

Appendix C

**Updated approach to
environmental management**

This appendix provides the revised approach to environmental mitigation for the proposal, including a revised set of mitigation measures for the proposal.

Approach to environmental management

Overarching approach

The approach to environmental management for the amended proposal would be consistent with:

- > the Environmental management system (EMS) of the preferred construction contractor and TransGrid during construction and operation respectively, which are accredited under ISO 14001:2015
- > proposal design – measures to avoid and minimise impacts that have been incorporated into the corridor selection and proposal design
- > construction and operation environmental management, as described in the following sections. This will be consistent with TransGrid's *HSE Handbook* (TransGrid, 2020), which provides the minimum environmental controls for all construction and maintenance works on the TransGrid network.
- > mitigation measures – the measures are identified as an outcome of the environmental impact assessment and refined as part of this Amendment Report.

TransGrid's existing ISO 14001:2015 accredited EMS provides a structured approach to environmental management for the proposal. The EMS includes procedures, training, records, inspections, objectives and policies to guide compliance with environmental laws, regulations and corporate policies while managing potential environmental impacts.

Construction environmental management approach

The proposed approach to environmental management outlined here is indicative. It is based on the concept design and construction methodology, and the types of conditions of approval typically granted in relation to CSSI projects. Depending on the specific conditions of approval, a different approach might be required.

An overarching community and stakeholder engagement plan would be implemented to manage community and stakeholder engagement during all phases of construction.

Enabling works

Enabling works are activities proposed early in the overall construction program to facilitate the commencement of substantial construction and collect information required to finalise the detailed design and construction methodology. Typical and expected enabling works are described in Section 6.6.1 of Appendix B of the Amendment Report. The preferred construction contractor would confirm the proposed scope and timing of enabling works.

The conditions of approval for CSSI projects typical allow construction staging and require that separate CEMPs are prepared, or existing CEMPs updated as required, to cover each proposed stage. TransGrid anticipates that construction would be staged (refer to Section 6.4 of Appendix B of the Amendment Report), with certain enabling works scheduled to occur ahead of and separate to main construction works. The preferred construction contractor would be responsible for confirming the approach to staging and preparing the required environmental management documentation for each stage in accordance with the conditions of approval.

Minor/low impact enabling works

The conditions of approval for CSSI projects typically require that all construction activities occur in accordance with an approved CEMP. Typical conditions of approval, however, often exclude certain minor pre-construction works and activities with low potential for environmental and community impacts (minor/low impact activities) from the definition of construction. When this occurs, the minor/low impact activities can occur prior to approval of a CEMP.

Proposed minor/low impact activities for the proposal include:

- > investigations (including geotechnical, contamination and other testing/sampling, surveying and the placement of survey pegs/marks)
- > installation of fencing, gates, barricades, exclusion zones and other access controls
- > installation of environmental controls, mitigation measures and monitoring equipment
- > adjustments to roads required to facilitate safe ingress/egress at construction compounds, accommodation camps and laydown areas
- > archaeological test excavations carried out in accordance with a test excavation methodology developed in consultation with the relevant Registered Aboriginal Parties in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (OEH, 2010) and in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010), and any associated salvage
- > clearing of vegetation to establish construction compounds, accommodation camps, laydown areas and excavated material sites, and to facilitate other minor/low impact activities proposed prior to approval of a relevant CEMP
- > excavations and surface preparation required to establish construction compounds, accommodation camps and laydown areas
- > establishing excavated material sites
- > installation/erection of camps, offices and associated welfare facilities
- > batch plant mobilisation, set up and commissioning
- > receiving construction plant and equipment on site and materials at laydown areas
- > upgrading existing and creating new access tracks
- > installation of temporary site sheds, amenities facilities and storage containers to support other minor/low impact activities proposed prior to approval of a relevant CEMP
- > installation of utility service connections to construction locations and ancillary facilities
- > protection, adjustment and relocation of utility assets in the vicinity of construction locations, construction compounds and camps, and other ancillary facilities.
- > Other investigations that meet the definition of exempt development provided in State Environmental Planning Policy (Infrastructure) 2007 could also occur prior to approval of a CEMP.

