and (d) published on the website required under Condition B9 of this approval.
B7	A **Complaints Register** must be maintained recording information on all complaints received about the SSI during the carrying out of any works and for a minimum of three (3) months following the completion of construction. The **Complaints Register** must record the: (a) number of complaints received; (b) number of people affected in relation to a complaint; and (c) means by which the complaint was addressed and whether resolution was reached, with or without mediation.	CEMP Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	Section 5.3.2	A Complaints Register has been established and will be maintained recording information on all complaints received about the SSI during the carrying out of any works and for a minimum of three (3) months following the completion of construction. The Complaints Register must record the: (a) number of complaints received; (b) number of people affected in relation to a complaint; and (c) means by which the complaint was addressed and whether resolution was reached, with or without mediation.
B8	The **Complaints Register** must be provided to the Planning Secretary or the relevant council(s) upon request, within the timeframe stated in the request.	CEMP Community Communication Strategy (refer Section 6 for specific information on Complaints Management System)	Section 5.3.2	The Complaints Register will be provided to the Planning Secretary or the relevant council(s) upon request, within the timeframe stated in the request.
	PROVISION OF ELECTRONIC INFORMATION			
B9	A website or webpage providing information in relation to the SSI must be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction. Up-to-date information (excluding confidential commercial information or other documents as agreed to by the Planning Secretary) must be published on the website before the relevant works			A website or webpage providing information in relation to the SSI will be established before commencement of works and maintained for the duration of construction, and for a minimum of 12 months following the completion of construction. Up-to-date information (excluding confidential commercial information or other documents as agreed to by the Planning Secretary) must be published on the website before the relevant works commence, including:

CoA ID	Requirement	Document	Reference	How addressed
	commence, including: (a) information on the current status of the SSI; (b) a copy of the EIS, and any documentation relating to any modifications made to the SSI or the terms of this approval; (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; (d) a copy of each statutory approval, licence or permit required and obtained in relation to the SSI; (e) a current copy of each document required under the terms of this approval that must be provided to the Planning Secretary for approval, which must be published before the commencement of any works to which they relate or before their implementation, as the case may be; and (f) a copy of the compliance reports required under **Condition A14** of this approval.			(a) information on the current status of the SSI; (b) a copy of the EIS, and any documentation relating to any modifications made to the SSI or the terms of this approval; (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; (d) a copy of each statutory approval, licence or permit required and obtained in relation to the SSI; (e) a current copy of each document required under the terms of this approval that must be provided to the Planning Secretary for approval, which must be published before the commencement of any works to which they relate or before their implementation, as the case may be; and (f) a copy of the compliance reports required under Condition A14 of this approval. Further information is available at https://www.transgrid.com.au/what-we-do/projects/current-projects/powering-sydneys-future/Pages/default.aspx
	PART C CONSTRUCTION ENVIRONMENTAL MANAGEMENT			
	CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN			
C1	A **Construction Environmental Management Plan (CEMP)** must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the EIS will be implemented and achieved during construction.	CEMP		The CEMP (this Plan) provides a central mechanism for all potential environmental impacts will be managed. It outlines the framework for the management of environment impacts. The CEMP has been prepared and will be implemented during construction. The CEMP incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report.
C2	The **CEMP** must be submitted to the Planning Secretary for approval no later than one (1) month before the commencement of construction.	CEMP		Condition noted.
C3	The following **CEMP Sub-plans** must be prepared in consultation with the relevant government agencies identified for each **CEMP Sub-plan** in Table 1.	CEMP All Sub-plans (consultation section)	Section 1.5	All Sub-Plans were provided to the relevant councils and agencies for consultation, as applicable. The outcomes of consultation have been incorporated into the final Sub-plans. A copy of the consultation undertaken for each Sub-Plan is included in the appendices of each Sub-plan.
C3(a)	Traffic and Transport	CEMP	CEMP Appendix C1 - CTTMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(b)	Noise and Vibration	CEMP	CEMP Appendix C2 - CNVMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(c)	Air Quality	CEMP	CEMP Appendix C3 - CAQMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(d)	Vegetation and biodiversity	CEMP	CEMP Appendix C4 - CVBMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(e)	Soil and Water	CEMP	CEMP Appendix C5 - CSWMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(f)	Heritage	CEMP	CEMP Appendix C6 - CHMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C3(g)	Public Infrastructure	CEMP	CEMP Appendix C7 - CPIMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.

CoA ID	Requirement	Document	Reference	How addressed
C3(h)	Waste	CEMP	CEMP Appendix C8 - CWMP	A Sub-Plan has been prepared which incorporates and responds to all relevant CoA, EMMMs identified in the Project EIS and Amendments Report. Relevant government agencies were consulted for this Sub-plan as required by CoA C3 Table 1.
C4	Details of all information requested by an agency to be included in a **CEMP Sub-plan** as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant **CEMP Sub-Plan**.	CEMP All Sub-plans (consultation section)	Section 1.5	All CEMP Sub-plans have been developed in consultation with the required agencies. Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including copies of all correspondence from those agencies, are provided with the relevant CEMP Sub-Plan. A copy of the consultation undertaken for each Sub-Plan is included in the appendices of each Sub-plan.
C5	Any of the **CEMP Sub-plans** may be submitted along with, or subsequent to, the submission of the **CEMP** but in any event, no later than one (1) month before construction.	CEMP		Condition noted. All CEMP Sub-plans will be submitted to the DPIE no later than one month before construction.
C6	Construction must not commence until the **CEMP** and all **CEMP Sub-plans** have been approved by the Planning Secretary. The **CEMP** and **CEMP Sub-plans**, as approved by the Planning Secretary, must be implemented for the duration of construction. Where construction of the SSI is staged, construction of a stage must not commence until the CEMP and sub-plans for that stage have been approved by the Planning Secretary.	CEMP		Condition noted. Construction will not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, will be implemented for the duration of construction. If a future decision is made to stage construction of the SSI, construction of a stage will not commence until the CEMP and sub-plans for that stage have been approved by the Planning Secretary.
	Management Plan Requirements			
C7	The CEMP and CEMP Sub-plans required under this approval must be prepared by suitably qualified and experienced persons in accordance with relevant guidelines, and include where relevant:	CEMP and all CEMP Sub-plans [a]		The CEMP and CEMP Sub-plans required under this approval have been prepared by suitably qualified and experienced persons in accordance with relevant guidelines, and include all required information where relevant. Credentials are provided on the Document Control (QA page)
C7 (a)	a summary of relevant background or baseline data;	CEMP and all CEMP Sub-plans [a]	Section 1.1	Project and Planning Background, requirements and Project response
C7 (b) i	details of: the relevant statutory requirements (including any relevant approval, licence or lease conditions);	CEMP and all CEMP Sub-plans [a]	Section 1.5 Section 1.6 Section 1.7.1 Appendix A2	Section 1.5 contains information on Consultation requirements Section 1.6 contains information on Requirements for CEMP approval Section 1.7.1 contains information on Conditions of Approval requirements and responses. Appendix A2 contains information on all Conditions of Approval requirements and response for the CEMP and all Sub-plans.
C7 (b) ii	any relevant limits or performance measures and criteria; and	CEMP and all CEMP Sub-plans [a]	Appendix A3 Section 8	Appendix A3 contains information on Environmental Management and Mitigation Measures and outlines performance measures and criteria, as relevant Section 8 also outlines how performance is measured and reported.
C7 (b) iii	the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the SSI or any management measures;	CEMP and all CEMP Sub-plans [a]	Appendix A3 Section 8	Appendix A3 contains information on Environmental Management and Mitigation Measures outlines performance measures and criteria, as relevant The reporting sections and Trigger Action Response Plans in the Sub-Plans, as applicable, outlines how performance is measures and reported.
C7 (c)	any relevant commitments or recommendations identified in the EIS;	CEMP and all CEMP Sub-plans [a]	Appendix A3	Appendix A3 contains information on Environmental Management and Mitigation Measures included as commitments in the EIS.
C7 (d)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	CEMP and all CEMP Sub-plans [a]	Appendix A & C	Environmental requirements and performance measures to comply with requirements from Traffic Management (Appendix C1) through to Waste Management (C8) are included. Refer Sub-Plans in Appendices C1 to C8.
C7 (e)	a program to monitor and report on the:	CEMP and all CEMP Sub-plans [a]	Section 8	Section 8 describes actions the project will take regarding monitoring, reporting and review
	(i) impacts and environmental performance of the SSI; and	CEMP and all CEMP Sub-plans [a]	Section 7 Section 8.1	Section 7 provides information regarding environmental incident and emergency response actions. Section 8.1 contains information regarding monitoring, inspections, auditing and reporting on environmental Management performance.
C7 (e) ii	(ii) effectiveness of the management measures set out pursuant to paragraph (d);	CEMP and all CEMP Sub-plans [a]	Section 8.3 Section 8.4	Section 8.3 provides information on management review actions. Section 8.4 details the CEMP update and revision process and triggers.

CoA ID	Requirement	Document	Reference	How addressed
C7 (f)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	CEMP and all CEMP Sub-plans [a]	Section 7 Section 8.5 to 8.7	Each Sub-plan provides information on managing unpredicted impacts Sections 8.5 to 8.7 provides the overarching details on the management and response framework.
C7 (g)	a program to investigate and implement ways to improve the environmental performance of the SSI over time;	CEMP and all CEMP Sub-plans [a]	Section 8 Section 8.4	A number of events may trigger the update and revision of the CEMP, these are detailed in section 8
C7 (h)	a protocol for managing and reporting any:	CEMP and all CEMP Sub-plans [a]		
	(i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion;	CEMP and all CEMP Sub-plans [a]	Section 7	A protocol for CEMP incident and emergency response is included in the CEMP. Non-compliance management is also provided in Section 7.4.
C7 (h) ii	(ii) complaint; or	CEMP and all CEMP Sub-plans [a]	Community Communication Strategy Section 6 Complaints management system Section 5.3.2	In accordance with the Conditions of Approval Part B, all complaints will be managed in accordance with the Community Communication Strategy (Refer section 6 for protocol) and via the complaints management system. Complaint management is addressed in Section 5.3.2.
C7 (h) iii	(iii) failure to comply with other statutory requirements; and	CEMP and all CEMP Sub-plans [a]	Section 8.3 Section 8.4 Section 8.1 Section 7.3	TransGrid and its contractors are obliged to comply with all statutory requirements. In the event of failure to meet statutory requirements, these would be immediately recorded, reported to TransGrid consistent with CEMP Sections 8.3 and 8.4. and action would be taken. Investigations would be undertaken consistent with the triggers in Section 8.1 for continuous improvement, with immediate actions taken to address any incidents or emergencies consistent with the CEMP section 7.3
C7 (i)	a description of the roles and environmental responsibilities for relevant employees, as well as training and awareness; and	CEMP and all CEMP Sub-plans [a]	Section 7.2 Appendices C1- C8	Section 7.2 contains a description of roles and responsibilities for Incidents. Sub-Plan specific responsibility is set out in each Sub-plan.
C7 (j)	a protocol for periodic review of the CEMP and associated subplans and programs.	CEMP and all CEMP Sub-plans [a]	Section 8.1 Section 8.3 & 8.4	Refer Section 8.1 for information related to how continuous improvement Refer Section 83 & 8.4 for information on management reviews/ plan update & revision
	PART D OPERATIONAL ENVIRONMENTAL MANAGEMENT			
	OPERATIONAL ENVIRONMENTAL MANAGEMENT			
D1	An **Operational Environmental Management Plan (OEMP)** must be prepared to detail how the performance outcomes, commitments and mitigation measures made and identified in the EIS will be implemented and achieved during operation. This condition (**Condition D1**) does not apply if **Condition D2** of this approval applies.	-		The OEMP or EMS or equivalent as agreed with the Planning Secretary, must be submitted to the Planning Secretary for information no later than one (1) month before the commencement of operation.
D2	An **OEMP** is not required for the SSI if the Proponent has an **Environmental Management System (EMS)** or equivalent as agreed with the Planning Secretary, and demonstrates, to the satisfaction of the Planning Secretary, that through the **EMS**: (a) the performance outcomes, commitments and mitigation measures, made and identified in the EIS, and specified relevant terms of this approval can be achieved; (b) issues identified through ongoing risk analysis can be managed; and (c) procedures are in place for rectifying any non-compliance with this approval identified during compliance auditing, incident management or any other time during operation.	-		The OEMP or EMS or equivalent as agreed with the Planning Secretary, must be submitted to the Planning Secretary for information no later than one (1) month before the commencement of operation.
D3	The **OEMP** or **EMS** or equivalent as agreed with the Planning Secretary, must be submitted to the Planning Secretary for information no later than one (1) month before the commencement of operation.	-		The OEMP or EMS or equivalent as agreed with the Planning Secretary, must be submitted to the Planning Secretary for information no later than one (1) month before the commencement of operation.
	PART E KEY ISSUE CONDITIONS			

CoA ID	Requirement	Document	Reference	How addressed
	NOISE AND VIBRATION			
	Construction Noise and Vibration Management Levels			
E1	The Proponent must implement reasonable and feasible mitigation measures with the aim of achieving the construction noise management levels in Table 2. *Notes:* *• The Department acknowledges that a considerable number of sensitive receivers are predicted to experience exceedances of these noise management levels as the construction works approach the receivers. Condition E3 requires exceedances to be managed in accordance with the Noise and Vibration CEMP Sub-Plan.* *• Noise is to be measured in accordance with the relevant provisions of the EPA's Interim Construction Noise Guideline.* *• Standard construction hours are defined as: o Monday to Friday: 7.00am to 6:00pm; o Saturday: 8:00am to 1:00pm; and* *o No work Sundays or public holidays.*	CNVMP	Section 10, Section C9	The CNVMP has been prepared which incorporates all mitigation and management measures identified in the Project EIS and Amendments Report. The mitigation measures are presented in Section 10, including community consultation and respite, Standard Noise and Vibration Environmental Control Measures, Implementation of Further Environmental Control Measures and Additional Mitigation Measures. Section C9 also nominates Maximum Plant and Equipment Sound Power Levels to be used on the Project and auditing procedure in Section 11.5.
	[Table 2]			
E2	The Proponent must implement reasonable and feasible mitigation measures with the aim of complying with the following vibration limits: (a) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); (b) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; (c) vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage); and (d) minimum working distances to sensitive receivers as outlined in Table 3. *Note: The Department acknowledges that sensitive receivers may experience exceedances of these vibration criteria as the construction works approach the receivers. **Condition E3** requires exceedances to be managed in accordance with the Noise and Vibration CEMP Sub-Plan*	CNVMP	Section 10, Section 9.2.3	The CNVMP has been prepared which incorporates all mitigation and management measures identified in the Project EIS and Amendments Report. Alternatives to rock breaking are explored in Section 9.2.3.
	[Table 3]			
E3	Any works identified as exceeding the noise management levels and/or vibration criteria must be managed in accordance with the **Noise and Vibration CEMP Sub-plan**.	CNVMP	Section 10, Section 8.6, Section 8.7	The CNVMP has been prepared which incorporates all mitigation and management measures identified in the Project EIS and Amendments Report. The mitigation measures are presented in Section 10, including community consultation and respite, Standard Noise and Vibration Environmental Control Measures, Implementation of Further Environmental Control Measures and Additional Mitigation Measures. Plant and activity specific vibration trials presented in Section 8.6 will verify vibration emission levels for comparison against the CoA E2 vibration limits. Vibration emissions will be monitored with trigger levels (Section 8.7) set at site specific vibration management levels to ensure compliance with the vibration limits.
	Construction Hours			
E4	Works must only be undertaken during the hours identified in Table 4. *Note: Classified roads in the project area are identified in Condition E29.*	CNVMP	Section 6.1	The CNVMP nominates the Approved Construction Hours in Section 6.1
	[Table 4]			
E5	Despite **Condition E4**, highly noise intensive works that result in noise levels at sensitive receivers exceeding 75 dB(A) $L_{Aeq(15\ minute)}$ at the same receiver must only be undertaken: (a) during standard construction hours; and (b) if continuously, then not exceeding three (3) hours, with a minimum respite from these works of not less than one (1) hour between each	CNVMP	Section 6.2	The CNVMP nominates the Construction Hours for Highly Noise Intensive Works and corresponding respite periods in Section 6.2

CoA ID	Requirement	Document	Reference	How addressed
	block. For the purposes of this condition, 'continuously' includes any period during which there is less than one (1) hour respite between ceasing and recommencing any of the work.			
	Variation to Work Hours			
E6	Despite **Conditions E4 and E5** works may be undertaken outside the hours specified in the following circumstances: (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) works approved under an **Out-of-Hours Work Protocol** as required by **Condition E8**; or (d) construction that causes $L_{Aeq(15\ minute)}$ noise levels: (i) no more than 5 dB(A) above the rating background level at any residence in accordance with the *Interim Construction Noise Guideline (DECC, 2009)*, and (ii) no more than the noise management levels specified in **Condition E1** at other sensitive land uses; (iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of *Assessing Vibration: a technical guideline* (DEC, 2006), and (iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of *Assessing Vibration: a technical guideline* (DEC, 2006).	CNVMP	Section 6.3	The CNVMP nominates the Variation to Work Hours Process in Section 6.3 which works can be undertaken out of hours without additional approval, such as low noise and vibration impact activities, material deliveries as required by police or other authority or in case of emergency and previously approved works. All other works will require approval under the Out-of-Hours Work Protocol.
E7	On becoming aware of the need for emergency works in accordance with **Condition E6(b)**, the Proponent must notify the Department of the reasons for such work. The Proponent must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those works.	CNVMP	Section 6.3	The CNVMP nominates the Variation to Work Hours Process in Section 6.3 and identifies the requirement to notify DPIE and endeavour to notify noise and/or vibration affected sensitive receivers
	Out-of-Hours Work Protocol			
E8	An **Out-of-Hours Work Protocol** must be prepared to identify a process for the consideration, management and approval of works which are outside the hours defined in **Conditions E4 and E5**. The Protocol must be approved by the Planning Secretary before commencement of the works. The Protocol must: (a) be prepared in consultation with the relevant council(s); (b) provide a process for the consideration of out-of-hours works against the relevant noise and vibration criteria, including the determination of low and high-risk activities; (c) provide a process for the identification of mitigation measures for residual impacts, including respite periods in consultation with the community at each affected location, consistent with the requirements of **Condition E9**; (d) provide a process for the identification of out-of-hours works undertaken by third parties in the vicinity of the project area, and coordination of out-of-hours works with these third parties to achieve respite periods in locations where receivers may be affected by concurrent construction works; (e) identify an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where: (i) low risk activities can be undertaken without the approval of the Planning Secretary; and (ii) high risk activities that are approved by the Planning Secretary; and	CNVMP	Appendix D Out of Hours Work Protocol	The Out of Hours Work Protocol is included in Appendix D if the CNVMP and addresses all the requirements of CoA E8.

CoA ID	Requirement	Document	Reference	How addressed
	(f) identify Department, EPA, relevant council and community notification arrangements for approved out-of-hours work.			
E9	In order to undertake out-of-hours work, the Proponent must identify appropriate respite periods for the out-of-hours works in consultation with the community at each affected location on a regular basis. This consultation must include (but not be limited to) providing the community with: (a) a schedule of likely out-of-hours work for a period no less than two (2) months; (b) the potential works, location and duration; (c) the noise characteristics and likely noise levels of the works; and (d) likely mitigation and management measures. The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hours works must be provided to the Planning Secretary.	CNVMP	Appendix D Out of Hours Work Protocol	Section 9.2 of the Out of Hours Work Protocol is included in Appendix D if the CNVMP presents a Community Out of Hours Consultation process
	Noise and Vibration CEMP Sub-Plan			
E10	The **Noise and Vibration CEMP Sub-Plan** required under **Condition C3** must include a: (a) description of the reasonable and feasible measures that would be implemented to minimise noise and vibration impacts of the SSI; (b) detailed description of the noise and vibration management system for the SSI; (c) protocol for scheduling of noise generating works in the vicinity of potentially-affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) outside sensitive periods as far as reasonable and feasible; (d) protocol for the identification, notification and management of works that exceed the noise management levels and/or vibration criteria, including provision for specialist heritage advice for any works that exceed the vibration criteria for cosmetic damage at heritage items; and (e) monitoring program that evaluates and reports on the effectiveness of the noise and vibration management system.	CNVMP	CNVMP	The CNVMP has been prepared to meet the requirements of CoA E10. (a) The mitigation measures are presented in Section 10, including community consultation and respite, Standard Noise and Vibration Environmental Control Measures, including Environmental Management Mitigation Measures (committed to in Chapter 3 of the EIS Amendment Report), Implementation of Further Environmental Control Measures and Additional Mitigation Measures. (b) The scope and objectives of the CNVMP and its integration into the overall environmental management system for the Project is detailed in Section 1. (c) The CNVMP supports activities to be undertaken during less sensitive periods (Standard Construction Hours) through imposing more restrictive noise limits and more onerous approvals process, community negotiation and notification during sensitive periods (Outside Standard Construction Hours) (d) A Construction Noise and Vibration Impact Statement (CNVIS, refer to Section 9) will be prepared to predict the noise and vibration emissions from the construction activities and identify any exceedances of the noise and vibration criteria and the corresponding management and notification requirements.
	AIR QUALITY			
E11	In addition to the performance outcomes, commitments and mitigation measures specified in the EIS, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the SSI.	CAQMP	This CAQMP Section 5.	This document outlines all reasonably practicable measures that must be implemented during construction.
	SOIL AND WATER			
	Erosion and Sedimentation			
E12	The Proponent must install and maintain suitable erosion and sediment control measures in the project area during construction, in accordance with the relevant requirements in the guidance series *Managing Urban Stormwater: Soils and Construction (Landcom, 2004).*	CSWMP	Section 5 CSWMP CLMP	Erosion and sediment control measures are documented throughout this plan.
E13	Unless otherwise authorised by an EPL, the Proponent must comply with section 120 of the POEO Act.	CSWMP	Section 6	Condition noted. Unless otherwise authorised by an EPL, the Proponent will comply with section 120 of the POEO Act. Any actual or potential non compliances would be reported as described in Section 6 of the CEMP.
E14	The Proponent must ensure that any groundwater dewatering activities consider reasonable and feasible alternatives to discharge to stormwater. Where groundwater is discharged to stormwater, wastewater pollutant discharge concentrations, unless otherwise agreed by the EPA, must achieve criteria in the national *Water Quality Guidelines* at a 95% protection level for marine ecosystems and, for analytes not covered by	CSWMP	GMS	The approach to groundwater dewatering is described in detail in the GMS.

CoA ID	Requirement	Document	Reference	How addressed
	the guidelines, the amended National Health and Medical Research Council (NHMRC) *Australian Drinking Water Guidelines (2015)*.			
	Riparian Areas			
E15	Works on waterfront land must be carried out in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2018).	CSWMP	Section 4.4.2	Works will be carried out in accordance with the Guidelines for Controlled Activities on Waterfront Land (2018), however an approval is not required under the SSI.
	Flooding			
E16	The Proponent must ensure that the SSI does not materially alter the flood storage capacity, flows or characteristics in the project area, unless otherwise agreed by the relevant council(s).	CSWMP	FMS	The FMS describes the work completed to assess this, and requires the existing surfaces to be returned to pre-existing.
	Acid Sulfate Soils			
E17	The Proponent must ensure that any construction activities in identified areas of acid sulfate soil risk are undertaken in accordance with the *Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998).*	CSWMP	ASSMP	The ASSMP has been developed consistent with the Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998).
	Contaminated Land			
E18	The Proponent must engage an EPA accredited site auditor to prepare a **Site Audit Statement(s)** in accordance with the Contaminated Land Management Act 1997, confirming that the proposed measures in the **Contaminated Land Management Plan** required under **Condition E20** are appropriate to manage contaminated soils, groundwater and/or landfill gas in: (a) the former landfill areas in Sydney Park in Alexandria and Camdenville Park in St Peters; and (b) any additional or unexpected areas of contamination identified during the development.	CLMP	SSLFGMP -Sydney Park SSLFGMP - Camdenville Park	An EPA accredited auditor has confirmed the measures proposed in the CLMP meet the requirement of Condition E20
E19	A copy of the **Site Audit Statement** must be submitted to the Planning Secretary and the relevant council(s) for information prior to the commencement of construction in the area to which the Statement applies.	CLMP		A copy of Site Audit Statement has been provided to the Planning Secretary as required by Condition E19.
	Soil and Water CEMP Sub-Plan			
E20	The **Soil and Water CEMP Sub-Plan** required under **Condition C3** must include a:	CSWMP		
	(a) **Erosion and Sediment Control Plan**, for managing erosion and sedimentation risks during construction;	CSWMP	ESCP SWMP	Condition noted. Erosion and sediment control measures will be in accordance with the Blue Book. Further information is provided in the CSWMP Section 5 and CSWMP Appendix 2 – Example Erosion and Sediment Control Plans (ESCPs) and Appendix 3 – Surface Water Management Plan (SWMP).
	(b) **Surface Water Management Plan**, for managing surface water quality and quantity, watercourse and flooding impacts of the SSI. This plan must include a:	CSWMP	SWMP	The SWMP contained in CSWMP describes how surface water quality and quantity, watercourse and flooding impacts of the SSI will be managed
	(i) **Flood Mitigation Strategy** for work within flood prone or flood affected land, demonstrating that the SSI will not exacerbate existing flooding characteristics, unless otherwise agreed by the relevant council(s); and	CSWMP SWMP	FMS	The flood mitigation strategy identifies existing flooding characteristics along the project alignment.
	(ii) **Flood Management Plan** for managing flood risk during construction;	CSWMP SWMP	FMP	The flood mitigation plan identifies requirements relating to management of flooding risks during construction.
	(c) **Groundwater Management Strategy**, for investigating, assessing and managing any groundwater dewatering for the SSI;	CSWMP	GMS	The GMS describes the procedures and protocols that TransGrid will implement for investigating, assessing and managing groundwater dewatering for the SSI
	(d) **Acid Sulfate Soils Management Plan**, for investigating, assessing and managing potential and actual acid sulfate soils in the project area;	CSWMP	ASSMP	The ASSMP describes the procedures and protocols TransGrid will implement for investigating, assessing, and managing potential or actual ASS in the project area.
	(e) **Contaminated Land Management Plan**, for investigating, assessing and managing contaminated soils, groundwater and/or landfill gas in the project area;	CSWMP	CLMP	The CLMP describes the procedures and protocols TransGrid will implement for investigating, assessing, and managing potential or actual contaminated lands in the project area.

CoA ID	Requirement	Document	Reference	How addressed
	(f) **Asbestos Management Plan**, for investigating, assessing and managing the potential for asbestos and other hazardous materials in the project area; and	CSWMP	AMP	This AMP has been prepared to document the procedures to be undertaken in the event that asbestos containing material (ACM) or actual asbestos is uncovered during construction works.
	(g) **Unexpected Contaminated Land and Asbestos Finds Procedure** for managing any unexpected contaminated land or asbestos (or suspected contaminated land or asbestos) excavated or otherwise discovered during construction.	CSWMP	UCLAFP	This UCLAFP has been prepared to document the procedures to be undertaken in the event that unexpected contamination is encountered during construction works.
	VEGETATION AND BIODIVERSITY			
	Avoidance			
E21	Unless otherwise agreed with the Planning Secretary, the Proponent must ensure that the SSI does not cause impacts that result in the removal of: (a) PCTs, as shown on the maps in the EIS; (b) threatened species, populations and EECs, as shown on the maps in the EIS; (c) key fish habitat in the Cooks River, as shown on the maps in the EIS; (d) all high retention value trees, as shown on the maps in the EIS, with the exception of Tree 54 adjacent to the Muir Road cable bridge; and (e) all trees in: • Sydney Park in Alexandria (including any vegetation in the City Farm orchard, and any disturbance within the nursery depot); • Barwon Park Road in Alexandria and St Peters; • Johnson Park Bushcare site and GreenWay in Dulwich Hill; • Constitution Road in Dulwich Hill; • Mildura Reserve in Campsie; • Muir Road in Chullora (fig trees in central median); and • Fifth Avenue in Campsie (heritage listed trees). *Note: The Department acknowledges that underboring will occur below identified vegetation and habitat in some parts of the project area, in a manner that is unlikely to impact vegetation and biodiversity values*.	CVBMP	The CVBMP and Section 6.	The alignment of the project avoids the areas identified in this condition. Table 7 1 identifies ECMs to achieve this requirement.
E22	The Proponent must implement reasonable and feasible measures to avoid or minimise impacts on other trees in the project area, where practicable.	CVBMP	Section 4 Section 6	Project design considerations and vegetation and biodiversity management measures are discussed in Sections 4 and 6.
	Replacement			
E23	The Proponent must implement all reasonable and feasible measures to ensure that any trees required to be removed for the SSI are replaced with at least two trees of similar biodiversity value in that location, or other measures as may be agreed with the relevant council(s) to ensure that the SSI results in a net improvement of biodiversity values over the long term.	CVBMP	Section 6.3.	Habitat offsets are identified in Section 6.3.
	Vegetation and Biodiversity CEMP Sub-Plan			
E24	The **Vegetation and Biodiversity CEMP Sub-Plan** required under **Condition C3** must include a: (a) detailed **Landscape Plan(s)** that includes: (i) final infrastructure locations, including transmission cable infrastructure and ancillary facilities; (ii) existing vegetation and biodiversity values in the project area, including all trees (including high, medium and low retention value trees) and other vegetation, PCTs, key fish habitat and threatened species, populations and EECs; (iii) trees and other vegetation that is required to be removed, pruned or otherwise affected for the project in the short term or long term; and (iv) proposed replacement and/or compensatory plantings consistent with **Condition E23**, including locations, species and planting details (including sizes, quantities and maintenance), or other measures as may be agreed by the relevant council(s); (b) detailed justification for removal of any trees or biodiversity	CVBMP	Section 6 Section 6.1.5 Section 6.1.6. Section 6.4 Appendix 2	Detailed Landscape Plans are included in Appendix 2 – Tree Register and Appendix 3 – Landscape Plans. All information is shown with the exception of E24(a)(iv) location of proposed compensatory planting. The location and delivery method of the proposed compensatory planting is subject to agreement with Councils. TransGrid and its contractors are committed to meeting E24(a)(iv). Should it be identified that trees listed in E21 are required to be removed or biodiversity vales identified in E21 are impacted, further detailed justification will be provided. This plan provides detail on all expected impacts. A protocol for managing any additional unexpected direct or indirect impact on vegetation or biodiversity values that is not identified within a landscape plan is included in Section 6.1.5. A description of the measures to be implemented in E24(d) is described in Section 6 and Section 6.4.

CoA ID	Requirement	Document	Reference	How addressed
	values identified in **Condition E21 or E22** above that is not able to be avoided, including consideration of: (i) the ecological, health, amenity and visual values of the vegetation; and (ii) all options to avoid vegetation removal, including relocation or redesign of infrastructure or ancillary components, and other vegetation protection measures; (c) protocol for managing any additional unexpected direct or indirect impact on vegetation or biodiversity values that is not identified within a landscape plan under sub-condition (a) above, in consultation with the relevant council(s); (d) description of the measures to be implemented in the project area to: (i) minimise the amount of clearing and indirect impacts to vegetation; (ii) minimise long term impacts on vegetation, including risks associated with root growth in proximity to the project-related infrastructure; (iii) minimise impacts on fauna habitat resources such as hunting and foraging areas, habitat trees and hollow-bearing trees; (iv) minimise impacts on fauna, including undertaking pre-clearance surveys and avoiding impacts during key breeding seasons for threatened bats and birds; (v) protect vegetation and fauna habitat outside of the approved disturbance areas; (vi) minimise impacts of any infrastructure in public parks and open space areas, including ensuring appropriate depth of cover to allow vegetation and/or turf cover; (vii) manage potential indirect impacts on threatened flora and fauna species; (viii) control weeds, including measures to avoid and mitigate the spread of noxious weeds; and (ix) control feral pests; and (e) protocol for community engagement and notification to inform the public of any tree removal associated with the project; and (f) monitoring program to monitor vegetation impacts (including impacts from underboring) and replanting activities during and following construction.			Protocols for community engagement to inform the community of Tree removal are included in the Community Communication Strategy. A monitoring program to monitor vegetation impacts is described in Section 6.1.6.
	HERITAGE			
	Avoidance			
E25	The Proponent must ensure that the SSI does not cause any direct or indirect impacts on the: (a) area of potential Aboriginal archaeological sensitivity at Mildura Reserve in Campsie, as shown on the maps in the EIS; (b) heritage listed brick paving in Enmore Road and Juliett Street in Marrickville.	CHMP	Section 5 Section 5.1 ECM-H07 ECM-H08 ECM-H09 ECM-H10 ECM-H12 ECM-H13 ECM-H14	Works within Mildura Reserve have been avoided. Works within the vicinity of the brick paving in Enmore Road and Juliett Street in Marrickville, will be protected and managed in accordance with the Construction Noise and Vibration Management Plan (CNVMP).
	Heritage CEMP Sub-Plan			
E26	The **Heritage CEMP Sub-Plan** required under **Condition C3** must include a: (a) description of the measures to avoid impacts on the area of potential Aboriginal archaeological sensitivity and heritage items in the project area; and (b) **Unexpected Heritage Finds and Human Remains Procedure** to	CHMP	Section 5.2 ECM-H01 ECM-H02 ECM-H03 ECM-H05 Appendix 2	Whilst works will be avoided in areas with potential Aboriginal archaeological sensitivity, a description and management measures associated with potential Aboriginal archaeological sensitivity has been included. A range of ECMs have been included as references, which further documents control measures to avoid impacts A full description of precautionary measures in relation to avoiding impacts in the area of potential Aboriginal archaeological sensitivity (Mildura Reserve) is included in Section 5.2.

CoA ID	Requirement	Document	Reference	How addressed
	manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Division or Heritage Council of NSW.			The Unexpected Heritage Finds and Human Remains Procedure is included as Appendix 2.
	TRAFFIC AND TRANSPORT			
	Access			
E27	During construction, all reasonable and feasible measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, affected properties and businesses. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be minimised, alternative pedestrian and vehicular access arrangements must be developed in consultation with affected land users and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.	CTTMP	Section 4.6	Various environmental and traffic management measures will be applied to ensure resident access is maintained throughout the project including Home & Business Plans, as detailed in the project's Community Communication Strategy, when access is blocked for an extended period of time. Any access physically affected by the Project will be reinstated at no cost to the property owner. The mitigation and management measures for property access are outlined in Section 4.6
	Pedestrian and Cyclist Access			
E28	Safe pedestrian and cyclist access must be maintained around work sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, an alternate route which complies with the relevant standards must be provided and signposted.	CTTMP	Section 4.4	Processes for managing disable, pedestrian and cyclist access during construction are outlined in Section 4.4 Existing pedestrian and cycling facilities will be maintained where feasible and any alternative routes will be established in compliance with RMS Traffic Control at worksites and AS1742.3.
	Classified Roads and Rail Corridors			
E29	Unless otherwise agreed by the relevant roads authority or rail authority:			
E29 (a)	(a) road crossings on classified roads identified in Table 4 must be constructed via underboring methods;	CTTMP	-	Road crossings on classified roads identified in CoA Table 4 will be constructed via underboring methods. If alternative construction methods are more suitable, this would be agreed with TfNSW Asset Management.
E29 (b)	(b) rail crossings must be constructed via underboring methods, apart from the approved cable bridge across the rail corridor at Chullora and the Bedwin Road cycle bridge at St Peters; and	CTTMP	Refer to Section 3.6.2. Refer to design drawings	Rail crossings have been designed as underbores. Refer Section 3.5.2
E29 (c)	(c) joint bays must not be constructed in classified roads or rail corridors.	CTTMP	No reference within this document. Refer to design drawings	Joint bays will not be located in rail corridors. Joint bays will not be located in classified roads unless otherwise agreed by the relevant roads authority.
	Traffic and Transport CEMP Sub-Plan			
E30	The **Traffic and Transport CEMP Sub-Plan** required under **Condition C3** must include:			
	(a) a description of the construction program, construction hours and access arrangements;	CTTMP	Refer to CEMP Section 2.6. Refer to Section 3.3 Refer to Section 4.6 for access arrangements	An construction program is included in the CEMP Section 2.6. Section 3.3 outlines construction hours . Access arrangements are detailed in Section 4.6.
	(b) a description of the proposed measures for managing traffic flow around the work sites;	CTTMP	Section 4.5	Various measures listed in Section 4.5 will be used to manage the flow of traffic around the work site.
	(c) provisions for additional traffic assessment and modelling where necessary to confirm the adequacy of the proposed traffic management measures, lane closures and diversions;	CTTMP	Section 4.2.1	Consultation with TMC has identified several locations where additional traffic assessment is necessary. These locations are identified in Section 4.2.1. Site-specific TMPs will be developed and approved by the relevant authorities prior to works commencing.
	(d) provisions for maintaining property access and on-street parking as far as reasonable and feasible, and for minimising and managing any disruptions to access and parking;	CTTMP	Section 4.6	Various environmental and traffic management measures will be applied to ensure resident access is maintained. The mitigation and management measures for property access are outlined in Section 4.6
	(e) provisions for maintaining emergency vehicle access at all times;	CTTMP	Section 4.6.3	Access for emergency vehicles will be maintained at all times. For example, no closures of main roads will occur. Emergency Services will be notified and consulted with the site-specific TMP, if there are any potential issues associated with impacting access.

CoA ID	Requirement	Document	Reference	How addressed
				Site-specific TMPs will be approved by the relevant authorities prior to works commencing.
	(f) provisions for maintaining pedestrian, cycle and disabled access as far as reasonable and feasible;	CTTMP	Section 4.4	Pedestrian, cycling and disabled access will be maintained, as far as reasonable, during the works. Where access is restricted, alternative temporary facilities will be provided in compliance with relevant aspects of Austroads Guide to Road Design and Austroads Guide to Traffic Management.
	(g) provisions for minimising impacts on bus and light and heavy rail services, and managing any required temporary bus stop relocations and diversions in consultation with applicable authorities and bus operators; and	CTTMP	Section 4.3	Works will be undertaken on light and heavy rail corridors through Out of Hours (OOH's) and/or during stakeholder nominated possessions. Where possible, existing bus facilities will be maintained. However, where this cannot be achieved, equivalent temporary facilities will be provided. All proposed changes to existing routes and bus stops facilities will be discussed with the bus operator and Council(s), prior to the commencement of works.
	(h) a protocol for the preparation of Traffic Control Plans prior to the commencement of all construction works with the potential to affect traffic, outlining the required traffic controls at the work sites.	CTTMP	Section 4.1	The protocol for TCP's includes: • TCP's will be prepared by a suitably qualified technician in accordance with the Traffic control at work sites manual (Roads and Maritime, 2018) and will comply with the requirements of AS1743.3 Roads Signs - Specifications. • Classified Roads: TCP's will be submitted with ROL applications to TMC for approval via Oplinc. • Local roads: It is agreed by the relevant councils that TCP's which require diversions due to full road closures will be submitted to Council for information purposes only. All other TCP's are not required to be submitted.
	PUBLIC INFRASTRUCTURE			
E31	The **Public Infrastructure CEMP Sub-Plan** required under **Condition C3** must: (a) identify all existing and proposed public infrastructure (including buildings, structures, roads, light and heavy rail, utilities and services, and other assets) that may be directly or indirectly affected by the SSI; (b) identify all public authorities and service providers responsible for this public infrastructure; (c) identify any statutory approvals or other legal requirements that are required to be obtained by the Proponent in relation to this public infrastructure; (d) identify applicable Australian Standards and other relevant standards, procedures and guidelines in relation to this public infrastructure; (e) describe the proposed interactions between the SSI and this public infrastructure (including relevant drawings), and the proposed management measures for addressing these interactions in consultation with the applicable public authorities and service providers; (f) identify access and other requirements for working in proximity to this public infrastructure, and measures for ongoing consultation with the relevant public authorities and service providers; and (g) describe the process for ongoing maintenance of SSI assets located within the applicable public infrastructure corridors, and provision of as-built drawings to public authorities if required.	CPIMP	This CPIMP Section 4.	This document outlines all reasonably practicable measures that must be implemented prior to construction. E31 (a) Table 3.1 details the existing and proposed public infrastructure that may be directly or indirectly affected by the SSI and the responsible public authority or service provider. It should be noted that the potential impacts to public infrastructure that is heritage listed (e.g. paving in Enmore Road and Juliett Street in Marrickville) are captured in the Construction Heritage Management Plan (CHMP) and Construction Noise and Vibration Management Plan (CNVMP). (c) Table 3.2 details the statutory obligations, protections and agreements in relation to public infrastructure. (d) Relevant Australian Standards and other relevant standards, procedures and guidelines in relation to this public infrastructure is provided in Section 2.2 It should be noted that DBYD provides the relevant Guidelines in relation to the potential interaction with public infrastructure assets. (e) Detailed route plans will be submitted to DPIE once the final layout design has been identified, highlighting all potential interactions. Due to security concerns of this plan requiring to be made public, an example has been provided in Appendix 2 (f) Refer to Table 3.3 (g)Post energisation, TransGrid will undertake routine inspection and maintenance tasks including non-intrusive weekly route patrols (walk/drive the cable route). On an annual basis it may undertake monitoring for cable movement, cable testing, which would be undertaken by accessing the cable at selected pits and joint bays. Rail bridge surveys would be undertaken approximately every five years. Appendix 3 provides further details of inspections that will be undertaken.
E32	The Proponent must prepare a: (a) **Pre-construction Dilapidation Report** of the public infrastructure in the vicinity of the SSI prior to the commencement of construction; and (b) **Post-construction Dilapidation Report** of the public infrastructure in the vicinity of the SSI that was the subject of the Pre-construction Dilapidation Report within 3 months of the completion of construction, or other timing as may be agreed by the applicable authority, in consultation with the applicable public authority or service provider responsible for that	CPIMP	This CPIMP. Section 4.2 & Construction Noise and Vibration Management Plan (CNVMP) Section 9.3.3	CNVMP Section 9.3.3 identifies the requirements for building dilapidation surveys. CPIMP Section 4, Table 4.1 identifies what dilapidation surveys will be undertaken and when for all public infrastructure other than buildings.