To be minor/low impact, the activities must:

- > not generate noise levels at any sensitive receiver above relevant noise management levels developed in accordance with *Interim Construction Noise Guideline* (DECC, 2009) and
- > not result in dust impacts at any residences in the vicinity and
- > not affect threatened flora species, vegetation that is part of a threatened ecological communities or is critical habitat for a threatened fauna species (other than associated with the implementation of mitigation measures for biodiversity) and
- > not involve excavations in PADs (other than the test excavations and salvage referred to above) prior to the completion of required archaeological test excavations at that location and
- > not cause soil disturbance within 40 metres of a watercourse (excluding the installation of sediment and erosion controls in accordance with *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004) and Volumes 2A and 2C (DECCW 2008) (commonly referred to as the 'Blue Book')) and
- > be carried out (where required) in accordance with Road Occupancy Licences granted by the relevant roads authority.

The conditions of approval might define other minor/low impact activities.

Minor/low impact activities would still be subject to the relevant mitigation measures and other environmental commitments in the EIS as amended by the Amendment Report. The contractor would prepare Environmental Work Method Statements (EWMSs) for minor/low impact activities. The EWMSs would include all mitigation measures and environmental commitments relevant to the activities. The minor/low impact activities would be carried out in accordance with the relevant EWMSs.

Activities not described above or that are not excluded from the definition of construction or otherwise provided for in the conditions of approval would occur in accordance with an approved CEMP.

Other enabling works

Other enabling works that are construction by definition in the conditions of approval would be covered by a CEMP or CEMPs. Any CEMP(s) prepared for enabling works would guide the approach to environmental management during the works and would consider and address all relevant mitigation measures from the EIS and the conditions of approval that are relevant to the works.

The contractor would confirm the approach to and scope of enabling works and associated timings. Any enabling works CEMP(s) would be reviewed as required, in response to changes such as activities and environmental conditions, to ensure ongoing environmental management.

Main construction works

Main construction works would occur in accordance with an approved CEMP prepared in accordance with the conditions of approval. Where the construction contractor proposes to stage construction, a CEMP would be prepared for each stage or an existing CEMP updated to cover each upcoming stage.

Each CEMP would include:

- > a description of construction contractor's environmental policy and objectives for construction
- > a description of the activities to be undertaken during construction
- > reference to all relevant statutory and other obligations, including consents, licences, approvals and voluntary agreements required
- > environmental targets and measurable performance indicators which compliance would be monitored against
- > roles and responsibilities for all personnel and contractors to be employed on site with regards to the planning, implementation, maintenance and monitoring of environmental controls
- > specific mitigation measures and controls that would be applied to avoid and minimise environmental impacts
- > required sub-plans (as detailed later in this section), which clearly set out the objectives of the sub-plan, relevant conditions of approval and mitigation measures
- > processes for managing non-compliance (including corrective and preventative actions)
- > procedures for complaints handling and ongoing communication with the community
- > inspection, monitoring and auditing requirements, including procedures for regular environmental inspections and monitoring, auditing and review of the performance of environmental controls, and compliance tracking and reporting
- > incident and contingency management requirements
- > procedures for the control of environmental records
- > induction and training requirements for all personnel and contractors.

The CEMP would be adaptive, establishing a continuous cycle of monitoring, assessment, investigation and corrective actions. This process would be used to continuously evaluate and monitor the effectiveness of the environmental management measures proposed in this EIS and identify the corrective actions to be carried out should such measures be identified as being ineffective.

A program of independent audits would be developed as part of the CEMP and implemented by the construction contractor. The program would monitor and report on compliance with this EIS (as amended by the Submissions Report and Amendment Report), relevant conditions of approval, and licences and permits applicable to the proposal.

Outline of sub-plans

Table C-1 outlines the sub-plans that would be contained within the CEMP. Sub-plans may be replaced by a procedure where appropriate (i.e. when considering the scale and scope of the works), or merged with another sub-plan to streamline the CEMP. The conditions of approval for the proposal may require different and/or additional matters to be addressed in the CEMP or sub-plans.

TransGrid notes some activities covered in the CEMP and Sub-plans might also be minor/low impact activities that can occur prior to approval of the relevant plan. This could include additional investigations, salvage, and the installation of environmental controls and mitigation measures. These minor/low impact activities would occur in accordance with the EWMSs, but would be covered by the relevant CEMP sub-plan once approved.

Table C-1 Outline of CEMP sub-plans

Sub-plan	Purpose and requirement
Biodiversity	<p>The sub-plan will set out measures to minimise and manage impacts on biodiversity. It will include (as a minimum):</p> <ul style="list-style-type: none"> > measures to minimise impacts to biodiversity, including measures to reduce disturbance to sensitive flora and fauna > procedures for clearing of vegetation, including pre-clearing inspections and procedures for the relocation of flora and fauna > procedures for the demarcation and protection of retained vegetation, including vegetation adjacent to construction areas > weed management > rehabilitation strategies including progressive rehabilitation, and measures for the management and maintenance of rehabilitated areas (including duration) > protocols for unexpected EECs or threatened flora and fauna during construction, including stop work procedures > monitoring requirements and compliance management
Heritage	<p>The sub-plan will set out the measures to manage impacts on any impacts on heritage items/sites. It will include (as a minimum):</p> <ul style="list-style-type: none"> > appropriate heritage mitigation measures, including identification, protection and/or management of heritage items/sites within or adjacent to construction areas (including additional investigations, recordings, or measures to protect items/sites that would not be directly impacted in the vicinity of construction works) > procedures for unexpected finds, including procedures for dealing with human remains > heritage monitoring and compliance management > induction requirements for construction personnel.

Sub-plan	Purpose and requirement
Noise and vibration	<p>The sub-plan will identify procedures and measures that will be implemented to mitigate and manage construction noise and vibration impacts at sensitive receivers. It will include but is not limited to:</p> <ul style="list-style-type: none"> > examine feasible and reasonable noise mitigation where management levels are exceeded > examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified > develop associated noise and vibration monitoring programs, as required > develop proactive and reactive strategies for dealing with any noise complaints > outline community consultation measures including notification requirements > include an out of hours works protocol.
Air quality	<p>The sub-plan will include measures to control dust and other emissions during construction. It will include (as a minimum):</p> <ul style="list-style-type: none"> > measures to minimise the potential for dust emissions, including dust suppression > air quality monitoring requirements and compliance management. This includes monitoring of meteorological conditions in order to implement appropriate responses to changing weather conditions, and regular visual inspections.
Soil and water	<p>The sub-plan will set out measures to mitigate and manage impacts on soil and water, including water quality and potential contaminated soils. It will include (as a minimum):</p> <ul style="list-style-type: none"> > measures to minimise impacts to soil and water, and to maintain water quality of surrounding surface watercourses. This includes details of erosion and sediment controls, diversion of runoff around disturbed areas and stockpiles, salinity and acid sulfate soils control measures, as well as minimising areas of disturbance and progressive rehabilitation of disturbed areas > stockpile management procedures, including procedures to segregate wastes and contaminated soil > materials tracking and record keeping > unexpected finds protocols for contaminated materials (e.g. soils, building materials and water) and acid sulfate soils > storage of chemicals and other hazardous materials > spill management procedures > measures to minimise water use during construction > a flood emergency management procedure which will provide a series of activities that need to take place should a flood event occur. These activities would focus on the flood emergency and then during the recovery period to assist with starting work again as soon as possible after the flood event.

Sub-plan	Purpose and requirement
Traffic and transport	<p>The sub-plan will be prepared in consultation with Wentworth Shire Council to identify the key management and response strategies to potential delays and disruptions that may arise due to the proposal. It will include (as a minimum):</p> <ul style="list-style-type: none"> > measures to minimise disruption to pedestrians, cyclists and motorists > management of safe vehicle access/egress from construction compounds and other construction work areas > measures to manage oversize and overmass vehicle movements during construction, which will consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways > management of long-distance travel through driver fatigue management measures > measures to ensure safe access to existing properties during construction, or provision of suitable alternatives.
Bushfire risk management	<p>The sub-plan will be prepared by a suitably qualified professional and will include (but not limited to):</p> <ul style="list-style-type: none"> > protocols for the relocation of workers to nominated safe refuge zones during a bushfire emergency, either within or remote to the work zone (Bushfire Emergency and Evacuation Plan (BEEP)) > protocols for the management of bushfire risk and fuel management during construction. This will include restriction and/or prevent of certain activities that present bushfire risks on days with a fire danger rating of equal to or greater than 'high', and as directed by relevant state authorities > training to inform construction workers of bushfire risks and preventative actions, including risks associated with the operation (and maintenance) of vehicles, plant and equipment.
Waste management	<p>The sub-plan will set out waste management strategies that will be implemented in accordance with the waste management hierarchy of avoid, minimise, re-use and dispose. The plan will include but is not limited to:</p> <ul style="list-style-type: none"> > targets for the recovery, recycling and re-use of construction waste > procedures for the assessment, classification, management and disposal of waste > waste tracking and compliance management.