CoA ID	Requirement	Document	Reference	How addressed
	public infrastructure, and submit a copy of the report to the Planning Secretary.			
E33	Unless the Proponent and the applicable public authority or service provider agree otherwise, the Proponent must: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the SSI; and (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the SSI, to the satisfaction of the applicable public authority or service provider. *Note: This condition does not apply to any damage to roads caused as a result of general road usage.*	CPIMP	This CPIMP Section 3.3	Table 3.1 identifies arrangements or agreements to ensure any 'potential' damages cause to other public infrastructure assets are at the expense of TransGrid.
	VISUAL AMENITY			
	Lighting and Security			
E34	The Proponent must construct and operate the SSI with the objective of minimising light spillage to surrounding properties. All lighting associated with the SSI must be consistent with the requirements of *Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting* and relevant Australian Standards in the series *AS/NZ 1158 – Lighting for Roads and Public Spaces*. Notwithstanding, the Proponent must implement reasonable and feasible measures to minimise any residual lighting impacts to sensitive receivers, in consultation with affected land users.	CVBMP	ECM-VB26	Lighting impacts will be managed in consistent with this requirement.
	HAZARDS AND RISK			
	Dangerous Goods			
E35	The Proponent must ensure that the storage, handling, and transport of dangerous goods is undertaken in accordance with the relevant Australian Standards and guidelines, particularly AS1940 and AS1596, the Dangerous Goods Code, and the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual.*	CEMP	Section 6.1	The storage, handling, and transport of dangerous goods will be undertaken in accordance with the relevant Australian Standards and guidelines, particularly AS1940 and AS1596, the Dangerous Goods Code, and the EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual.
	Electric and Magnetic Fields			
E36	The Proponent must ensure that the design, construction and operation of the SSI is managed to comply with the applicable EMF limits in the *International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF* (ICNIRP, 2010).	CEMP	Section 6.2	TransGrid will ensure that the design, construction and operation of the SSI is managed to comply with the applicable EMF limits in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ICNIRP, 2010).
	WASTE			
E37	Waste generated during construction and operation must be dealt with in accordance with the following priorities: (a) waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; (b) where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.	CWMP	Section 4 Table 5 1.	The management measures that will be applied to waste generated during construction are detailed in Section 4. Management will include the prioritisation of waste according to the principles of the waste management hierarchy. Table 4-2 and Table 5 1 details the strategies and mitigation measures that will be undertaken to avoid and reduce the generation of waste. Waste treatment and disposal processes will be utilised when reuse, recycling or recovery is not feasible. These methods are outlined in Section 4 and detailed in Table 5 1.
E38	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the *Protection of the Environment Operations Act 1997*, the *Protection of the Environment Operations (Waste) Regulation 2014*, and orders or exemptions under the regulation.	CWMP	Section 4, Table 5-1, WM07, WM10, WM15, WM16	The waste storage, treatment, processing and disposal protocols, as outlined in Section 4 have been developed in compliance the Protection of the Environment Operations Act 1997, and the Protection of the *Environment Operations (Waste) Regulation 2014.*
E39	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste)*	CWMP	Section 4 Table 5 1.	The storage, treatment and disposal of waste off-site will only occur at a facility licensed by the EPA. To ensure waste management practices are being followed, a waste tracking register will be maintained and waste facility receipts audited. Waste disposal requirements are outlined in Section 4.1.4 and ECM's (vis.WM07,

CoA ID	Requirement	Document	Reference	How addressed
	Regulation 2014, or to any other place that can lawfully accept such waste.			WM10, WM15, WM16 A register of waste treatment and disposal facilities is provided in Appendix 2
E40	All waste must be classified in accordance with the EPA's *Waste Classification Guidelines*, with appropriate records and disposal dockets retained for audit purposes.	CWMP	Section 4 Table 5 1. Section 6.5	All waste will be classified in accordance with the NSW EPA's Waste Classification Guidelines as summarised in Sections 4.2. Relevant documents and disposal dockets will be retained for audit purposes (ECM-WM24) and section 6.5.

Note:

[a] Refer relevant CEMP Sub-plan for additional detailed information on how this requirement is addressed by the relevant CEMP Sub-plan.

Appendix A3 – Environmental Management and Mitigation Measures

ID	Impact	Measure	Timing	Document	Reference	How addressed
General						
GE1	General	TransGrid will carry out the construction and operation of the project in accordance with the EIS, Response to Submissions Report and the approval conditions.	Detailed design, construction and operation	CEMP		The CEMP describes how TransGrid will carry out the construction of the project in accordance with the EIS, Response to Submissions Report (updated EMMMs) and the Conditions of Approval. The operation of the project will be in accordance with Part D of the Conditions of Approval.
GE2	CEMP	A CEMP will be prepared prior to the commencement of construction. The CEMP will demonstrate an understanding of the environmental objectives and outcomes described within the EIS and the requirements set out in the conditions of approval for the project and any other legislative requirements. It will also document mechanisms for demonstrating compliance with the commitments made in this EIS and the Response to Submissions report.	Construction	CEMP		The CEMP has been prepared consistent with this EMMM.
GE3	Environmental Management Representative	TransGrid will appoint a suitably qualitied, independent environmental management auditor to periodically audit the construction work activities to ensure that all mitigation measures are being effectively applied and that the work is being carried out in accordance with the CEMP and the environmental approval and legislative requirements.	Construction	CEMP		TransGrid has appointed independent environmental management auditor to periodically audit the construction work activities to ensure that all mitigation measures are being effectively applied and that the work is being carried out in accordance with the CEMP and the environmental approval and legislative requirements.
GE4	Training	Construction personnel will undergo inductions in accordance with the CEMP and any other training commitments agreed as part of the project approval.	Construction	CEMP	Section 4 Relevant sections in each Sub-plan	Training will be provided for all construction personnel. This will take the form of training programs, inductions and toolbox talks.
GE5	Approval and permits	All necessary approvals, licences and permits will be obtained for the project from the relevant approval authorities.	Detailed design, construction and operation	CEMP		All necessary approvals, licences and permit, outside of the SSI requirements will be obtained for the project from the relevant approval authorities. This includes: • Planning Approval • Planning Approval Modifications (if required) • Road Occupancy Licence(s) (ROL) • Out of Hours Works (OOHW) Approval • Approval for exhumation of waste • Site Audit Statement • EPL in accordance with the POEO Act (if required) • Total fire ban exemption
Traffic and transport						
TT1	General traffic impacts	Alternative construction methodologies and traffic management approaches will be considered to identify additional measures that may reduce potential impacts.	Detailed design and construction	CTTMP	Design Drawings and throughout the CTTMP document	During design development the alignment will be revised to reduce impact to classified roads.
TT2	General traffic impacts	A CTMP will be produced for the project that will outline the proposed methodology for managing traffic flow around the work sites, traffic assessment, traffic counts, modelling and/or mid-block capacity assessments to confirm measures to be put in place to manage network performance from lane closures and proposed diversion routes. The CTMP will include effective traffic management measures for the proposed work sites to ensure the construction activities can be undertaken in a safe manner. The CTMP will also	Detailed design and construction	CTTMP	The CTTMP & Section 4.2.1 of the CTTMP for site-specific CTTMPs	During consultation with TMC, SCO and Asset Management that site-specific TMP's (which consider traffic assessment, traffic counts, modelling and/or mid-block capacity assessments) are only required for the locations identified in Section 4.2.1 of the CTTMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		consider worker parking requirements and the temporary loss of on-road parking. The CTMP will be supported by TCPs.				
TT3	General traffic impacts	TCPs will be prepared for each work site. The TCP will graphically show the required traffic control at the work site, which will include, for example, lengths of merge/diverge tapers, location of traffic cones, traffic controllers, warning signage and speed limit sign locations, as required. Each TCP will be prepared by a suitably qualified technician in accordance with the Traffic control at work sites manual (Roads and Maritime, 2018) and will comply with the requirements of AS1743.3 Roads Signs - Specifications.	Detailed design and construction	CTTMP	CTTMP Section 4.1	All TCP's will be prepared by a suitably qualified technician in accordance with the Traffic control at work sites manual (Roads and Maritime, 2018) and will comply with the requirements of AS1743.3 Roads Signs -Specifications. See also E30 (h)
TT4	Road closures	In the event of road closures, diversion routes will be provided along with an assessment of the likely network performance of the proposed diversion. Where required, demand management measures will be considered in consultation with the relevant roads authorities to reduce traffic on key corridors affected by construction activities for the project by directing traffic to other appropriate roads. Diversion routes and demand management measures will be documented in the CTMP.	Detailed design and construction	CTTMP	CTTMP Section 4.1 & 4.2	Where road diversions are required on classified roads a site-specific TMP will be developed in consultation with TMC prior to works commencing on the impacted road. Road closures of local roads, will be undertaken in accordance with the pre-agreed approach to local road closures as documented in the Appendix A of the CTTMP.
TT5	Active travel impacts	Where feasible, reasonable and safe, impacts on active transport (walking and cycling) modes and routes will be minimised by maintaining access around work sites or providing diversion routes.	Construction	CTTMP	CTTMP Section 4.4	Access will generally be maintained. In instances where access is impacted, suitable site-specific temporary measures will be implemented.
TT6	Vehicle access	Vehicle access to residential and business properties will be targeted to be maintained at all times, where possible. Where restricting access to properties is required to enable construction works, vehicle access will be restored as soon as possible. Where access to a property cannot be maintained, affected owners/occupants will be informed and feasible and reasonable solutions for access to their specific location discussed.	Construction	CTTMP	CTTMP Section 4.6.1	Access will be maintained where feasible. In instances where access is impacted, suitable site-specific temporary measures will be implemented in consultation with the impacted owners/occupants
TT7	Emergency access	Access for emergency services vehicles will be maintained at all times.	Construction	CTTMP	CTTMP Section 4.6.3	Access for emergency vehicles will be maintained at all times. Where road closures are implemented, emergency services will be notified. Additionally, detours will be in place for all vehicles to follow.
TT8	Community and stakeholder consultation	TransGrid will engage with relevant stakeholders including Roads and Maritime, Transport for NSW (TfNSW), Transport Management Centre (TMC), public transport service providers (e.g. Sydney Trains, Transdev, State Transit Authority), waste collection agencies, local councils and local residents and businesses regarding potential traffic and access impacts and management options, in accordance with the Community Consultation Framework (CCF). TransGrid will work with TfNSW and bus operators to ensure that sufficient lead time and comprehensive public notification is provided, regarding changes to bus stops and services and that alternative arrangements are in place to minimise disruption during road changes. Consultation regarding the potential overlap of construction works for the project and other adjacent projects will be undertaken during detailed design to ensure that the works are coordinated, where possible.	Detailed design and construction	CTTMP	CTTMP Section 5.3	The CTTMP has been prepared in consultation with TfNSW, TMC, Transport authorities & Councils. Refer to Appendix A of the CTTMP. Prior to works commencing notifications will be sent to homes and businesses minimum seven days prior to commencement of works in that area.

ID	Impact	Measure	Timing	Document	Reference	How addressed
TT9	Impacts to bus routes	All diversions of bus routes will be agreed with TfNSW and bus operators prior to the traffic management approach being finalised; and will consider acceptable routes based on the turning paths of these vehicles.	Detailed design and construction	CTTMP	CTTMP Section 5.3 & Appendix A	Correspondence from Sydney Buses. Refer to Appendix A of the CTTMP.
TT10	Construction laydown areas	The construction laydown areas will undergo a detailed design to ensure that access/egress is possible for the nominated construction design vehicle, and to ensure that impacts to the road network are mitigated and managed. This design will be presented within the CTMP for the project.	Detailed design and construction	CTTMP	CTTMP Section 4	During design development the number of laydown areas has been reduced to one, Camdenville Park. This laydown area is required to facilitate the new cable bridge construction at Bedwin Rd. A site-specific TMP will be developed for these works. The plan will address access/ egress. The site-specific TMP will be required to be approved by the relevant Road Authority.
TT11	Parking	Workers will be encouraged to travel to the work sites using public/active transport where possible. However, some on-road parking may be required at work sites. The CTMP will detail measures to minimise parking impacts to surrounding receivers as far as possible (e.g. not parking near schools/child care centres during drop off and pick up times or not parking close to sensitive land uses with high on-road parking demand, such as hospitals).	Construction	CTTMP	CTTMP Section 4.5.1	Staff will be encouraged to utilise public transport where possible and advised of CTTMP measures, in Tool box talks, relevant to surrounding receivers.
Noise and vibration						
NV1	CNVMP	A CNVMP will be developed as part of the CEMP for the project and will include reasonable and feasible safeguards to manage the noise emissions from construction and manage any complaints which may be received. The CNVMP will include the following: • identification of nearby residences and other sensitive land uses; • description of approved hours of work; • description and identification of all construction activities, including construction work sites, equipment and duration; • description of work practices (generic and specific) which will be applied to minimise noise and vibration; • a complaints handling process; • noise and vibration monitoring procedures; • overview of community consultation/notification required (see NV2); and • the Out-of-hours Protocol developed for the project.	Construction	CNVMP Community Communication Strategy OOHW Protocol	Sections 5.1 Appendix B Section 6 Section 2 Section 10 Section 12.2 Section 11 Section 12	A CNVMP has been prepared that includes reasonable and feasible safeguards to manage the noise emissions from construction and manage any complaints which may be received. The CNVMP includes the following: • identification of nearby residences and other sensitive land uses; • description of approved hours of work; • description and identification of all construction activities; including construction work sites, equipment and duration; • description of work practices (generic and specific) which will be applied to minimise noise and vibration; • noise and vibration monitoring procedures; • overview of community consultation/notification required (see NV2); and • the Out-of-hours Protocol developed for the project. The complaints handling process is included in the Community Communication Strategy consistent with CoA B2.
NV2	Community consultation/ notification	Residents and other sensitive receivers impacted by noise and/or vibration from the proposed works which is expected to exceed the NML (as defined in Table 5-2 and Table 5-3 of Appendix E of the EIS) and/or vibration criteria (as summarised in Table 5-6 and Table 5-7 of Appendix E of the EIS) will be notified at least seven days prior to the commencement of the particular activity. The information provided to the residents and other sensitive receivers impacted will include: • programmed times and locations of construction work; • the hours of proposed works; • construction noise and vibration impact predictions; and	Construction	CNVMP	Section 12 Section 9 Appendix B	Residents and other sensitive receivers have been considered when developing the CNVMP. All relevant information as required by the Conditions of Approval, Environmental Management and Mitigation Measures and the Community Communication Strategy will be provided to residents and sensitive receivers. Detailed predictions will be assessed in Construction Noise and Vibration Impact Statement (CNVIS), which will be developed.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• construction noise and vibration mitigation measures to be implemented. Community consultation regarding construction noise and vibration is further detailed in CN&VMP.				
NV3	Site inductions	All project personnel, contractors and subcontractors will undergo an environmental induction. The induction will, at least include: • all project specific and relevant standard noise and vibration mitigation measures; • relevant licence and approval conditions; • permissible hours of work; • any limitations on high noise generating activities (e.g. use of jack hammering, rock breaking, piling rigs and diamond saws); • locations of nearest sensitive receivers; • construction employee parking areas; • designated loading/unloading areas and procedures; • site opening/closing times (including deliveries); • behavioural practices such as limiting the use of loud stereos/radios on-site and not dropping materials from height or metal items; • public complaints handling procedures; and • environmental incident management procedures.	Construction	CNVMP	Section 4 Section 10.2 Section 12.1	The induction will include all the identified elements.
NV4	Out-of-hours protocol	Where feasible and reasonable, construction will be carried out during standard construction hours. However, given that some works will be required to be undertaken outside of standard construction hours, an 'Out-of-hours Protocol' has been prepared as part of the CNVMP. This Protocol evaluates the potential noise impacts of specific out-of-hours works and recommend appropriate mitigations measures such as: • community consultation with highly noise affected receivers; • procedures to determine negotiated outcomes in consultation with affected receivers (e.g. construction scheduling during sensitive periods such as exams where construction is in the vicinity of schools); • specific mitigation measures such as respite periods; and • a monitoring program.	Construction	CNVMP	Refer to "OOHW Protocol"	An out of hours protocol has been developed that recommends additional mitigation measures and monitoring when undertaking out of hours activities.
NV5	Respite periods for works during standard construction hours	Respite periods during standard construction hours, will be identified in consultation with affected receivers. Respite options will be considered when sensitive receivers are within the minimum working distances for vibration intensive works or are highly noise affected receivers (experiencing noise levels above 75 dB(A)). Respite options will include consideration of amendments to work schedules. Vibration intensive or high noise generating equipment will be used in continuous blocks, not exceeding three hours each, with a minimum respite period of one hour between each block.	Construction	CNVMP	Section 6.2 Section 10.1	This EMMM is superseded by Condition E5. Respite has been discussed and considered in the CNVMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
NV6	Respite periods for works outside of standard construction hours	The need to consider respite periods will be triggered where the LAeq(15min) noise levels exceed 75 dB(A) at the same receiver after midnight for more than three consecutive nights. Where this level is exceeded, respite periods will be considered in accordance with the Out-of-hours Protocol (refer to NV4).	Construction	CNVMP	Refer to "OOHW Protocol"	Superseded by Conditions E8 and E9. Respite has been discussed and considered in the OOHP.
NV7	Construction hours and scheduling	Where feasible and reasonable, construction will be carried out during standard construction hours. Where required to be completed outside of standard construction hours, in proximity to sensitive receivers, works generating high noise and/or vibration levels (including the use of rock breakers and diamond saws) will be scheduled during less sensitive time periods.	Construction	CNVMP	Section 6	Confirmation of work hours and approach is included in the CNVMP.
NV8	Noise monitoring	A noise monitoring program will be implemented for the duration of the works in accordance with the CNVMP and will focus on the use of high noise generating plant (e.g. jack hammering, rock breaking, piling rigs and diamond saws) and works outside of standard construction hours.	Construction	CNVMP	Section 11.4 Section 11.6	A noise monitoring approach is considered in the CNVMP and will be further considered through the use of Construction Noise and Vibration Impact Statement (CNVIS), or equivalent.
NV9	Equipment selection and placement	Equipment selection will consider potential noise and vibration impacts and quieter equipment and/or construction methods will be used where feasible and reasonable. Plant and equipment will: • have an operating sound power level of no more than those listed in the Construction Noise and Vibration Impact Assessment in Appendix E of the EIS; • be maintained and operated in an efficient manner, in accordance with manufacturer's specifications, to reduce the potential for adverse noise and vibration impacts; • be fitted with non-tonal reversing beepers (or an equivalent mechanism); • be throttled down or shut down when not in use; • minimise noise through: - use of residential grade mufflers; - use of damped hammers such as "City" Model Rammer Hammers; and - silencing air parking brakes. High noise generating plant will: • be located so that the offset distance between the plant and adjacent sensitive receivers is maximised as far as possible; and • be directed away from sensitive receivers, where possible to do so.	Detailed design and construction	CNVMP	Section 9.2 Section 9.2.2 Section 9.2.1 Section 11.5 Section 10.2 Section 10.3 Section 10.2 Section 10.3 Section 10.3	The CNVMP considers potential noise and vibration impacts based on construction methods documented in the EIS. Construction Noise and Vibration Impact Statement (CNVIS) or equivalent will be used to consider and guide plant and equipment selection. This EMMM is superseded by Conditions E1 to E10. EMMMs will be used to ECM implementation.
NV10	Construction traffic	Potential noise impacts from construction vehicles will be minimised through the following: • traffic flow, parking and loading/unloading areas will be planned to minimise reversing movements within the work sites and at construction laydown areas; • loading and unloading of materials/deliveries will occur as far as possible from sensitive receivers;	Construction	CNVMP	Section 7.6 Section 10.2	This EMMM is superseded by Conditions E1 to E10. EMMMs will be used to ECM implementation.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• shielding loading/unloading areas if close to sensitive receivers, where feasible (i.e. breaking the line of site between the area and the receiver); • fitting delivery vehicles with straps rather than chains for unloading, wherever possible; • selecting construction laydown area access points and roads as far away as possible from sensitive receivers; • locating delivery and haulage routes away from sensitive receivers, where possible; and • scheduling deliveries during less sensitive times, where possible.				
NV11	Steel road plates	The use of road plates will be minimised, where possible. Where required to be used, the plates will be installed in a manner that minimises the potential for displacement by traffic loading and minimises any height difference with the adjacent road surface in order to reduce the potential for impact noise generation from tyres traversing the plates.	Construction	CNVMP	Section 10.2	Considered in the CNVMP and identified as ECM.
NV12	Stationary noise sources	Low noise emitting plant and equipment (such as those with built-in shielding and mufflers) will be used wherever possible. Noise generating plant at work sites (such as compressors and generators) will be directed away from and situated furthest away from sensitive receivers, where practicable. Machinery that is not in use will be switched off.	Construction	CNVMP	Section 10.2	Considered in the CNVMP and managed via ECMs.
NV13	Shield sensitive receivers	Structures will be used to shield residential receivers from noise such as use of hoarding/noise curtains, where practicable, at construction laydown areas and special crossing work sites.	Construction	CNVMP	Section 10.2	Considered in the CNVMP and managed via ECMs.

ID	Impact	Measure	Timing	Document	Reference	How addressed
NV14		If vibration intensive equipment is to be used within the minimum working distances for cosmetic damage, then it is recommended that a different construction method with lower source vibration levels is used where feasible and reasonable. Where work within the minimum working distances for cosmetic damage is planned to occur: • attended vibration measurements will be undertaken at the work site when work commences, to determine site specific minimum working distances. As a precaution, where practicable, these measurements will be made at distances outside the minimum working distances to ensure no structural damage occurs and will provide detailed information regarding the transmission of vibration to allow site specific safe working distances to be determined; and • for listed heritage items and houses within Heritage Conservation Areas (HCAs), building conditions surveys will be undertaken. The survey will document the structural condition of these buildings/structures before construction commences and after construction is complete to identify any impacts on historical buildings/structures as a result of the project construction. Building condition surveys will be scheduled in consultation with property owners. Vibration intensive work will not proceed within the minimum working distances (recommended or site specific) unless a permanent vibration monitoring system is installed to warn operators when vibration levels are approaching the peak particle velocity objectives as outlined in DIN 4150. For work scheduled to occur near a building, within the minimum working distance for human comfort but outside the minimum working distance for cosmetic damage, the affected receivers will be notified.	Construction	CNVMP	Section 8.1 Section 8.6 Section 9.3.6 Section 11.2 Section 11.3 Section 11.7 Appendix B	Considered in the Appendix B and managed via ECMs. Construction Noise and Vibration Impact Statement (CNVIS), or equivalent will be used to consider and guide working within the minimum working distances.
Air quality						
AQ1	General dust and odour impacts	A Construction Air Quality Management Plan (CAQMP) has been prepared for the project as part of the project's CEMP. The CAQMP will identify the measures to be undertaken during construction of the project and document the complaints management process.	Construction	CAQMP	CAQMP Community Communication Strategy.	A Sub-Plan has been prepared and incorporates all mitigation and management measures identified in the Project EIS and Amendments Report. The complaints management process is included in the Community Communication Strategy.
AQ2	Dry surfaces	Regularly water all exposed surfaces at construction laydown areas (excluding stockpiles) or special crossing work sites when conditions are dry and dusty, through the use of water sprays, sprinkler systems, a water cart or other suitable methods. Frequency would be determined by how quickly the surface dries out again, with higher frequency watering required on hot, dry, windy days.	Construction	CAQMP	Section 5, ECM-AQ06	Managed via ECMs.
AQ3	Adverse weather	On days where forecast weather conditions (e.g. high winds) may result in high dust emissions, dust generating work activities may need to be rescheduled or modified. The forecast weather conditions will be included in daily tool box talks and construction planning.	Construction	CAQMP	Section 5 ECM-AQ03	Managed via ECMs and TARP.
AQ4	Stockpiles	Spoil stockpiles will be covered.	Construction	CAQMP	Section 5 ECM-AQ07	Managed via ECMs.

ID	Impact	Measure	Timing	Document	Reference	How addressed
AQ5	Drop heights	Minimise drop heights from excavators when placing spoil into trucks or onto stockpiles to reduce the potential for dust generation.	Construction	CAQMP	Section 5 ECM-AQ08	Managed via ECMs.
AQ6	Exposed surfaces	Progressively rehabilitate exposed areas at work sites to limit dust generation.	Construction	CAQMP	Section 5 ECM-AQ11	Managed via ECMs.
AQ7	Generation of dust from vehicles and plant	Ensure that all vehicles transporting soils, rock or other materials are covered when entering or exiting the work site.	Construction	CAQMP	Section 5 ECM-AQ12	Managed via ECMs.
AQ8	Generation of dust from vehicles and plant	Vehicles and plant will be free of excessive soil, where required, to reduce soil tracking onto public roadways.	Construction	CAQMP	Section 5 ECM-AQ08	Managed via ECMs.
AQ9	Generation of dust from vehicles and plant	Provide stabilised site access (where existing site is unsealed), and access points as required.	Construction	CAQMP	Section 5 ECM-AQ13	Managed via ECMs.
AQ10	Generation of dust from vehicles and plant	Construction vehicles and mobile plant will use designated haulage and access routes, where practicable, and traffic speeds at work sites will be restricted to limit the generation of dust from vehicle movements.	Construction	CAQMP	Section 5 ECM-AQ14	Managed via ECMs.
AQ11	Migration of dust off-site	If dust is seen to be migrating off-site, the source of the dust will be identified. Additional management and mitigation measures implemented (such as rescheduling the works or water spraying), where required.	Construction	CAQMP	Section 5 Section 6 ECM-AQ15	Managed via ECMs.
AQ12	Landfill gas	Site-specific landfill gas management plans will be prepared for works at locations with landfill gas (including Camdenville Park and Sydney Park) prior to any trenching and excavation. Further site investigations will be undertaken within the project area closest to Arlington Oval and Marrickville Park and where the project traverses Henson Park, in accordance with the Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases (NSW EPA, 2012), to assess the presence and risk of landfill gas. If landfill gas is detected, a site-specific landfill gas management plan will be developed for any excavation works in these areas (also refer to CT9). The plans will be prepared by a suitably qualified landfill gas management specialist. The management plans will include mitigation measures to prevent human health exposure and explosive risks potentially posed by landfill gas and nuisance odours from exposed leachate or landfill wastes. The plans will detail the type and frequency of monitoring required during the works and will outline the triggers that could stop works or require a step up in controls. Controls may include the use of odour suppressant mists and foams and other measures deemed suitable for the local conditions of the site.	Detailed design and construction	CAQMP	CSWMP CLMP ECM-AQ16	Managed via ECMs and CLMP (part of the CSWMP). Note: Measure proposed to manage contaminated soils, groundwater and/or landfill gas at the former landfill areas of Sydney and Camdenville Park require Site Auditor endorsement as being appropriate (under CoA E18)
AQ13	Plant exhaust emissions	Construction vehicles and mobile plant will be maintained in good working condition. Engines will be switched off when not in use.	Construction	CAQMP	Section 5 ECM-AQ17	Managed via ECMs.
Electric and magnetic fields						
EMF1	Generation of magnetic fields	A revised EMF calculation will be undertaken once the final cable details are known to ensure consistency with the initial assessment undertaken and to confirm that magnetic field levels for the project are still below the ICNIRP reference levels for human exposure.	Detailed design			Designed , constructed and operated so that electric and magnetic fields comply with applicable EMF limits (CoA E36)

ID	Impact	Measure	Timing	Document	Reference	How addressed
EMF2	Generation of magnetic fields	The project will operate within the limits set in the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ICNIRP, 2010).	Operation			Managed via ECMs. Designed , constructed and operated so that electric and magnetic fields comply with applicable EMF limits (CoA E36)
EMF3	Verification of magnetic fields	Within six months of operations commencing, magnetic field levels will be measured at selected locations near receptors along the transmission cable route to verify that levels are below the ICNIRP reference levels.	Operation			Managed via ECMs. Designed , constructed and operated so that electric and magnetic fields comply with applicable EMF limits (CoA E36)
Hazards and risks						
HR1	General	General hazard and risk management measures for construction of different project components (such as underground cables, special crossings and construction laydown areas) will be included within the CEMP, including: • details of the environmental hazards and risks associated with different construction activities; • procedures to comply with legislative and industry standard requirements; Work Method Statements; • emergency procedures for unplanned events; and • training for relevant personnel (including subcontractors) and site inductions.	Construction	CEMP All Sub-plans	Section 6.3 Appendix D	Details of the environmental hazards and risks associated with different construction activities are included in each of the Sub-plans. Where relevant, TransGrid environmental guidance notes have also been included. A risk assessment has been completed and will be continually updated and shared with project personnel, to identify and communicate new risks or hazards and risks or hazards that have changed profiles. Procedures to comply with legislative and industry standard requirements are documented in each of the Sub-plans. Emergency procedures for unplanned events are documented in CEMP for environmental incidents and relevant subplans where there are additional procedural requirements (e.g. discharge of stormwater).
HR2	Traffic hazards during construction	Traffic hazards will be managed through the preparation and implementation of a CTMP. The CTMP will manage access to residences/businesses, the closure of lanes and roads and detours for pedestrians and cyclists. The CTMP will also include measures to make the public aware of changes in road conditions such as erecting warning signs and having traffic controllers on-site. Refer to additional measures in TT1 to TT10.	Construction	CTTMP		A CTTMP has been prepared that identifies Traffic hazards and their management. The CTTMP describes how the access to residences/businesses, the closure of lanes and roads and detours for pedestrians and cyclists will be managed. The CTTMP also includes measures to make the public aware of changes in road conditions such as erecting warning signs and having traffic controllers on-site. Refer to additional measures in TT1 to TT10.
HR3	Disruption of rail network	Construction and maintenance of the cable bridges within heavy rail and light rail corridors will be undertaken during rail possessions planned by the relevant rail network authority or as otherwise agreed with the rail authority.	Construction and operation			Construction and maintenance of the cable bridges within heavy rail and light rail corridors will be undertaken during rail possessions planned by the relevant rail network authority or as otherwise agreed with the rail authority. The project has planned its work together with Sydney Trains to undertake work during possessions.
HR4	Transportation of hazardous materials	Hazardous materials will be transported, stored and used in accordance with: • Work Health and Safety Act 2011 (NSW); • Dangerous Goods (Road and Rail Transport) Act 2008 (NSW); • Australian Code for the Transport of Dangerous Goods by Road and Rail (National Transport Commission, 2017); and • relevant Australian Standards. Safety Data Sheets will accompany all dangerous goods transported to work sites.	Construction and operation	CEMP CTTMP	Section 6.3 Appendix D	Hazardous materials will be transported, stored and used in accordance with: • Work Health and Safety Act 2011 (NSW); • Dangerous Goods (Road and Rail Transport) Act 2008 (NSW); • Australian Code for the Transport of Dangerous Goods by Road and Rail (National Transport Commission, 2017); and • relevant Australian Standards. Safety Data Sheets will accompany all dangerous goods transported to work sites.
HR5	Spills and leaks of hazardous materials	Hazardous material procedures (including procedures for storage, transport and disposal of hazardous materials, spill prevention and management, and the refuelling and	Construction and operation	CEMP	Section 6.3 Appendix D	Guidance on hazardous material procedures is included in the CEMP Appendix D and the Groundwater Management Strategy.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		maintenance of vehicles/equipment) will be developed and implemented as part of the CEMP, to minimise potential for impacts associated with chemical spills and leaks. Any captured water which is not of a suitable quality for discharge will be disposed of at an appropriately licenced waste facility.		GMS		
HR6	Unauthorised access	All work sites and construction laydown areas will include some form of delineation, barrier/perimeter fencing and signage notifying unauthorised persons not to enter and of the potential hazards at the site.	Construction	CEMP	Section 6.4	All work sites and construction laydown areas will include some form of delineation, barrier/perimeter fencing and signage notifying unauthorised persons not to enter and of the potential hazards at the site.
HR7	Underground utilities	Minimise public safety risks such as flooding and fire/explosions from damaging underground utilities by: • undertaking Dial-Before-You-Dig (DBYD) enquiries and consulting with relevant service infrastructure providers, prior to commencement of construction; • undertaking service and utility identification works; • employing non-destructive excavation methods to expose buried services prior to excavation where works are required in close proximity to the utility and there is a high risk of striking that utility; and • protecting utilities prior to any excavation works being undertaken in proximity to the utility where required.	Construction	CPIMP		The CPIMP describes how the project will minimise safety risks such as flooding and fire/explosions from damaging underground utilities by: • undertaking Dial-Before-You-Dig (DBYD) enquiries and consulting with relevant service infrastructure providers, prior to commencement of construction; • undertaking service and utility identification works; • employing non-destructive excavation methods to expose buried services prior to excavation where works are required in close proximity to the utility and there is a high risk of striking that utility; and • protecting utilities prior to any excavation works being undertaken in proximity to the utility where required.
HR8	Bushfire risks	Restrict hot works (such as welding or other activities generating heat or sparks) on days of declared catastrophic fire danger or Total Fire Ban at the Sydney South substation. The CEMP for the project will include measures to identify any hot work or fire risk work and controls would be put in place to manage any risks.	Construction	CEMP	Section 6.5 Appendix D	Hot works (such as welding or other activities generating heat or sparks) will be restricted on days of declared catastrophic fire danger or Total Fire Ban at the Sydney South substation. The CEMP for the project will include measures to identify any hot work or fire risk work and controls would be put in place to manage any risks. Further information on how hot works will be managed is included in the CEMP Appendix D.
HR9	Electrical safety	During construction, appropriate warning in the form of surface markers and subsurface tape will be installed along the transmission cable route to warn third parties conducting excavations in the area of the presence of the cable circuit. The cable circuit will also be registered on DBYD prior to construction commencing.	Construction	CEMP	Section 6.6	During construction, appropriate warning in the form of surface markers and subsurface tape will be installed along the transmission cable route to warn third parties conducting excavations in the area of the presence of the cable circuit. The cable circuit will also be registered on DBYD prior to construction commencing.
HR10	Emergency response	If required, the site-specific Emergency Response Manual for the Rookwood Road, Beaconsfield West and Sydney South substations will be updated to reflect the changed conditions and additional requirements that may arise as a result of the project.	Operation	-		The site-specific Emergency Response Manual for the Rookwood Road, Beaconsfield West and Sydney South substations will be updated to reflect the changed conditions and additional requirements that may arise as a result of the project during operations.
HR11	Hazards during operation	Maintenance crews will undertake maintenance and repair work in accordance with the requirements of TransGrid's existing Environmental Management System.	Operation	-		Maintenance crews will undertake maintenance and repair work in accordance with the requirements of TransGrid's existing Environmental Management System.
HR12	Subsidence and/or frac-out during underboring	The risk of subsidence and/or frac-out will be minimised during underboring by: • designing the depth of the underbore around local geotechnical conditions; • appointing a suitably qualified and experienced drilling contractor; and	Detailed design	CEMP	Section 6.7	The risk of subsidence and/or frac-out has been minimised during underboring by: • designing the depth of the underbore around local geotechnical conditions; • appointing a suitably qualified and experienced drilling contractor; and

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• ensuring contingency plans are in place to deal with drilling fluid in the event of a frac-out.				• ensuring contingency plans are in place to deal with drilling fluid in the event of a frac-out.
HR13	Frac-out during underboring	Modelling of underbores would be undertaken to determine the risk of frac-out. This would include a geotechnical evaluation and construction risk assessment. Proposed construction methods would be evaluated to determine the lowest risk method.	Detailed design	CEMP	Section 6.7	Modelling of underbores has been undertaken to determine the risk of frac-out and has included a geotechnical evaluation and construction risk assessment. Proposed construction methods would be evaluated to determine the lowest risk method.
HR14	Subsidence during underboring	For all rail underbores, a geotechnical settlement analysis is required by the rail authority. This analysis determines the risk of settlement based on the depth of cover of the underbore and the cross sectional area.	Detailed design	CEMP	Section 6.7	For all rail underbores, a geotechnical settlement analysis is being undertaken for the rail authority. This analysis determines the risk of settlement based on the depth of cover of the underbore and the cross sectional area (as per CEMP Table 2-2, *Underbores*).
Visual amenity						
LV1	Design of construction laydown areas and work sites	Fencing around construction laydown areas and work sites and hoardings (where required) will take into consideration the landscape character of the local environment and proximity of sensitive receptors in selecting suitable materials and designs. Fencing around laydown areas within HCAs and public open space will prevent visibility of the internal works area.	Detailed design and construction	CEMP	Section 6.4	Fencing around construction laydown areas and work sites and hoardings (where required) will take into consideration the landscape character of the local environment and proximity of sensitive receptors in selecting suitable materials and designs. Fencing around laydown areas within HCAs and public open space will prevent visibility of the internal works area, where practical.
LV2	Night lighting at construction laydown areas	Night lighting at construction laydown areas will be minimised adjacent to residential properties. Where lighting is required, and a construction laydown area is positioned close to residences, lighting will be directed away from residential properties to avoid light spill into adjacent properties at night.	Detailed design and construction	CEMP	Section 6.4	Night lighting at construction laydown areas will be minimised adjacent to residential properties. Where lighting is required, and a construction laydown area is positioned close to residences, lighting will be directed away from residential properties to avoid light spill into adjacent properties at night.
LV3	Cable bridge design	Design principles for the final cable bridge designs will include integration of the structures into the surrounding landscape while meeting safety, technical and operational requirements. Bridges will be designed to reduce visual prominence, including surface treatment which avoids reflective materials.	Detailed design	Design documentation		The design documentation for cable bridges has been developed in consultation with stakeholders. Design principles for the final cable bridge designs include integration of the structures into the surrounding landscape while meeting safety, technical and operational requirements. Bridges have been designed to reduce visual prominence, including surface treatment which avoids reflective materials.
LV4	Landscaping and rehabilitation	Ground stabilisation, landscaping and rehabilitation at cable bridge crossings will be undertaken once installation of the cable bridge is complete and will be monitored for a period of at least six months.	Construction and operation	CVBMP	ECM-VB29	Ground stabilisation, landscaping and rehabilitation at cable bridge crossings will be managed in consistent with this requirement.
LV5	Tree removal and replanting	The project will avoid the removal of trees wherever feasible and reasonable. Where avoidance is not possible, a tree replanting strategy/landscape plan will be developed in consultation with the relevant council. To mitigate the visual impact of tree removal, similar species of trees will be replanted, where feasible. Where this is not possible, suitable trees for specific local conditions will be determined. The suitability of the replacement trees will be confirmed by a qualified arborist, in consultation with TransGrid's cable specialists. Trees will be removed at the time of construction if trenching activities impact tree roots to a point where the tree is no longer viable (as determined by the project arborist). No trees will be removed within the parklands of Sydney Park in Alexandria, along Constitution Road in Dulwich Hill and at the Johnson Park Bushcare site in Dulwich Hill (this is consistent with BD910).	Construction and operation	CVBMP	Section 6.3.1	This EMMM is superseded by Condition of Approval E23. The project will avoid the removal of trees wherever feasible and reasonable. Where avoidance is not possible, a tree replanting strategy/landscape plan has be developed in consultation with the relevant council. To mitigate the visual impact of tree removal, similar species of trees will be replanted, where feasible. Where this is not possible, suitable trees for specific local conditions will be determined. The suitability of the replacement trees will be confirmed by a qualified arborist, in consultation with TransGrid's cable specialists. Trees will be removed at the time of construction if trenching activities impact tree roots to a point where the tree is no longer viable (as determined by the project arborist). No trees will be removed within the parklands of Sydney Park in Alexandria, along Constitution Road in Dulwich Hill and at the Johnson Park Bushcare site in Dulwich Hill (this is consistent with BD910), without the approval of the Planning Secretary.

ID	Impact	Measure	Timing	Document	Reference	How addressed
LV6	Sydney Park impacts	The final transmission cable circuit will follow Barwon Park Road and existing stormwater infrastructure wherever possible to avoid impacting established trees within or adjacent to Sydney Park.	Detailed design and construction	CVBMP	ECM-VB08	EMMM superseded by CoA E21.
Biodiversity						
BD1	Relocation of resident fauna	Pre-clearance survey of trees to be removed will be undertaken by a suitably qualified ecologist to identify/locate active nests in use by native animals.	Construction	CVBMP	Section 6.1.1	Refer Section 6.1.1
BD2	Critical life- cycle events (e.g. breeding	The removal of nest trees will be supervised by a qualified ecologist/licensed wildlife handler.	Construction	CVBMP	Section 6.1.1	Refer Section 6.1.1
BD3	or nursing)	Any fauna that will not disperse independently will be captured and relocated to a suitable location nearby. Prior to any disturbance by construction works, pre-clearance surveys of stormwater culverts and pipes that may be suitable habitat for roosting bats will be undertaken to identify bats for relocation.	Construction	CVBMP	Section 6.1.1	Refer Section 6.1.1
BD4	Grey-headed	If active bird nests are identified during the pre-clearance survey, avoidance of vegetation clearing works during late winter/early spring breeding/nesting period will be considered.	Construction	CVBMP	Section 6.1.1	Refer Section 6.1.1
BD5	Temporary fencing	Work sites outside of the road reserve will be delineated with temporary fencing/barriers along the perimeter to avoid encroachment into vegetated areas.	Construction	CVBMP		Where required barriers, fencing, tape, signage or other visual delineation would be used.
BD6	Sedimentation of waterways	Appropriate controls will be utilised to manage exposed soil surfaces and stockpiles to reduce sediment discharge into waterways, in accordance with the Blue Book (Landcom, 2004). All works within proximity to drainage lines will have adequate sediment and erosion controls. Revegetation of disturbed areas will commence as soon as practicable to reduce the risk of erosion.	Construction	CVBMP	CSWMP	Refer CSWMP
BD7	Dust generation	Dust suppression measures, as outlined in an AQMP, will be implemented during construction works to limit dust at work sites. Revegetation of disturbed areas will commence as soon as practicable to reduce areas likely to create dust.	Construction	CVBMP	AQMP	Refer AQMP
BD8	Spread of weeds and pathogens	Vehicles, machinery and waste associated with construction will remain within work sites and laydown areas and will not impinge on areas of retained vegetation. Weeds (listed under the NSW Biosecurity Act 2015) present within construction laydown areas or work sites will be managed in accordance with the regional priority objectives of the Greater Sydney Regional Strategic Management Plan 2017 – 2022.	Construction	CVBMP	CSWMP	Refer CSWMP
BD9	Construction staff training	All construction personnel will undertake an environmental induction that will include items such as: • potential or actual presence of threatened species or habitats; • site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and the prevention of the spread of weeds); • response to environmental emergencies (chemical spills, fire, and injured fauna); and key environmental project personnel.	Construction	CVBMP	CSWMP	Refer CSWMP

ID	Impact	Measure	Timing	Document	Reference	How addressed
BD10	Tree removal and replanting	The project will avoid the removal of trees wherever feasible and reasonable. Where avoidance is not possible, a tree replanting strategy/landscape plan will be developed in consultation with the relevant council. Similar species of trees will be replanted, where feasible. Where this is not possible, suitable trees for specific local conditions will be determined. The suitability of the replacement trees will be confirmed by a qualified arborist, in consultation with TransGrid's cable specialists. Trees will be removed at the time of construction if trenching activities impact tree roots to a point where the tree is no longer viable (as determined by the project arborist). No trees will be removed within the parklands of Sydney Park in Alexandria, along Constitution Road in Dulwich Hill and at the Johnson Park Bushcare site in Dulwich Hill.	Construction and operation	CVBMP	Section 6.3.	This EMMM is superseded by Condition of Approval E23.
BD11 (Operation)	Cable monitoring for tree impacts	Where cable monitoring systems identify a potential impact of tree roots on the operating transmission cable, a qualified arborist will be called on to investigate further. If there is potential for damage to the cables, the tree will need to be removed. Removal will be limited only to trees that are affecting the transmission cable.	Operation	CVBMP	Section 6.1.6	A monitoring program for vegetation impacts is described in Section 6.1.6. Tree removal to design for operations is described Section 6.1.3.
BD12	Tree retention	The following will be considered during the detailed design phase to retain trees wherever possible: • review the alignment of the transmission cable circuit to avoid impacting the structural root zone (SRZ) or more than 10% of the tree protection zone (TPZ) where possible, with priority consideration given to heritage areas and high retention value trees; and locate construction facilities and infrastructure (e.g. site offices, plant/equipment storage) outside of tree protection zones.	Detailed design	CVBMP	Section 6.1.2 Section 6.1.3	The approach managing impacts associated with the SRZ and TPZ is documented in Sections6.1.2 and 6.1.3.
B13	Tree protection	The following tree protection measures will be implemented: • all tree pruning must be in accordance with the AS 4373-2007 Pruning of Amenity Trees (Standards Australia 2007) and the Code of Practice for the Amenity Tree Industry (NSW WorkCover, 1998); • all tree work on retained trees is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture; • trunk, branch and/ or ground protection measures for high retention value trees that extend into or are located in the roadway, will comply with AS 4970-2009 Protection of trees on development sites (Standards Australia, 2009a); and • ground protection will be used within the TPZ and SRZ, where possible, to prevent root damage caused by compaction of the soil and the loss of water infiltration and oxygen to the trees root system. Ground protection may include a permeable membrane such as geotextile fabric beneath a layer of mulch, crushed rock or rumble boards.	Construction	CVBMP	Section 6	Refer Section 6.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		The location and distribution of roots of trees to be retained will be determined through low or non-destructive excavation methods such as hydro-vacuum excavation (sucker truck), air spade and manual excavation, where required, immediately prior to excavation works commencing.				
BD14	Tree monitoring	A qualified arborist will be consulted in the event there is a change to the condition of high retention value trees in the project area due to construction activity. A qualified arborist will inspect high retention value trees within the project area for any damage once construction is completed and tree protection measures have been removed.	Construction and operation	CVBMP	Section 6	Refer Section 6.
BD15	Cable installation in key fish habitat	DPI Water's Controlled activities on waterfront land – Guidelines for laying pipes and cables in watercourses on waterfront land (DPI, 2012) will be used to inform the cable installation at the Cooks River.	Detailed design	CVBMP	CSWMP	Refer CSWMP.
BD16	Protection of water quality in the Cooks River	The following water quality measures will be implemented: • water collected during construction (e.g. during dewatering or surface water inflows to the trench or pits) will be discharged or disposed of in accordance with the Protection of the Environment Operations Act 1997 and the ANZECC Water Quality Guidelines (2000) for 95% protection level for marine ecosystems; • the water discharge point will be at a stable point on the bank or across riparian vegetation to allow slowing of water before travelling further downstream. Where feasible, the velocity of downstream flows will not exceed natural seasonal flow velocities. Sediment and erosion mitigation measures will be implemented in accordance with ESCPs; and contaminated water captured during construction will be disposed of at an appropriately licensed facility.	Detailed design and construction	CVBMP	CSWMP	Refer CSWMP.
BD17	Weed control at the Cooks River	Weed control will be implemented within the project area at the Cooks River, where required, to maintain restored areas as weed free.	Construction	CVBMP	CSWMP	Refer CSWMP.
BD18	Light spill impacts on fauna	In the event that construction works within or adjacent to the Johnson Park bushcare site, Cooks River and Sydney Park are required to be undertaken at night, project lighting will be directed towards work sites and away from stands of vegetation.	Construction	CVBMP		Lighting impacts will be managed in consistent with this requirement.
Aboriginal Heritage						
AH1	Impacts to areas of Aboriginal archaeological sensitivity and/or impacts to Aboriginal sites	If impacts to the area of potential Aboriginal archaeological sensitivity at Mildura Reserve, Campsie cannot be avoided, a program of archaeological test excavation will be required to determine the presence or absence of subsurface Aboriginal objects. The methodology for investigating and managing areas of Aboriginal archaeological sensitivity and known Aboriginal sites/objects will be detailed in an Aboriginal Cultural Heritage Management Plan (ACHMP) for the project. The ACHMP will be prepared in consultation with Registered Aboriginal Parties (RAPs) and Department of Planning, Industry and Environment (DPIE). Subject to ACHMP approval by DPIE, this document will guide the management of	Construction	CHMP	Attachment 2	Works within Mildura Reserve will be avoided, and nearby works limited to the road reserve, where an underbore will connect Lees Street to Harmony Street, Campsie. Works within Mildura Reserve (an area of potential Aboriginal archaeological sensitivity) have been avoided, therefore the need for an ACHMP and its associated consultation is not triggered.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		Aboriginal cultural heritage within the project area throughout the life of the project.				
AH2	Site inductions	Prior to the commencement of works, all construction personnel will undergo an Aboriginal heritage induction which identifies the general nature of Aboriginal sites and objects, the location of areas of archaeological sensitivity, requirements of the ACHMP (if relevant), procedure for unexpected finds, personnel responsibilities, and safeguards to be implemented to protect and avoid impacts to Aboriginal sites, if discovered.	Construction	CHMP	ECM-H01 Section 6.2	Training will be undertaken in accordance with Mitigation Measure ECM-H01 and Section 6.2.
AH3	Unexpected Aboriginal objects or human remains	If unexpected Aboriginal objects or human remains are uncovered in the project area during construction, TransGrid's Unexpected Finds Protocol will be initiated. This includes: 1. All ground surface disturbance in the area of finds should cease immediately when the finds are uncovered, and relevant personnel will be notified; 2. If the find is suspected to be human skeletal material, the NSW Police will be contact immediately; 3. If there is substantial doubt regarding an Aboriginal origin for the finds, then a qualified opinion from an archaeologist will be sought as soon as possible; 4. If a qualified opinion cannot be gained or the identification is positive, immediately notify the following authorities or personnel of the discovery: a. OEH (Environment Line: 131 555); and b. Relevant Aboriginal Community Representatives 5. Immediately notify the following authorities or personnel of the discovery: a. OEH (Environment Line: 131 555); and b. . Relevant Aboriginal Community Representatives. 6. Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives: a. the recording and assessment of the finds; a. fulfilling any legal constraints arising from the find(s). This will include complying with OEH directions; and b. the development and conduct of appropriate management strategies. Strategies will depend on consultation with stakeholders and the assessment of the significance of the find(s). Where the find(s) are determined to be Aboriginal Objects, any re-commencement of construction related ground surface disturbance will only resume in the area of the find(s) following the preparation of an ACHMP for the project, if one does not already exist.	Construction	CHMP	Appendix 2	An unexpected finds protocol is included in the CHMP Appendix 2 – Unexpected Heritage Finds and Human Remains Procedure.
Non-Aboriginal heritage						
NAH1	Impact on Alexandra Canal and Potts Hill Reservoirs 1 and 2	Works in the vicinity of Alexandra Canal at Beaconsfield West substation and the Potts Hill Reservoirs 1 and 2 will be managed by the Cultural Heritage Management Plan (CHMP 2) (refer to NAH6) to ensure that there are no direct impacts on the canal walls or the reservoirs.	Construction	CHMP	Table 4 1 CNVMP ECM-H09 ECM-H10	Works in the vicinity of Alexandra Canal at Beaconsfield West substation and the Potts Hill Reservoirs 1 and 2 will be managed in accordance with the CNVMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
					Table 4 1 ECM-H06	
NAH2	Removal of street trees/plantings at the intersection of Seventh Avenue and Fifth Avenue (Canterbury LEP 2012 Item 55)	The project will avoid impacts to heritage listed street plantings on Fifth Avenue wherever feasible and reasonable. During construction, manual excavation and monitoring by an arborist, with exclusion fencing used to protect trees from indirect impacts if there are works in their immediate vicinity will be considered. If tree removal cannot be avoided, a tree replanting strategy will be discussed and agreed with the relevant local council, in consideration of the Canterbury Bankstown Tree Management Manual (Bankstown Council, 2015).	Detailed design and construction	CHMP	Table 4 1 CNVMP ECM-H09 ECM-H10	No trees on fifth avenue are required for removal. Trees in close proximity to the works will be protected.
NAH3	Impacts on the Brick Paving (Marrickville LEP 2011 Item 98)	The design of the final transmission cable route will avoid the footpath that includes the brick paving that is immediately adjacent to the transmission cable route.	Detailed design and construction	CHMP	Table 4 1 ECM-H06	Works in the vicinity of the brick paving areas identified in the Marrickville LEP will be managed in accordance with the CNVMP.
NAH4	Impact on heritage values of the HCAs from tree removal	Removal of street trees identified as providing contributory heritage values within HCAs will be avoided where possible. If tree removal cannot be avoided, a tree replanting strategy will be developed in consultation with the relevant local council.	Construction	CHMP	ECM-H11	Heritage listed trees will be protected in accordance with the Construction Vegetation and Biodiversity Management Plan (CVBMP).
NAH5	Damage to heritage structures from vibration	Minimum working distances will be enforced when working in proximity to heritage structures. This includes: hand held jack hammers will be used, if needed, at least one metre away from the location of a heritage item; hydraulic hammers up to 300 kilograms only be used if greater than four metres away from the location of a heritage item; hydraulic hammers up to 900 kilograms will only be used if greater than 12 metres away from the location of a heritage item; and hydraulic hammers up to 1,600 kilograms will only be used if greater than 34 metres away from the location of a heritage item. If minimum working distances cannot be maintained during construction, a CHMP will be developed that includes building condition surveys and/or vibration monitoring as per environmental management measure NV14.	Construction	CHMP	ECM-H12 CNVMP	Potential damage to heritage structures will be managed in accordance with the CNVMP.
NAH6	General construction impacts	A CHMP2 will be produced for the project as part of the CEMP, to manage any impacts on identified heritage items. The CHMP2 will: • guide appropriate responses to identified heritage constraints during construction; • define limits to machinery use and construction activity in proximity to heritage structures to avoid vibration impacts; • detail where and when monitoring will be undertaken to ensure no vibration or other indirect impacts on identified heritage items; • define any protectionary fencing required to delineate safe working areas and/or no-go areas in relation to heritage protection; and	Detailed design and construction	CHMP	This plan Table 4 1 ECM-H01 Section 6.2.	The identified heritage constraints are included in Table 4-1. • Limits for machinery use in proximity to heritage structures are defined in the CNVMP. • Guidance on vibration monitoring in CNVMP Precautionary and other protectionary measures (e.g. fencing) is also included in this Plan and the CNVMP Maps showing the location and curtilage of heritage items are included in Appendix 3 – Heritage Items. Training will be undertaken in accordance with ECM-H01 and Section 6.2. Anticipated heritage impacts are described in Table 4 1.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• include maps showing the location and curtilage of heritage items. A toolbox presentation or project induction will be held with all staff and contractors prior to the commencement of works to make them aware of their responsibilities with regard to avoiding heritage impacts. Once the final design is known, the relevant local councils within the project area will be informed of any anticipated impacts to heritage items.				
NAH7	Unexpected finds	In the event that unexpected historic finds are identified during construction, all works will immediately cease at that area. Unexpected finds may include artefact scatters (including glass, animal bone, ceramic, brick and metal), building foundations and earthworks of unknown origin. The following procedure guides the management of unexpected and previously unidentified finds during the course of project works: • all work in the area will cease immediately; • alert the Environmental Specialist to the find; • if necessary, protect the area with fencing; • engage a suitably qualified archaeologist to undertake an assessment of the find/s; • if it is determined the relic is likely to be significant, a Section 146 notification form will be sent with a short letter report to the Heritage Council notifying them of the discovery; • an assessment will be undertaken using the guidelines Assessing Significance for Historical Archaeological Sites and 'Relics' (NSW Heritage Branch, 2009); • on the advice of the archaeologist, if necessary, prepare an Impact Assessment with Research Design and Methodology to submit to the Heritage Division along with a Section 140 excavation permit to undertake archaeological works; • undertake the archaeological mitigation in accordance with the prepared documents and any permit/exception issued by the Heritage Division; and once the site has been mitigated to the satisfaction of the archaeologist and the Heritage Division, works may resume in the area.	Construction	CHMP	Appendix 2	An unexpected finds protocol is included in the CHMP Appendix 2 – Unexpected Heritage Finds and Human Remains Procedure.
Soils and contamination						
CT1	Assessment of excavation areas	Soil investigations will be undertaken prior to construction along the project area to: • assess the presence of contamination and risks posed to project workers and the environment, so that appropriate controls can be implemented during construction; • chemically classify the soil in-situ, for potential re-use or off-site disposal to licensed landfill or re-use facility in accordance with the applicable land use criteria, Waste Classification Guidelines (NSW EPA, 2014a) or applicable Resource Recovery exemption and order; and • assess for the presence of acid sulfate soils and liming	Construction	CSWMP	CLMP ECM-SW79 ECM-SW80 ECM-SW81 ECM-SW82 ECM-SW83 ECM-SW84 ECM-SW85	Soil investigation areas have been assessed and are included in the CLMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		rates, so Acid Sulfate Soils Management Plans (ASSMPs) can be prepared and waste classified in accordance with Waste Classification Guidelines (NSW EPA, 2014a). A Sampling Analysis Quality Plan (SAQP) will be prepared for soil investigation in accordance with the NEPM (ASC NEPM, 2013). The SAQP will detail: • data quality objectives (DQOs) and data quality indicators (DQIs); • justification of the number, density and location of sampling locations based on the potential for contamination, excavation extent and quantities requiring off-site disposal; • analytical suite and schedule, including contaminants of concern identified; • assessment criteria for on-site reuse or off-site disposal (waste classification); and • sampling and laboratory methodologies, field and laboratory quality assurance and control. Following the completion of the soil investigations a report will be prepared for each construction precinct providing conclusions on waste classification and recommendations for health and environmental controls during construction. The reports will provide clear commentary on the classification of the waste in accordance with the Waste Classification Guidelines (NSW EPA, 2014a).				
CT2	Assessment of imported Virgin Excavated Natural Material (VENM)	Prior to the backfilling of trenches during construction with VENM, the VENM source(s) will be identified and assessed against the definition of VENM in the Waste Classification Guidelines (NSW EPA, 2014a) and Protection of the Environment Operations Act 1997 (POEO Act). The VENM source(s) will be assessed by an appropriately qualified contaminated land consultant, which will entail: • identifying whether the current and past activities at the source site that had potential to contaminate the land, whether actual acid sulfate soils (AASS) or potential acid sulfate soils (PASS) is present and that the site is not within an area mapped as containing naturally occurring asbestos; and • undertaking chemical assessment to ascertain that the material is not contaminated. The NSW EPA VENM certificate will be completed and signed by the consultant (or supplier) and provided to TransGrid prior to importation and use of the VENM. The VENM will also be inspected at the work site to check the imported VENM is from the same source assessed.	Construction	CSWMP	CLMP ECM-SW86 ECM-SW87 ECM-SW88	The importation of VENM has been assessed and is discussed in the CLMP.
CT3	Construction laydown areas	Limited baseline soil investigations and site inspections will be undertaken for each construction laydown area to manage identified risks during construction. The investigations will include limited sampling to identify and assess contamination in surface soil. A baseline report will be prepared for each construction laydown area. Where contamination is identified, a site-specific management plan will be implemented prior to construction to inform the management of asbestos or	Construction	CSWMP	CLMP ECM-SW89	Further soil investigations of construction laydown areas is considered in the CLMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		chemical contamination in soil while the construction laydown area is in use. Following demobilisation of the construction laydown area a post–construction report will be prepared for each construction laydown area. The post-construction report will compare to the baseline report and confirm whether or not conditions are the same and if remedial works are required to clean up contamination from the project works within the construction laydown areas.				
CT4	Contaminated soil management during construction	Protocols for the management of contaminated soil during construction will be included in the CEMP for all construction works and will: • detail requirements for safety controls including the following where required: - air monitoring; - exclusion zones and decontamination; - excavation ventilation; - dust suppression and containment; - odour suppression and monitoring; - personnel protective equipment; - training and supervision; • detail requirements for environmental controls including the following: - sediment and erosion control; - management of surface water runoff around the excavation areas and prevention of surface water entering excavations; - stockpile management and separation; and - materials tracking and records. Sediment and erosion mitigation measures will be implemented in accordance with ESCPs.	Construction	CSWMP	CLMP CAQMP ECM-SW90 ECM-SW91 ECM-SW92 ECM-SW93 ECM-SW94 ECM-SW95 ECM-SW96 ECM-SW97 ECM-SW98 ECM-SW99 ECM-SW100 ECM-SW101 ECM-SW102	Protocols for the management of contaminated soil during construction are included in the CLMP and further addressed in the CAQMP.
CT5	Spoil waste management and transport	Spoil which has been assessed as not suitable for reuse or cannot be reused will be classified in accordance with the Waste Classification Guidelines (NSW EPA, 2014a). The spoil will be transported to an appropriate waste disposal facility licensed to receive such waste. Approval will be obtained from the respective landfill facility prior to transport and will require an estimate of the likely volume of waste to be disposed. The following material handling requirements will be implemented for trucks transporting materials off-site: • a licensed transporter will be used to transport material to an appropriately licensed NSW EPA waste facility; • all truck loads will be filled to the correct level and not over filled; • trucks carrying waste materials will be covered prior to exiting the work site and will remain covered until authorised to unload at the destination (NSW EPA licensed waste facility); • trucks will be fitted with seals to ensure that the movement of potentially saturated materials is undertaken appropriately. The integrity of the seals will	Construction	CSWMP	CLMP CWMP ECM-SW103	Soil waste management will be conducted in accordance with the CLMP and CWMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		be inspected and tested prior to commencement of each day's haulage works; • in the event that materials are tracked or spilt outside of the construction zone, soil will be immediately cleaned up in a way that prevents contamination of land, the stormwater or waterways; and • all truckloads and landfill waste tickets/dockets will be tracked and a register completed to reconcile and check spoil has been lawfully disposed. Temporary spoil stockpiles may be stored at select construction laydown areas. As all spoil will be classified in-situ prior to excavation, the stockpiled material will already be classified in accordance with the NSW EPA guidelines. Stockpiles will be kept separate based on their classification. All stockpiles will be tracked in accordance with protocols within the CEMP for material tracking. Stockpiles will be managed with appropriate sediment and erosion controls as outlined in an ESCP.				
CT6	Asbestos management	An Asbestos Management Plan (AMP) will be developed for areas identified during pre-construction investigations as containing Asbestos Containing Materials (ACM), areas suspected of containing ACM and to address unexpected finds of ACM during construction. Specifically, protocols will be stipulated for separation, monitoring, validation and clearance of asbestos. The AMP and associated Standard Work Procedures will satisfy the requirements of: • Work Health and Safety Regulation 2011; • the Safe Work Australia Asbestos Codes of Practice and Guidance Notes: - Code of Practice: How to Manage and Control Asbestos in the Workplace; - Code of Practice: How to Safely Remove Asbestos; and - Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibre, 2nd Edition [NOHSC: 3003 (2005)]. An Occupational Hygienist (Hygienist) will be on-site for the duration of the excavation works where ACM has been identified from pre-construction or where unexpected finds of ACM are encountered. The Hygienist will: • undertake air monitoring for asbestos during excavation; • provide on-site visual inspection, identification of asbestos impacted material and clearance of non-asbestos impacted surfaces; and • supervise works to ensure compliance with the AMP and NSW regulatory requirements for asbestos containing material management and disposal. In the event that friable asbestos is detected, a suitably licensed Asbestos Removal Contractor (licensed to undertake friable asbestos (Class A) removal) will be required to undertake and oversee all the asbestos removal and disposal works outlined in the AMP.	Construction	CSWMP	AMP ECM-SW104	Asbestos will be managed in accordance with the AMP. An Occupational Hygienist has been identified as one of the roles and responsibilities in Section 6.1

ID	Impact	Measure	Timing	Document	Reference	How addressed
		All persons performing the works will be required to undertake a suitable risk assessment and develop a Safe Work Method Statement (SWMS) for all of their work activities prior to commencing work in ACM impacted areas. Identified ACM will be segregated, managed and disposed of as Special Waste and transported and disposed in accordance with Protection of the Environment Operations (Waste) Regulation (2014). Where more than 100 kg of asbestos waste or more than 10 square metres of asbestos sheeting is transported the NSW EPA online tool WasteLocate will be used. The handling and disposal of asbestos waste will be tracked and recorded.				
CT7	Acid sulfate soils	ASSMPs will be prepared in accordance with the ASSMAC (1998) guidelines based on the results of the pre-construction investigations for locations within Precinct 2, 3, 4 and 5. The ASSMPs will incorporate the following procedures: • soil will be treated with lime in accordance with the ASSMP where PASS is not able to be loaded and transported to a landfill licensed to receive untreated PASS within 24 hours of excavation or if AASS are identified and excavated; • exposure of PASS material within an excavated trench or excavation site will be minimised to reduce the potential for oxidation and acid leachate generation; • excavation will be done under dry conditions, where possible using a truck and shovel (tracked excavator) operation and the water table will be lowered within excavation areas, as part of excavation dewatering; • excavated fill will be monitored for colour and leachate quality; • no PASS material will be placed and left at the surface untreated; • soil will be placed into an appropriately bunded treatment area (pads) and treated with a neutralising agent (e.g. lime). Leachate water from the PASS material will be managed and treated to ensure no acid is released to the environment; • leachate generated during the ASS treatment operations will be captured. Any water potentially affected by leachate collecting within the excavation will be treated with hydrated lime or equivalent prior to discharge. Water potentially affected by leachate accumulating within the work site will not be discharged until it meets acceptable water quality standards or collected and disposed at a licensed liquid waste treatment facility; and PASS materials will be kept separate from non-PASS materials at all times to reduce the volume of material requiring treatment. Acid is transported by water; therefore, excavation works in PASS will be conducted during dry periods (where practical) to minimise the risk of overflow associated with sudden or heavy rain and to allow better control of treated waters for discharge.	Construction	CSWMP	ASSMP ECM-SW67 ECM-SW68 ECM-SW69 ECM-SW70 ECM-SW71 ECM-SW72 ECM-SW73 ECM-SW74 ECM-SW75 ECM-SW76 ECM-SW77 ECM-SW78 ECM-SW105	Acid Sulfate Soils will be managed in accordance with the ASSMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
CT8	Unexpected finds	An unexpected finds procedure will be included in the CEMP. An unexpected find is potential contamination that was not previously identified during this PSI or pre-construction investigations. Project workers will be trained in identifying the following: • soil that appears to be contaminated based on visual and olfactory (odour) observations; • ACM (i.e. either bonded or friable asbestos); • groundwater that appears to be contaminated based on visual and olfactory (odour) observations (including potential hydrocarbon sheens on the water surface, free phase liquids such as petroleum fuel, discolouration etc.); • drums or underground storage tanks (USTs); and • fill containing wastes (e.g. slag, refuse, demolition materials). In the event of an unexpected find: excavation works will temporarily be suspended at the location of the unexpected find, the environment manager contacted and the area of concern appropriately isolated; • the area will be inspected by a contaminated land consultant and if required, appropriate sampling and analysis will be undertaken, the sampling works will be documented in a report; • the requirement for additional controls will be assessed by the consultant and implemented by the proponent; and workplace health and safety and environmental protection requirements will be reviewed, depending on the type of unexpected finds encountered.	Construction	CSWMP	UCLAFP ECM-SW82	Refer CSWMP Appendix 8 – Unexpected Contaminated Land and Asbestos Finds Procedure (UCLAFP)
CT9	Former landfill management	Site-specific management plans for former landfill sites will be required for excavation works in Sydney Park and Camdenville Park. A plan may also be required for Henson Park following the outcome of investigations (see CT1). The development of the plans will include consultation with the relevant councils. Approval will be sought from the NSW EPA in all areas where exhumation of landfill waste is required in accordance with Clause 110A of the Protection of the Environment Operations Legislation Amendment (Waste) Regulation 2018 (Amendment Regulation). Where there are existing environmental management plans, such as for Camdenville Park, site-specific mitigation measures outlined in these plans will be reviewed and implemented as required. The plan will be prepared by a contaminated land consultant and occupational hygienist. The plan will specify: • an excavation plan specifying areas classified as per in-situ waste classification and suitability for reuse; • trench ventilation during excavation to prevent the accumulation of landfill gases within the trench (also refer to AQ12); • ambient and in-trench monitoring for landfill gases (methane, carbon dioxide, hydrogen sulfide and carbon dioxide), ammonia and volatile organic compounds;	Construction	CSWMP	CLMP ECM-SW106	Landfill gas will be managed in accordance with the Site Specific Landfill Gas Management Plans for Sydney Park and Camdenville Park. If the project alignment intersects with Henson Park, a Specific Landfill Gas Management Plans may also be required. Further guidance and detail is provided in the CLMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• action levels for evacuation of the work zone where health and lower explosive limit (LEL) levels are exceeded and additional controls to allow work to re-commence once implemented; • exclusion zone around the work area on either side of the trench, including fully fenced security chain mesh fences with bracing, where required; • geotechnical considerations for the base of the trench to mitigate the risk of subsidence of the installed cable; • final capping layer above the concrete cable conduit casing as per the Environmental Guidelines Solid Waste Landfills (NSW EPA, 2016), unless otherwise specified or agreed by with City of Sydney Council and Inner West Council: - compacted clay layer at least 600 mm thick, with an in situ saturated hydraulic conductivity of less than 1 x 10–9 metres/s (where subsurface waste either side of the trench is less than; - a revegetating layer from the top of the capping layer to the surface comprising clean soils with 200 mm of topsoil (in landscaped areas); and the construction of joint bays, link boxes and sensor pits within former landfill areas will be designed to prevent the accumulation of landfill gases. Inner West Council and City of Sydney Council will be consulted on the design, monitoring and location of the pits within Sydney Park, Camdenville Park, and Henson Park (if required).				
CT10	Sydney Park	TransGrid will undertake additional investigations at Sydney Park on leachate and methane risks prior to or during construction and will report these findings to the City of Sydney.	Detailed design and construction	CSWMP	CLMP GMS	Findings will be reported City of Sydney Council.
CT11	Drilling slurry	TransGrid will investigate and adopt good practice measures for the management of drilling slurry during horizontal directional drilling, where used, taking into consideration the volume of slurry that will be generated.	Detailed design and construction	CSWMP	This Plan CLMP	Measures documented can be found throughout this plan and in the CLMP.
Surface water and flooding						
WQ1	Water quality, soil erosion and sediment control (CSWMP)	A CSWMP will be prepared as part of the overall CEMP to document the measures required to mitigate and manage potential impacts on soils, surface water and groundwater during construction. The CSWMP will include the following sub-plans and measures: • ESCPs (see WQ2); • where wheel washing is required, wheel wash wastewater will be collected (e.g. through temporary containment and directing to sediment basins or tanks) and disposed of appropriately; • water collected during construction (e.g. during dewatering or surface water inflows to the trench or pits) would be discharged or disposed of in accordance with the Protection of the Environment Operations Act, 1997 and the ANZECC Water Quality Guidelines (2000) for 95% protection level for marine ecosystems.	Construction	CSWMP	This Plan	This document identifies measures required to mitigate and manage potential impacts on soils, surface water and groundwater during construction. Erosion Control Sediment Plans (ESCPs) will be prepared in accordance with the Bluebook (Landcom (2004) and Section 5.1. Wheel washing will be managed in accordance with the procedure in Surface water runoff will be managed in accordance with the Surface Water Management Plan. Groundwater dewatering will be managed in accordance with Groundwater Management Strategy Dewatering Procedure. Works within 40 metres from the top of the watercourse bank) will be managed consistent with the *Controlled Activities on Waterfront Land Guidelines* (DPI, 2012). A controlled activity approval is not required as the project is listed as ‘major project’ under the SSI Approval. Procedures and protocols to manage contaminated materials e.g.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		Contaminated water captured during construction would be disposed of at an appropriately licensed facility; and • where works are within the riparian zone (40 metres from the top of the watercourse bank) the Controlled Activities on Waterfront Land Guidelines (DPI, 2012) would be reviewed and relevant measure included into the CSWMP where appropriate. Procedures and protocols to manage potentially contaminated fill, soil, bedrock, acid sulfate soils and extracted groundwater will be detailed in the CEMP in accordance with conditions outlined in the Preliminary Site Investigation report (refer to Appendix K of the EIS) and the NSW Acid Sulfate Soils Manual (Stone et al, 1998).				fill, soil, bedrock, acid sulfate soils and extracted groundwater are documented in: • Appendix 4 – Groundwater Management Strategy (GMS) • Appendix 5 – Acid Sulfate Soil Management Plan (ASSMP) • Appendix 6 – Contaminated Land Management Plan (CLMP) • Appendix 7 – Asbestos Management Plan (AMP) • Appendix 8 – Unexpected Contaminated Land and Asbestos Finds Procedure (UCLAFP).
WQ2	Water quality, soil erosion and sedimentation (ESCP)	ESCPs will be prepared as part of the CEMP for transmission cable route work sites, substations and construction laydown areas, in accordance with the Blue Book (Landcom, 2004). ESCPs will be implemented in advance of site disturbance and updated as required as the construction progresses and the work site locations change. Measures in the ESCPs will include: • construction traffic to be restricted to access tracks, where existing roads cannot be utilised (e.g. through Sydney Park). These access tracks will be clearly delineated and maintained until construction is complete; • where possible, clean water will be prevented from entering excavations by diverting runoff away from earthworks activities; • the extent of ground disturbance and exposed soil will be minimised to the greatest extent practicable to minimise the potential for erosion; • disturbed ground and exposed soils, such as inside trenches or at construction laydown areas, will be temporarily stabilised (e.g. with geotextile) prior to extended periods of site inactivity and permanently stabilised as soon as possible to minimise the potential for erosion; • stormwater flows will be managed to avoid flow over exposed soils which may result in erosion and impacts to water quality. Inside the excavation this may require the use of trench stops; and rainfall forecasts will be monitored daily during construction and works rescheduled if necessary and as determined by the contractor, to reduce risk of erosion and sedimentation and to minimise the impact of heavy rainfall and flood events.	Construction	CSWMP	This Plan ECM-AQ18 ECM-SW02 ECM-SW03 ECM-SW04 ECM-SW05 ECM-SW06 ECM-SW07 ECM-SW08 ECM-SW09 ECM-SW10 ECM-SW14 ECM-SW15	ESCPs prepared in accordance with the Blue Book (Landcom, 2004) are documented in Section 5.1.
WQ3	Water quality – spills and leaks	The following measures will be documented in the CSWMP and implemented to mitigate and manage spills and leaks: • areas will be allocated for the storage of fuels, chemicals and other hazardous materials. These areas will be as far away as feasible and reasonable from watercourses, located where flooding during a 20 year Average Recurrence Interval (ARI) event is unlikely, and on an impervious bunded area; • the storage and handling of dangerous goods will be in accordance with relevant guidelines and standards such	Construction	CSWMP	This Plan CLMP ECM-SW22 ECM-SW23 ECM-SW24 ECM-SW25 ECM-SW26 ECM-SW27	The approach to preventing and managing Water quality – spills and leaks is described extensively in this Plan and in the CLMP.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		as the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005); • fuel and liquid storage at construction laydown areas will be secured and stored in accordance with the NSW EPA guidelines (Department of Environment and Climate Change NSW, 2007b); • appropriate spill containment and prevention measures will be applied to fuel and liquid storage, where feasible and reasonable; • accidental spills or leaks will be managed through the use of spill containment measures including spill kits. Any contaminated material will be disposed of to an appropriately licenced facility; • re-fuelling of construction plant and equipment will be undertaken using appropriate spill containment measures to mitigate pollution risks from accidental spills or leaks; • refuelling activities will be undertaken at least 100 metres from the nearest watercourse; • a spill response kit will be available on-site at all work sites at all times; • where bulk fuel or other liquid substances are to be brought to a work site, a container specifically designed for that purpose will be used; • underboring sites will have appropriate stormwater diversions, as well as downstream pollution and sediment control measures to both prevent stormwater entering the excavation as well as to assist with containing any loss of drilling fluid; and flows of drilling fluid will be visually monitored in accordance with the CSWMP.			ECM-SW28 ECM-SW29 ECM-SW30	
FF1	Flooding and water flows (FMS)	A Flood Mitigation Strategy (FMS) will be prepared in accordance with the Floodplain Development Manual (DIPNR, 2005) for work within flood prone or flood affected land within the project area to demonstrate that the existing flooding characteristics will not be exacerbated. The FMS will be prepared by a suitably qualified and experienced person in consultation with directly affected landowners, DPI-Water, DPIE, Sydney Water and relevant councils. The FMS will be prepared during detailed design and prior to construction. The FMS will identify design and mitigation measures that will: • be considered by the contractor in the development of site-specific flood management plans, including the need to protect plant, staff, materials and earthworks activities from flooding (also refer to FF2); • avoid or reduce impacts at adjacent properties; and • not significantly alter surface water flows during construction and operation. The FMS will limit flooding characteristics to the following levels, or else provide alternative flood mitigation solutions consistent with the intent of these limits: • a maximum increase in inundation time of one hour in a	Detail design	Flood Mitigation Strategy		The Flood Mitigation Strategy identifies existing flooding characteristics along the project alignment. The Flood Mitigation Strategy has been prepared consistent with this EMMM and has undergone stakeholder review.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		100 year ARI rainfall event; • a maximum increase of 10 millimetres in inundation at properties where floor levels are currently exceeded in a 100 year ARI rainfall event; • a maximum increase of 50 millimetres in inundation at properties where floor levels would not be exceeded in a 100 year ARI rainfall event; and no inundation of floor levels which are currently not inundated in a 100 year ARI rainfall event.				
FF2	Flooding and water flows during construction	Flood Management Plans (FMPs) will be developed as part of the CSWMP for works within flood prone or flood affected land within the project area. Measures to be detailed in the FMPs to manage potential flood and water flow impacts would include: • the construction of the project will be staged to limit the extent and duration of temporary works in a floodplain; • work inside ephemeral watercourses including, but not limited to the Coxs Creek and other urban drainage network assets, will not be undertaken during or immediately following runoff generating rainfall events when stormwater flows in these watercourses are expected; and • flood emergency response procedures will be documented within the FMPs to make sure construction equipment and materials are removed from floodplain areas at the completion of each work activity or in the event a weather warning is issued for impending flood producing rain.	Construction	Flood Management Plan		The flood management plan identifies requirements relating to management of flooding risks during construction. The Flood Management Plan has been prepared consistent with this EMMM and has undergone stakeholder review.
FF3	Camdenville Park flood detention basin	Design of the transmission cable route through Camdenville Park will consider the integrity and functionality of the existing flood detention basin.	Detail design	Flood Management Plan CSWMP	Section 4.1.2 ECM-SW107	The Camdenville Park detention basin has been specifically considered as part of the design. The alignment was moved to avoid direct impact of the project works on the detention basin. An ECM has been included.
Groundwater						
GW1	Groundwater interception	A Groundwater Management Strategy will be prepared that will outline the requirement for drilling and installation of monitoring wells and baseline groundwater level and quality monitoring. This additional information will be collected prior to or during detailed design in locations where it is likely that the watertable may be intersected. This data will be used to confirm whether groundwater control measures or dewatering will be required. Where it is likely that groundwater will be intersected, estimates of groundwater inflows will be predicted to assess if a groundwater extraction license would be required (that is if 3 ML/year of groundwater discharge was to be exceeded). Outcomes from the GMS will inform the Construction Environmental Management Plan (CEMP). The CEMP, where necessary: • measures to stabilise the excavation, such as installation of temporary shoring in trenches (e.g. sheet piling); • localised temporary dewatering measures to maintain dry working conditions;	Detailed design	CSWMP	GMS ECM-SW46 ECM-SW47 ECM-SW48 ECM-SW49 ECM-SW50 ECM-SW51 ECM-SW53 ECM-SW54	The approach to managing groundwater is described in the GMS.