Community and stakeholder engagement plan

A community and stakeholder engagement plan (CSEP) would be prepared prior to commencement of the enabling works. The plan would be developed in consultation with Wentworth Shire Council. The plan would aim to detail the approach to communication between TransGrid, the construction contractor, the community and government authorities.

The community and stakeholder engagement plan would:

- > identify people, organisations and government authorities to be consulted during the works
- > set out procedures and mechanisms for the regular distribution of accessible information to keep the community and stakeholders informed of the proposal
- > set out the procedures and mechanisms for consulting with relevant councils and government authorities including procedures for nil responses
- > describe the method for advertising the telephone line and email address for enquiries relating to the proposal
- > set out procedures and mechanisms for response to enquiries and feedback

- > include a complaints management system which outlines parameters for recording information on all complaints received during the main construction work
- > set out procedures and mechanisms to resolve any issues and disputes that might arise in relation to environmental and stakeholder management associated with the proposal.

Operational environmental management approach

The operation of the proposal would be managed through the practices, procedures and processes within TransGrid’s EMS, Environmental Assessment Framework (EAF), Environmental checklists, as well as its *HSE Handbook* and *Complaints Handling Policy* (TransGrid, November 2019).

Details of the environmental constraints identified as part of this EIS, that are relevant to the ongoing operation and maintenance of the asset, would be included in the appropriate TransGrid Geographical Information Systems (GIS). Due diligence environmental checks, including environmental information generated from GIS where relevant, would be undertaken before any maintenance works are carried out.

Revised mitigation measures

The list of mitigation measures presented in Chapter 23 of the EIS has been updated with consideration given to the additional assessment work undertaken and the basis of submissions received. Some new measures have been added, and the wording of existing measures has been adjusted (where required) to ensure that the actions that are being committed to are as clear as possible.

Table C-2 supersedes the mitigation measures presented in the EIS and provides a consolidated revised set of mitigation measures for the proposal.

The measures are broadly grouped according to the main stage of implementation. However, it is noted that the implementation of some measures may occur across a number of stages. If the proposal is approved, it would be undertaken in accordance with the final list of mitigation measures.

Table C-2 Compilation of mitigation measures

Reference	Mitigation measures	Timing	Application location(s)
Biodiversity			
B1	Impacts to matters of biodiversity conservation significance will be avoided to the greatest extent practicable during finalisation of the detailed design and construction methodology for the project. Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance will occur to avoid impacts wherever practicable. Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat, including <i>Acacia acanthoclada</i> , <i>Atriplex infrequens</i> , <i>Austrostipa nullanulla</i> , <i>Dodonaea stenozyga</i> and <i>Santalum murrayanum</i> , will be given the highest priority.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
B2	<p>Where vegetation disturbance activities are required in areas that have not previously been subject to biodiversity survey, additional survey will be carried out prior to works occurring to inform detailed design and construction methodology.</p> <p>These surveys will be carried out by a suitably qualified ecologist.</p>	Detailed design	All locations
B3	<p>Opportunities to locate site offices, compounds and ancillary facilities in areas of limited biodiversity value (e.g. cleared land or areas of native vegetation with vegetation integrity scores of less than 17 (in accordance with the NSW Government Biodiversity Assessment Method Operational Manual) will be prioritised.</p>	Detailed design	All locations
B4	<p>Existing tracks and clearings will be used, where possible, to avoid the construction of new tracks. Where this is not possible, the design will seek to minimise impacts to native vegetation as a priority.</p>	Detailed design	Transmission line corridor
B5	<p>Transmission line structures will be located and constructed to minimise impact to vegetated riparian corridors, wherever practicable.</p>	Detailed design	Transmission line within the riparian zone as defined by “Guidelines for riparian corridors on waterfront land” (DPI – Office of Water, July 2012) of Great Darling Anabranh, Darling River and/or Murray River
B6	<p>Conductor line-marking techniques will be implemented during detailed design to minimise bird strike. Use of bird diverters, most likely consisting of the “flapper” variety, will be implemented. Positioning and exact diverter model will be finalised during detailed design but at minimum these will be used within one kilometre of wetland / riverine habitats to reduce impacts on aerial fauna species from collision and allow safer passage within these areas.</p>	Detailed design	Transmission line – within one kilometre of wetland / riverine habitats (i.e. Great Darling Anabranh, Darling River and Murray River)