ID	Impact	Measure	Timing	Document	Reference	How addressed
		• measures to maintain groundwater flow conditions to minimise disruption to down-gradient receptors; and measures to minimise groundwater drawdown to reduce any ground settlement impacts.				
GW2	Aquifer interference	Detailed hydrogeological information (e.g. bore data) will be used to inform the most suitable underboring construction method at select special crossings that will minimise the need for dewatering. Where an aquifer is to be completely penetrated at the underboring special crossings, appropriate controls (such as drainage blankets) will be installed beneath the infrastructure to ensure groundwater flow is maintained to minimise disruption to groundwater flow paths.	Detailed design	CSWMP	GMS ECM-SW46 ECM-SW47 ECM-SW48 ECM-SW49 ECM-SW50 ECM-SW51 ECM-SW52 ECM-SW54	The approach to managing potential aquifer interference issues is described in the GMS.
GW3	Intersection of contaminated groundwater	In areas where contaminated groundwater is identified, measures will be implemented to ensure that the backfill within the excavation does not create a more permeable pathway for migration of contamination	Detailed design and construction	CSWMP	GMS CLMP ECM-SW50	It is possible the project may intercept contaminated groundwater. An approach to managing this is documented in the GMS and CLMP.
GW4	Dewatering	A CSWMP will be prepared as part of the CEMP to document the measures required to mitigate and manage potential impacts on groundwater during construction. The CSWMP would include the following measures: • water collected during dewatering of excavations would be discharged or disposed of in accordance with the Protection of the Environment Operations Act 1997 and the ANZECC Water Quality Guidelines (2000) for 95% protection level for marine ecosystems; and contaminated groundwater captured during construction will be disposed of at an appropriately licenced facility.	Construction	CSWMP	GMS ECM-SW46 ECM-SW47 ECM-SW48 ECM-SW49 ECM-SW55 ECM-SW56 ECM-SW57 ECM-SW58 ECM-SW59 ECM-SW60	An approach to dewatering is documented in the GMS.
Waste management						
WM1	Waste minimisation	The following waste minimisation strategies will be implemented: • use of recycled materials (i.e. recycled content for asphalt and concrete including the use of fly ash) wherever feasible; • use of wastewater or recycled water to reduce potable water demand for construction activities; and use of modular, precast/prefabricated structures, where feasible.	Detailed design and construction	CWMP	Section 4 Table 5 1.	All waste will be managed in accord with the Waste Hierarchy (Sect 4.1), recycling opportunities (ECM- WM02); Use of Recycled material and excavation (ECM's WM03, WM04, WM06, WM08); and use of Prefabricate material (ECM-WM03)
WM2	General	Waste will be managed in accordance with the waste hierarchy established in the Waste Avoidance and Resource Recovery Act 2007 (WARR Act). This will include the: classification of waste during construction in accordance with the current guidelines; segregation of waste at construction laydown areas and substations (within appropriate bins) for ease of recycling/reuse; procurement of materials on an as needed basis to avoid	Construction and operation	CWMP	Section 4 Table 5 1. Refer to Contaminated Land Management Plan (CLMP)	The waste management hierarchy is detailed in Section 4.1. Key requirements of the waste management hierarchy will be communicated to workers through the site induction, toolbox talks, daily pre-starts and within relevant ECMs(ECM-WM01)] This has been included as mitigation measure (ECM vis WMO2, WM04, WM08, and WM09).

ID	Impact	Measure	Timing	Document	Reference	How addressed
		waste due to over-ordering; and investigating opportunities to reuse materials where feasible.				
WM3	Construction waste	Waste will be managed (classified, handled and stored) in accordance with relevant state legislation and government policies (including the NSW EPA Waste Classification Guidelines). All waste to be disposed off-site will be directed to a waste management facility that is lawfully permitted to accept that type of waste. Records of waste tracking and disposal will be maintained.	Construction and operation	CWMP	Section 4 Table 5 1 Section 6.5	All waste will be classified following the EPA's Waste Classification Guidelines and the Waste Classification Procedure. The waste classification guidelines outlined in Section 4 will be followed to ensure waste is correctly categorised prior to treatment, storage or offsite disposal. Communication of guidelines will occur during toolbox talks, daily pre-starts and will be documented on ECMs. This has been included as mitigation measure ECM vis WM01, WM02 and WM24
WM4	Spoil management	The Waste Management Plan developed for the project as part of the CEMP will outline the requirements for spoil management. The plan will identify: spoil generation activities; spoil generation location; spoil management hierarchy; on-site management, including stockpile sites; spoil reuse options; spoil disposal locations; spoil transport modes and routes; and material tracking requirements.	Detailed design and construction	CWMP	Section 4 Table 5 1	Spoil generation activities are described Table 4 2. Spoil generation locations are shown in the maps included in Attachment 1. The spoil management hierarchy is included as Figure 4 1. Stockpiles may be located at the laydown area in Camdenville Park. Spoil reuse options are described in Table 4 2. Spoil transport modes and routes are described in the CWMP.
WM5	Asbestos waste	The disturbance, movement and disposal of asbestos containing materials will be carried out in accordance with the Work Health and Safety Regulation 2011 and other relevant guidelines. The handling and disposal of asbestos waste will be tracked in accordance with the Asbestos Management Plan (refer to CT6).	Construction	CWMP	Section 4 Table 5 1 Refer to AMP	The handling and disposal of asbestos and clinical wastes will be managed in accordance with the CAMP. Section 5 outlines waste handling procedures that will be communicated to staff through the site induction, toolbox talks, and daily pre-starts and will be documented in the ECMs for specific work areas. This has been included as mitigation measure (ECM-WM11-WM13 and is addressed in detail in the CAMP (Section 4).
WM6	Construction wastewater	Wastewater not used on-site will be disposed off-site or discharged into the local stormwater system or sewer system under a trade waste agreement in accordance with the requirements of the POEO Act. Refer to CSWMP	Construction	CWMP	Section 4 Table 5 1 Refer to CSWMP	This has been included as mitigation measure i.e. ECM-WM07.
WM7	Spoil reuse	Reasonable and feasible options will be investigated to reuse spoil (where it can be achieved safely) in accordance with the POEO Act and WARR Act.	Detailed design and construction	CWMP	Section 4 Table 5 1	Regular inspections and audits will be conducted to ensure waste disposal and resource use is minimised.
WM8	Concrete recycling	Opportunities to recycle concrete (i.e. from excavation of concrete roads) will be investigated.	Detailed design and construction	CWMP	Section 4	Resource and material minimisation initiatives will be explored and implemented where reasonable and feasible. This has been included as mitigation measure i.e. ECM-WM04, WM06 & WM08).
Land use and property						
LP1	Property use	Agreements will be negotiated with relevant landowners for the temporary use of property during construction and permanent easements over private property during operation.	Detailed design and construction	-	-	Agreements will be negotiated with relevant landowners for the temporary use of property during construction and permanent easements over private property during operation.
LP2	Traffic and access disruptions	Affected landowners/occupants will be provided with advance notification of project construction schedules and changes to access arrangements or traffic disruptions.	Construction	CTTMP		Notification strategy contained in CTTMP

ID	Impact	Measure	Timing	Document	Reference	How addressed
LP3	Vehicle access	Vehicle access to residential and business properties will be maintained at all times, where possible. Where restricting access to properties is required to enable construction works, vehicle access will be restored as soon as possible. Where access to a property cannot be maintained, affected owners/occupants will be informed and feasible and reasonable solutions for access to their specific location discussed.	Construction	CTTMP		Notification strategy and impact mitigation options contained in CTTMP
LP4	Temporary land use change	Construction laydown areas will be reinstated to their pre-existing condition as soon as practicable following the completion of construction, in consultation with the relevant landowner.	Construction and operation	CEMP	Section 6.4	Construction laydown areas will be reinstated to their pre-existing condition as soon as practicable following the completion of construction, in consultation with the relevant landowner.
LP5	Identification of utilities	Further surveys (including pot holing) will be undertaken to confirm the locations of major utilities identified in DBYD. Thermal resistivity assessments will be undertaken to determine the potential for reduced trench widths in order to minimise the need for utility relocation or support/protection measures.	Detailed design	CPIMP	Sections 3.2 and 3.3	Further surveys (including pot holing) will be undertaken to confirm the locations of major utilities identified in DBYD. Thermal resistivity assessments will be undertaken to determine the potential for reduced trench widths in order to minimise the need for utility relocation or support/protection measures.
LP6	Disruption of services or relocation of utilities	Where services need to be disrupted or utilities relocated, relevant stakeholders will be consulted and affected communities notified.	Detailed design and construction	CPIMP		Where services need to be disrupted or utilities relocated, relevant stakeholders will be consulted and affected communities notified.
LP7	Utility damage	Where works are to be carried out in close proximity to utilities, consultation will be undertaken with the relevant utility provider to determine safety and network integrity requirements.	Construction	CPIMP		Where works are to be carried out in close proximity to utilities, consultation will be undertaken with the relevant utility provider to determine safety and network integrity requirements.
Social and economic						
SE1	Community consultation	Implementation of the project CCF (refer to Appendix C of the EIS) as part of the project Community and Stakeholder Engagement Strategy and Plan.	Detailed design and construction	CEMP		TransGrid will continue to implement its Community Consultation Framework described in the Project EIS. TransGrid is also implementing the Community Communication Strategy in accordance with CoAs B2 and B3.
SE2	Social infrastructure	Construction laydown areas within private and public reserves and parks will be planned to minimise impacts on existing recreational and sporting infrastructure, including playground equipment, with construction laydown areas located in areas of open space, where possible. Establishment and use of the laydown areas will consider public safety and maintain safe access to recreational areas. Private and public reserves and parks proposed for the construction laydown areas will be returned to their original or improved condition following construction (or as otherwise agreed with the relevant authority). Access to community facilities along the transmission cable route and in proximity to construction laydown areas will be maintained at all times unless an alternative solution has been negotiated with the landowner/occupier. Access to areas of reserves and parks not utilised for construction laydown areas will be maintained throughout construction.	Construction	CEMP		A single construction laydown area at Camdenville Park. Use of this laydown area will ensure consider public safety and safe access to recreational areas at other parks and open spaces will be maintained. \ Private and public reserves and parks proposed for the construction laydown areas will be returned to their original or improved condition following construction (or as otherwise agreed with the relevant authority). Access to community facilities along the transmission cable route and in proximity to construction laydown areas will be maintained at all times unless an alternative solution has been negotiated with the landowner/occupier. Access to areas of reserves and parks not utilised for construction laydown areas will be maintained throughout construction.
SE3	Access and transport	Opportunities to enhance pedestrian and cyclist connectivity within the local study area, including design of cable bridges to accommodate pedestrian and cyclist movements will be investigated during detailed design, in consultation with relevant stakeholders. The construction workforce will be encouraged to travel to and	Detailed design and construction	CTTMP	Section 3.6 Section 4.3 Section 4.4 Section 4.6.	Pedestrian and cyclist connectivity within the local study area has been considered. This includes: 1. maintaining connectivity during construction 2. improving connectivity post-construction (i.e. via the construction of the permanent infrastructure, Bedwin Road Bridge).

ID	Impact	Measure	Timing	Document	Reference	How addressed
		from work sites via public transport or use car- pooling to reduce impacts on local parking. Temporary relocation of bus stop facilities will be undertaken in consultation with the relevant road authority, bus operators and TfNSW. The relocated bus stops will be reinstated at their original location as construction works are completed in each location. Vehicle access to residential and business properties will be maintained at all times, where possible. Where restricting access to properties is required to enable construction works, vehicle access will be restored as soon as possible. Where access to a property cannot be maintained, affected owners/occupants will be informed and feasible and reasonable solutions for access to their specific location discussed.				See Referenced section of CTMP
SE4	Business impacts	Vehicle access to business properties will be maintained at all times, where possible. Where restricting access to properties is required to enable construction works, vehicle access will be restored as soon as possible. Where access to a property cannot be maintained, consultation will be undertaken with affected landowners/occupants, in accordance with the CCF, to identify appropriate timeframes for restricting access, or to negotiate alternative solutions. Construction activities undertaken in proximity to businesses will maintain visibility of business frontage, associated signage and access points, where possible. Business impacts resulting from changes to amenity or access will be managed in line with mitigation measures identified for other relevant environmental issues.	Construction	CTTMP	Section 3.9 Section 4.6.1	See Referenced section of CTMP
SE5	Utilities impacts	Consultation and construction planning with relevant utility/service providers (including councils, TfNSW, Sydney Trains, ARTC and Roads and Maritime) and measures such as searches of DBYD will be undertaken to minimise the potential for damage or disruption to utilities and services.	Detailed design and construction	CPIMP	Table 3-3	Consultation and construction planning with relevant utility/service providers (including councils, TfNSW, Sydney Trains, ARTC and Roads and Maritime) and measures such as searches of DBYD has been undertaken to minimise the potential for damage or disruption to utilities and services. Details of utilities are included on the Design Plans and have guided the final infrastructure location. Construction planning is being undertaken in consultation with stakeholders.
SE6	EMF impacts	Information about potential EMF levels and the relevant health guidelines will continue to be provided to stakeholders in proximity to the cable route as part of community consultation undertaken for the project.	Construction	CEMP	Section 6.2	Managed via ECMs. Designed , constructed and operated so that electric and magnetic fields comply with applicable EMF limits (CoA E36)
SE7	Sydney Park impacts	Construction works within Sydney Park will be undertaken in stages and appropriate diversions for access provided to minimise disruption to park users and the City of Sydney.	Construction	CTTMP		CTTMP and site specific TMP allow for pedestrian and bike access.
Cumulative impacts						
CE1	General	TransGrid explore project refinements and opportunities (including construction scheduling) to further minimise impacts on the environment and communities.	Detailed design	All Sub-plans		Project programming and liaison and consultation with relevant Council and applicable authorities and utilities operating within the areas The project has been designed to minimise the potential impacts on trees, threatened species and to minimise works in parks and open

ID	Impact	Measure	Timing	Document	Reference	How addressed
						spaces, balanced with minimising the need to relocate other infrastructure such as buried utilities.
CE2	General	Key stakeholders, including relevant government agencies, councils and developers (including project proponents), will be kept informed of construction progress and scheduling in an effort to minimise community impacts. The frequency and method of this communication will be outlined in the project CEMP and CCF.	Construction	CEMP	Section 8.6	Notification and progressive consultation set out in Community Communication Strategy.
CE3	General	TransGrid will review the environmental impacts of the project before the start of construction and periodically during construction to identify further opportunities to reduce cumulative impacts. Any potential changes to impacts or mitigation measures will be captured in the CEMP.	Detailed design and construction	All Sub-plans		Project programming and liaison and consultation with relevant Council and applicable authorities and utilities operating within the areas
CE4	General	Consultation and construction planning will be undertaken with relevant stakeholders, particularly proponents for other developments within proximity to the project.	Detailed design and construction	CEMP	Section 8.6	Notification and progressive consultation set out in Community Consultation Strategy.

Appendix A4 – Environmental Control Measures

ID	Indicative Mitigation and Management Measures	Responsibility	When to implement	Reference	Sub-plan reference
ECM-AQ01	Construction personnel will undergo inductions in accordance with the CEMP and any other training commitments agreed as part of the project approval.	Environment and sustainability manager	Construction	GE4 HR1 CoA C7(i)	CAQMP
ECM-AQ02	Plan activities to avoid adversely windy conditions, which may result in the generation of off-site dust impacts. When scheduling works, consider seasonal variation in wind strength, with lighter winds during winter/spring. Refer to the Trigger Action Response Plan in Section 5-2 of the CAQMP for action criteria.	Civil Project Manager	Construction	AQ3	CAQMP
ECM-AQ03	Inform all site personnel of any impending inclement weather conditions and the possibility and potential for changed work activities.	Civil Project Manager Site Manager	Construction	AQ3	CAQMP
ECM-AQ04	Apply crusting or binding agents at ancillary facilities with exposed areas to limit the generation of dust and to minimise water usage, if required.	Site Manager	Construction		CAQMP
ECM-AQ05	Consider using effective watering systems to suppress dust during works for relevant construction plant, including for rock hammering, cutting, profiling. Options for watering systems include water trucks, mist cannons, portable IBC water tanks on trailers with garden hoses etc.	Site Manager	Construction	AQ5	CAQMP
ECM-AQ06	Regularly water all exposed surfaces at construction laydown areas (excluding stockpiles) or special crossing work sites when conditions are dry and dusty.	Site Manager	Construction	AQ2	CAQMP
ECM-AQ07	Cover or stabilise spoil stockpiles utilising surface sealant or soil binder (e.g. polyacrylamide). Stockpiles will be maintained at heights no greater than 2m along the alignment.	Site Manager	Construction	AQ4	CAQMP
ECM-AQ08	Minimise drop heights from excavators when placing spoil into trucks or onto stockpiles to reduce the potential for dust generation.	Site Manager	Construction	AQ5	CAQMP
ECM-AQ09	Clean loose materials and debris from the tailgate of vehicles unloading materials to stockpiles prior to departure from site.	Site Manager	Construction	AQ8	CAQMP
ECM-AQ10	Avoid excessive vehicle and plant movement where required, to reduce soil tracking onto public roadways.	Site Manager	Construction	AQ8	CAQMP
ECM-AQ11	Progressively rehabilitate exposed areas at work sites to limit dust generation.	Site Manager	Construction	AQ6	CAQMP

ECM-AQ12	Ensure that all vehicles transporting soils, rock or other materials are covered when entering or exiting the work site.	Site Manager	Construction	AQ7	CAQMP
ECM-AQ13	Provide stabilised site access (where existing site is unsealed), and access points as required.	Site Manager	Construction	AQ9	CAQMP
ECM-AQ14	Use designated haulage and access routes for construction vehicles and mobile plant, where practicable, and traffic speeds at work sites will be restricted to limit the generation of dust from vehicle movements.	Site Manager	Construction	AQ10	CAQMP
ECM-AQ15	If dust is seen to be migrating off-site, identify the source of the dust. Implement additional management and mitigation measures (such as rescheduling the works or water spraying), where required, or ceasing and rescheduling constructions when wind speeds exceed 50km/hr.	Site Manager	Construction	AQ11	CAQMP
ECM-AQ16	Implement site-specific landfill gas mitigation and management measures. Controls may include the use of odour suppressant mists and foams and other measures deemed suitable for the local conditions of the site.	Site Manager	Construction	AQ12	CAQMP
ECM-AQ17	Maintain construction vehicles and mobile plant in good working condition. Switch off plant and equipment when not in use. Include energy efficiency in consideration for plant and equipment procurement.	Site Manager	Construction	AQ13	CAQMP
ECM-AQ18	Where unstabilised areas are not actively worked for greater than 7 days or when construction works are stood down (e.g. Christmas break), apply soil stabilisers or similar controls (e.g. polyacrylamide) to reduce impacts of offsite nuisance dust as required.	Site Manager	Construction	N/A	CAQMP
ECM-AQ19	Sweep street by the end of each shift, if mud is tracking onto public roads.	Site Manager	Construction	N/A	CAQMP
ECM-VB01	Site inductions an Toolbox talks to include elements described in Section 8.2.	All Construction Staff	Construction	N/A	CVBMP
ECM-VB02	**Lindsay Street, Cook's River Pedestrian Bridge** Avoid vegetation. Do not damage, cut or break any vegetation on the southern bank of Cooks River in Campsie (PCT920). Implement visual delineation measures such as tape, signage, fencing or other suitable measures to identify area to be avoided.	All Construction Staff	Design Construction	E21(a)	CVBMP

ECM-VB03	**Centennial Road – Long Nose Bandicoot Protection** Works to be restricted to within paved areas only. If works extend beyond paved area, immediately notify the Environment and Sustainability Manager to determine whether additional protection measures are required. Implement visual delineation measures such as tape, signage, fencing or other suitable measures to restrict works to paved areas.	Site Manager Civil Project Manager	Design Construction	Identified during consultation	CVBMP
ECM-VB04	Avoid Plant Community Types shown Figure 3 1, Figure 3 2 and Figure 3 3. Avoid vegetation. Do not damage, cut or break any vegetation on the southern bank of Cooks River in Campsie (PCT920). Implement visual delineation measures such as tape, signage, fencing or other suitable measures to identify area to be avoided.	All Construction Staff	Design Construction	E21(a)	CVBMP
ECM-VB05	Avoid Threatened species documented in Section 3.5.1 that is shown on maps in the EIS. Note: The locations of threatened species are reliably predicted by Plant Community Types (PCTs). Figure 3 1 and Figure 3 2 reproduce the maps shown in the EIS that show the PCTs. Avoid PCT920 and PCT1281. Implement visual delineation measures such as tape, signage, fencing or other suitable measures to identify area to be avoided. Refer Section 6.1.1 for further information	All Construction Staff	Design Construction	E21(b)	CVBMP
ECM-VB06	Avoid the potential key fish habitat in the Cooks River by: • underboring the area shown in Figure 3 5. • Implementing visual delineation measures such as tape, signage, fencing or other suitable measures to identify area where activities within are to be avoided.	All Construction Staff	Design Construction	E21(c)	CVBMP
ECM-VB07	Avoid removal of trees with high retention value trees, as shown on the Landscape Plans, with the exception of Tree 54 adjacent to the Muir Road cable bridge. Implement Tree Protection Plans when working adjacent to these trees. Implement visual delineation measures such as tape, signage, fencing or other suitable measures to identify area to be avoided.	Civil Project Manager Site Manager	Design Construction	E21(d), BD10	CVBMP
ECM-VB08	Avoid removal of trees in:	Civil Project Manager	Design	E21(d), BD10	CVBMP

	Sydney Park in Alexandria (including any vegetation in the City Farm orchard, and any disturbance within the nursery depot); Barwon Park Road in Alexandria and St Peters; Johnson Park Bushcare site and GreenWay in Dulwich Hill; Constitution Road in Dulwich Hill; Mildura Reserve in Campsie; Muir Road in Chullora (fig trees in central median); and Fifth Avenue in Campsie (heritage listed trees). Note: Trees identified above are shown on the Landscape Plan - refer legend "Tree Protection Area (Conditions of Consent) - Trees require Tree Protection Plans". Implement Tree Protection Plans when working adjacent to these trees. Areas which are "no go zones" will be shown on the Tree Protection Plans. Implement visual delineation measures such as tape, signage, fencing or other suitable measures to identify area to be avoided.	Site Manager Environment and Sustainability Manager	Construction		
ECM-VB09	If an unexpected tree removal is deemed required by the Project Arborist, immediately notify the Environment and Sustainability Manager. *Note: Justification is required to proceed with tree removal. Any potential removal must follow Community Consultation Strategy which identifies engagement with local councils and affected residents.*	Site Manager Environment and Sustainability Manager	Construction	E21, E21(d), BD10	CVBMP
ECM-VB10	Pre-clearance survey of trees to be removed will be undertaken by a suitably qualified ecologist to identify/locate active nests in use by native animals.	Project Ecologist	Construction	BD1	CVBMP
ECM-VB11	The removal of nest trees will be supervised by a qualified ecologist/licensed wildlife handler.	Project Ecologist	Construction	BD2	CVBMP
ECM-VB12	Any native fauna that will not disperse independently will be captured and relocated to a suitable location nearby. Prior to any disturbance by construction works, pre-clearance surveys of stormwater culverts and pipes that may be suitable habitat for roosting bats will be undertaken to identify bats for relocation.	Project Ecologist	Construction	BD3	CVBMP
ECM-VB13	If active bird nests are identified during the pre-clearance survey, avoidance of vegetation clearing works during late winter/early spring breeding/nesting period will be considered.	Project Ecologist	Construction	BD4	CVBMP

ECM-VB14	Work sites outside of the road reserve will be delineated with temporary fencing/barriers, tape, signage or other visible measures along the perimeter to avoid encroachment into vegetated areas.	Site Manager Environment and Sustainability Manager	Construction	BD5	CVBMP
ECM-VB15	Appropriate controls will be utilised to manage exposed soil surfaces and stockpiles to reduce sediment discharge into waterways, in accordance with the Blue Book (Landcom, 2004). All works within proximity to drainage lines will have adequate sediment and erosion controls. Revegetation of disturbed areas will commence as soon as practicable to reduce the risk of erosion.	Site Manager	Construction	BD6	CVBMP
ECM-VB16	Dust suppression measures, as outlined in an AQMP, will be implemented during construction works to limit dust at work sites. Revegetation of disturbed areas will commence as soon as practicable to reduce areas likely to create dust.	Site Manager	Construction	BD7	CVBMP
ECM-VB17	Vehicles, machinery and waste associated with construction will remain within work sites and laydown areas and will not impinge on areas of retained vegetation. Weeds (listed under the NSW Biosecurity Act 2015) present within construction laydown areas or work sites will be managed in accordance with the regional priority objectives of the Greater Sydney Regional Strategic Management Plan 2017 – 2022.	Site Manager	Construction	BD8	CVBMP
ECM-VB18	All construction personnel will undertake an environmental induction that will include items such as: • potential or actual presence of threatened species or habitats; • site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and the prevention of the spread of weeds); • response to environmental emergencies (chemical spills, fire, and injured fauna); and key environmental project personnel.	All personnel	Construction	BD9	CVBMP
ECM-VB19	Where cable monitoring systems identify a potential impact of tree roots on the operating transmission cable, a qualified arborist will be called on to investigate further. If there is potential for damage to the cables, the tree will need to be removed. Removal will be limited only to trees that are affecting the transmission cable.	Civil Project Manager Environment and Sustainability Manager	Construction	BD11 (Operation)	CVBMP
ECM-VB20	The following will be considered during the detailed design phase to retain trees wherever possible:	Civil Project Manager	Design	BD12	CVBMP

	• review the alignment of the transmission cable circuit to avoid impacting the structural root zone (SRZ) or more than 10% of the tree protection zone (TPZ) where possible, with priority consideration given to heritage areas and high retention value trees; and locate construction facilities and infrastructure (e.g. site offices, plant/equipment storage) outside of tree protection zones.	Environment and Sustainability Manager Project Arborist			
ECM-VB21	The following tree protection measures will be implemented: • all tree pruning must be in accordance with the AS 4373-2007 Pruning of Amenity Trees (Standards Australia 2007) and the Code of Practice for the Amenity Tree Industry (NSW WorkCover, 1998); • all tree work on retained trees is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture; • trunk, branch and/ or ground protection measures for high retention value trees that extend into or are located in the roadway, will comply with AS 4970-2009 Protection of trees on development sites (Standards Australia, 2009a); and • ground protection will be used within the TPZ and SRZ, where possible, to prevent root damage caused by compaction of the soil and the loss of water infiltration and oxygen to the trees root system. Ground protection may include a permeable membrane such as geotextile fabric beneath a layer of mulch, crushed rock or rumble boards. The location and distribution of roots of trees to be retained will be determined through low or non-destructive excavation methods such as hydro-vacuum excavation (sucker truck), air spade and manual excavation, where required, immediately prior to excavation works commencing.	Civil Project Manager Environment and Sustainability Manager Project Arborist	Construction	B13	CVBMP
ECM-VB22	A qualified arborist will be consulted in the event there is a change to the condition of high retention value trees in the project area due to construction activity. A qualified arborist will inspect high retention value trees within the project area for any damage once construction is completed and tree protection measures have been removed.	Project Arborist	Construction	BD14	CVBMP
ECM-VB23	DPI Water's *Controlled activities on waterfront land – Guidelines for laying pipes and cables in watercourses on waterfront land* (DPI, 2012) will be used to inform the cable installation at the Cooks River.	Site Manager	Construction	BD15	CVBMP

		Environment and Sustainability Manager			
ECM-VB24	The following water quality measures will be implemented: • water collected during construction (e.g. during dewatering or surface water inflows to the trench or pits) will be discharged or disposed of in accordance with the Protection of the Environment Operations Act 1997 and the ANZECC Water Quality Guidelines (2000) for 95% protection level for marine ecosystems; • the water discharge point will be at a stable point on the bank or across riparian vegetation to allow slowing of water before travelling further downstream. Where feasible, the velocity of downstream flows will not exceed natural seasonal flow velocities. Sediment and erosion mitigation measures will be implemented in accordance with ESCPs; and • contaminated water captured during construction will be disposed of at an appropriately licensed facility.	Site Manager	Construction	BD16	CVBMP
ECM-VB25	Weed control will be implemented within the project area at the Cooks River, where required, to maintain restored areas as weed free.	Site Manager	Construction	BD17	CVBMP
ECM-VB26	In the event that construction works within or adjacent to the Johnson Park bushcare site, Cooks River and Sydney Park are required to be undertaken at night, project lighting will be directed towards work sites and away from stands of vegetation.	Site Manager	Construction	BD18	CVBMP
ECM-VB27	Tree Protection Plans will be developed by the project arborist and implemented in accordance with Section 6.1.2.	Site Manager	Construction	BD18	CVBMP
ECM-VB28	Culverts to be disturbed are to be assessed for microbat habitat. If microbats are confirmed to be using culverts as roosting habitat, then works in these areas must be avoided until a microbat exclusion plan is implemented, if the impact cannot be avoided.	Project Ecologist	Construction	Stakeholder consultation	CVBMP
ECM-VB29	Consider realignment of cable alignment to enable retention of Tree 2599.	Civil Project Manager	Construction	Stakeholder consultation	CVBMP
ECM-VB30	Undertake ground stabilisation, landscaping and rehabilitation at cable bridge crossings once installation of the cable bridge is complete and monitor for a period of at least six months.	Site Manager	Construction	LV4	CVBMP

ECM-VB31	Tree replacement will be a ratio of 3:1.	Environment and Sustainability Manager	Construction	E23	CVBMP
ECM-WM01	Construction personnel will undergo inductions in accordance with the CEMP and any other training commitments agreed as part of the project approval. Induction to include: • Existence and requirements of this Sub-plan • Relevant compliance obligations • Incident response, management and reporting • Waste reporting, tracking and monitoring requirements • Efficient use of plant and materials • Documentation and record keeping requirements • Waste/material storage, segregation and transportation requirements • Potential for contaminated material (including asbestos containing material) to be present onsite and management requirements • Appropriate location, use and maintenance of spill kits near high risk areas on site including waste oil storage areas and plant refuelling sites.	Construction	Environment and Sustainability Manager	Best practice	CWMP
ECM-WM02	Reflecting the waste hierarchy, waste management principles and targets will be incorporated into site specific management plans and procedures	Pre-construction Construction	Environment and Sustainability Manager	Best practice, E37, WM1, WM8	CWMP
ECM-WM03	Prefabricated materials will be used where possible	Pre-construction Construction	Civil Project Manager	WM8	CWMP
ECM-WM04	Use recycled materials (i.e. recycled content for asphalt and concrete including the use of fly ash) wherever feasible;	Pre-construction Construction	Environment and Sustainability Manager	WM8, WM21WM21	CWMP
ECM-WM05	Excavated materials from the excavation trenching phase will be reused to the maximum permitted extent (e.g. spoil, asphalt and concrete). The remainder will be transferred to a recycling or a licence waste disposal facility.	Construction	Environment and Sustainability Manager	Best Practice, WM1WM1	CWMP
ECM-WM06	Opportunities to recycle concrete will be investigated	Pre-construction Construction	Environment and Sustainability Manager	WM08WM08	CWMP

	Wastewater or recycled water will be used where feasible to reduce potable water demand for construction activities	Pre-construction Construction	Civil Project Manager	WM8, WM1	CWMP
ECM-WM07	Wastewater not used on-site will be disposed off-site or discharged into the local stormwater system in accordance with the requirements of the POEO Act. Note: Any wastewater from groundwater dewatering activities consider reasonable and feasible alternatives to discharge to stormwater. Where groundwater is discharged to stormwater, wastewater pollutant discharge concentrations, unless otherwise agreed by the EPA, must achieve criteria in the national *Water Quality Guidelines* at a 95% protection level for marine ecosystems and, for analytes not covered by the guidelines, the amended National Health and Medical Research Council (NHMRC) *Australian Drinking Water Guidelines (2015)*.	Pre-construction Construction	Civil Project Manager	WM6WM6 E38, E14E14	CWMP
ECM-WM08	Investigate opportunities to reuse materials where feasible	Pre-construction Construction	Environment and Sustainability Manager	WM88WM88	CWMP
ECM-WM09	Procure materials on an 'as needed' basis to reduce over-ordering and wastage	Construction	Civil Project Manager	WM1WM1	CWMP
ECM-WM10	Cover unconsolidated stockpiles with geofabric, hydro mulch or other revegetation applicants where stockpiles will be left standing for more than 10 days. Refer to CSWMP.	Construction	Environment and Sustainability Manager	Best Practice	CWMP
ECM-WM11	Asbestos or asbestos-contaminated materials that are discovered during demolition and construction activities will be strictly managed in accordance in with the AMP.	Construction	Site Supervisor	WM5WM5	CWMP
ECM-WM12	All asbestos waste over $10m^3$ or 100kg in one load must be tracked through EPA's WasteLocate service.	Pre-construction Construction	Environment and Sustainability Manager	WM5, E39,	CWMP
ECM-WM13	The handling and disposal of asbestos waste will be tracked in accordance with the AMP.	Pre-construction Construction	Civil Project Manager	WM5, E40E40	CWMP
ECM-WM14	Recycling receptacles will be inspected frequently to monitor contamination levels that would restrict recycling potential	Construction	Environment and Sustainability Manager	Best practice	CWMP
ECM-WM15	Liquid wastes (e.g. waste oil) will be stored in appropriate containers in bunded areas (with 110% capacity of the largest container) and disposed at an appropriately licensed facility.	Pre-construction Construction	Environment and Sustainability Manager	Best Practice, WM6, E399	CWMP

ECM-WM16	Waste truck loads will be covered prior to trucks leaving the worksite.	Construction	Site Supervisor	Best Practice	CWMP
ECM-WM17	Spill kits will be maintained and located near high risk areas on site including waste oil storage areas and plant refuelling sites.	Pre-construction Construction	Environment and Sustainability Manager	Best Practice	CWMP
ECM-WM18	Excavated materials and contamination (including VENM and ENM) will be classified, handled, stored and reused or removed from site in accordance with the requirements of this plan and the Waste Classification Guidelines. Pre-classified contaminated materials will be transferred directly into haulage trucks for offsite disposal at a waste facility licensed to accept the contaminated material.	Construction	Environment and Sustainability Manager	WM2 WM3, E40	CWMP
ECM-WM19	Materials will be segregated into stockpiles of spoil, concrete, steel, timber, paper and cardboard and vegetation to maximise recycling opportunities and sent to a waste facility with recycling capabilities. Spoil should be segregated based on predetermined waste classification or if it appears to be contaminated (refer to “Unexpected Contaminations Finds”- CSWMP).	Construction	Environment and Sustainability Manager	WM4	CWMP
ECM-WM20	Labelled storage containers (bins, skips, tanks, etc.) will be provided at each work area, where possible, and in sufficient numbers to facilitate segregation of waste.	Construction	Environment and Sustainability Manager	WM4	CWMP
ECM-WM21	Waste and recycling containers must be emptied at a frequency that is sufficient to ensure their correct use. *If a bin needs to be collected contact your Site Manager or Environmental and Sustainability Coordinator.*	Construction	Site Supervisor	WM4	CWMP
ECM-WM22	Ensure waste and contaminated material is transported by a licensed contractor (as required) and received at an appropriately licensed site for storage, treatment, processing, reprocessing or disposal. All appropriate documents and disposal dockets will be retained for audit purposes.	Construction	Environment and Sustainability Manager	WM3, E39	CWMP
ECM-WM23	The relevant licences of waste facilities utilised for the disposal or handling of waste will be obtained to ensure they are legally compliant.	Pre-construction	Environment and Sustainability Manager	E39, WM3	CWMP
ECM-WM24	Waste tracking will be implemented for all waste leaving the project and a Waste Register will be maintained. The ‘Waste Material Tracking Form’ in Appendix 4 will be completed by the Site Manager to keep record of all waste leaving site and a	Construction	Environment and Sustainability Manager Site Manager	E39, WM4	CWMP

	copy (can be electronic) will be forwarded to the Environment and Sustainability Manager no later than close of business the next day. A copy (can be electronic) of waste dockets received from waste facilities will be forwarded to the Environment and Sustainability Manager no later than close of business the next day. Refer Appendix 3 and Appendix 4. A monthly audit of waste facility receipts and cross verification with the waste facility will be conducted monthly.				
ECM-WM25	Excess concrete and concrete washout will not be discharged to land or stormwater; a bunded and lined concrete washout facility must be used.	Construction	Site Supervisor	E38, WM8, WM3	CWMP
ECM-WM26	An adequate number of fully maintained concrete washout pits will be maintained onsite at all times as required.	Construction	Site Supervisor	E38, WM8, WM3	CWMP
ECM-WM27	Burial or burning of waste is not permitted.	Construction	Site Supervisor/Project Engineer	E38	CWMP
ECM-WM28	Fuel and oil storage for machinery and plant will be secured and stored within bunded areas/containers on compound sites during works and removed on completion of works.	Construction	Environment and Sustainability Manager	Best Practice	CWMP
ECM-WM28	All waste data will be collated and tracked using the Waste Register.	Construction	Environment and Sustainability Manager	WM6, E39	CWMP
ECM-WM29	The Waste Register will be audited monthly to ensure documentation is complete. Results will be presented in the monthly report.	Construction	Environment and Sustainability Manager	WM6, E39	CWMP
ECM-WM30	The site will be maintained in a clean and tidy condition and rubbish will be regularly removed from site.	Construction	Site Supervisor	Best Practice	CWMP
ECM-SW01	Training will include: • Relevant legislation • Roles and responsibilities for soil and water management • Surface water quality management and protection measures • Flood management plan and Flood awareness (when wet weather is forecast) • Site water reuse and dewatering procedure. • Erosion and Sediment Control Plans • The location of ASS or PASS	Project Manager Environment and Sustainability Manager	Prior to construction Construction		CSWMP

	• Existence and requirements of this CLMP. • Environmental and occupational health and safety risks associated with contaminated materials. • The location of known or suspected contaminated soil and management protocols. • The location of known or suspected asbestos and management protocols. • The location of known or suspected potential or actual ASS and management protocols. • Landfill gas trigger levels, actions and management protocols. • Unexpected finds protocol. • Complaints response and reporting.				
ECM-SW01	Ongoing develop Site specific ESCPs in accordance the **SWMP**.	Civil Project Manager	Prior to construction Construction		CSWMP
ECM-SW02	Implement all controls identified on the ESCPs.	Site Manager	Construction		CSWMP
ECM-SW03	Prior to ground disturbance activities, implement controls to reduce sediment discharge into waterways, in accordance with the Blue Book (Landcom, 2004).	Site Manager	Construction	WQ1, WQ2, BD6 CoA E12	CSWMP
ECM-SW04	Minimise ground disturbance and exposed soil as far as practicable.	Site Manager	Construction	WQ2	CSWMP
ECM-SW05	Temporarily divert stormwater flow paths around the works, where possible.	Site Manager	Construction	WQ2	CSWMP
ECM-SW06	Notify the Environmental and Sustainability Manager if water is unable to be diverted around excavations.	Site Manager	Construction		CSWMP
ECM-SW07	Where it not possible to divert stormwater around the works, undertake all reasonable measures to prevent water ingress into excavations, to avoid the need to pump out following a rainfall event.	Site Manager	Construction		CSWMP
ECM-SW08	Avoid large volumes of stormwater accumulating in excavations.	Site Manager	Construction		CSWMP
ECM-SW09	Manage Stormwater flows to avoid flow over exposed soils which may result in erosion and impacts to water quality. Inside the excavation this may require the use of trench stops.	Site Manager	Construction	WQ2	CSWMP
ECM-SW10	Monitor rainfall forecasts will daily during construction and reschedule works if necessary, to reduce risk of erosion and sedimentation and to minimise the impact of heavy rainfall and flood events.	Site Manager Environment and Sustainability Manager	Construction	WQ2 CoA E12	CSWMP