Reference	Mitigation measures	Timing	Application location(s)
B7	TransGrid will establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation. These would occur at strategic locations that would be developed as part of a Connectivity Strategy under the Biodiversity Management Plan. These connectivity corridors will involve native vegetation retention up to the 10 metre wide temporary construction centreline clearing zone to better facilitate woodland connectivity.	Detailed design	All locations
B8	A two year monitoring program following the completion of construction will be implemented to better understand interactions of bird species with the transmission lines and towers. Problematic interactions identified during the program would be considered and options for addressing them implemented as practicable. Options that would be considered include nesting deterrents in high risk areas, installation of alternative nest habitat, relocation of nests or their deconstruction in certain circumstances.	Operation	Transmission line – within one kilometre of wetland / riverine habitats (i.e. Great Darling Anabranche, Darling River and Murray River)
B9	TransGrid will make a one off funding contribution targeted at further scientific study into the impacts of electric and magnetic fields on birds in Australia.	Prior to completion of construction	Not applicable
B10	Nest boxes will be provided to offset the loss of tree hollow fauna habitat in accordance with a Supplementary Hollow and Nest Strategy. The strategy will include the following requirements: <ul style="list-style-type: none"> > survey of tree hollows and nests within the proposed clearing extents > the size, type, number and location of nest boxes required will be based on the results of the ecological surveys > appropriately sized nest boxes will be installed within the vicinity of hollow-bearing trees (subject to landholder agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree > all nest boxes in a particular location will be installed within 6 months after clearing > “nest boxes” will include consideration of natural tree hollow re-use and new tree hollow creation > measures to address and manage nests (such as raptor nests) pre-clearing will be included. 	Pre-construction and construction	All locations where hollow bearing trees are being removed

Reference	Mitigation measures	Timing	Application location(s)
B11	<p>Pre-clearing surveys will be completed prior to clearing at each location by a suitability qualified ecologist.</p> <p>The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist will:</p> <ul style="list-style-type: none"> > survey the proposed clearing extent > identify any fauna that will require relocation prior to clearing > confirm the location and mark out the extents of any biodiversity exclusion zones > confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged > confirm that nest boxes are in place (where required) in suitable locations adjacent to areas to be cleared, or suitable locations for installation have been identified. 	Pre-construction	All locations
B12	The results of the pre-clearing surveys will be used to update and confirm the accuracy of sensitive area maps.	Pre-construction	All locations
B13	Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations that have a high susceptibility to trampling and compaction, will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones will be physically marked and demarcated, and included on sensitive area maps, prior to clearing.	Pre-construction	All locations
B14	Construction workforce will be supplied with sensitive area maps (showing clearing boundaries and exclusion zones), including updates as required.	Construction	All locations
B15	The predicted clearing of native vegetation by the proposal will be monitored against the recorded clearing to inform any final biodiversity offset requirements within the biodiversity offset package.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
B16	Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of <i>Water Management Act 2000</i>) of the Great Darling Anabranh, Darling River and/or Murray River (and other defined riparian areas) will be protected to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ.	Construction	Transmission line within the riparian zone as defined by “Guidelines for riparian corridors on waterfront land” (DPI – Office of Water, July 2012) of Great Darling Anabranh, Darling River and/or Murray River
B17	Activities within vegetated riparian zones will be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated.	Construction	Transmission line within the riparian zone as defined by “Guidelines for riparian corridors on waterfront land” (DPI – Office of Water, July 2012) of Great Darling Anabranh, Darling River and/or Murray River
B18	A species unexpected finds protocol will be implemented if threatened ecological communities, flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.	Construction	All locations
B19	Implement TransGrid’s operational guidelines and requirements for the operations and maintenance of the proposal.	Operation	All locations