ECM-SW11	Manage surface water runoff in accordance with **SWMP**. *Note: surface water would be discharged or disposed of in accordance with the Protection of the Environment Operations Act, 1997 and Blue Book (Landcom, 2004). In areas where contamination is present the ANZECC Water Quality Guidelines (2000) for 95% protection level for marine ecosystems.*	Site Manager	Construction	E13, E14 WQ1	CSWMP
ECM-SW12	Manage groundwater dewatering in accordance with **GMS**.	Site Manager	Construction	E14	CSWMP
ECM-SW13	Where works are within the riparian zone (40 metres from the top of the watercourse bank) control measures are to be consistent with the *Controlled Activities on Waterfront Land Guidelines* (DPI, 2012),	Site Manager	Construction	WQ1	CSWMP
ECM-SW14	Restrict construction traffic to access tracks, where existing roads cannot be utilised (e.g. through Sydney Park).	Site Manager	Construction		CSWMP
ECM-SW15	Ensure access tracks are clearly delineated until construction is complete.	Site Manager	Construction		CSWMP
ECM-SW16	Backfill excavations as soon as each section of conduits has been installed, or as soon as practicable.	Site Manager	Construction		CSWMP
ECM-SW17	Cover trenches temporarily when worksites are not in use.	Site Manager	Construction		CSWMP
ECM-SW18	Monitor excavations during periods of heavy rain, so that if so that if pumping is required this can take place to prevent spill-over in an uncontrolled manner.	Site Manager	Construction		CSWMP
ECM-SW19	Detailed hydrogeological information (e.g. bore data) will be used to inform the most suitable underboring construction method at select special crossings that will minimise the need for dewatering. Where an aquifer is to be completely penetrated at the underboring special crossings, appropriate controls (such as drainage blankets) will be installed beneath the infrastructure to ensure groundwater flow is maintained to minimise disruption to groundwater flow paths.	Site Manager Environment and Sustainability Manager	Construction	WQ1 GW2	CSWMP
ECM-SW20	Wheel wash water is to either be: 1. managed by containing and treating in a sediment basin used to manage surface water (excavation required as part of the works or surface basin); or disposal in accordance with the **SWMP** discharge procedure.	Site Manager	Construction		CSWMP
ECM-SW21	Manage storage and handling of dangerous goods in accordance with relevant guidelines and standards such as the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005).	Site Manager	Construction	WQ3	CSWMP

ECM-SW22	Ensure fuel and liquid storage at construction laydown areas is secure and stored in accordance with the NSW EPA guidelines (Department of Environment and Climate Change NSW, 2007b;	Site Manager	Construction	WQ3	CSWMP
ECM-SW23	Apply spill containment and prevention measures to fuel and liquid storage, where feasible and reasonable	Site Manager	Construction	WQ3	CSWMP
ECM-SW24	A spill response kit will always be available at each worksite.	Site Manager	Construction		CSWMP
ECM-SW25	Accidental spills or leaks will be managed through the use of spill containment measures including spill kits. Any contaminated material caused by spills will be disposed of to an appropriately licenced facility.	Site Manager	Construction		CSWMP
ECM-SW26	Re-fuelling of construction plant and equipment will be undertaken using appropriate spill containment measures to mitigate pollution risks from accidental spills or leaks	Site Manager	Construction		CSWMP
ECM-SW27	Refuelling activities will be undertaken at least 100 metres from the nearest watercourse	Site Manager	Construction		CSWMP
ECM-SW28	When bringing in bulk fuel or other liquid substances, a container specifically designed for that purpose will be used.	Site Manager	Construction		CSWMP
ECM-SW29	At underbore sites. Install appropriate stormwater diversions, as well as downstream pollution and sediment control measures to both prevent stormwater entering the excavation as well as to assist with containing any loss of drilling fluid.	Site Manager	Construction		CSWMP
ECM-SW30	At underbore sites, visually monitor flows of drilling fluid.	Site Manager	Construction		CSWMP
ECM-SW31	At underbore sites, diversions around launch and receive pits are to consider known localised flooding conditions with the aim of avoiding scour where possible.	Site Manager	Construction		CSWMP
ECM-SW32	Install sediment and erosion controls should be installed prior to works commencing	Site Manager	Construction		CSWMP
ECM-SW33	Stabilise and restore watercourse crossings to as near as practical to their original profile, as fast as possible.	Site Manager	Construction		CSWMP
ECM-SW107	Avoid compromising function of local rain gardens (including at corner of Juliett Street and Scouller Street Marrickville), detention basins and wetlands for water quality treatment. Where not possible to avoid, restore function as part of the works.	Site Manager	Construction		CSWMP
ECM-SW108	If disposal of wastewater to sewer is identified as a potential option, obtain approval from Sydney Water prior to disposal to sewer.	Sustainability and Environmental Manager	Construction		CSWMP

Flooding					
ECM-SW34	Stage worksites to limit the extent and duration of temporary works in a floodplain	Site Manager Civil Project Manager	Construction	FF3	CSWMP
ECM-SW35	Schedule works within ephemeral watercourses and urban drains and urban drains when there is no rain forecast for several days.	Site Manager Civil Project Manager	Construction		CSWMP
ECM-SW36	Avoid working inside ephemeral watercourses and other urban drainage network assets during or immediately following runoff generating rainfall events when stormwater flows in these watercourses are expected. Where the transmission cable must pass below stormwater pipes and pipes are required to be cut and replaced, rainfall forecasts should be monitored and works rescheduled if required.	Site Manager	Construction	FF3 Best practice	CSWMP
ECM-SW37	Remove equipment and materials from the floodplain areas at the completion of each work activity or in the event a weather warning is issued for impending flood producing rain.	Site Manager All Staff	Construction	FF3	CSWMP
ECM-SW38	Locate stockpiles outside areas of frequent inundation, surface runoff flow paths and above the 10% AEP flood level, where feasible and reasonable.	Site Manager	Construction	Best practice	CSWMP
ECM-SW39	Allocate storage for fuels, chemicals and other hazardous materials that is: • as far away from watercourses as possible • located in an area immune to flooding during a 20 year Average Recurrence Interval (ARI) event • on an impervious bunded area Measures are to feasible and reasonable.	Site Manager	Construction	WQ3	CSWMP
ECM-SW40	At the Beaconsfield West substation site, regional weather conditions and river flow levels should be monitored during construction to pre-empt changes in weather patterns and flow regimes to minimise impacts that would be associated with wet weather. Allow sufficient time to vacate and prepare the site prior to the commencement of heavy rainfall and flood events,	Site Manager	Construction		CSWMP
ECM-SW41	Ensure adequate supplies of flood response equipment, including sand bags, geofabric and pegs, are sufficient to divert work around all open worksites	Site Manager	Construction		CSWMP

ECM-SW42	Register with the BoM Flood Warning Service Program (www.bom.gov.au/australia/warnings) to receive flood warnings. *ECM applicable to Site Managers, Civil Project Managers and the Safety Manager.*	Site Manager Civil Project Manager Environment and Sustainability Manager	Construction		CSWMP
ECM-SW43	Upon receipt of a "flood watch" warning, prepare the site in accordance with Section 5 of the **Flood Management Plan**.	Site Manager	Construction		CSWMP
ECM-SW44	During a flood event complete the actions identified in Section 5 of the **Flood Management Plan**.	Site Manager	Construction		CSWMP
ECM-SW45	Following a flood event, observe the proposed responses identified in Section 5 of the **Flood Management Plan**.	Site Manager Environment and Sustainability Manager	Construction		CSWMP
ECM-SW46	Identify project areas that will intersect groundwater and groundwater contamination during construction and/or operation via desktop review by a suitably qualified hydrogeologist of: o the preferred alignment and preliminary detailed design; o EIS information; and information from supplementary contamination or ASS pre-construction investigations identified under sub-plans of the CSWMP.	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW1, GW2	CSWMP
ECM-SW47	Identify areas of concern, each being a project area where the aquifer is to be completely penetrated or has an elevated risk of impact on groundwater from dewatering identified in the GMS Section 4.1 or existing contamination identified in Table 5-1 of the CLMP or Table 3-2 of the PASS. The key areas expected to require assessment include select underbore special crossings at Cooks River and near Sydney Park.	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW1, GW2	CSWMP
ECM-SW48	Investigate groundwater in the areas of concern prior to the construction to assess the nature (including groundwater levels, flow direction, water quality and aquifer hydraulic conductivity) of groundwater and estimate potential dewatering requirements (rate, cumulative volume and water quality). The investigation design shall be developed and implemented by a suitably qualified and experienced hydrogeologist and shall consider:	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW1, GW2	CSWMP

	○ Use of existing monitoring wells (e.g. near Sydney Park), and/or installation of supplementary monitoring wells or piezometers by drilling using construction methods consistent with guidance in NUDLC (2011) *Minimum Requirements for Water Bores in Australia*. ○ Groundwater sampling design and methods in NSW EPA made or approved guidelines under the *Contaminated Land Management Act 1997*, including ASC NEPM. ○ Estimate potential dewatering rates and drawdown using analytical calculation or computational methods. Identify possible water quality objectives and criteria for extracted water, including consideration of feasible options of on-site re-use, discharge to sewer or stormwater, or off-site disposal of contaminated water to a suitable licensed facility consistent with this GMS.				
ECM-SW49	Undertake baseline groundwater monitoring to provide an initial assessment of groundwater levels and water quality prior to the commencement of excavation in the select areas of concern.	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW1, GW2	CSWMP
2. Project design to minimise potential environmental impacts during operation					
ECM-SW50	Develop detailed design to mitigate to the extent practicable impacts from groundwater interference caused by project structures that fully penetrate an aquifer. This may include, but not be limited to: ○ Design depth and geometry of structures below the water table to reduce interference with groundwater flow. Gravel drainage blankets beneath parts of the transmission cable route where bedrock is shallow and groundwater mounding could be caused by the blocking of groundwater flow paths.	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW1, GW2, GW3	CSWMP
ECM-SW51	Develop detailed design to mitigate to the extent practicable possible adverse preferential migration of contaminated groundwater, if present, caused by the backfill within the excavation. This may include, but not be limited to: ○ Sealing of annulus of structures or bores.	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW2	CSWMP

	Reducing permeability of backfill to mitigate preferential flow (e.g. grout 'collar's placed periodically with trench backfill).				
3. Project design to minimise potential environmental impacts during construction					
ECM-SW52	Develop the preferred underbore method (e.g. horizontal direction drilling [HDD] requires less excavation and dewatering for entry/exit pits than the thrust bore method) at selected special crossings based on investigations (above).	Civil Project Manager Environment and Sustainability Manager	Design / Prior to construction	GW2	CSWMP
4. Develop excavation and dewatering methods to minimise potential environmental impacts					
ECM-SW53	Assess and develop methods to reduce groundwater extraction and drawdown required for temporary dewatering to minimise disruption to downgradient receptors and reduce possible associated ground settlement including, but not be limited to: ○ Excavation retention systems (e.g. sheet piling) required for excavation safety purposes. ○ Excavation method and staging to minimise depth and duration. ○ Measures to control surface runoff inflows in the SWMP. Dewatering methods (e.g. sump and pump, spearpoints, careful control of drawdown).	Civil Project Manager Environment and Sustainability Manager	Construction Planning	GW1	CSWMP
5. Groundwater management controls to minimise potential environmental impacts					
ECM-SW54	Refine estimates of potential dewatering rates and drawdown for the preferred project design and construction methods. Use these estimates to: ○ Assess possible adverse ground settlement impacts attributable to the project. Determine whether approval from WaterNSW for construction dewatering is required – i,e, EMMM GW1 states that a groundwater extraction license would be required if 3 ML/year of groundwater discharge will be exceeded. This shall be applied per site within the project area.	Civil Project Manager Environment and Sustainability Manager	Construction Planning	GW1	CSWMP
ECM-SW55	Assess and develop appropriate methods to manage water collected during dewatering of excavations. The goal is to minimise potential	Civil Project Manager	Construction Planning	CoA E14, WQ1, GW4	CSWMP

	impacts on the environment and will include consideration of reasonable and feasible alternatives to discharge to stormwater.	Environment and Sustainability Manager			
ECM-SW56	The water will be discharged or disposed of in accordance with the POEO Act and relevant NSW waste regulations, and include one or a combination of: ○ On-site re-use (e.g. re-injection, use in dust suppression) of suitable water. ○ Discharge to stormwater - discharged water shall meet water quality criteria in ANZG (2018) for 95% protection level for marine ecosystems and, for analytes not covered by the guidelines, NHMRC (2011) as updated at the time of construction. ○ Discharge to sewer – Sydney Water acceptance standards. ○ Off-site disposal of contaminated water to a suitable licensed facility – disposed water shall be classified, transported and disposed in accordance with Waste Classification Guidelines (NSW EPA, 2014) and NSW waste regulations.	Civil Project Manager Environment and Sustainability Manager	Construction Planning	CoA E14 WQ1, GW4	CSWMP
ECM-SW57	Develop treatment requirements and design to meet the appropriate discharge water quality objectives.	Environment and Sustainability Manager	Construction Planning	CoA E14 WQ1, GW4	CSWMP
ECM-SW58	Determine the licence / permit requirements for discharge	Environment and Sustainability Manager	Construction Planning	CoA E14 WQ1, GW4	CSWMP
ECM-SW59	Develop a monitoring program to be implemented during construction dewatering. The aim of the program will be to monitor drawdown and possible adverse changes in groundwater conditions surrounding the project area, and comply with discharge water quality objectives. The program is envisaged to include gauging available monitoring wells, recording rate and volume of groundwater collected, and discharge water quality.	Environment and Sustainability Manager	Construction Planning	CoA E14 WQ1, GW4	CSWMP
6. Dewatering Management Plan (DMP)					
ECM-SW60	Document the preferred dewatering approach and management controls developed in the above measures in a DMP that is consistent with requirements of *Dewatering Work Method Statements* in RMS (2011) and in WaterNSW *Dewatering Checklist for a Water Works Approval.*	Environment and Sustainability Manager	Construction	CoA E14 WQ1, GW4	CSWMP
7. CSWMP					

ECM-SW61	Develop sub-plans under CSWMP that document management procedures and controls to mitigate possible impacts to groundwater from surface water runoff, erosion and sediments controls, and use of hazardous materials as part of construction.	Environment and Sustainability Manager	Construction	WQ1	CSWMP
8. Implementation of Management Plans					
ECM-SW62	Implement the CSWMP	Site Manager	Construction	CoA E14	CSWMP
ECM-SW63	Implement the DMP(s)	Site Manager	Construction	CoA E14	CSWMP
9. Monitoring					
ECM-SW64	Undertake monitoring of groundwater levels and quality, and water discharge	Environment and Sustainability Manager Site Manager	Construction		CSWMP
10. Documentation					
ECM-SW65	Document groundwater monitoring and dewatering records for retention in general accordance with WaterNSW requirements in the *Dewatering Checklist for a Water Works Approval*.	Site Manager	Construction		CSWMP
11. Compliance Management					
ECM-SW66	Perform compliance management in accordance with the GMS.	Site Manager	Construction		CSWMP
Acid Sulfate Soils management					
ECM-SW67	Follow the ASSMP	Site Manager	Construction	CT7	CSWMP
ECM-SW68	Treat soil with lime in accordance with the ASSMP where PASS is not able to be loaded and transported to a landfill licensed to receive untreated PASS within 24 hours of excavation or if AASS are identified and excavated	Site Manager	Construction	CT7	CSWMP
ECM-SW69	Minimise exposure of PASS material within an excavated trench or excavation site will be minimised to reduce the potential for oxidation and acid leachate generation;	Site Manager	Construction	CT7	CSWMP
ECM-SW70	Excavation to be done under dry conditions, where possible using a truck and shovel (tracked excavator) operation and the water table will be lowered within excavation areas, as part of excavation dewatering	Site Manager	Construction	CT7	CSWMP
ECM-SW71	Monitor excavated fill for colour and leachate quality	Site Manager	Construction	CT7	CSWMP
ECM-SW72	Do not place and leave untreated PASS material at the surface	Site Manager	Construction	CT7	CSWMP

ECM-SW73	Place soil into an appropriately bunded treatment area (pads) and treat with a neutralising agent (e.g. lime).	Site Manager	Construction	CT7	CSWMP
ECM-SW74	Manage leachate water from the PASS material and treat to ensure no acid is released to the environment.	Site Manager	Construction	CT7	CSWMP
ECM-SW75	Capture any leachate generated during the ASS treatment operations.	Site Manager	Construction	CT7	CSWMP
ECM-SW76	If water potentially affected by leachate is collected within the excavation, treat with hydrated lime or equivalent prior to discharge.	Site Manager	Construction	CT7	CSWMP
ECM-SW77	Do not discharge Water potentially affected by leachate accumulating within the work site until it meets acceptable water quality standards or is collected and disposed at a licensed liquid waste treatment facility.	Site Manager	Construction	CT7	CSWMP
ECM-SW78	Manage PASS materials separate from non-PASS materials at all times to reduce the volume of material requiring treatment. Acid is transported by water; therefore, excavation works in PASS will be conducted during dry periods (where practical) to minimise the risk of overflow associated with sudden or heavy rain and to allow better control of treated waters for discharge.	Site Manager	Construction	CT7	CSWMP
Contaminated Land Management					
ECM-SW79	Assess excavation areas in accordance with the **CLMP** Section 5.1.		Construction	CT1	CSWMP
ECM-SW80	Waste classifications referred to in the **CLMP** Section 5.1.1 may be used, except for areas that were identified as medium to high risk of contamination in the EIS.	Site Manager	Construction	CT1	CSWMP
ECM-SW81	Conduct further sampling to classify waste in areas identified as a medium to high risk of contamination in the EIS.	Site Manager	Construction	CT1	CSWMP
ECM-SW82	If unexpected finds are encountered follow the procedures outlined in the UCLAFP.	Site Manager	Construction	CT1, CT8	CSWMP
ECM-SW83	For parts of the transmission cable route where preliminary waste classification has not been undertaken or needs to be confirmed (refer to CLMP Table 5-1 and Section 5.1.2), waste classification will be undertaken in accordance with the NSW EPA (2014) *Waste Classification Guidelines: Part 1 Classifying Waste* and/or the *Excavated Natural Material Order* 2014.	Site Manager	Construction	CT1	CSWMP
ECM-SW84	Material classifications are to be documented in accordance with NSW EPA (2020) *Guidelines for Consultants Reporting on Contaminated Sites*.	Site Manager	Construction	CT1	CSWMP

ECM-SW85	Prepare a SAQP to detail the additional investigations to address data gaps identified in the **CLMP** Table 5-1. *Refer CLMP Section 5.1.4 for guidance on preparation.*	Site Manager	Construction	CT1	CSWMP
ECM-SW86	Assess imported Virgin Excavated Natural Material in accordance with the **CLMP** Section 5.2.	Site Manager	Construction	CT2	CSWMP
ECM-SW87	Assess imported soil, mulch or aggregate material other than VENM in accordance with the **CLMP** Section 5.2.	Site Manager	Construction	CT2	CSWMP
ECM-SW88	Record the location of imported material and its classification in the material tracking register.	Site Manager	Construction	CT2	CSWMP
ECM-SW89	Camdenville Park Conduct limited baseline soil investigations at Camdenville Park laydown area prior to construction, then again at the completion of the project in accordance with the **CLMP** Section 5.3.	Site Manager	Construction	CT3	CSWMP
ECM-SW90	Conduct air quality monitoring in accordance with the **AQMP** and asbestos air monitoring requirements in **AMP**.	Site Manager	Construction	CT4	CSWMP
ECM-SW91	Conduct air quality monitoring in accordance with Sydney Park and Camdenville Park **SSLGMP**s.	Site Manager	Construction	CT4	CSWMP
ECM-SW92	Exclusion zones and decontamination • Establish a safe work zone (exclusion zone) around the work areas that clearly defines the work zone and restricts public access and intruders after hours (i.e. fencing). • Provide adequate signage at the boundary of the safe work zone to deter entry, provide contact details for any enquiries and identify areas where asbestos may be present (refer to AMP). • Provide first aid, washing, toilet, eating, drinking and smoking facilities away from work areas. • Workers will change clothes daily and wash clothes separately from other clothes. If the excavator bucket or other plant becomes contaminated during trenching works (e.g. soils known or suspected to be contaminated stick to the excavator bucket), then the plant will be decontaminated before the trenching continues into uncontaminated soils or plant is transported off-site.	Site Manager	Construction	CT4	CSWMP
ECM-SW93	Excavation ventilation to be provided in accordance with the **SSLGMP**s and **CLMP** Section 5.9.	Site Manager	Construction	CT4	CSWMP

ECM-SW94	Do not enter trenches immediately following excavation. Monitoring inside the trench with a landfill gas meter and PID prior to entry. Trigger points for non-entry are provided in the CLMP Section 5.9.1.	AllStaff	Construction	CT4	CSWMP
ECM-SW95	Dust suppression and containment of contaminated areas • Follow guidance in AMP. • Follow guidance in AQMP. • The length of trench open at any particular location at any time is to be minimised to limit the opportunity for loose, exposed soils being present at the surface for extended periods of time that may result in generation of dust and. Trenches will be progressively rehabilitated throughout the day. • If required, the open trench will be watered down to minimise the generation of dust. In addition, regularly water all exposed unpaved surfaces at construction laydown areas (excluding stockpiles) or special crossing work sites when conditions are dry and windy, through the use of water sprays, sprinkler systems, a water cart or other suitable methods. Frequency would be determined by how quickly the surface dries out again, with higher frequency watering required on hot, dry, windy days. • Disturbed ground and exposed soils, such as inside trenches or at construction laydown areas, will be temporarily stabilised (e.g. with geotextile) prior to extended periods of site inactivity and permanently stabilised as soon as possible to minimise the potential for erosion. • Minimise drop heights from excavators when placing spoil into trucks or onto stockpiles to reduce the potential for dust generation.	Site Manager	Construction	CT4	CSWMP
ECM-SW96	Odour suppression and monitoring • Follow guidance in AQMP. • If odours from impacted soils are encountered during excavation works, monitoring of ambient air with a volatile organic compound gas detector (e.g. photoionisation detector [PID]) will be conducted in accordance with the SWMS/JSA. • In excavations adjacent to (Arlington Oval, Marrickville Park, Henson Park) or within former landfills (Camdenville	Site Manager	Construction	CT4	CSWMP

	Park and Sydney Park), then additional monitoring with a landfill gas meter will be undertaken (Refer to **CLMP** Section 5.9.1 and SSLGMPs). • Excessive odour emissions may be mitigated by odour suppression controls, such as covering odorous materials or perimeter misting systems.				
ECM-SW97	Personal protection equipment (PPE) • Use PPE to minimise direct contact with soils, inhalation of dust or LFG generated during the handling of contaminated soil or excavation in landfill material. Appropriate PPE will be detailed in the SWMS/JSAs and include, at a minimum, PPE (and procedures for proper use of PPE) to minimise direct contact with contaminated media including gloves, long-sleeved tops, long trousers and safety glasses. Additional PPE may be required where asbestos is present (refer to the AMP). • Refer to AMP and SSLFGMP for specific PPE requirements.	Site Manager	Construction	CT4	CSWMP
ECM-SW98	Stockpile management and separation • Place excavated contaminated materials on temporary, impermeable barriers (e.g. builders plastic) or pavement to protect underlying surface soils from potential cross-contamination. • Store excavated materials in stockpiles in accordance with guidelines in the TransGrid Environmental Handbook. • Soils that appear different (e.g. inclusion of anthropogenic material, different colour, different texture, different odour) should be stockpiled separately. • Suspected or identified ASS material stockpiles will be segregated and managed in accordance with the ASSMP. • Non-active (i.e. not in use for more than 24 hours) stockpiles will be covered with a tarpaulin or alternative geotextile to prevent generation of dust and limit runoff from soil stockpiles during rainfall events. • Fully cover and protect exposed stockpiles with plastic sheeting when the work area is not occupied to prevent generation of dust, reduce odours and provide protection during rainfall.	Site Manager	Construction	CT4	CSWMP

	• Provide a suitable barrier around stockpiles to minimise sediment runoff during rainfall. This will be in accordance with the ESCP.				
ECM-SW99	Spoil and excavation management • Excavated material from trenches assessed to be suitable for use (refer to CMLP Section 5.1) will be reinstated into its originating position if required for excavation backfill. Trenches will be backfilled immediately following laying of conduits. • If excess spoil requires off-site disposal, or excavated spoil comprises ASS or is not suitable for re-use, then waste classification of the spoil must be undertaken in accordance with the **CLMP** Section 5.1.1 In the event that materials are to be disposed off-site, a waste and materials tracking log will be maintained (refer to **CLMP** Section 5.5). • If the volume of suitable site-won excavated soil is insufficient, then appropriately classified imported materials (refer to **CLMP** Section 5.2). • In areas of identified contamination, excavation works will continue to "chase out" contaminated materials, to the extent practicable, within the planned trench extent. • Contaminated soils or asbestos (if any) remaining at boundaries of excavations required for the project area will not be removed, but will be characterised by asbestos clearance and validation, with the nature and location of remaining contamination recorded. • As outlined in the AMP, a marker layer will be placed along the length of any walls or floor of the trench where residual asbestos or other contamination remains. This aims to provide a visual aid to future construction or maintenance workers that residual asbestos / contamination is present along the trench walls or floor and that appropriate health and safety protocol should be followed. • The surface of trenches will be pavement, imported VENM or, if site-won suitable soils, free of any anthropogenic material.	Site Manager	Construction	CT4	CSWMP
ECM-SW100	Situation responsiveness • is to be followed (refer to the UCLAFP). • Site works will be delayed during windy conditions (i.e. when airborne dust is visible and persistent at the works	Site Manager	Construction	CT4 CT8	CSWMP

	area boundary) to reduce the potential for unacceptable quantities of disturbed soils to become airborne. The forecast weather conditions will be included in daily tool box talks and construction planning. Refer to the AQMP. • Site works will be delayed during heavy rainfall to reduce the potential for exposed soils to be washed away from the work area causing erosion and sedimentation. Rainfall forecasts will be monitored daily during construction and works rescheduled if necessary and as determined by the contractor.				
ECM-SW101	Water management • No uncontrolled discharge of any solid or liquid substances is to enter into gutters, stormwater inlets/ drains, drainage lines or watercourses. Refer to sediment and surface water procedures and controls in the ESCP and SWMP, respectively. • Water collected during construction (e.g. during dewatering or surface water inflows to the trench or pits) will be collected and discharged or disposed of in accordance with the procedures and water quality objectives outlined in the GMS. • Contaminated water captured during construction will be treated or disposed of at an appropriately licensed facility in accordance with the procedures and water quality objectives outlined in the GMS. • Dewatering of excavations in small portions of the project may be required to enable construction, particularly at select underbore special crossings. Procedures and controls to assess dewatering requirements and mitigate possible impacts are outlined in the GMS.	Site Manager	Construction	CT4	CSWMP
ECM-SW102	Incident response procedures are to follow the procedure documented in the **CEMP** Section 7.	Site Manager	Construction	CT4	CSWMP
ECM-SW103	Waste spoil is to managed in accordance with the **CWMP** and **CLMP** Section 5.5.	Site Manager	Construction	CT5	CSWMP
ECM-SW104	Asbestos containing materials are to be managed in accordance with the **AMP**.	Site Manager	Construction	CT6	CSWMP
ECM-SW105	Acid Sulfate Soils are to be managed in accordance with the **AMP**.	Site Manager	Construction	CT7	CSWMP
ECM-SW106	Former landfills are to be managed in accordance with the **CLMP** Section 5.9 and any relevant **SSLGMP**s.	Site Manager	Construction	CT9	CSWMP

ECM-PI1	Undertaking utility service checks such as Dial-Before-You-Dig (DBYD) and consulting with the relevant service infrastructure provider spotter prior to the commencement of excavation, if required by DBYD cover letter.	Site Manager	Pre-excavation		CPIMP
ECM-PI2	Undertaking service and utility identification works (for example, non-destructive excavation methods) to expose buried services prior to excavation.	Site Manager	Pre-construction Detailed design		CPIMP
ECM-PI3	Protection of utilities during works as directed by relevant service infrastructure provider spotter. An example, where we Underbore under critical assets. Where separation is minimal a steel plate may be used to ensure the Underbore cannot strike the asset.	Site Manager	Pre-construction Detailed design		CPIMP
ECM-PI4	Identifying the required distance to be maintained between the proposed transmission cable circuit and other services, ensuring compliance with relevant design criteria. Refer to Streets Opening Coordination Council table in Appendix 4.	Site Manager	During Construction		CPIMP
ECM-PI6	All relevant public infrastructure or service providers along the transmission cable route would be contacted regarding the necessary construction service relocation requirements, if required.	Interface Manager/ Site Manager	Pre-construction During Construction		CPIMP
ECM-H01	Construction personnel will undergo inductions in accordance with the CEMP and any other training commitments agreed as part of the project approval. Induction to include: • the general nature of Aboriginal sites and objects, • the location of areas of aboriginal archaeological sensitivity; • the locations of non-aboriginal items and HCAs; • procedure for unexpected heritage finds • procedure for unexpected human remains, • safeguards to be implemented to protect and avoid impacts to Aboriginal sites, if discovered • safeguards to be implemented to protect and avoid impacts to Non Aboriginal items • penalties associated with non-compliance with this CHMP.	All personnel	Prior to construction	AH2	CHMP
ECM-H02	Unexpected Aboriginal objects	All personnel	Construction	E26 AH3	CHMP

	• On discovery of an unexpected Aboriginal site, the Unexpected Heritage Finds Procedure (Appendix 2) will be implemented.				
ECM-H03	Unexpected human remains • On discovery of a human remains, the Unexpected Heritage Finds Procedure (Appendix 2) will be implemented. • Ensure that human remains that are uncovered during construction are not harmed, modified, or otherwise impacted.	All personnel	Construction	E26 AH3	CHMP
ECM-H04	Unexpected heritage items • On discovery of a human remains, the Unexpected Heritage Finds Procedure (Appendix 2) will be implemented.	All personnel	Construction	E26 NAH7	CHMP
Site-specific Environmental Control Measures					
ECM-H05	Mildura Reserve, Campsie • Avoid work in Mildura Reserve. Underbore from Lees Street to Harmony Street, Campsie. • Erect temporary chain wire fencing or other suitable barrier along kerb to prevent plant and equipment from entering Mildura Reserve.	Site Manager	Construction	E24 AH1	CHMP
ECM-H06	Crossing of Fifth Avenue, Campsie (Seventh Avenue) • Avoid trees in Fifth Avenue, except for intersection crossing Fifth Avenue / Seventh Avenue Campsie. • Implement controls identified in the CVBMP. • Undertake manual excavation and monitoring by an arborist. • Erect exclusion fencing to protect trees from indirect impacts if there are works in their immediate vicinity of any trees on Fifth Avenue, Campsie.	Site Manager Project Arborist	Construction	E24 NAH2	CHMP
ECM-H07	Enmore Road, Marrickville • Select suitable plant and equipment that will not cause damage to the brick paving. • Minimise vehicle, plant and equipment use at this location. • Observe minimum working distances shown in **CNVMP**. Follow CNVMP if work is required within minimum working distances. • Conduct vibration monitoring when work is being undertaken. • Erect temporary chain wire fencing or other suitable barrier along kerb to prevent plant and equipment from driving onto brick paving.	Site Manager Noise and Vibration Specialst	Construction	E24 NAH3 NAH5	CHMP

ECM-H08	Juliett Street, Marrickville • Select suitable plant and equipment that will not cause damage to the brick paving. • Minimise vehicle, plant and equipment use at this location. • Observe minimum working distances shown in **CNVMP**. Follow CNVMP if work is required within minimum working distances. • Conduct vibration monitoring when work is being undertaken. • Erect visual delineation such as tape, temporary chain wire fencing or other suitable barrier along kerb to prevent plant and equipment from driving onto brick paving.	Site Manager Noise and Vibration Specialist	Construction	E24 NAH3 NAH5	CHMP
ECM-H09	Alexandra CanalObserve minimum working distances shown in **CNVMP**. Follow CNVMP if work is required within minimum working distances.	Site Manager Noise and Vibration Specialist	Construction	NAH1 NAH5	CHMP
ECM-H10	Potts Hill Reservoirs 1 & 2 • Observe minimum working distances shown in **CNVMP**. Follow CNVMP if work is required within minimum working distances.	Site Manager Noise and Vibration Specialist	Construction	NAH1 NAH5	CHMP
ECM-H11	Street trees providing contributory heritage values within HCAs • Avoid. • If tree removal cannot be avoided, mitigate and manage impacts under the guidance of the Project Arborist and implement a tree replanting strategy developed in consultation with the relevant local council.	Site Manager Project Arborist	Construction	NAH4	CHMP
ECM-H12	Conduct vibration monitoring in accordance with CNVMP	Site Manager Noise and Vibration Specialist	Construction	NAH5 NAH6	CHMP
ECM-H13	Strictly adhere to limits on plant, equipment and machinery use identified in the CNVMP, including minimum working distances and vibratory limits.	All personnel	Construction	NAH5 NAH6	CHMP
ECM-H14	Erect temporary fencing or barriers when performing work near heritage items at the areas shown in **Attachment 3**.	Site Manager	Construction		CHMP
ECM-NV01	A CNVMP will be developed as part of the CEMP for the project and will include reasonable and feasible safeguards to manage the noise emissions from construction and manage any complaints which may be received. The CNVMP will include the following:	Project Director	Pre-construction	NV1 / E10	CNVMP

	• identification of nearby residences and other sensitive land uses; • description of approved hours of work; • description and identification of all construction activities, including construction work sites, equipment and duration; • protocol for scheduling of noise generating works • protocol for the identification, notification and management of works that exceed the noise management levels and/or vibration criteria, including provision for specialist heritage advice for any works that exceed the vibration criteria for cosmetic damage at heritage items • description of work practices (generic and specific) which will be applied to minimise noise and vibration; • a complaints handling process; • noise and vibration monitoring procedures; • overview of community consultation/notification required (see NV2); and • the Out-of-hours Protocol developed for the project.				
ECM-NV02	Where feasible and reasonable, construction will be carried out during standard construction hours. However, given that some works will be required to be undertaken outside of standard construction hours, an 'Out-of-hours Protocol' will be prepared as part of the CNVMP. This will evaluate the potential noise impacts of specific out-of-hours works and recommend appropriate mitigations measures such as: • community consultation with highly noise affected receivers; • procedures to determine negotiated outcomes in consultation with affected receivers (e.g. not scheduling construction during sensitive periods such as exams where construction is in the vicinity of schools); • specific mitigation measures such as respite periods; and • a monitoring program.	Project Manager	Pre-construction	NV4 / E8, E9	CNVMP

ECM-NV03	Dilapidation/Condition Surveys of the surrounding public infrastructure (roads and footpaths) and required properties in accordance with CoA E31(a) (refer to Section 9.3.6)	Project Manager	Pre-construction	- / E32(a)	CNVMP
ECM-NV04	Register of Noise Sensitive Receivers including name and category of receiver.	Noise and Vibration Consultant	Pre-construction	- / -	CNVMP
ECM-NV05	Location of site access and egress and load out areas are to consider noise sensitive receivers and where feasible and reasonable to minimise reversing movements within the site. Also refer to ECM-NV17.	Project Manager	Pre-construction	NV10 / -	CNVMP
ECM-NV06	Equipment selection will consider potential noise and vibration impacts and quieter equipment and/or construction methods will be used where feasible and reasonable. Plant and equipment will: • have an operating sound power level of no more than those listed in the Construction Noise and Vibration Impact Assessment in Appendix E of the EIS; • be maintained and operated in an efficient manner, in accordance with manufacturer's specifications, to reduce the potential for adverse noise and vibration impacts; • be fitted with non-tonal reversing beepers (or an equivalent mechanism); • be throttled down or shut down when not in use; • minimise noise through: - use of residential grade mufflers; - use of damped hammers such as "City" Model Rammer Hammers; and - silencing air parking brakes. High noise generating plant will: • be located so that the offset distance between the plant and adjacent sensitive receivers is maximised as far as possible; and	Project Manager	Pre-subcontractor engagement ongoing	NV9 / -	CNVMP

	• be directed away from sensitive receivers, where possible to do so.				
ECM-NV07	All project personnel, contractors and subcontractors will undergo an environmental induction. The induction will at least include: • all project specific and relevant standard noise and vibration mitigation measures; • relevant licence and approval conditions; • permissible hours of work; • any limitations on high noise generating activities (e.g. use of jack hammering, rock breaking, piling rigs and diamond saws); • locations of nearest sensitive receivers; • construction employee parking areas; • designated loading/unloading areas and procedures; • site opening/closing times (including deliveries); • behavioural practices such as limiting the use of loud stereos/radios on-site and not dropping materials from height or metal items; • public complaints handling procedures; and • environmental incident management procedures.	Project Director Civil Project Manager	Ongoing	NV3 / -	CNVMP
ECM-NV08	Residents and other sensitive receivers impacted by noise and/or vibration from the proposed works which is expected to exceed the NML and/or vibration criteria will be notified at least seven days prior to the commencement of the particular activity. The information provided to the residents and other sensitive receivers impacted will include: • programmed times and locations of construction work; • the hours of proposed works; • construction noise and vibration impact predictions; and	Civil Project Manager	Ongoing	NV2 / -	CNVMP

	• construction noise and vibration mitigation measures to be implemented.				
ECM-NV09	Where feasible and reasonable, construction will be carried out during standard construction hours. Where required to be completed outside of standard construction hours, in proximity to sensitive receivers, works generating high noise and/or vibration levels (including the use of rock breakers and diamond saws) will be scheduled during less sensitive time periods.	Civil Project Manager	Ongoing	NV7 / E1	CNVMP
ECM-NV10	Respite periods during standard construction hours, will be identified in consultation with affected receivers. Respite options will be considered when sensitive receivers are within the minimum working distances for vibration intensive works or are highly noise affected receivers (experiencing noise levels above 75 dB(A)). Respite options will include consideration of amendments to work schedules. Vibration intensive or high noise generating equipment will be used in continuous blocks, not exceeding three hours each, with a minimum respite period of one hour between each block.	Civil Project Manager	Ongoing	NV5 / E5	CNVMP
ECM-NV11	Night works, where applicable, should be programmed to minimise the number of consecutive nights work impacting the same residential receivers	Civil Project Manager	Ongoing	- / -	CNVMP
ECM-NV12	The need to consider respite periods will be triggered where the $L_{Aeq(15min)}$ noise levels exceed 75 dB(A) at the same receiver after midnight for more than three consecutive nights. Where this level is exceeded, respite periods will be considered in accordance with the Out-of-hours Protocol (refer to NV4). Respite for OOHW will be determined in accordance with CoA E9.	Civil Project Manager	Ongoing	NV6 / E5, E8(c)	CNVMP
ECM-NV13	Complaints management will be outlined in the Complaints Management System (CMS).	Senior Community	As received	- / -	CNVMP

		Engagement Consultant			
ECM-NV14	A noise monitoring program will be implemented for the duration of the works in accordance with the CNVMP and will focus on the use of high noise generating plant (e.g. jack hammering, rock breaking, piling rigs and diamond saws) and works outside of standard construction hours.	Civil Project Manager	Ongoing/As required	NV8 / E10(e)	CNVMP
ECM-NV15	If vibration intensive equipment is to be used within the minimum working distances for cosmetic damage, then it is recommended that a different construction method with lower source vibration levels is used where feasible and reasonable. Where work within the minimum working distances for cosmetic damage is planned to occur: • attended vibration measurements will be undertaken at the work site when work commences, to determine site specific minimum working distances. As a precaution, where practicable, these measurements will be made at distances outside the minimum working distances to ensure no structural damage occurs and will provide detailed information regarding the transmission of vibration to allow site specific safe working distances to be determined; and • for listed heritage items and houses within Heritage Conservation Areas (HCAs), building conditions surveys will be undertaken. The survey will document the structural condition of these buildings/structures before construction commences and after construction is complete to identify any impacts on historical buildings/structures as a result of the project construction. Building condition surveys will be scheduled in consultation with property owners. Vibration intensive work will not proceed within the minimum working distances (recommended or site specific) unless a permanent vibration monitoring system is installed to warn operators when vibration levels are approaching the peak particle velocity objectives as outlined in DIN 4150.	Civil Project Manager Senior Community Engagement Consultant	Ongoing/As required	NV14 / -	CNVMP

	For work scheduled to occur near a building, within the minimum working distance for human comfort but outside the minimum working distance for cosmetic damage, the affected receivers will be notified.				
ECM-NV16	Minimise structure-borne noise to neighbouring buildings such as separating connection prior to hammering by means of saw cutting.	Project Manager	As required	- / -	CNVMP
ECM-NV17	Potential noise impacts from construction vehicles will be minimised through the following: • traffic flow, parking and loading/unloading areas will be planned to minimise reversing movements within the work sites and at construction laydown areas; • loading and unloading of materials/deliveries will occur as far as possible from sensitive receivers; • shielding loading/unloading areas if close to sensitive receivers, where feasible (i.e. breaking the line of site between the area and the receiver); • fitting delivery vehicles with straps rather than chains for unloading, wherever possible; • selecting construction laydown area access points and roads as far away as possible from sensitive receivers; • locating delivery and haulage routes away from sensitive receivers, where possible; • scheduling deliveries during less sensitive times, where possible; • limiting the speed of vehicles; • restricting the use of engine compression brakes; and • maximising the storage capacity of construction laydown areas to reduce the need for truck movements during sensitive times (between midnight and 7:00 am).	CMSS	Ongoing	NV10 / -	CNVMP
ECM-NV18	The use of road plates will be minimised, where possible. Where required to be used, the plates will be installed in a manner that minimises the potential for displacement by traffic loading and minimises any height difference with the	CMSS	Ongoing	NV11 / -	CNVMP

	adjacent road surface in order to reduce the potential for impact noise generation from tyres traversing the plates.				
ECM-NV19	Low noise emitting plant and equipment (such as those with built-in shielding and mufflers) will be used wherever possible. Noise generating plant at work sites (such as compressors and generators) will be directed away from and situated furthest away from sensitive receivers, where practicable. Machinery that is not in use will be switched off.	CMSS	Ongoing	NV12 / -	CNVMP
ECM-NV20	Structures will be used to shield residential receivers from noise such as use of hoarding/noise curtains, where practicable, at construction laydown areas and special crossing work sites.	CMSS	As required	NV13 / -	CNVMP
ECM-NV21	Installation of localised temporary noise barriers around noisy areas where noise monitoring indicates that the existing measures are not adequate to meet noise goals.	CMSS	As required	- / -	CNVMP
ECM-NV22	Modifications or alterations to plant and equipment i.e. consider use of alternative excavator attachments.	CMSS	As required	- / -	CNVMP
ECM-NV23	Equipment which is used intermittently is to be shut down when not in use.	CMSS	As required	- / -	CNVMP
ECM-NV24	Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers to result in reduced overall noise emissions	CMSS	As required	- / -	CNVMP
ECM-NV25	Alternate construction method or other negotiated outcomes with the affected community.	SCEC CMSS	As required	- / -	CNVMP
ECM-NV26	Where feasible and reasonable noise intensive construction activities, including rock/concrete hammering, shall be undertaken during less sensitive daytime periods.	CMSS	Ongoing	- / -	CNVMP
ECM-NV27	Air brake silencers are to be correctly installed and fully operational for any heavy vehicle that access the Project Area.	CM CMSS	Ongoing	- / -	CNVMP
ECM-NV28	Regular maintenance on plant and equipment to include compliance checks on plant noise emissions against the maximum plant SWLs presented in Table 26. Service and performance records are reviewed as per Incoming Plant Inspection Checklist.	CMSS	Ongoing	- / -	CNVMP

ECM-NV29	All plant and equipment are to be maintained in good order and in accordance with manufacturer's recommendations. Plant or equipment causing excessive noise are to be modified or if required removed from site.	CM	Ongoing	- / -	CNVMP
ECM-NV30	A post-construction Dilapidation/Condition survey will be carried out with the agreement of the property owner/occupier on the surrounding infrastructure (including footpath and roads) and buildings in accordance with CoA E32(b) for all items that that were the subject of the Pre-construction Dilapidation Report (refer to CoA E32(a)). Reports are to be submitted to the Principal's Representative for review as per the contract.	CM	Post-construction	- / E32(b)	CNVMP

Appendix B – Not Used

Appendix C – CEMP Sub-Plans

Appendix C1 – Construction Traffic and Transport Management Plan (CTTMP)

Appendix C2 – Construction Noise and Vibration Management Plan (CNVMP)

Appendix C3 – Construction Air Quality Management Plan (CAQMP)

Appendix C4 – Construction Vegetation and Biodiversity Management Plan (CVBMP)

Appendix C5 – Construction Soils and Water Management Plan (CSWMP)

Appendix C6 – Construction Heritage Management Plan (CHMP)

Appendix C7 – Public Infrastructure Management Plan (PIMP)

Appendix C8 – Construction Waste Management Plan (CWMP)

Appendix D – Hazards and Risks – TransGrid Environmental Guidance Notes

Environmental Guidance Note
Transportation of Harmful Materials & Spill Response

TransGrid

Authorised by:	Krista Fogarty	Issue date:	22/3/19	HP TRIM No.	D2019/0199

Transport of material that has potential to cause harm requires compliance with TransGrid procedures, legislation, Codes of Practice & TransGrid's Pollution Incident Response Management Plan (PIRMP). This guidance note outlines the minimum requirements for transporting bulk oil, PCB material, and SF6 gas, in addition to the emergency requirements in the event of an incident such as a spill.

Transport Requirements

- Oil / PCB checklist must be compiled & approved for all oil handling & transport for >3000L outside premises or any quantity of known PCB material,
- Vehicles used must be constructed & maintained so as to prevent the spillage of waste. Vehicles are to be equipped with a radio or mobile phone & be roadworthy & clean.
- Ensure requirements for transporting dangerous goods & placarding are implemented.

Transport vehicles must carry a folder containing copies of:

- Approved OIL / PCB checklist including NATA Certificate (where required),
- Emergency Procedures documentation (this Guidance Note),
- Safety Data Sheet (SDS)

If the material is *trackable waste* the folder must also have copies of:

- PIRMP Transportation of Waste,
- Environmental Protection Licence 7153,
- Waste Transport Certificate/Consignment Authorisation.

Additionally, vehicles carrying bulk oil / PCBs must be equipped with a kit containing:

- Electric torch;
- 1 x 204 litre wheeled garbage bin or equivalent to house the kit & retrieve a spill;
- A supply of oil absorbing material (at least 2 bags of dri-sorb granules & 1 roll of oil absorbing mat) sufficient to contain a volume of oil at least equal to that of the largest container being carried (excluding bulk tankers);
- 1 x shovel & 1 x rake;
- Protective clothing including 2 x disposable overalls, 2 x overshoes/gumboots, 2 x PVC gloves, 2 x goggles or face shields;
- 1 x dry chemical fire extinguisher;
- 2 x foam fire extinguisher; &
- Double sided road reflectors.

General Emergency / Spill Response

In the event of a leak or spill of oil or PCB material incident response must occur in accordance with the following key requirements:

STOP THE SPILL: Stop the source of the spill immediately, if it is safe to do so, in a way that is appropriate to the chemicals involved. This will reduce the level of possible contamination to the environment.

CONTAIN THE SPILL: Control the flow of the spill & contain the spill appropriate to the type of liquid involved (Refer to SDS). Prevent the spill from entering any stormwater drains by isolating drain inlets.

CLEAN UP THE SPILL: Clean up the spill by referring to the SDS for the type of chemical(s) involved. Cleaning up a spill promptly will help to protect the local environment.

NOTIFY: Once the site is safe/secure report incident to your Team Leader/Manager (refer to table overleaf).

ENSURE THAT:

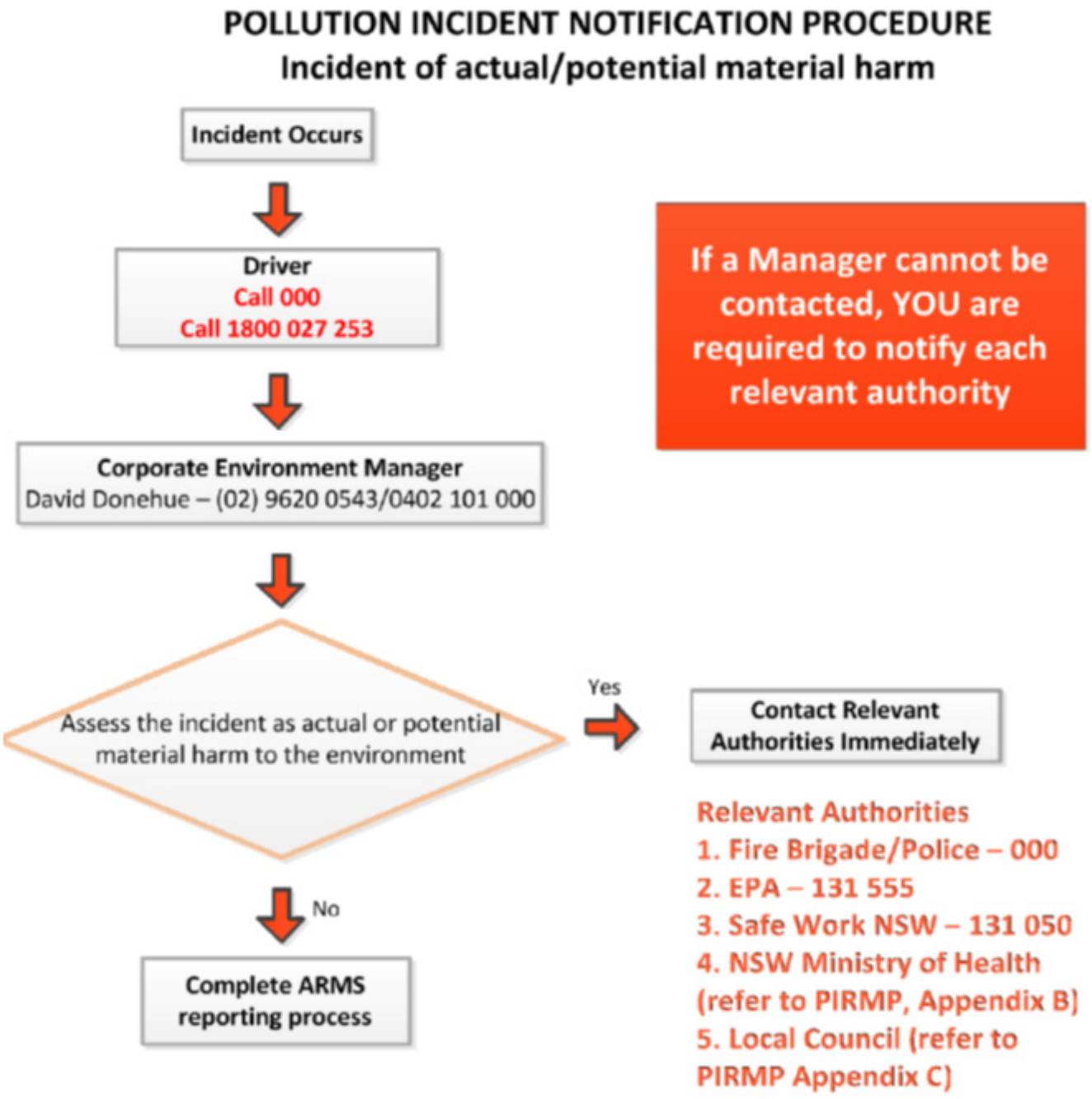
- Notifiable incidents are managed in accordance with TransGrid's Pollution Incident Notification Procedure, refer to excerpt overleaf).
- The incident is entered into ARMS.
- Sealable drums are to be used for storing contaminated wastes. The drums shall be labelled.
- Liquids are contained using absorbent materials, earth bunds or other viable methods & must not be permitted to flow into drains or waterways. Place used absorbent material in appropriately labelled drums / durable plastic bags.
- Any sand, gravel, paving, etc., that has been contaminated by a spill of PCB-contaminated oil, samples of the soil, sand, gravel, etc., & of the oil must be tested to determine the appropriate method of disposal.
- Any clothing (including aprons, gloves, overalls, wet weather gear, boots, mask filters, etc.) that comes in contact with PCB is treated as PCB waste.

VEHICLE BREAKDOWN: driver to operate flashing hazard lights or parking lights & Place double sided reflector signals in the appropriate positions (one placed 50m to 150m in front of the vehicle; one placed 50m to 150m to the rear & one beside the vehicle).

FOR MATERIAL SPECIFIC EMERGENCY PROCEDURES REFER TO THE ATTACHED *RESPONSE GUIDES*.

TransGrid Contacts	Contact Number	Alternate Number
TransGrid Emergency	1800 027 253	-
Corporate Environment Manager *David Donehue*	(02) 9620 0543	0402 101 000
Maintenance Manager *Ian Davidson*	(02) 9620 0600	0438 765732
Substations Manager *Richard Manderson*	(02) 6226 9625	0427 409 165

External Emergency Contacts (excerpt from TransGrid PIRMP)		
Emergency Services – 000 (or 112 from a mobile phone)		
Fire Brigade / Fire & Rescue NSW	000	(02) 9265 2999
Ambulance	000	112
Police	000	112
State Emergency Service	132 500	-
Relevant Authorities		
Environment Protection Authority (EPA)	Environment Line 131 555	-
SafeWork NSW	13 10 50 – 24 hour	-
NSW Office of Water	(02) 8281 7777	-



MATERIALS GENERALLY TRANSPORTED BY TRANSGRID

Description	Waste Code	UN Number	GHS Class	DG Class	Hazchem Code	Packing Group	EPL Transport	Response Guide (attached)
Transformer Oil (new)	NA	NA		NA Note: Classed C1 Combustible liquid	NA	NA	NA	**47**
Waste hydrocarbons (PCB Free oil).	J100	30XY		Note: Classed C1 Combustible liquid	NA	NA	7153	**47**
Waste oils & water mixtures or emulsions, & hydrocarbon & water mixtures or emulsions (PCB Free).	J120	30XY		NA	NA	NA	7153	**47**
Scheduled PCB oil waste (liquid) Polychlorinated biphenyls (PCBs) (PCBs >50 mg per kg).	M100	2315			2X	II	7153	**47 & 48**
Scheduled PCB material waste (solid) Waste substances & articles containing or contaminated with PCBs ([PCBs] >50 mg per kg).	M100	3432			2X	II	7153	**47 & 48**
Non-Scheduled PCB waste Solvents, oils & materials contaminated with PCBs ([PCBs] >2 mg per kg & [PCBs] <50 mg per kg).	M100	3082			•3Z	III	7153	**47**
Sulphur Hexafluoride (SF6) gas- new	N/A	1080			2TE	NA	NA	**06**
Sulphur Hexafluoride (SF6) gas - used	D110	3308			2XE	N/A	N/A	**07**

Notes:

C1 Combustible Liquids are not classified as dangerous goods for transport purposes. No placarding is required by this Code on a portable tank or tank vehicle transporting only C1 liquid. However, industry practice is often to display "Combustible Liquid" in the area normally used for placarding a tanker.

 **GHS08 – Health Hazard:** Chronic health hazards; this includes aspiratory & respiratory

 **GHS04 – Gas cylinder:** Gases under pressure

 **GHS05 – Corrosive:** Causes severe burns & eye damage

RESPONSE GUIDES

The following information has been adapted from the *SAA/SNZ HB 76:2010 Dangerous Goods – Initial Emergency Response Guide* to provide the information relevant to the emergency response procedures / protocols for materials commonly transported by TransGrid.

Attached Guides:

GUIDE 47 – LOW TO MODERATE HAZARD SUBSTANCES

GUIDE 48 – POLYCHLORINATED BIPHENYLS (PCBs)

GUIDE 06 – GASES – SLIGHTLY TOXIC AND/OR CORROSIVE & FLAMMABLE

GUIDE 07 – GASES – TOXIC AND/OR CORROSIVE

REMEMBER

- **RESIST RUSHING IN.**
- **APPROACH INCIDENT FROM UPWIND.**
- **STAY CLEAR OF ALL SPILLS, VAPOURS, FUMES, SMOKE & SUSPICIOUS SOURCES WITHOUT APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.**

GUIDE 47	LOW TO MODERATE HAZARD SUBSTANCES
HAZARDS	
Fire or explosion	• May burn but do not ignite readily. • Runoff may pollute waterways. • Fire may produce irritating, toxic, and/or corrosive fumes. • Containers may explode when heated.
Health	• Inhalation or contact with substance may be harmful. • Inhalation of asbestos dust may damage the lungs. • Runoff from fire control or dilution water may pollute waterways. • Substances may be stored or transported hot – Contact with substance may result in severe burns.
PROTECTIVE CLOTHING	
	• Wear SCBA and chemical splash suit. • SCBA and structural firefighter's uniform may provide limited protection.
PUBLIC SAFETY	
	• Spill or leak area should be isolated immediately for at least 10 m in all directions. • Keep unauthorised personnel away. • Keep upwind and to higher ground.
Evacuation	**Fire** • When a large quantity of this material is involved in a major fire, consider initial evacuation of areas within 100 m in all directions.

EMERGENCY RESPONSE

Fire	**Small fire** • Use dry chemical, CO_2, water spray or foam. **Large fire** • Use water spray, fog or foam. • If safe to do so, move undamaged containers from fire area. • Cool containers with flooding quantities of water until well after fire is out. **Fire involving tanks** • Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank. • ALWAYS stay away from tank ends.
Spill or leak	• Do not touch or walk through spilled material. • Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. • Water spray may be used to knock down or divert vapour clouds. • Prevent dust cloud. • Avoid inhalation of asbestos dust. • **SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.**
First aid	• Remove victim to fresh air – Apply resuscitation if victim is not breathing – Administer oxygen if breathing is difficult. • Remove contaminated clothing and shoes immediately. • Remove material from skin immediately. • In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. • Keep victim warm and quiet – Obtain immediate medical care. • Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.

GUIDE 48 | POLYCHLORINATED BIPHENYLS (PCBs)

HAZARDS

Fire or explosion	• May burn but do not ignite readily. • Fire may produce irritating, toxic, and/or corrosive fumes.
Health	• Inhalation or contact with substances may be harmful. • Runoff from fire control or dilution water may pollute waterways.

PROTECTIVE CLOTHING

	• Wear SCBA and chemical splash suit. • Structural firefighter's uniform will provide limited protection.

PUBLIC SAFETY

	• Spill or leak area should be isolated immediately for at least 15 m in all directions. • Keep unauthorised personnel away. • Keep upwind.
Evacuation	**Large spill** • Consider initial downwind evacuation of areas within at least 50 m. **Fire** • When a large quantity of this material is involved in a major fire, consider initial evacuation of areas within 100 m in all directions.

EMERGENCY RESPONSE	
Fire	**Small fire** • Use dry chemical, CO_2, water spray or foam. • If safe to do so, move undamaged containers from fire area. **Large fire** • Use water spray, fog or foam. • Cool containers with flooding quantities of water until well after fire is out. **Fire involving tanks** • Fight fire from protected position or use unmanned hose holders or monitor nozzles. • Dam fire control water for later disposal. • Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank. • ALWAYS stay away from tank ends.
Spill or leak	• ELIMINATE all ignition sources (no smoking, flares, sparks or flames) within at least 50 m. • Do not touch or walk through spilled material. • Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. **Small spill** • Absorb with earth, sand or other non-combustible material and transfer to container. • **SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.**
First aid	• Remove victim to fresh air – Apply resuscitation if victim is not breathing – Administer oxygen if breathing is difficult. • Remove contaminated clothing and shoes immediately. • Remove material from skin immediately. • In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. • Keep victim warm and quiet – Obtain immediate medical care. • Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.

GUIDE 06	GASES – SLIGHTLY TOXIC AND/OR CORROSIVE AND FLAMMABLE Compressed, liquefied or deeply refrigerated (cryogenic)
HAZARDS	
Fire or explosion	• Vapours from liquefied gas are usually heavier than air. • Containers may explode when heated – Ruptured cylinders may rocket. • May burn but do not ignite readily. • Fire may produce irritating, toxic, and/or corrosive gases.
Health	• High concentration of gas may cause asphyxiation without warning. • Some are irritants. • Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
PROTECTIVE CLOTHING	
	• Wear SCBA and fully encapsulated, gas-tight suit. • If a fully encapsulated, gas-tight suit is not available chemical splash suits should be a preferred option over structural firefighting uniform. • Structural firefighter's uniform will provide limited protection. • Always wear thermal protective clothing when handling cryogenic liquids and associated equipment.
PUBLIC SAFETY	
	• Spill or leak area should be isolated immediately for at least 50 m in all directions. • Keep unauthorised personnel away. • Many gases are heavier than air and will collect in low or confined areas (drains, basements, tanks). • Ventilate enclosed spaces before entering.
Evacuation	**Large spill** • Consider initial downwind evacuation of areas within at least 500 m. **Fire** • When any large containers (including rail and road tankers) are involved in a fire, consider initial evacuation of areas within 800 m in all directions.

GUIDE 06	GASES – SLIGHTLY TOXIC AND/OR CORROSIVE AND FLAMMABLE Compressed, liquefied or deeply refrigerated (cryogenic)

EMERGENCY RESPONSE

Fire

- **DO NOT EXTINGUISH BURNING GAS UNLESS LEAK CAN BE STOPPED.**
- CUT OFF SOURCE OF GAS IF SAFE TO DO SO – IF NOT POSSIBLE, LEAVE GAS TO BURN, PROTECT EXPOSURES, COOL CONTAINERS.
- If safe to do so, move undamaged containers from fire area.
- Extinguish secondary fire.

Small fire

- Use dry chemical, CO_2 or water spray to extinguish burning gas if absolutely necessary and safe to do so – Do not use water jets.

Large fire

- Cool container by directing flooding quantities of water into upper surface until well after fire is out – Do not direct water at source of leak or venting safety devices as icing may occur.
- Cool container and fight secondary fire from protected position or use unmanned hose holders or monitor nozzles – When impossible withdraw immediately from hazard area and let burn.
- Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank – tank may explode.
- ALWAYS stay away from tank ends.
- Damaged containers should only be handled following expert advice.

Spill or leak

- ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50 m – All equipment used when handling the product must be earthed.
- Do not touch or walk through spilled material.
- Stop leak if safe to do so – If possible, turn leaking container so that gas escapes rather than liquid – Prevent entry into waterways, drains and confined areas.
- Use water spray, fog or vapour-suppressing foam to knock down vapours or divert vapour clouds – Do not direct water at source of leak or venting safety devices as icing may occur.
- Allow substance to evaporate – Ventilate the area.

Caution: When in contact with cryogenic liquids, most materials become brittle and are likely to break without warning.

First aid

- Remove victim to fresh air – Apply resuscitation if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove contaminated clothing and shoes immediately – Clothing frozen to the skin should be thawed before being removed – In case of frostbite, thaw with lukewarm water.
- Keep victim warm and quiet – Obtain immediate medical care – Ensure that attending medical personnel are aware of identity of product(s) involved, and take precautions to protect themselves.
- CONTACT POISONS INFORMATION CENTRE/NATIONAL POISONS CENTRE FOR FURTHER ADVICE (SEE INSIDE BACK COVER).

GUIDE 07	GASES – TOXIC AND/OR CORROSIVE Compressed, liquefied or deeply refrigerated (cryogenic)
HAZARDS	
Fire or explosion	• Vapours from liquefied gas are usually heavier than air. • Containers may explode when heated – Ruptured cylinders may rocket. • May react violently with water. • Fire may produce irritating, toxic, and/or corrosive gases.
Health	• TOXIC, MAY BE FATAL IF INHALED, SWALLOWED OR ABSORBED THROUGH THE SKIN. • Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. • Runoff may pollute waterways.
PROTECTIVE CLOTHING	
	• Wear SCBA and fully-encapsulating, gas-tight suit when handling leaking or damaged cylinders or equipment. • Chemical splash suit and structural firefighting uniform offer inadequate protection from this hazard. • Always wear thermal protective clothing when handling cryogenic liquids and associated equipment.
PUBLIC SAFETY	
	• **IMMEDIATELY CONTACT POLICE OR FIRE BRIGADE (SEE INSIDE BACK COVER).** • Spill or leak area should be isolated immediately for at least 100 m in all directions. • Keep unauthorised personnel away. • Many gases are heavier than air and will collect in low or confined areas (drains, basements, tanks). • Keep upwind and to higher ground. • Ventilate enclosed spaces before entering.
Evacuation	**Large spill** • Consider initial downwind evacuation of areas within at least 800 m. **Fire** • When any large containers (including rail and road tankers) are involved in a fire, consider initial evacuation of areas within 1500 m in all directions.

Hazardous Chemicals Handling, Storage and Transport

Summary

This procedure provides details on the requirements for the safe storage, handling and transport of Hazardous Chemicals

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Contents

1. Purpose

This procedure has been developed to provide guidelines for the systematic management of Hazardous Chemicals in order to eliminate, or where this is not practicable, minimise the risk of adverse health and safety effects to personnel, property and the environment. Management of Hazardous Chemicals must incorporate the following:

> Assessment of actual/potential hazards or threats;
> Adoption of identified control measures;
> Information, education and training on Hazardous Chemicals;
> Purchasing and disposal;
> Storage requirements;
> Transport and licensing requirements;
> Emergency procedures;
> Record keeping

NOTE: Some substances while not hazardous to health may present a significant safety hazard because of their chemical or physical properties e.g. high pressure or flammability and are therefore classed as a Dangerous Good. Most Dangerous Goods are also hazardous to health and therefore meet the definition of Hazardous Chemicals.

2. Scope

This procedure applies to all TransGrid employees, contractors and tenants for the safe storage, handling and transport of Hazardous Chemicals.

3. Definitions

Term	Definition
Approved Criteria	Criteria used for identifying whether a substance is or is not hazardous. The “Approved Criteria for Classifying Hazardous Chemicals” is now available at Safe Work Australia website.
Australian Dangerous Goods Code –Edition 7.5	Lists all the provisions applicable to the transport of dangerous goods by road and rail in Australia.
Chem Alert	A computer based software package that stores SDS information. Chem Alert is available to all TransGrid employees via the Wire homepage.
Consignor	A person who engages a PRIME Contractor to transport Dangerous Goods.
Dangerous Goods	Means a substance, mixture or article that meets the criteria of, or is listed in, the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).
Depot	A building, structure, room, tank, store area or receptacle in which Dangerous Goods are kept but does not include a process building.
Designated List	A list of substances that have been designated as hazardous. The “List of Designated Hazardous Chemicals” is now available at Safe Work Australia website.
GHS	Means the Globally Harmonised System of Classification and Labelling of Chemicals,

Term	Definition
	3rd revised edition.
Hazardous Chemical	Means a substance, mixture or article that satisfies the criteria for a hazard class in the GHS, but does not include a substance, mixture or article that satisfies the criteria solely for the following hazard classes: (a) Acute toxicity – oral, dermal, and inhalation – category 5; (b) Skin corrosion/irritation – category 3; (c) Serious eye damage/eye irritation – category 2B; (d) Aspiration hazard – category 2; (e) Flammable gas – category 2; (f) Acute hazard to the aquatic environment – categories 1, 2 and 3; (g) Chronic hazard to the aquatic environment – categories 1, 2, 3, and 4; (h) Hazardous to the ozone layer. **Note:** The WHS Regulations Schedule 6 tables replace some tables in the GHS.
Hazardous Chemicals Register	A register that shall contain a list of all the Hazardous Chemicals used and/or stored on the site and the current status of the relevant SDS.
Pesticide	An agricultural chemical product (under the Agvet Code) that is used as a means of directly or indirectly destroying or repelling any pest in relation to a plant, place or thing; or destroying a plant; or modifying the physiology of a plant or pest so as to alter its natural development, productivity, quality or reproductive capacity (from Schedule 5, Pesticides Act 1999).
Placarding	Means a panel or label containing emergency information that is affixed to a bulk container, store or vehicle.
Prime Contractor	A person who undertakes to or be responsible for the transport of Dangerous Goods from one place to another. When any TransGrid location is using its own vehicles to transport Dangerous Goods, owned by TransGrid, it is deemed that TransGrid has the joint responsibilities of Consignor, Prime Contractor, owner of the vehicle and employer of the driver.
Safe Work Australia	Means Safe Work Australia as established under section 5 of the Safe Work Australia Act 2008 of the Commonwealth.
SDS	Means a document that provides information on the properties of hazardous chemicals and how they affect health and safety in the workplace. Previously known as a material safety data sheet (MSDS).
Segregation	Means the isolation of incompatible dangerous goods from each other within a store by the use of either suitable clearances or barriers.
Tenant	An organisation or company who leases a TransGrid site for commercial/business purposes.

4. Procedure

Under the WHS legislation, a person conducting a business or undertaking (PCBU) has the primary duty to ensure, so far as is reasonably practicable, that the health and safety of workers and other persons are not

put at risk from work carried out as part of the conduct of the business or undertaking. This includes ensuring the safe use, handling and storage of substances.

WHS Regulations imposes duties upon manufacturers and importers of chemicals supplied to a workplace to determine if the chemical is hazardous, and to correctly classify the chemical. Similar duties apply to PCBU, who are end users of hazardous chemicals, to ensure that chemicals supplied to them are appropriately labelled.

Information must be provided to all employees in the form of:

> Labels on containers, including those when substances are decanted into another container;
> Ready access to relevant SDS (Safety Data Sheets);
> Placards on bulk storages where applicable; and
> Other signs where relevant.

4.1 Risk Assessments

The Code of Practice for Managing Risks Hazardous Chemicals provides guidance on how to manage the risks associated with hazardous chemicals in the workplace by following a systematic process that involves:

> identifying hazards
> if necessary, assessing the risks associated with these hazards
> eliminating or minimising the risks by implementing and maintaining control measures
> reviewing control measures to ensure they are effective.

When managing the risks, regard must be had to the following factors:

> the hazardous properties of the hazardous chemical
> any potentially hazardous reaction (chemical or physical) between the hazardous chemical and another substance or mixture, including a substance that may be generated by the reaction
> the nature of the work to be carried out with the hazardous chemical
> any structure, plant or system of work that:
  – is used in the use, handling, generation or storage of the hazardous chemical
  – could interact with the hazardous chemical at the workplace.

4.1.1 Pre Work Risk Assessment (PWRA)

In accordance with TransGrid Risk Assessment procedure a Pre Work Risk Assessment (PWRA) must be carried out prior to the commencement of all work. This PWRA should capture the use of hazardous chemicals and any known controls. This is consistent with Workplace health & Safety legislation which requires a simple and obvious risk assessment to be undertaken.

This would apply to the minor use of “end use” products where the SDS should provide sufficient information on control measures, such as appropriate personal protective equipment (PPE). Examples of end use products would be WD40 and Baygon where minor application does not pose a substantial risk.

4.1.2 Detailed Risk assessment

A more detailed documented risk assessment will be necessary where either of the following apply:

> there is uncertainty about the degree of risk;
> there is a significant risk to health, for example, exposure to a hazardous chemical may be high; and/or
> the nature of the health hazard is serious (this is particularly relevant for a listed carcinogen or a substance containing a listed carcinogen); and
> more complex chemical processes and/or exposures are involved.

Risk Assessments on the storage, handling and use of Hazardous Chemicals shall be conducted in accordance with TransGrid procedure, Health & Safety Risk Assessment, using product labelling and the SDS as references.

The risk assessment should take into consideration the possible routes of entry of the chemical and the duration and frequency of exposure.

Safe Work Method Statements (SWMS) involving the use of identified Hazardous Chemicals must be kept for a minimum of 5 years or longer where required e.g. when the risk assessment involves the use of carcinogenic substances or lead risk work, the risk assessment must be kept for 30 years.

The risk assessment shall be recorded in the form of a WASP generated SWMS.

4.1.3 Procurement of Hazardous Chemicals

A request to purchase a Hazardous Chemical, not already catalogued, shall be forwarded to the Safety Manager for review. Approval for use will be based on the potential impacts (if any) to personnel and/or TransGrid sites.

Procurement of Hazardous Chemicals outside of the normal stores process i.e. via credit card, will where practical only be for chemicals already approved for purchase. Staff must consult with their Team Leaders prior to purchase of a chemical to establish:

> if the substance has been approved for purchase; and
> if an SDS is available for the chemical.

SDS shall be supplied with the initial supply of the product, by the supplier or manufacturer. Where the substance is new and a SDS is not available in Chem Alert, a copy should be forwarded to the Health & Safety Group for inclusion in the database (where possible the SDS should be supplied in electronic format).

If the product is a Hazardous Chemical, the nominated Logistics Officer will be responsible for including it in the Hazardous Chemicals Register.

4.2 Chem Alert

Chem Alert is a chemical safety management solution which gives all employees access to original manufacturer's SDSs for hundreds of thousands of chemical products, but also independent research and multiple international compliance standards, all in one application. It provides you with the knowledge to choose the safest chemical products and to handle and store them in the safest possible way.

It can be accessed on The WIRE in the Business Systems page. It will provide the most up to date SDS for the product you intend to use.

4.2.1 Safety Data Sheets (SDS)

SDS are a key source of information and are important for the task of risk assessment. For each Hazardous Chemical supplied TransGrid must:

> obtain from the supplier a SDS for the chemical before or on the first occasion on which it is supplied; and
> ensure that the SDS is readily accessible to employees who could be exposed to the substance; and
> ensure that the SDS is not altered; other than where it is appropriate e.g. reformat of an overseas SDS; and
> ensure that the SDS is not older than 5 years.

4.2.2 Hazardous Chemicals Register

Hazardous Chemicals Registers will be maintained where Hazardous Chemicals are stored, handled or used. A nominated Logistics Officer shall be responsible for maintaining the site Hazardous Chemicals Registers.

The Register shall be:

> updated as new chemical products are purchased or utilised on site; and
> reviewed annually.

The Hazardous Chemicals Register shall be readily available to all employees and made available on the Wire.

Refer to Appendix A - Hazardous Chemicals Register for minimum information required.

4.3 Storage requirements

Dangerous Goods (DG) are divided into nine classes according to their dangerous properties (Refer Appendix B – Dangerous Goods Classes and Markings). The properties exhibited and DG class will define storage requirements. Further information on storage requirements can be obtained from the product specific SDS.

4.3.1 Labelling and Decanting

Hazardous Chemicals shall be labelled in accordance with the requirements of WHS Regulation 2017 and Code of Practice for Labelling of Workplace Hazardous Chemicals. Labels can be printed from Chem Alert in a range of sizes from small (8 per page) to full A4 size. If the label is damaged or falls off it must be replaced.

Where a container is not labelled and the contents are unknown then this should be clearly marked on the container e.g. “Caution do not use – unknown substance” and isolated until the contents can be identified and properly labelled. Where contents cannot be identified, arrangements should be made for the correct disposal of the product.

Where a Hazardous Chemical is decanted at work, the type of labelling required on the container, would depend on whether the substance is used immediately, or over a longer period of time.

A container into which a Hazardous Chemical is decanted for:

> Immediate use need not be labelled
> Cleaned thoroughly immediately after the hazardous chemical is used, handled or stored so that the container is in the condition it would be in if it had never contained the hazardous chemical, need not be labelled.

Under no circumstance is a Hazardous Chemical to be decanted or stored in an inappropriate container e.g. a drink bottle or food container.

4.3.2 Segregation

Dangerous Goods in particular, when held in the same storage area, should be segregated from other Dangerous Goods or substances with which they are not compatible. Either the use of separation distances or barriers can achieve this. Factors to be considered include:

> The types of hazards exhibited by the Dangerous Goods and the risks they pose;
> The quantity of Dangerous Goods stored and handled in the work area;
> The type of installation and processes applied to the Dangerous Goods in the work area and their associated hazards and risks;
> All other activities in the work area which may increase the risk; and
> Any control measures in place that will reduce the risk.

4.3.3 Placarding

Placards must be displayed if the Dangerous Goods are stored in packages that exceed certain quantities – refer to Appendix B: Placarding/Manifest Requirements.

Placards provide a visual warning of the hazards associated with the storage of Hazardous Chemicals. Placarding shall be in accordance with the Code of Practice. There are three types of signs that may be required when storage quantities exceed placarding quantities specified in Appendix B. They are:

> An outer warning placard known as the Hazchem placard, and must be placed on all road and rail entrances to the site;
> Placards at each location of Dangerous Goods in bulk e.g. tanks, and must be adjacent to the bulk storage;
> Placards at each location where packages over certain quantities are stored and handled – refer to Placarding/Manifest Requirements in Appendix B.

Placards must be kept legible and unobstructed. Placards need to be visible from all normal approaches to the storage area.

4.3.4 Manifests

A manifest must be developed in accordance with WHS Regulation 2017 Schedule 12 Manifest Requirements, when Hazardous Chemicals are stored in packages that exceed certain quantities – refer to Appendix B: Placarding/Manifest Requirements.

The purpose of the manifest is to provide emergency services with information on the quantity, type and location of Hazardous Chemicals on the premises, to enable them to respond appropriately in the event of a serious incident. The manifest must be kept on the premises in a place easily accessible and agreed to by the emergency services.

4.3.5 Compressed Gas Cylinders

Compressed gas cylinders shall be stored and transported in accordance with AS 4332: 2004 – The Storage and Handling of gases in cylinders. Cylinders shall be kept in such a manner that:

> Any relief devices, (eg safety valves or fusible plugs on cylinders containing liquefiable Class 2.1 gases,) are always in communication with the vapour space in the cylinder i.e. in an upright position;
> They are protected from being knocked over or falling; and
> Are protected against impact damage.

4.4 Transportation and Licensing Requirements

4.4.1 Registration of Vehicles and Licensing of Drivers

A licence is required when transporting any receptacle with a capacity of more than 500 litres, or which contains more than 500 kilograms of dangerous goods in a single receptacle. The exception is when intermediate bulk containers (IBCs) with a total capacity of more than 3000 litres are being transported, or where any IBC is filled or emptied while on a vehicle. The vehicle must be covered by a dangerous goods vehicle licence and the driver must hold a dangerous goods driver licence.

4.4.1.1 Vehicle Licensing

Licences are issued for the vehicle, such as a trailer, a rigid vehicle, a B-double trailer or a road train trailer, carrying the dangerous goods. (Prime movers and similar vehicles pulling a trailer, a semi-trailer, B-double or road train are not licensed.) One licence is issued for each transport organisation and details of each vehicle are included in that licence. The licence is valid for one year.

To apply for a vehicle licence you need to:

> complete the vehicle licence application form from EPA NSW
> provide information about the vehicle
> advise the class or classes of dangerous goods to be carried
> hold an insurance policy for the vehicle to cover clean-up and emergency services costs incurred in response to, and recovery of, any vehicle(s) and/or goods involved in a dangerous goods incident
> pay the licence application fee
> provide a rear ¾ image of the vehicle showing the number plate and vehicle type

4.4.1.2 Dangerous Goods Driver Licensing

To drive a licensed dangerous goods vehicle you must hold a dangerous goods driver licence. Most licences are valid for five years.

To apply for a driver licence you need to:

> complete a training course provided by an appropriate RTO
> be certified as medically fit by a general practitioner
> have a satisfactory driving history
> provide identification (passport-sized photographs and a copy of your vehicle drivers licence)
> complete and sign the application form
> obtain the RTO's certification on the application form

> submit the application form within 6 months of undertaking the training or the medical assessment

4.4.2 Vehicle Marking

Every motor vehicle carrying Dangerous Goods at or in excess of quantities listed in Table 1 must be marked at the front and rear with the appropriate Class label and/or subsidiary risk label.

Note: If more than one Class of Dangerous Goods is aboard the vehicle the mixed Class label must be used.

TABLE 1

Marking of Vehicles and Freight Containers used to Transport Dangerous Goods in Packages (taken from Section 5.3 of the ADG Code)

Dangerous Goods on or in a Vehicle or Freight Container	Aggregate Net Quantity The aggregate net quantity where specified in terms of 'kg(L)' is equal to the sum of: (a)The number of litres of liquid *Dangerous Goods*, (b)The number of kilograms of solid *Dangerous Goods*; and (c)The number of litres of the aggregate capacity of all packaging for *Dangerous Goods* of Class 2.
Class 1 (Explosives)	As required by the Australian Explosives Code and the appropriate State or Territory legislation.
Class 6.2 (Infectious Substances)	Any quantity, except where the laws in force in the particular State or Territory otherwise allow.
Class 7 (Radioactive Substances)	As required by the Code of Practice for the Safe Transport of Radioactive Substances and the appropriate State or Territory legislation.
Contains any Class 2.1 (Flammable Gasses) and/or Class 2.3 (Toxic Gasses) and/or Packaging Group 1 of any other Gases.	250kg(L)
All other loads of *Dangerous Goods*	1000kg(L)

Note: These quantities shown in the table above are minimum quantities for the marking of vehicles and freight containers. Vehicles may be marked at lower quantities. Marking of vehicles and certain other provisions of the Code become mandatory at and above these quantities.

4.4.3 Protective Clothing and Equipment

Protective equipment as listed in Table 2 must be provided in the cabin of the vehicle for any load of *Dangerous Goods*. A dry chemical fire extinguisher of the stored pressure type complying with AS 1846 Portable Fire Extinguishers - Powder Type with a rating in accordance with AS 1850 Portable Fire Extinguishers - Classification, Rating and Fire Testing, minimum rating of 30B must be carried on any vehicle carrying *Dangerous Goods*. Note: When carrying over 10,000 litres of flammable liquid a 60B or 2 x 30B extinguisher(s) must be carried.

TABLE 2

PROTECTIVE CLOTHING AND EQUIPMENT ON ROAD VEHICLES (taken from Section 12.2 of the ADG Code)

CLASS (or sub. Class)	REQUIREMENTS
2.1 (Flammable Gases)	Eyewash kit filled and ready for use (250ml) Full face shield for bulk and cryogenic liquids Thermally insulating gauntlet gloves for bulk and cryogenic liquids Electric torch complying with AS 2381 or other approved code
2.2 (Non-Flammable, Non Toxic Gases)	Eyewash kit filled and ready or use (250ml)

CLASS (or sub. Class)	REQUIREMENTS
	Full face shield for bulk and cryogenic liquids Thermally insulating gauntlet gloves for bulk and cryogenic liquids Any electric torch
2.3 (Toxic Gases)	Eyewash kit filled and ready for use (250ml) Gas tight goggles * Self-contained breathing apparatus for bulk ** Canister or cartridge type respirator for packages Chemically resistant gloves for packages Chemically resistant gauntlet gloves for bulk Any electric torch
3 (Flammable Liquids)	Eyewash kit filled and ready for use (250ml) Electric torch complying with AS 2380.7 or other approved Code
4 (Flammable Solids)	Eyewash kit filled and ready for use (250ml) Electric torch complying with AS 2380.7 or other approved Code
5.1 (Oxidizing Agents-Solids)	Eyewash kit filled and ready for use (250ml) Chemically resistant gloves Any electric torch
5.1 (Oxidizing Agents-Liquids)	Eyewash kit filled and ready for use (250ml) Full face shield Chemically resistant gauntlet gloves Chemically resistant overalls Chemically resistant boots Any electric torch
5.2 (Organic Peroxides)	Eyewash kit filled and ready for use (250ml) Full face shield Chemically resistant gloves Chemically resistant overalls Chemically resistant boots Electric torch complying with AS 2389.7 or other approved Code
6.1 (Toxic Substances)	Eyewash kit filled and ready for use (250ml) Full face shield Self-contained breathing apparatus for bulk *** Canister or cartridge type respirator in packages *** Chemically resistant gauntlet gloves Chemically resistant overalls Chemically resistant boots Any electric torch
8 (Corrosive Substances)	Eyewash kit filled and ready for use (250ml) Full face shield Self-contained breathing apparatus for bulk *** Canister or cartridge type respirator for packages *** Chemically resistant gauntlet gloves Chemically resistant overalls Chemically resistant boots Any electric torch
9 (Miscellaneous)	Eyewash kit filled and ready for use (250ml) Canister or cartridge type respirator

CLASS (or sub. Class)	REQUIREMENTS
	Any electric torch (not aerosols) Electric torch complying with AS 2380.7 or other approved Code (aerosols only)

* Not necessary if included in breathing apparatus

** Self-contained breathing apparatus or rebreathing apparatus of minimum duration of 20 minutes

*** If *Dangerous Goods* can give rise to harmful vapours, gases, or dust

4.4.4 Insurance

All vehicles transporting Dangerous Goods must have the appropriate third party property insurance cover as directed by the Australian Dangerous Goods (ADG) Code.

4.5 Disposal

Disposal of hazardous chemicals shall be in accordance with TransGrid procedure - Waste Management. Surplus, obsolete or scrap hazardous chemicals are to be disposed of in accordance with any local waste management authority guidelines, local site rules or instructions and in consultation with the Environmental Manager.

4.5.1 Non-Returnable Containers

Non-returnable containers that held hazardous chemicals are to be treated as though they still contain the product until such time as they are declared free from contamination. Disposal of these containers will be with reference to the supplier, local waste management authority, local recycling procedures and the Environmental Manager.

4.6 Emergency Procedure Guides

If you store, handle or process hazardous chemicals (dangerous goods) that exceed the quantities specified in the relevant legislation, you must also develop a written emergency plan and lodge a copy with Fire and Rescue NSW.

Whenever a Dangerous Goods Transport vehicle has to be marked in accordance with Table 1 the appropriate emergency procedure guide and shipping documentation must be carried in the cabin of the vehicle.

The emergency procedure guide and shipping documents must be appropriate to the load being carried. AS 2931 “Selection and use of emergency procedure guides for the transport of Dangerous Goods” provides guidance on their selection and use.

In addition the emergency procedure guide AS 1678.0.0.001 "VEHICLE FIRE" must also be carried.

These emergency procedure guides are to be carried in an appropriate document holder, securely attached to a door in the cabin of the vehicle as instructed by the ADG Code.

4.7 Incident Notification

All incidents resulting from hazardous chemicals must be reported into CAMMS via the WIREor using the CAMMS Incident Manager app on your TransGrid issued smartphone. Notification must be in accordance with the HSE Hazard and Incident Management procedure.

4.8 Notification to SafeWork NSW and EPA

Safe Work NSW must be notified of hazardous chemicals stored at premises if the quantities exceed or are likely to exceed the relevant quantities specified in Appendix B. This must be done:

> Immediately after the person knows that the Schedule 11 of the WHS Regulations hazardous chemical is to be first used, handled or stored at the workplace or at least 14 days before that first use handling or storage, and

- Immediately after the person knows that there will be a significant change in the risk of using, handling or storing the Schedule 11 of the WHS Regulations hazardous chemical at the workplace or at least 14 days before that change, and
- As soon as practicable after the Schedule 11 of the WHS Regulations hazardous chemical is no longer used, handled or stored at the workplace and it is not likely to be used, handled or stored at the workplace in the future.

NOTE: Notification forms can be obtained from SafeWork NSW

Notification is also required to SafeWork NSW following an uncontrolled escape, spillage or leakage of a substance.

EPA requires notification of any pollution incident including leaks, spills or escape of substances or circumstances in which it is likely to occur.

4.9 Training

Training shall be conducted for all employees involved in the storage, handling and use of hazardous chemicals in accordance with TransGrid procedure – Training Procedure

Staff involved with the transport of Dangerous Goods must receive training by a Registered Training Organisation (RTO) appropriate for the work they undertake. Licences are valid for 5 years.

4.9.1 Specialised Training for Application of Pesticides

Staff who uses pesticides as part of their duties must be trained in the use and application of pesticides in accordance with TransGrid Procedure - Use of Pesticides

4.9.2 Specialised Training for Dangerous Goods Drivers

The driver of a vehicle carrying *Dangerous Goods* must be capable of operating any piece of emergency equipment required for the load, including the use of fire extinguishers.

4.10 Health Surveillance

TransGrid will provide health surveillance to an employee identified as being at risk in accordance with the requirements of the

- Clause 368 of the NSW Work Health and Safety Regulation 2017, Schedule 14,
- Clause 368 of the ACT Work Health and Safety Regulation 2011, Schedule 14,
- Clause 169 of the Occupational Health and Safety Regulation 2017
- TransGrid procedure - Medical Examinations.

Employees requiring health surveillance will be identified by the Business Unit/Group Manager in liaison with the Safety Manager. The health surveillance is to be organised by the HSE Group. An Approved Medical Practitioner under the relevant legislation will carry out the health surveillance.

The HSE Group will maintain records of all health surveillance.

Employees will be notified of the results from the health surveillance. TransGrid will be notified by the medical practitioner of the general outcome of the surveillance and advised on any necessary preventive or remedial action. All records will be kept confidential.

4.11 Records

Records shall be kept as follows:

- Pre-Work Risk Assessments (and any audits of those assessments) shall be kept for a period of six months for audit purposes.
- Risk Assessments that include the use of hazardous chemicals shall be recorded HP TRIM for a period of 5 years or longer where required. When the risk assessment involves the use of carcinogenic substances or lead risk work, the risk assessment must be kept for 30 years.
- Training Records shall be kept for at least 5 years after completion of the training.

4.12 Audits

Hazardous Chemicals will be set out in audit scope. The audits will review:

> Hazardous Chemicals Register, including Safety Data Sheets;
> Risk Assessments carried out on the Hazardous Chemicals on site and the implementation of the control measures nominated in those assessments;
> Labelling of Hazardous Chemicals to determine compliance;
> Personnel required to participate in nominated health surveillance;
> Training Records and interviews with employees to determine knowledge and implementation of the requirements of this procedure.
> Storage of Hazardous Chemicals to determine compliance with relevant Regulations, Codes of Practice and Australian Standards.

5. Accountability

Title	Responsibilities and Accountabilities
Group Manager	> Group Managers or a responsible person appointed by the Group Manager shall ensure the storage and transport of Hazardous Chemicals training of staff is conducted in accordance with this procedure.
Head of Maintenance Programs	> Initiating appropriate action and resources to enable a systematic program to identify, assess and control the risks arising from *Hazardous Chemicals* used by their employees; > Providing adequate resources to enable the development and maintenance of a register of *Hazardous Chemicals* (including *SDS*s) at each site under their control. > Nominating an appropriate officer responsible for developing and maintaining the Hazardous Chemicals Register; > Liasing with the Health & Safety Group regarding the health surveillance of identified employees in accordance with section 3.4. > Facilitating staff training in Hazardous Chemicals
Section Managers/Team Leaders	> Conducting Risk Assessments and implementing control measures for all Hazardous Chemicals used at the workplace; > Complying with requirements for placarding of Hazardous Chemicals storage areas; > Developing manifests of Hazardous Chemicals when required; > Notification to WorkCover Authority when Manifest Quantities are exceeded as per the Placarding/Manifest Requirements > Maintaining records of Hazardous Chemicals risk assessments and training; > Procurement of Hazardous Chemicals including, when practical, Hazardous Chemicals that are purchased via credit card; > Notifying the nominated Logistics Officer of Hazardous Chemicals used/stored and approximate quantities so that the Register can be kept up to date. > Arranging for the correct disposal of Hazardous Chemicals in accordance with TransGrid Procedure - Waste Management, when required; > Providing access to the Hazardous Chemicals Register and Safety Data Sheets;

Title	Responsibilities and Accountabilities
	> Notifying the Health & Safety Group if a SDS is found to be older than 5 years; > Initiating action to provide training for all staff required to handle, store or use Hazardous Chemicals. Training will include the correct use and storage of Hazardous Chemicals.
Employees	> Consulting with their Manager/Team Leader prior to purchasing any Hazardous Chemicals via credit card and obtaining a SDS (if not already held on site) for the substance; > Undertaking a risk assessment using a current SDS (must be no older than 5 years) prior to the use of a Hazardous Chemicals to ensure that all appropriate control measures are implemented; > Notifying the Health & Safety Group if a SDS is found to be older than 5 years; > Correctly labelling any Hazardous Chemicals that have been de canted; > Correctly replacing labels that are damaged or have fallen off.
Suppliers of Hazardous Chemicals	> Providing a SDS in electronic format prior to delivery of a Hazardous Chemical to a TransGrid site; > Providing a hardcopy of a Safety Data Sheet for the substance at the time of delivery;
Logistics Personnel	> Obtaining approval from the Manager/ Health and Safety (to ensure the safest and most appropriate substances are purchased) prior to the initial purchase and cataloguing of any Hazardous Chemicals; > Ensuring the responsibilities of the Supplier have been completed; > Checking if the Hazardous Chemical is listed in the Chem Alert System. If not, notifying the Manager/ Health and Safety to have the particular substance included in the database. (The SDS will need to be supplied in electronic format); > Add the newly purchased Hazardous Chemical to the site Hazardous Chemicals Register; > Add any additional Hazardous Chemical to the site Hazardous Chemicals Register when notified by Team leader; > Review the Hazardous Chemicals Register annually.
Safety Manager	> Assisting Managers identify employees that may require health surveillance e.g. staff applying herbicides; > Organising employee health surveillance, to be conducted by a WorkCover Approved Medical Practitioner; > Maintaining records of an employee's health surveillance and ensuring the records are kept confidential; > Ensuring employees are notified of the results of their health surveillance; > Maintaining the Chem Alert database; > Arranging audits to monitor compliance with WHS Legislation, Codes of Practice, Standards and TransGrid procedures; > Approving the cataloguing of new Hazardous Chemicals in consultation with the Environmental Group and other relevant stakeholders.

6. Implementation

Following approval of this document the procedure will be implemented and verified by the following activities:

> All staff notified of changes to the Hazardous Chemicals procedure via the WIRE
> The requirements of this procedure will be included in Hazardous Chemicals training
> WHS Audits and inspections.

7. Monitoring and review

System audits and site conformance inspections are conducted on a regular basis along with a review of the procedure.

8. Change from previous version

Revision no	Approved by	Amendment
8	Krista-Lee Fogarty, Head of HSE	> Reference to ARMS has been replaced with CAMMS. CAMMS is the new incident reporting system for TransGrid.
7	Jon Workman, Acting Manager/HSE	> Inclusion of references to ACT and Victoria > Procedure updated to new template
6	Michael Gatt, EM/Works Delivery	> Updating the procedure to reflect the changes to the Globally Harmonised System of Classification and Labelling of Chemicals > Restructuring of the document > Updating of position titles to the new structure.
5	Ken McCall, Manager/HSE	The minor amendments for this procedure are as follows: > Procedure updated to new template > Position titles updated This document has been re-issued without submission through the formal approval process due to the minor nature of the amendments.
4	Andrew Kingsmill, Acting EGM, People Strategy & Corporate Services	> Title of document changed from “Hazardous Substances & Dangerous Goods **Storage & Transport**” to “Hazardous Chemicals Storage & Transport’ to reflect the introduction of the GHS classification and labelling of Chemicals in the WHS Regulation 2011; > Several new definitions added: – Dangerous Goods – Globally Harmonised System – Hazardous Chemicals – Hazardous Substance – Safe Work Australia – Safety Data Sheet > 3.1.1.2 deleted label requirements and referred to COP and deleted the 12 hour labelling requirement > 3.1.3 deleted minimum information required, refer to attachment 3 > 3.1.7.4 changes to manifest information > 3.1.7.5 changes to WorkCover notification

Revision no	Approved by	Amendment
		> Update placarding quantities for class 2.1 from 500L to 200L > Update placarding quantities for class 2.2 subsidiary risk 5.1 from 2,000L to 1,000L > Update placarding quantities for class 9 PG II from 1,000kg or L to 250kg or L and manifest quantity from 10,000kg or L to 2,500kg or L > Update placarding quantities for class 9 PG III from 5,000kg or L to 1,000kg or L > Update mixed packing groups in class 9 from 5,000kg or L to 1,000kg or L > Update mixed classes of dangerous goods from 5,000kg or L to 1,000kg or L
5	Krista-Lee Fogarty, Head of HSE	>

9. References

> Work Health and Safety Act 2011 (NSW)
> Work Health and Safety Regulation 2017 (NSW)
> Work Health and Safety Act 2011 (ACT)
> Work Health and Safety Regulation 2011 (ACT)
> Occupational Health and Safety Act 2004 (VIC)
> Occupational Health and Safety Regulation 2017 (VIC)
> Australian Dangerous Goods Code – Edition 7.5
> Dangerous Goods (Road and Rail Transport) Act 2008
> Dangerous Goods (Road and Rail Transport) Regulation 2014
> NSW Pesticides Act 1999
> NSW Pesticides Regulation 2017
> Code of Practice for labelling of Workplace Hazardous Chemicals
> Code of Practice for Managing risks of hazardous chemicals in the workplace
> List of Designated Hazardous Substances, HSIS Safe Work Australia
> AS 2931 – Selection and Use of Emergency Procedure Guides for the Transport of Dangerous Goods
> AS 1940 – The storage and handling of flammable and combustible liquids.
> AS 4332 – The storage and handling of gases in cylinders.
> Health & Safety Risk Assessment Procedure
> Oil Management Procedure
> Use of Pesticides Procedure
> Waste Management Procedure
> Training Procedure
> Medical Examinations Procedure

10. Attachments

Appendix A - Hazardous Chemicals Register

Appendix B – Placarding and Manifest Requirements

Appendix C – Dangerous Goods Classes and Markings

Appendix A – Hazardous Chemicals Register

Hazardous Chemicals Register

TransGrid

Authorised by:	Ken McCall	Issue date:	14 February 2017	HP TRIM No.	D2003/2091

> This form is for use when developing a hazardous chemicals register.
> Please refer to Hazardous Chemical Storage and Transport.

Location:		Date:	
Site:		Section:	

NAME OF CHEMICAL	Stock code	Expiry Date of SDS	Hazardous Yes/No	Dangerous Good		Approx. Quantity	SDS Simple RA Yes/No	COMMENTS
				Yes/No	Class			

Appendix B - Placard and Manifest requirements

The Work Health and Safety (WHS) Regulations require a person conducting a business or undertaking to placard the workplace, prepare a manifest and notify the regulator where specified quantities of certain hazardous chemicals exceed threshold amounts. The threshold amounts and types of hazardous chemicals are prescribed in Schedule 11 of the WHS Regulations.

The new WHS Regulations introduce a number of changes to placard and manifest requirements compared to pre-harmonised laws. A key change is the use of hazard classes and categories under the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), instead of classes and categories of dangerous goods according to the Australian Code for the Transport of Dangerous Goods by Road or Rail 7th Edition (ADG Code).

This guidance note assists duty holders comply with the requirements for placards and manifests under the WHS Regulations. It shows the link between GHS classes and categories and equivalent classes of dangerous goods under the ADG Code.

Item	Description of hazardous chemical		Placard quantity	Manifest quantity	ADG Code Classification
1	Flammable gases	Category 1	200 L	5 000 L	2.1
2	Gases under pressure	Acute toxicity, categories 1, 2, 3 or 4 Note 1—Category 4 only up to LC_{50} of 5000 ppmV	50 L	500 L	2.3 - Note 2
3		Skin corrosion categories 1A, 1B or 1C	50 L	500 L	2.3 - Note 2
4		Aerosols (including flammable aerosols)	5000 L	10 000 L	2.1 or 2.2
5		Not specified elsewhere in this table	1000 L	10 000 L	2.2
6	Flammable liquids	Category 1	50 L	500 L	3 (PG I)
7		Category 2	250 L	2500 L	3 (PG II)
8		Category 3	1000 L	10 000 L	3 (PG III)
9		Any mix of chemicals from Items 6 – 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 L	10 000 L	
10		Category 4	10 000 L	100 000 L	Note 3
11	Self-reactive substances	Type A	5 kg or L	50 kg or L	GTDTBT – Note 4
12		Type B	50 kg or L	500 kg or L	4.1 (Type B)
13		Type C-F	250 kg or L	2500 kg or L	4.1 (Type C-F)
14	Flammable solids	Category 1	250 kg	2500 kg	4.1 (PG II)
15		Category 2	1000 kg	10 000 kg	4.1 (PG III)

Item	Description of hazardous chemical		Placard quantity	Manifest quantity	ADG Code Classification
16		Any mix of chemicals from Items 12 - 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
17	Pyrophoric liquids and Pyrophoric solids	Category 1	50 kg or L	500 kg or L	4.2 (PG I)
18	Self heating substances and mixtures	Category 1	250 kg or L	2500 kg or L	4.2 (PG II)
19		Category 2	1000 kg or L	10 000 kg or L	4.2 (PG III)
20		Any mix of chemicals from Items 17 - 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
21	Substances which in contact with water emit flammable gas	Category 1	50 kg or L	500 kg or L	4.3 (PG I)
22		Category 2	250 kg or L	2500 kg or L	4.3 (PG II)
23		Category 3	1000 kg or L	10 000 kg or L	4.3 (PG III)
24		Any mix of chemicals from Items 21 - 23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
25	Oxidising liquids and Oxidising solids	Category 1	50 kg or L	500 kg or L	5.1 (PG I)
26		Category 2	250 kg or L	2500 kg or L	5.1 (PG II)
27		Category 3	1000 kg or L	10 000 kg or L	5.1 (PG III)
28		Any mix of chemicals from Items 25 - 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
29	Organic peroxides	Type A	5 kg or L	50 kg or L	GTDTBT – Note 4
30		Type B	50 kg or L	500 kg or L	5.2 (Type B)
31		Type C-F	250 kg or L	2500 kg or L	5.2 (Type C-F)
32		Any mix of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	250 kg or L	2500 kg or L	
33	Acute toxicity (Note 5)	Category 1	50 kg or L	500 kg or L	6.1 (PG I)
34		Category 2	250 kg or L	2500 kg or L	6.1 (PG II)
35		Category 3	1000 kg or L	10 000 kg or L	6.1 (PG III)
36		Any mix of chemicals from Items 33 - 35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
37	Skin corrosion	Category 1A	50 kg or L	500 kg or L	8 (PG I)
38		Category 1B	250 kg or L	2500 kg or L	8 (PG II)
39		Category 1C	1000 kg or L	10 000 kg or L	8 (PG III)

Item	Description of hazardous chemical		Placard quantity	Manifest quantity	ADG Code Classification
40	Corrosive to metals	Category 1	1000 kg or L	10 000 kg or L	8 (PG III)
41		Any mix of chemicals from Items 37 - 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000 kg or L	10 000 kg or L	
42	Unstable explosives		5 kg or L	50 kg or L	GTDTBT – Note 4
43		Any mix of chemicals from items 11, 29 and 42 where none of the items exceed the quantities in columns 4 or 5 on their own	5 kg or L	50 kg or L	GTDTBT – Note 4

NOTES:

1. For item 2, gases under pressure with acute toxicity category 4 only applies up to a LC_{50} of 5000 ppmV, which is equivalent to Div. 2.3 under the ADG code.
2. Division 2.3 under the ADG Code includes gases and vapours as acutely toxic (categories 1, 2 and 3) and gases which are corrosive to skin (category 1).
3. Only liquids with a flash point of up to 93°C are classified as flammable liquids under the WHS Regulations. C1 combustible liquids with flash points between 93°C and 150°C are not classified as flammable liquids under the GHS or WHS Regulations.
4. GTDTBT = Goods too dangerous to be transported.
5. For gases classified with Acute Toxicity, the placard and manifest quantities as defined under item 2, rather than items 33-36, should be used.

Flammable liquid classification: For the purposes of this table, if a flammable liquid of category 4 is used, handled or stored in the same spill compound as one or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquid is determined as if the flammable liquid of category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point. For example, 1000 L of flammable liquid category 1 and 1000 L of flammable liquid category 4 is considered to contain 2000 L of flammable liquid category 1.

Appendix C - Dangerous Goods Classes and Markings

TransGrid

Controlled Document

Hot Work and Fire Risk Work

Summary

The purpose of this procedure is to identify and control the risks associated with Hot Work and Fire Risk Work conducted by TransGrid employees and contractors.

Document Control

Revision no:	11	**HP TRIM No:**	D2012/04610	**Approval Date:**	21/02/20
Business process:	Manage Health, Safety & Environment			**Document type:**	Corporate-wide procedure
Process owner:	Head of HSE				
Author:	Andrew Scott; Environment Officer				
Reviewers:	Brad Parker, Acting Environment Team Leader Kathy Pate, Environment Officer Josh Barker, Works Leader Mark Britton, Head of Infrastructure Delivery Michael Sandall, Construction Manager Luke Fania, Environment Team Leader Paul Thew, Coaching and Audit Manager David Donehue, Manager/Corporate Environment Megan Calvert, HSE Systems Manager Stephen Boyle, Acting Safety Manager				
Approver:	Krista-Lee Fogarty, Head of HSE				

Quick Guide of the Hot Work and Fire Risk Work Procedure

When I am	I Must	More information
Preparing to do work	• Ensure that I am Authorised and have completed the 'Hot work and Fire Risk Work' online training. • Have appropriate fire safety equipment on site in case a fire starts	• Section 8 • Appendix F
Doing hot work	• During a TOBAN, ensure hot work is permitted • Identify and assess the risks • Prepare a hot work permit if required • Test for the presence of gas or vapour if doing hot work adjacent to any pipe, drum, tank or vessel • Be aware of the fire rating and weather conditions • Have a fire watch observer on site for a mandatory hour after the hot work has ceased • Complete a final fire check	• Section 4.2.1 • Section 4.2, Section 4.2.3, Appendix D • Section 4.2.2 • Rural Fire Service (RFS) and Bureau of Meteorology (BoM) websites • Section 4.2.5 • Sections 6 • Section 4.2.6
Doing fire risk work	• Identify and assess the risks • Prepare a Fire Risk Assessment and Control Measures (FRACM) form if required • Be aware of the fire rating and weather conditions • Complete a final fire check	• Section 5.1 • Appendix E • Rural Fire Service & Bureau of Meteorology websites • Section 5.2.5
Become aware of an incident	• Report any incident in CAMMS	• Section 6.5.3

Contents

1. Purpose

The purpose of this procedure is to identify and control the risks associated with Hot Work and Fire Risk Work conducted by TransGrid employees and contractors. This procedure also identifies TransGrid's obligations during a Total Fire Ban declared by the NSW Rural Fire Service, ACT Emergency Services Agency or the Victorian Country Fire Authority.

2. Scope

This procedure applies to all TransGrid staff and contractors undertaking Hot Work and Fire Risk Work.

3. Definitions

Term	Definition
Authorised Officer	A person who has been assessed as competent to assess Hot Work and Fire Risk Work and compile and issue a Hot Work permit or Fire Risk Assessment and Control Measures (FRACM) form.
CFA	Victorian Country Fire Authority
Code Red Day	A Fire Danger Rating of 'Code Red' is the highest level of rating in Victoria. It signifies the worst conditions for grassfires and bushfires. Code Red ratings are only called for days of extraordinary and extremely dangerous conditions. In Victoria, a Code Red day is called by the Emergency Management Commissioner.
Combustible Material	Material that can maintain combustion with the addition of an external heat or ignition source, e.g. timber or linings present within wall and ceiling framing, flammable liquids/fibres, vapours, dry vegetation/grass or combustible liquids.
Confined Spaces	An enclosed or partially enclosed space that: a. is not designed or intended primarily to be occupied by a person, and b. is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space, and c. is or is likely to be a risk to health and safety from: (i) an atmosphere that does not have a safe oxygen level, or (ii) Contaminants, airborne gases, vapours and dusts that may cause injury from fire or explosion, and/or harmful concentrations of any airborne contaminants, or engulfment.
Declared Bushfire Danger Period (BDP)	The time of high fire danger prescribed by the NSW Rural Fire Service, ACT Emergency Service Agency or CFA Victoria. The statutory Bush Fire Danger Period in NSW runs from 1st October to 31st March but it may vary due to local conditions. In Victoria, the Bush Fire Danger Period is declared for each individual municipality, generally running from November until May.
Designated Hot Work Area (DHWA)	Area specifically configured to undertake Hot Work activities. DHWAs must be free of Combustible Materials and have appropriate control measures in place. They are generally a workshop or welding bay (but may be located outside a building) and need to comply with the following: > No flammable materials within the room; > Hot Work must be 15 metres away from any combustible material; > Fire extinguisher is within 10 metres of the work area;

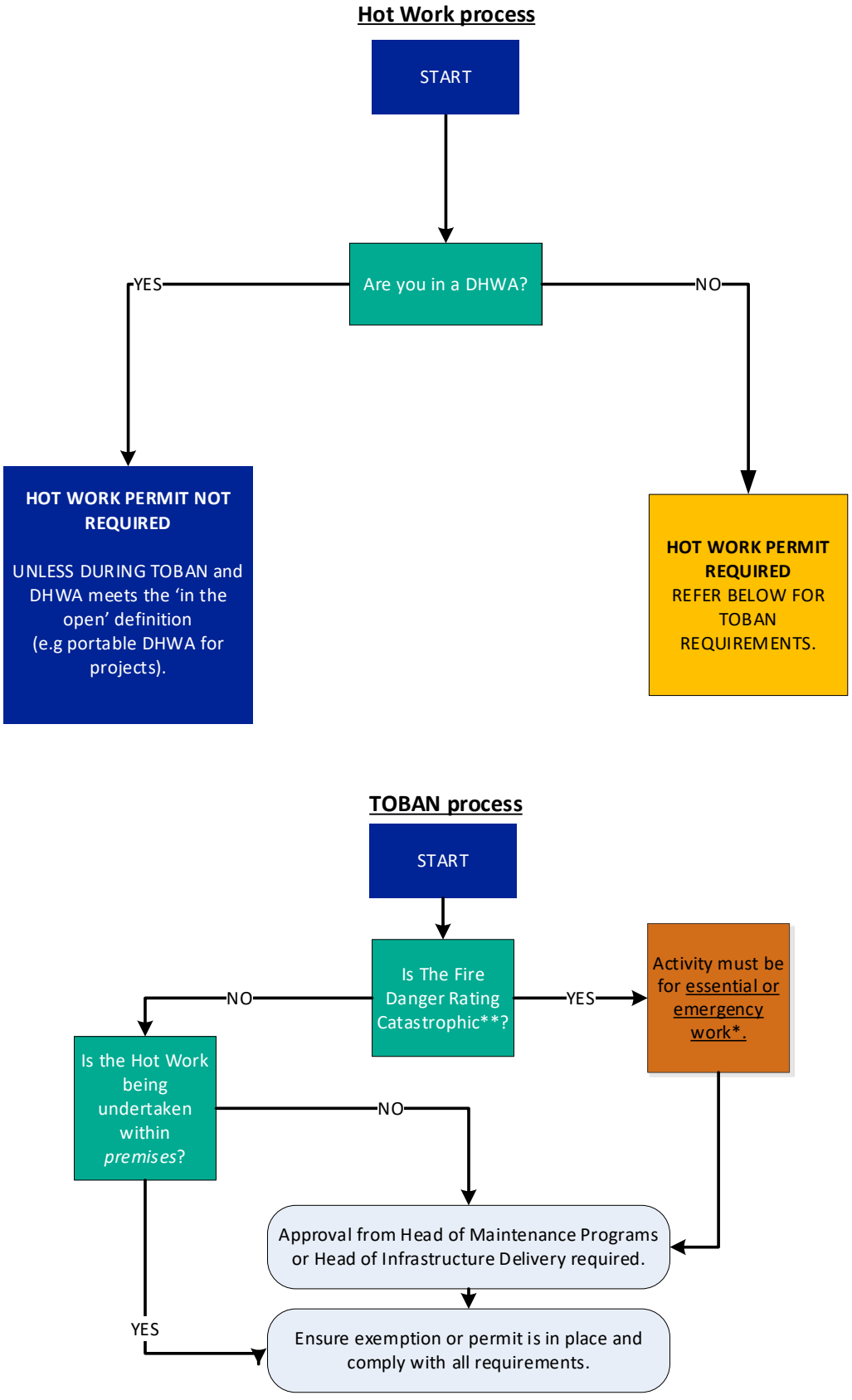
Term	Definition
	> Work area must be contained within four walls or screened with fit for purpose fire resistant material; > No cavities in walls or eaves suitable to prevent escape of sparks; and > Drains need to be covered **Caution -** Adequate ventilation must be supplied for the operator
ESA	ACT Emergency Services Agency
Essential or Emergency work	For the purposes of performing Hot Work or Fire Risk Work on a day declared 'Catastrophic', essential or emergency works include; > Works required to restore parts of the network, including transmission lines assets or HV apparatus. > Works required to ensure staff or public safety. > Works requested to be undertaken by Government agencies. Note: Essential or Emergency works doesn't include works required to meet construction or maintenance timelines/schedules.
Exemptions and Permits (for Hot Work)	During a Total Fire Ban the lighting or maintaining a fire 'in the open' is prohibited, however, certain activities may be exempted or approved by Permit during total fire bans. The following exemptions may apply to TransGrid: a) The NSW RFS Commissioner may grant exemptions (which can be issued or are detailed in the NSW Government Gazette each time a total fire ban is declared.)
Fire Risk Work	Work (other than Hot Work) that has the potential to cause a fire. **Fire Risk Work** involves heat or potential spark producing activities that have the potential of creating a fire risk, Fire Risk Work includes: > Slashing; > Mulching; > Operation of steel tracked machines or steel attachments on mobile plant (e.g. grading, boring, excavation and the like); > Chainsaw operation; > Chipping; > Mowing; > Brush cutting; and > Operation of motor vehicles/rubber tyred mobile plant (excluding their use on sealed or unsealed gravelled roads).
Fire Risk Management Plan (FRMP)	A separate plan either attached to a WHSMP or CEMP that highlights fire risks and control measures specific to that project. FRMPs must be in accordance with this procedure.
Final Fire Check	Mandatory surveillance undertaken at the completion of Hot Work or Fire Risk Work to observe the workplace for any signs of smouldering, ignition or other factors that may start a fire.
Fire Watch Observer	A Fire Watch Observer is responsible for observing Hot Work and Fire Risk Work activities and to be able to respond to any potential or actual fire outbreak. A person must not be engaged in any other activities whilst acting as a Fire Watch Observer.

Term	Definition
Hazardous Area	Any work area where flammable/combustible materials may come into contact with flames, sparks, molten materials or hot surfaces. Hazardous Areas may include (but not exclusively); > Confined spaces; > Buildings where there are materials that are made of or contain combustible matter; > Dry/combustible vegetation; > Rubbish; and > Oil and Fuel storage areas. An area is deemed **not to be hazardous** where there are no combustible materials such as oil/chemicals/fuel storage, dry/combustible vegetation or rubbish, within 15m (or as approved by TransGrid management) of the work area/zone.
High Risk Activity (ACT)	High risk activity in the Australian Capital Territory means the following: (a) welding; (b) grinding; (c) soldering; (d) gas cutting; (e) any other activity prescribed by regulation as a high risk activity.
Hot Work	**Hot Work** is any action that involves high temperatures and has a high risk of creating a fire. Examples of Hot Work are as follows, but are not limited to: > Welding, Oxy-Acetylene or Plasma cutting; > Grinding/cutting of metal including the use of flexible sanding disks; > Production of heat, flammable fumes and gases during work activities; and > Dry concrete metal grinding/cutting;
Hot Work Area	The area within a radius of 15m from the point where the Hot Work is to be undertaken (including the space above and below that area). The Hot Work Area should be made safe by various techniques, preparation and testing to ensure that any risk of fire or explosion resulting from the Hot Work is eliminated.
Indoors	Inside a building or other structure that is fully enclosed on all four sides and has a door and roof to prevent sparks from escaping.
Instructed Person	A person advised by or supervised by an Authorised Officer.
In the open	Locations that are *in the open air*, including areas such as: > Easements and outdoor public spaces > Substations/switchyards; > Communications facilities; > Depots and perimeter lands;
Prescribed Fire Safety Equipment (PFSE)	The minimum fire safety equipment to be available and deployed for all Hot Work and Fire Risk Work, which includes: > Rake-hoe or shovel; and > A water knapsack spray pump of 16 litre minimum capacity filled with water or; > A fire extinguisher (liquid type) of 9 litre minimum capacity; or > A dry powder type extinguisher of 0.9 kg minimum capacity. Refer to Appendix F for the complete Fire Safety & Equipment Requirements for Hot Work and Fire Risk Work.

Term	Definition
Pre-work risk Assessment (PWRA)	The process conducted and documented before commencing a work activity. It includes assessing the risks associated with the tasks to be performed, the workplace and the environment.
RFS	NSW Rural Fire Service.
Premises	Premises are areas within a security fence such as switchyards/substations and depots. Note: Premises includes new substations still under construction, if the security fence has been fully erected.
Security fence	Palisade/man-proof fence surrounding substations, depots, switching stations and communication facilities.
Total Fire Ban (TOBAN)	A TOBAN is declared by the RFS, CFA or ACT ESA due to extreme weather conditions or when widespread fires are seriously stretching firefighting resources. When declared, it prohibits the lighting of any fires in the open air and any other activities that may start a fire. A declaration of a TOBAN covers specific identified areas of the relevant state. In this procedure the term TOBAN applies to a declaration of a Total Fire Ban (or Code Red day in Victoria). TOBAN declarations are made in accordance with, either: a) Section 99 of the Rural Fires Act 1997 (NSW), by way of a notice in the Government Gazette, b) Section 4 of the Country Fire Authority Act 1958 (VIC), or c) Section 114 of the Emergencies Act 2004 (ACT).
Work	Any physical maintenance, survey or construction/augmentation activity.
Unfavourable	Adverse conditions such as extreme hot dry windy weather or in an area of increased fire activity.

4. Hot Work Process

The following diagram sets out the process managing Hot Work activities in TransGrid.



**Essential or Emergency works doesn't include works required to meet construction or maintenance timelines/schedules. Refer to Hot Work and Fire Risk procedure for full definition.*

***Catastrophic rating is Code Red in Victoria*

4.1 Hot Work Permit Process

4.1.1 Identify Risks

The first step in the Hot Work Permit process is to identify risks as part of a Pre-work risk assessment process, including:

- Assess the risks on site. Determine if conditions are unfavourable to undertake Hot Work. If yes postpone the Hot Work until conditions are suitable.
- Identify and control (remove) any fire hazard (including the presence of flammable or combustible liquids, gases, vapours, dusts, fibres or substances) within 15 metres from the Hot Work location;
- Consider relevant hazards that may exist outside the 15 metre area;
- Consider the possibility of changing circumstances during the progress of the Hot Work and whether they may render the area unsafe for the work to continue;
- Properly ventilate the Hot Work area;
- Suitably position the equipment, including emergency firefighting equipment;
- Isolate the area where the Hot Work is to be performed; and
- Provide a safe entry to and exit from the Hot Work area.

4.1.2 Testing for the Presence of a Gas or Vapour

Testing is only required for work where there is the potential for the presence of flammable gas and flammable vapour. This only applies to Hot Work in or adjacent to any pipe, drum, tank or vessel that has the potential to carry a flammable gas or vapour.

The majority of Hot Work undertaken by TransGrid will not require gas/vapour testing before Hot Work is undertaken.

If testing is required, prior to the commencement of Hot Work the following must be complied with:

- The detectors used for the testing must comply with AS 2275.1 and AS2275.2;
- Each detector used for the testing shall be used by a person skilled in its operation, limitations and maintenance;
- Testing must continue until every source and potential source of flammable gas and flammable vapour has been tested; and
- Testing must take place as late as practical before the Hot Work is commenced, subject to it being not more than two hours beforehand.

4.1.3 Hot Work Permit

A Hot Work Permit (refer to Appendix D) must be completed by an Authorised Officer when:

a) Hot Work is being undertaken outside a Designated Hot Work Area (DHWA), and

b) Approval by TransGrid Management and Notification to the RFS/CFA /ESA may be required if Hot Work is proposed during a TOBAN (refer to Section 6 for detailed information).

Appendix F sets out the fire safety equipment requirements for Fire Risk Work.

***Note: A *Hot Work Permit* does not require approval in accordance with the exemptions and protocols in Section 6 if being undertaken within in DHWA.**

4.1.4 Fire Watch Observer

Fire watching is a continuous and thorough inspection/observation of the work site and its vicinity by an Authorised Officer.

The decision to appoint a Fire Watch Observer is made based on the risks on the particular day and in accordance with Appendix F - Fire Safety Equipment Requirements for Hot Work and Fire Risk Work

The Fire Watch Observer must:

- Be an Authorised Officer;

- Be alert for any fire outbreak or hazards;
- Take immediate action to combat any outbreak of fire that may occur, if safe to do so;
- Not allow Hot Work to proceed outside the area specified on the Hot Work Permit;
- Immediately stop the work and withdraw the Hot Work Permit if a hazardous condition is observed;
- Be aware of the need to use PPE where Hot Work involves arc welding, cutting or arc gouging; and
- Not leave the job unless properly relieved by an Authorised Officer.

Note: Research and fire investigation has found that the majority of Hot Work fires break out up to one hour after the completion of the work. Hot work ignition sources can get into areas not easily seen, providing the opportunity to smolder for lengthy periods before breaking out into fire.

4.1.5 Final Fire Check

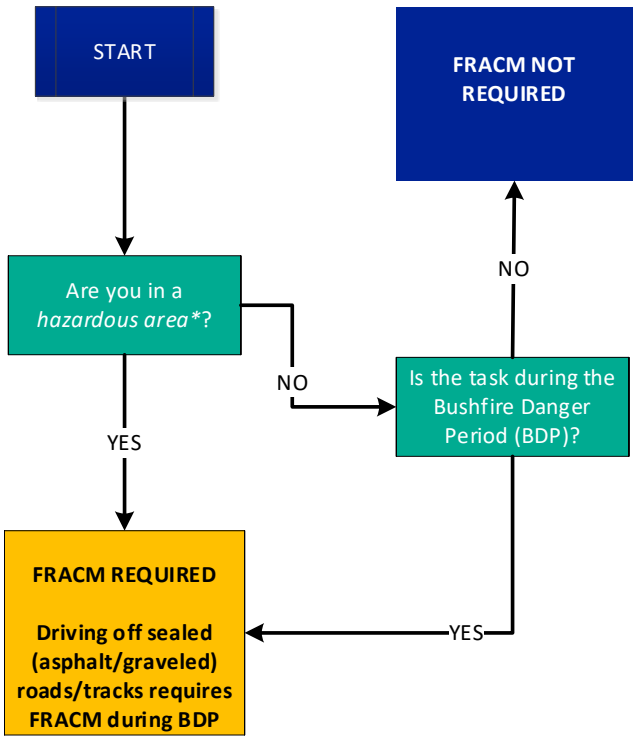
A Final Fire Check must be performed and signed off at the completion of any Hot Work activity undertaken under a Hot Work Permit. This will be dependent on the activity, weather conditions or in accordance with Appendix F.

Activity	Requirement	Exceptions
Final Fire Check	Mandatory Final Fire Check after a suitable monitoring period for ALL Hot Work. Mandatory **one hour** Final Fire Check after cessation of Hot Work where a Fire Watch Observer has been appointed on: • **Extreme or above** declared days inside premises; or • **High or above** declared days outside premises.	If a Hot Work Permit is not required.

5. Fire Risk Work Process

The following flow chart shows the process for managing Fire Risk Work.

Fire Risk Process

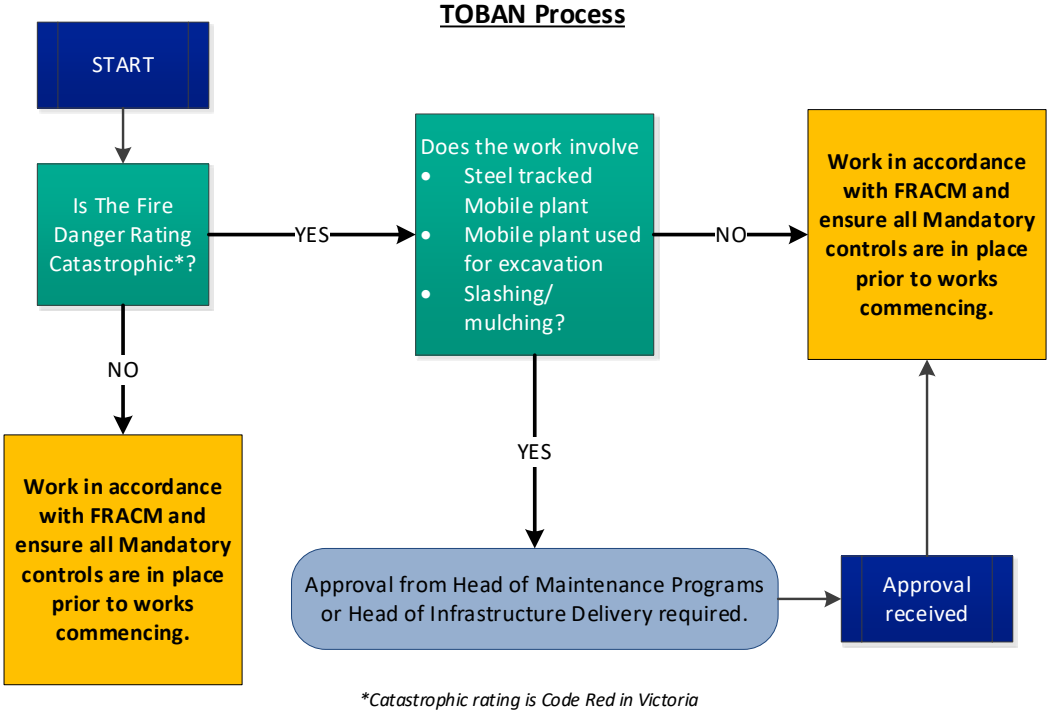


*Hazardous Areas may include (but not exclusively);

>Confined spaces; Buildings where there are materials that are made of or contain combustible matter; Dry/combustible vegetation; Rubbish; and Oil and Fuel storage areas.

An area is deemed not to be hazardous where there are no combustible materials such as oil/chemical/fuel storage, dry/ combustible vegetation or rubbish, within 15m of the work area/zone.

TOBAN Process



*Catastrophic rating is Code Red in Victoria

5.1 Fire Risk Work Process

5.1.1 Identify Risks

The first step for the Fire Risk Work process is to identify risks as part of a Pre-work risk assessment process, including:

- Is the Fire Risk Work located in a Hazardous Area;
- Is the Fire Risk Work being undertaken during the Declared Bushfire Danger Period;
- Whether there is an alternative to the Fire Risk Work activity that could achieve the same work outcome (i.e. an alternative way of doing the work that does not involve Fire Risk Work) or whether the Fire Risk Work activity can be postponed or delayed on days when the conditions (e.g. fire rating) are unfavourable;
- The risks on site.
- Control of any fire hazards;
- Presence of any relevant hazards that may exist outside the work areas;
- The suitable location of fire safety equipment, including emergency firefighting equipment;
- Changing circumstances (such as wind and temperature) during the progress of the Fire Risk Work and whether they may render the area unsafe for the work to continue; and
- Do not commence the Fire Risk Work, until the work complies with all of the above requirements.

5.1.2 Fire Risk Assessment and Control Measures (FRACM) Form

A Fire Risk Assessment and Control Measures (FRACM) form (Appendix E) must be completed by an Authorised Officer when:

a) Fire Risk Work is being undertaken in a Hazardous Area, or

b) Fire Risk Work is being undertaken during the Declared Bushfire Danger Period (BDP); and

c) Approval by TransGrid Management and Notification to the RFS/CFA/ESA may be required if Fire Risk Work is proposed during a TOBAN (refer to Section 6 for detailed information).

Appendix F sets out the fire safety equipment requirements for Fire Risk Work.

5.1.3 Fire Watch Observer

The decision to appoint a Fire Watch observer is made based on the risks on the particular day and in accordance with Appendix F - Fire Safety & Equipment Requirements for Hot Work and Fire Risk Work.

Fire watching is a continuous and thorough inspection/observation of the work site and its vicinity by an Authorised Officer.

The Fire Watch Observer must:

- Be an Authorised Officer;
- Be alert for any fire outbreak or hazards;
- Take immediate action to combat any outbreak of fire that may occur;
- Not allow Fire Risk Work to proceed outside the area specified;
- Immediately stop the work if a hazardous condition is observed;
- Obtain fire extinguishers or fire hose or both; and
- Not leave the job unless properly relieved by an Authorised Officer.

Note: Research and fire investigation has found that the majority of fires break out up to one hour after the completion of the work. Ignition sources can get into areas not easily seen, providing the opportunity to smolder for lengthy periods before breaking out into fire.

5.1.4 Final Fire Check

A Final Fire Check must be performed and signed off at the completion of any Fire Risk Work activity undertaken under a FRACM. This will be dependent on the activity, weather conditions or in accordance with Appendix F.

Activity	Requirement	Exceptions
Final Fire Check	Mandatory Final Fire Check after a suitable monitoring period for ALL Fire Risk Work. Mandatory **one hour** Final Fire Check after cessation of Fire Risk Work under a FRACM on **'Very High' or above** declared days where a Fire Watch Observer has been appointed.	When working in non-hazardous areas under a FRACM during the BDP.

6. Total Fire Bans (TOBAN)

6.1 General Requirements for Hot Work 'in the open' on TOBAN days

A total fire ban (TOBAN) day is a day declared by the NSW RFS, ACT ESA or VIC CFA due to extreme weather conditions or when widespread fires are seriously stretching firefighting resources. When declared, it prohibits the lighting of any fires in the open air and prohibits any other activities from being carried out that may start a fire, which includes Hot Work.

A declaration of a TOBAN covers specific identified areas of the state.

Further information and daily updates are available at:

For NSW - http://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans,

For Victoria https://www.cfa.vic.gov.au/warnings-restrictions/total-fire-bans-and-ratings.

For ACT - https://esa.act.gov.au/

It is prohibited to carry out any Hot Work 'in the open' that causes or is likely to cause a fire during a TOBAN unless authorised under an exemption or Permit issued by the NSW RFS, CFA (Victoria) or ESA (ACT).

During a TOBAN, Hot Work 'in the open' for construction, essential repairs or maintenance, the Authorised Officer must ensure that the Hot Work:

- Is in accordance with conditions of the NSW RFS general exemption or CFA (Victoria) or ESA (ACT) Permits;
- Be lit, maintained or used in a manner that will prevent its escape;
- Have adequate firefighting equipment laid out and immediately available;
- Have a Hot Work Permit completed; and
- Be authorised in writing by the Head of Maintenance Programs or Head of Infrastructure Delivery (under delegation from the EM, Works Delivery) if being undertaken outside premises.

***Note that Principal Contractors can work under a Permit issued to TransGrid or apply for their own permit, as long as they meet the requirements of this procedure.**

6.1.1 Hot Work during a TOBAN with a Catastrophic Fire Danger Rating

No Hot Work can be undertaken on a TOBAN with a **catastrophic fire danger rating**, unless the activity is required for **essential or emergency work**. Approval must be sought and granted in accordance with Section 6.2.1.

6.2 Specific Requirements for Hot Work 'in the open' on TOBAN days

6.2.1 New South Wales

- Ensure a current exemption is in place and all conditions are complied with (refer to Appendix A),
- The Authorised Officer undertaking the Hot Work must advise the local RFS or Fire and Rescue station, in accordance with Appendix A, and comply with any additional conditions imposed.
- Ensure Management approval has been granted in writing if undertaken outside premises.

6.2.2 Victoria

6.2.2.1 Hot Work 'in the open' during the Bushfire Danger Period

Hot Work in Victoria during the fire danger period (October to May, depending on Municipality) requires a Schedule 14 Permit to be in place prior to works commencing.

TransGrid has a current Schedule 14 Permit* (refer to Appendix B) that has specific conditions that need to be adhered too, as a minimum:

- The Schedule 14 Permit must be attached to the Hot Work Permit,
- Staff are to be aware of Permit requirements and ensure that these conditions are reviewed and implemented during the Hot Work.

***Note that the current Schedule 14 Permit applies only to Deer Park Terminal Station.**

6.2.2.2 Hot Work 'in the open' on a TOBAN

Any Hot Work during a TOBAN requires the issue of a Section 40 Permit from the CFA, as a minimum:

- The Section 40 Permit* must be attached to the Hot Work Permit,
- That there are not less than two persons on site, together with not less than two knapsack spray pumps of at least 15 liters capacity each, fully charged with water, or a length of hose adequate to reach the appliance connected to a reticulated water supply one such person shall be available solely for fire watching and firefighting purposes; and

The Operations Manager of the local area where fire is to be used in the open air is to be notified (see list of conditions in the Section 40 Permit, Appendix C) between 2 and 24 hours before the activity is to commence.

***Note that the current Section 40 Permit applies only to Deer Park Terminal Station.**

6.2.3 Australian Capital Territory (ACT)

6.2.3.1 Hot Work 'in the open' on a TOBAN

A *High risk activity* in the ACT is classified as welding, grinding, soldering or gas cutting.

For the purposes of this procedure, all Hot Works are classified as High risk activities.

Hot Works undertaken in the ACT during a TOBAN requires a Permit from the ESA (ACT) and are issued on a case-by-case basis for each individual TOBAN day.

Permits can be requested by TransGrid or Contractors, however they must align with Section 6.1

6.3 Fire Risk Work during a TOBAN

Fire Risk Work is not specifically prohibited under legislation, but fire authorities recommend that these activities are not undertaken in a hazardous area during a TOBAN, due to the increased fire risks.

During a declared TOBAN (with a Catastrophic Fire Danger Rating), the following Fire Risk Work activities require authorisation granted in writing from either Head of Maintenance Programs or Head Infrastructure Delivery (under delegation from the EM, Works Delivery) regardless of whether in a Hazardous Area or not:

a) Works involving steel tracked mobile plant or mobile plant used for excavation, or

b) Slashing/Mulching

A FRACM must be completed for all other Fire Risk Work (i.e. operation of motor vehicles, chainsaws, mowing or brush-cutting) during a TOBAN. However, authorisation in writing from the Head of Maintenance Programs or Head Infrastructure Delivery is not required.

The Authorised Person assessing the Fire Risk Work must:

1. Seek Approval from the relevant Manager where required, and
2. Ensure that Fire Safety Equipment (in accordance with Attachment F) is available, in working order, and deployed.

7. Contractors Undertaking Hot Work and Fire Risk Work

The fire risk associated with Hot Work and Fire Risk work must be assessed and considered for all work conducted by contractors on behalf of TransGrid. The following points set out the requirements for Hot Work and Fire Risk Work by Contractors:

> **Where TransGrid is in control of the site** - Contractors undertaking maintenance activities, activities managed through a site specific management plan for minor work, or where it is specified in the contract, are required to follow this procedure.

  If a contractor is only doing minor works and is only required to be onsite for a short period of time, they are not required to be trained to undertake Hot Work or Fire Risk Work as long as they are *an Instructed Person* that is supervised by an *Authorised Officer*.

> **Principal Contractors engaged by TransGrid** - For all projects or work initiated by, or on behalf of, TransGrid or by third parties on land controlled by TransGrid such as:
  - network augmentation projects,
  - large network replacement projects, unregulated projects,
  - negotiated services projects, and
  - project works by other parties on TransGrid sites

Principal Contractors are required to work in accordance with TransGrid's Hot Work and Fire Risk Work Procedure.

Contractors have the option of either adopting TransGrid's Hot Work and Fire Risk Work process or creating a Fire Risk Management Plan, which must be prepared in accordance with TransGrid's Hot Work and Fire Work Procedure and endorsed/approved by TransGrid.

7.1 Fire Risk Management Plan

A Fire Risk Management Plan (FRMP) is a specific plan that covers the management of Hot Work and Fire Risk Work activities for the duration of a Project. It would mirror the requirements of this procedure and would be prepared by the Contractor and approved/endorsed/not rejected by TransGrid. Once approved/endorsed/not rejected by TransGrid, the Contractor would work in accordance with this plan including during the Bushfire Danger Period in the relevant state or territory that they are working in. At a minimum the FRMP would include:

> Appropriate definitions of key terms.
> A description of the Hot Work Permit process that meets the requirements of the relevant Australian Standards.
> A description of what other activities may constitute a fire risk and require day to day onsite management.
> A description of what constitutes a Hazardous Area for the project in question and how this will be defined/managed/controlled on a day to day basis during the project.
> A description of the approval process to be followed for Hot Work and/or Fire Risk Work activities.
> A description of the approval process to be followed on TOBAN days for Hot Work and/or Fire Risk Work activities.

8. Training

8.1 Training

For TransGrid staff and Contractors to become an Authorised Officer under this procedure, they are required to successfully complete TransGrid's Hot Work and Fire Risk Work online training.

TransGrid staff must also be trained to E2 under the Authorisation to Work procedure.

Principal Contractors must have a suitable number of staff trained to undertake the duties as an Authorised Officer.

9. Information

All Hot Work Permits and Fire Risk Assessment and Control Measures (FRACM) forms must be stored in the appropriate work or project folder and include (included) in material transferred to TransGrid's corporate document storage system, HP TRIM.

10. Incidents

All incidents relating to hot work must be registered in CAMMS, TransGrid's incident reporting system. Refer to TransGrid procedure HSE Hazard and Incident Management for more information on incident notification and investigation.

11. Accountability

Title	Responsibilities and Accountabilities
General Worker	> Adhering to and following all procedures for Hot Work and Fire Risk Work; and > Adequately trained in the use of Fire Safety Equipment.
Authorised Officer	> Identifying and nominating the appropriate control measures required to perform the Hot Work and Fire Risk Work; > Ensuring that the nominated control measures have been implemented prior to work commencing; > Documenting that all workers have been instructed in the appropriate control measures required to perform the Hot Work; > Validation of the control measures during the work (at least once per day); > Adequately trained in the use of Fire Safety Equipment; > Able to use fire safety equipment to extinguish a fire (when safe to do so) and stop work, if required; and > Ensure all Hot Work Permits and FRACM documents are retained and entered into TRIM.
Fire Watch Observer	> Adhering to and following all procedures for Hot Work and Fire Risk Work; > Adequately trained in the use of Fire Safety Equipment; and > Undertake no other duties while acting as Fire Watch Observer.
Final Fire Check	> Final Fire Check must be undertaken by the appointed Fire Watch Observer (if appointed) otherwise by the Authorised Officer; > Fire Watch duties can be delegated to a suitable alternate Fire Watch Observer, where appointed they must be an Authorised Officer; and > Adhering to and following all procedures for Hot Work and Fire Risk Work.

Title	Responsibilities and Accountabilities
Contractors	> Ensuring all their staff and sub-contractors have suitable training in the use of Fire Safety Equipment; > Adhering to and following TransGrid procedures for Hot Work and Fire Risk Work or the requirement of the Fire Management Plan; > Ensuring an adequate number of their staff are Authorised Officers for the purposes of Hot Work and Fire Risk Work.
Instructed Person	> A person advised by or supervised by an Authorised Officer to enable them to avoid unacceptable fire risks associated with Hot Work and Fire Risk Work.
Project or Contract Manager	> Assessing the contractor's procedures prior to the commencement of works to ensure that they meet TransGrid's Hot Work and Fire Risk requirements.

12. Implementation

This procedure will be implemented through the following mechanisms:

> Notification on HSE News page;
> Included in HSE Systems Quarterly Update;
> Training under the Environmental Assessment Framework; and
> Factsheet for exemptions prepared for EMs, Head of Maintenance Programs and Head of Infrastructure Delivery.

13. Monitoring and review

This procedure will be reviewed at the conclusion of each Fire Season (every 12 months).

14. Change from previous version

Revision no	Approved by	Amendment
0	M Gatt, EGM/PS&CS	Nil – New procedure
1	Ken McCall, Manager/HSE	Reformat of procedure to revised template with the following minor amendments: • Updating of position titles
2	Ken McCall, Manager/HSE	Reformat of procedure to revised template Minor amendment of updating position titles and including Manager/Construction Services.
3	Michael Gatt, EGM/Field Services	The procedure has been rewritten to address legal advice and fulfil the requirements of AS1674.1
4	Ken McCall, Manager/HSE	Definitions – updated to match AS1671.4 requirements Section 5.1.3 and 5.1.4: Removal of reference to the RFS Exemption during a total fire ban as the exemption has expired.

Revision no	Approved by	Amendment
		Section 5: Reference to the fact that a HWP is only required to be completed if undertaking work in a “hazardous area” or during a TOBAN (with the only exception being that a HWP is not required if carrying out Hot Work in a DHWA). Change from last version in that a HWP was required regardless of whether you were working in a hazardous area. Section 5: Reference to the first step on the risk assessment process and the need to consider if the Hot Work activity can be eliminated. New requirement. Section 5: Change in the flow chart including a step to consider weather conditions and postpone activity if conditions unfavourable. Section 6: Change in the flow chart including a step to consider weather conditions and postpone activity if conditions unfavourable.
5	Ken McCall, Manager/HSE	TransGrid has received a specific exemption from the RFS for Hot Works during TOBAN days. This information has been addressed in Section 5.1.3, 5.1.4 and Appendix 2. TransGrid specific exemption no longer current. *General exemption provisions apply.*
6	Ken McCall, Manager/HSE	Minor edit to flowchart
7	Jon Workman, A/Manager/Health, Safety and Environment	Clarification of Hot work definition Minor edits to process flow charts Typographical corrections Addition of 16L knapsack to PFSE
8	Ken McCall, Manager/Health, Safety and Environment	Changes to Section 7 and 8 to reflect requirements for Contractors to work in accordance with TransGrid procedures and requirements for training and authorisation.
9	Krista-Lee Fogarty, Manager/Health, Safety and Environment	Updates to include requirements for undertaking hot work in Victoria and ACT.
10	Michael Gatt, EM, Works Delivery	The procedure has been revised to simplify the requirements for carrying out Hot work and Fire Risk Work on a TOBAN day compared to the usual requirements during the Bushfire Danger Period. A new section has also been included setting out the option for Contractors to develop their own Fire Risk Management Plan (mirroring the requirements of this procedure). This is set out in Section 7.1
11	Krista-Lee Fogarty, Head of HSE	Minor typographical errors fixed.

15. References

- Environmental Assessment Framework
- Environmental Authorisation
- Fire Protection Manual Operations & Maintenance
- Confined Spaces
- Health and Safety Risk Assessment
- Work Health & Safety Act 2011 (NSW)
- Work Health & Safety Regulation 2017 (NSW)
- Rural Fires Act 1997 (NSW)
- Electricity Safety (Bushfire Mitigation) Regulations 2013 (Victoria)
- Country Fire Authority Regulations 2014
- Codes of Practice - Welding Practices
- Code of Practice - Demolition Work
- Code of Practice - Confined Space
- Code of Practice - Construction Work
- Australian Standard - 1674.1 - safety in Welding and Allied Processes – Fire precautions
- Australian Standard - 1674.2 - safety in Welding and Allied Processes – Electrical
- Australian Standard - 2865 - Safe Working in a Confined Space

16. Appendices

Appendix A – NSW General Exemption provisions for Hot Work during a Total Fire Ban

Appendix B – Schedule 14 Permit to allow Hot Works during the Fire Danger Period (Victoria)

Appendix C– TOBAN exemption (Section 40) Victoria

Appendix D – Hot Work Permit

Appendix E – Fire Risk Assessment and Control Measures (FRACM) Form

Appendix F – Fire Safety Equipment Requirements for Hot Work and Fire Risk Work

Appendix A – Exemptions during a Total Fire Ban NSW

The following excerpt is from the NSW Government Gazette listed under Rural Fires Act 1997 Notification under Section 99, Schedule 5 of the Total Fire Ban Notification *Schedule of Standard Exemptions to Total Fire Bans*

GOVERNMENT NOTICES
Rural Fire Service Notices

SCHEDULE OF STANDARD EXEMPTIONS TO TOTAL FIRE BANS

Note 1. The NSW Rural fire service can be contacted on 1800 679 737 and Fire and Rescue NSW can be contacted on 1800 422 281.

Note 2. This schedule sets out standard exemptions to total fire bans orders made by the Minister or the Commissioner of the NSW Rural Fire Service (by delegation). A total fire ban order may specify that some or all of the following standard exemptions will apply during the total fire ban. A standard exemption will not apply unless specifically referred to in the total fire ban order.

1 Definitions

In this Schedule:

fire includes a flame, spark or incandescent or burning material.

landholder, in respect of land, means:

(a) if the land is controlled or managed by a local authority—the local authority, or

(b) in the case of a State forest, flora reserve or timber reserve within the meaning of the *Forestry Act 2012*, or land acquired for the purpose of dedication or reservation under that Act, or in respect of which the Forestry Corporation has obtained the benefit of a forestry right within the meaning of Division 4 of Part 6 of the *Conveyancing Act 1919*—the Forestry Corporation, or

(c) in the case of land dedicated or reserved, or acquired for the purpose of dedication or reservation, under the *National Parks and Wildlife Act 1974*—the National Parks and Wildlife Service, or

(d) in the case of land vested in, or under the control of, Rail Corporation New South Wales, Transport for NSW, Residual Transport Corporation of New South Wales, Transport Infrastructure Development Corporation or Rail Infrastructure Corporation—that authority, or

(e) in the case of land within the catchment area of a water authority—that water authority, or

(f) in any other case—the owner or occupier of the land.

Standard Exemptions

6 Services and utilities—construction, essential repairs or maintenance

(1) Fire lit, maintained or used by, or on behalf of, a provider of a utility or transport service, in connection with the construction or the essential repair or maintenance of facilities or equipment required for the provision or continuation of the utility or transport service provided that:

(a) the fire is lit, maintained or used in a manner which will prevent the escape of the fire, and

(b) adequate fire fighting equipment is provided at the site of the fire to prevent the escape or spread of the fire, and

(c) In the case of construction, the provider of the utility or transport service has:

(i) if the land where the construction works is to be undertaken within a rural fire district—notified the NSW Rural Fire Service Fire Control Centre for that district, or

(ii) if the land where the construction works is to be undertaken is within a fire district—notified the officer in charge of the nearest Fire and Rescue NSW fire station.

(2) The provider of the utility or transport service must comply with any direction or additional condition which may be imposed by the NSW Rural Fire Service or Fire and Rescue NSW, which may include a direction that a fire not be lit.

(3) In this clause:

utility or transport service means a sewerage, drainage, water, gas, electricity, telephone service or the operation of a road or railway.

Any Hot Work done under the exemption provisions above **must comply** with this procedure.

Appendix B – Section 40 TOBAN Exemption (Victoria) – Deer Park only

V.16/17

PERMIT No. D14 19/20 S40 002

COUNTRY FIRE AUTHORITY ACT 1958 (SECTION 40)

PERMIT A

WELDING CUTTING GRINDING

NAME: Darren Tattersall or Transgrid (NSW Electricity Networks Operations P/L

ADDRESS: 180 Thomas Street
SYDNEY VIC 2000

is authorised to light a fire, maintain a fire or permit or suffer a fire to remain alight in the open air for the purposes of Welding, Gas Cutting or Grinding on a day of Total Fire Ban at:

Deer Park Terminal Station - Christies Rd, Ravenhall

between the period of **22/10/2019 to 01/05/2020**.

CONDITIONS OF PERMIT

I. *The welding, cutting or grinding is performed by the permit holder; and*

II. *That any person performing the burning operation to which this permit relates, must be in possession of the permit, or a true copy of it; and*

III. *That there are not less than two persons on site, together with not less than two knapsack spray pumps of at least 15 litres capacity each, fully charged with water, or a length of hose adequate to reach the appliance connected to a reticulated water supply one such person shall be available solely for fire watching and fire fighting purposes; and*

IV. *The Operations Manager of the local area where fire is to be used in the open air, is to be notified (see attached list) between 2 and 24 hours before the activity is to commence; and*

V. *Notice of intention to conduct burning operations must be given between 2 and 24 hours before the burning is to commence to the Emergency Services Telecommunications Authority (within the meaning of the Emergency Services Telecommunications Authority Act 2004) (ESTA), on 1800 668 511, or by one of the means of notification specified on the ESTA Internet site (esta.vic.gov.au) or the Country Fire Authority Internet site (cfa.vic.gov.au); and*

VI. *That provision is made to enable immediate notification of an outbreak of fire to the local fire brigade via Triple Zero '000', a member of the Police Force or a Forest Officer; and*

VII. *That the ground for 10 metres is cleared of all flammable material or maintained in a wetted-down condition for a distance of not less than 10 metres from the site of the fire; and*

VIII. *That there is erected around the work area a shield or guard of fire resistant material placed in such a manner as to prevent a fire being caused by the emission of sparks or by the production of hot metal or slag; and*

IX. *That all work cut-offs and electrode stubs are placed directly into a fire resistant container; and*

X. *That vehicle access is provided across trenches and pipe-lines not more than 500 metres from the site of any welding, or cutting operation; and*

XI. *That the permit holder must indemnify the CFA against any actions arising out of activities carried out under this permit by the holder's officers, employees, contractors and sub-contractors; and*

XII. *Compliance with the permit conditions does not itself release the applicant from liability (civil or criminal) for any damage sustained by another person as a result of any fire lit by the permit holder pursuant to this permit; and*

XIII. *Any other conditions:<<Nil>>*

Date: 22/10/2019

Signature:

Name and Position: **David Harris, Operations Manager, District 14**

Appendix C - Schedule 14 Permit to allow Hot Works during the Fire Danger Period (Victoria) – Deer Park only.

PERMIT No. HQ 18/19 S14 056

SCHEDULE 14 - Regulation 109(1)(c)
COUNTRY FIRE AUTHORITY REGULATIONS 2014

PERMIT TO LIGHT A FIRE FOR MISCELLANEOUS PURPOSES DURING THE FIRE DANGER PERIOD

(Not valid on a day of TOTAL FIRE BAN)

This permit is granted to Transgrid (Darren Tattersall) of 180 Thomas Street Sydney to light a fire or fires for the purpose of within the country area of Victoria between **25/09/2018 and 01/06/2019**.

The Permit is subject to the following **conditions:**

I. **The fire be lit and maintained by Maintenance Works Leader - Substantions or an officer, employee, contractor or sub-contractor acting under the direction of the Maintenance Works Leader - Substantions or by the person who for the time being is holding, acting or performing the role of Maintenance Works Leader - Substantions; and*

II. *That any person performing the burning operation to which this permit relates, must be in possession of the permit, or a true copy of it; and*

III. *Notice of intention to conduct burning operation must be given between 2 and 24 hours before the burning is to commence to the Emergency Service Telecommunications Authority (within the meaning of the Emergency Service Telecommunications Authority Act 2004) (ESTA), on 1800 668 511, or by one of the means of notification specified on the ESTA Internet site (esta.vic.gov.au) or the Country Fire Authority Internet site (cfa.vic.gov.au); and*

IV. *That provision is made to enable immediate notification of an outbreak of fire to the local fire brigade via Triple Zero '000', a member of the Police Force or a Forest Officer; and*

V. *If the area where the fire is to be lit is within 3 kilometres of any State Forest, National Park or Protected Public Land, notice of the intention to burn must be given to the appropriate Forest Officer between 2 and 24 hours before the fire is to be lit; and*

VI. *That there is at hand and available for immediate use:*
   a. *A length of hose adequate to reach the appliance connected to a reticulated water supply or;*
   b. *A fully charged water (stored pressure) fire extinguisher(s) of at least 9 litres capacity or knapsack spray pump of at least 15 litres capacity is available for immediate use at times the burner is alight; and*

VII. *The area above and ground around is cleared of all flammable material for a radius of 3 metres; and*

VIII. *At all times when the fire in the appliance is alight the appliance is attended by a person who has the capacity and the means to extinguish the fire; and*

IX. *That the fire is completely extinguished before the person leaves; and*

X. *That the permit holder must indemnify the CFA against any actions arising out of activities carried out under this permit by the holder's officers, employees, contractors and sub-contractors; and*

XI. *Compliance with the permit conditions does not itself release the applicant from liability (civil or criminal) for any damage sustained by another person as a result of any fire lit by the permit holder pursuant to this permit; and*

XII. *Municipal local laws must be complied with. Municipalities should be contacted directly for advice.*

Date: 27/9/18

Signature: PDB

Name and Position: **P D Baker**
Operations Manager
Manager Headquarters Operations

THIS PERMIT APPLIES ONLY IN THE COUNTRY AREA OF VICTORIA AND IS NOT VALID IN THE METROPOLITAN FIRE DISTRICT OR WITHIN ANY FIRE PROTECTED AREA UNDER THE FORESTS ACT 1958.

Appendix D – Hot Work Permit

Hot Work Permit

TransGrid

Authorised by:	Krista Fogarty	Issue date:	XXXX	HP TRIM No.	XXXX

This permit is required for all Hot Works performed outside a Designated Hot Work Area (DHWA)

Section A: Details of activity:			
Location/Line/Span		Date	Time to
Description of work			
Is the works occurring during the declared bushfire danger period?	Yes ☐ (Continue)		No ☐ (Go to Section D)
Section B: TOBAN Check:			
Has a Total Fire Ban been declared?	Yes ☐ (Continue)		No ☐ (Go to Section D)
Is the Fire Danger Rating Catastrophic?	Yes ☐ (Continue)		No ☐ (Go to Section C)
Is the work *essential or emergency works?* (Refer to procedure for definition)	Yes ☐ (Go to Section C)		If No, works cannot commence.
Section C: TOBAN requirements:	**Conditions**		
☐ Hot Work inside *premises* *Proceed to Section D once confirmed*	Confirm exemption or permit applies to the works.		Confirmed ☐
	Notify local fire authority and comply with any conditions.		Confirmed ☐
☐ Hot Work outside premises *Proceed to Section D once confirmed*	Confirm exemption or permit applies to the works.		Confirmed ☐
	Approval granted by Head of Maintenance Programs or Head of Infrastructure		Confirmed ☐
	Notify local fire authority and comply with any conditions.		Confirmed ☐

Section D: Declared Bushfire Danger Rating and Mandatory controls:

Declared Bushfire Danger rating (if applicable)					
Low-Moderate	High	Very High	Severe	Extreme	Catastrophic
☐	☐	☐	☐	☐	☐

Inside premises	Prescribed Fire Safety Equipment (PFSE) Rake-hoe or shovel AND 16L water filled knapsack or 0.9kg dry chemical extinguisher or 9kg water extinguisher + Welding Pads/Shields as required	PFSE + Welding Pads/Shields as required Fire Watch Observer** *Note Catastrophic or Code Red rating has additional approval requirements.
Outside premises	PFSE+ Welding pads/shields as required	PFSE + Welding Pads/Shields as required Fire Watch Observer** Fire Trailer or vehicle mounted water tank (400L)** *Note Additional approval requirements if during TOBAN. **only required if working in a hazardous area.

Hot Work Permit

TransGrid

Section E: Control measure confirmation:					
Nominated Controls	**Yes**	**N/A**	**Nominated Controls**	**Yes**	**N/A**
Confirm all mandatory controls are available and in place	☐	Must be Yes	All pits, drains, wall & floor openings should be checked & sealed	☐	☐
Automatic sprinklers are in service	☐	☐	Remove combustible/flammable materials in work area (within 15m)	☐	☐
Staff trained and competent in use of plant and equipment	☐	☐	Available exit routes have been identified and all staff are aware of their location	☐	☐
Equipment has been inspected, maintained in a serviceable condition	☐	☐	Fire Watch Observer required?	☐	☐
Additional controls implemented:					

Section F: Gas Testing requirement			
Is the Hot Works occurring adjacent to any pipe, drum, tank or vessel that has the potential to carry a flammable gas or vapour? (Refer to Section 4.2.2 of procedure)		Yes ☐ (Continue)	No ☐ (Go to Section G)
Date of Test		Serial Number	
Time of Test		Results of tests Percentage L.E.L.	
Date of Last Equipment Check		Is Hot Work safe to proceed?	
Equipment Make & Model		Initials of tester	

Section G: Required Sign-offs by Authorised Officer			
Confirmation Prior to works commencing			
Control	**Initials**	**Time**	**Signature**
All controls have been implemented			
Period of permit doesn't exceed 8 hours			
All staff working on permit understand and accept controls/conditions.			
Revalidation (at least once per permit period)			
Control	**Initials**	**Time**	**Signature**
Conditions monitored and permit revaluated			
Conditions monitored and permit revaluated			
Final check and sign-off			
Control	**Initials**	**Time**	**Signature**
Final fire check completed (Mandatory one hour final fire check is required if a Fire Watch Observer has been appointed)			

Appendix E - Fire Risk Assessment and Control Measures Form

Fire Risk and Control Measures

TransGrid

Authorised by:	Krista Fogarty	Issue date:	XXXX	HP TRIM No.	XXXX

This permit is required for all Fire Risk activities in a Hazardous Area or within the Declared Bushfire Danger Period.

Section A: Details of activity:			
Location/Line/Span		Date	Time to
Description of work			
Is the works occurring during the declared bushfire danger period?	Yes ☐ (Continue)		No ☐ (Go to Section D)
Section B: TOBAN Check:			
Has a Total Fire Ban been declared?	Yes ☐ (Continue)		No ☐ (Go to Section D)
Is the Fire Danger Rating Catastrophic?	Yes ☐ (Continue)		No ☐ (Go to Section C)
Does the work involve the following activities: a) Steel tracked mobile plant or mobile plant used for excavation, or b) Slashing/Mulching	Yes ☐ Approval required by Head of Maintenance Programs or Head of Infrastructure Confirmed ☐ (Continue)		No ☐ (Go to Section C)
Section C: TOBAN requirements:	**Conditions**		
All Fire Risk Work	Ensure appropriate controls are in place as per Section D of procedure. Confirmed ☐		
Proceed to Section D once confirmed	Fire Watch Observer has been appointed** Confirmed ☐ No ☐		

Section D: Declared Bushfire Danger Rating and Mandatory controls:					
Declared Bushfire Danger rating (if applicable)					
Low-Moderate	**High**	**Very High**	**Severe**	**Extreme**	**Catastrophic**
☐	☐	☐	☐	☐	☐
All Fire Risk Work	**Prescribed Fire Safety Equipment (PFSE):** Rake-hoe or shovel AND 16L water filled knapsack or 0.9kg dry chemical extinguisher or 9kg water extinguisher	PFSE + Fire Watch Observer**	PFSE + Fire Watch Observer** + Fire Trailer or vehicle mounted water tank (400L)** *Note Catastrophic or Code Red rating has additional approval requirements for: Steel tracked plant, Mobile plant used for excavation and Slashing/mulching **only required if working in a hazardous area.		

Section E: Control measure confirmation:					
Nominated Controls	**Yes**	**N/A**	**Nominated Controls**	**Yes**	**N/A**
Confirm all mandatory controls are available and in place	☐	Must be Yes	Equipment fitted with muffler &/or spark arrestor	☐	☐
Machinery free from combustible debris	☐	☐	Firefighting equipment laid out ready for use	☐	☐
Fire Trailer	☐	☐	Available exit routes have been identified & all staff are aware of their location	☐	☐
Additional controls implemented:					

Section F: Required Sign-offs by Authorised Officer			
Confirmation Prior to works commencing			
Control	**Initials**	**Time**	**Signature**
All controls have been implemented			
Fire Watch Observer appointed, if required			
All staff working on permit understand and accept controls/conditions.			
Revalidation (at least once per permit period)			
Control	**Initials**	**Time**	**Signature**
Conditions monitored and permit revaluated			
Conditions monitored and permit revaluated			
Final check and sign-off			
Control	**Initials**	**Time**	**Signature**
Final fire check completed (Mandatory one hour final fire check is required if a Fire Watch Observer has been appointed)			

Appendix F - Fire Safety & Equipment Requirements for Hot Work & Fire Risk Work

<table>
<tr><th></th><th colspan="5">Declared Bushfire Danger Period</th></tr>
<tr><th></th><th>Low- Moderate</th><th>High</th><th>Very High</th><th>Severe</th><th>Extreme</th><th>Catastrophic</th></tr>
<tr><td colspan="6">Hot Work</td></tr>
<tr><td><u>MANDATORY EQUIPMENT</u>

ALL Hot Work</td><td colspan="5"><u>Prescribed Fire Safety Equipment (PFSE):</u>
Rake-hoe or shovel
AND
16L water filled knapsack or
0.9kg dry chemical extinguisher or
9kg water extinguisher</td></tr>
<tr><td><u>MANDATORY EQUIPMENT</u>
ALL Hot Work <u>inside</u> premises</td><td colspan="4">PFSE + Welding Pads/Shields as required</td><td>PFSE + Welding Pads/Shields as required
Fire Watch Observer**

*Note Catastrophic or Code Red rating has additional approval requirements.</td></tr>
<tr><td><u>MANDATORY EQUIPMENT</u>
All Hot Work <u>outside</u> premises</td><td>PFSE + Welding Pads/Shields as required</td><td colspan="4">PFSE + Welding Pads/Shields as required
Fire Watch Observer**
Fire Trailer or vehicle mounted water tank (400L)

*Note Additional approval requirements if during TOBAN.</td></tr>
<tr><td colspan="6">Fire Risk Work</td></tr>
<tr><td><u>MANDATORY EQUIPMENT</u>
ALL FIRE RISK WORK</td><td colspan="2">PFSE</td><td>PFSE
Fire Watch Observer**</td><td colspan="2">PFSE
Fire Watch Observer**
Fire Trailer or vehicle mounted water tank (400L)

*Note Catastrophic or Code Red rating has additional approval requirements for slashing/mulching and use of steel tracked machines and attachments.
**Fire Watch Observer only required if working in a hazardous area.</td></tr>
</table>

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