Reference	Mitigation measures	Timing	Application location(s)
Aboriginal heritage			
AH1	The detailed design and construction methodology, and associated final disturbance area, will be developed to avoid impacts to features/items of Aboriginal archaeological significance as far as practical. Avoidance and minimisation of impact to features/items and Potential Archaeological Deposits (PADs) of moderate or higher archaeological significance will be prioritised.	Detailed design	All locations
AH2	<p>Aboriginal stakeholder consultation will be carried out in accordance with the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECCW, 2010a).</p> <p>Engagement with Registered Aboriginal Parties (RAPs) will consist of the following:</p> <ul style="list-style-type: none"> > Aboriginal heritage site surveys (AH3) – review of proposed methodologies and involvement in the survey activities in the field (for ground or vegetation disturbance outside of previously surveyed areas) > test excavation activities (AH4) – review of proposed methodologies and involvement in the test excavation activities in the field > review of the draft addendum report/s (relating to surveys (AH3), test excavations (AH4) and scar trees (AH5)), and consultation on the draft reports which will typically be in the form of a RAP meeting > provision of final addendum report/s will be provided to RAPs (AH3, AH4, AH5) > involvement in establishment of Aboriginal heritage exclusion zones prior to construction commencing (AH7). <p>Further cultural information will be gathered during consultation undertaken in association with these activities. All addendum reports to the Aboriginal Cultural Assessment Report (CHAR) will be provided to RAPs for comment, and input will be considered, and actioned wherever practicable.</p>	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH3	<p>An Aboriginal heritage survey will be carried out with RAPs where ground or vegetation disturbance activities are required in all locations outside of the previously surveyed heritage survey area (including water supply points), prior to works occurring in any such areas.</p> <p>These surveys will be carried out in accordance with the <i>Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (2010)</i>.</p> <p>If no sites are found or if sites are found and they will not be impacted, then a letter report will be provided that gives notification of this and clearance to proceed.</p> <p>Where sites are located and will be impacted, a draft survey addendum report/s to the ACHAR will be prepared for each of these survey areas. The report(s) will:</p> <ul style="list-style-type: none"> > detail findings of the survey activities > detail where test excavation is required in accordance with AH4 to inform detailed design > outline any additional mitigation strategies beyond those required by AH5 to AH12 > be presented to the RAPs for comment. <p>Final reports will be provided to RAPs and to Heritage NSW for their information prior to the commencement of construction that impacts these locations.</p>	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH4	<p>In developing the detailed design and construction methodology, the construction contractor will review the location of all identified PADs and will aim to avoid and/or minimise direct impacts to the identified PADs.</p> <p>Where direct impacts cannot be avoided, test excavation programs will be carried out in the parts of any PADs where direct impact is likely (including where the root-ball of trees are being removed). The purpose of the test excavations will be to determine the presence or absence and significance of subsurface archaeological deposits.</p> <p>Test excavations works will be carried out in accordance with a methodology that is presented to and consulted on with the RAPs.</p> <p>Test excavation addendum report/s to the ACHAR will be prepared for each test excavation program(s) which will:</p> <ul style="list-style-type: none"> > detail findings of the test excavation activities > outline how the detailed design has been further developed to avoid or minimise impacts to the identified constraints/features of significance/PADs > as applicable, detail any additional mitigation strategies beyond those required by AH6 to AH12, and the required timing for these to be implemented > be presented to the RAPs for comment. <p>Final reports will be provided to RAPs and to Heritage NSW prior to the commencement of construction that impacts these locations. The addendum report(s) may be staged to enable progressive commencement of construction. Any additional mitigation strategies beyond those required by AH6 to AH12, and the required timing of implementation, will be included with the Construction Environmental Management Plan and implemented accordingly.</p>	Detailed design and pre-construction impacts to sites/features/PADs	<p>PEC-W-6, PEC-W-11, PEC-W-12, PEC-W-15, PEC-W-17, PEC-W-18, PEC-W-27, PEC-W-31, PEC-W-36, PEC-W-37, PEC-W-45, PEC-W-47, PEC-W-50, PEC-W-51, PEC-W-55, PEC-W-63, PEC-W-100, PEC-W-102, PEC-G-7</p> <p>PEC-PAD1 through PEC-PAD14, PEC-PAD-16 through PEC-PAD26, and PEC-PAD-28</p>

Reference	Mitigation measures	Timing	Application location(s)
AH5	<p>All scarred trees identified during archaeological survey will be assessed by a qualified arborist to determine tree age and likely cause of the scarring in order to confirm the scientific significance prior to any impact to the scarred trees.</p> <p>Impacts to all scarred trees (including those of cultural significance) will be avoided where possible through design or construction methodology and must only be removed for permanent infrastructure and/or to meet <i>Vegetation Clearance Requirements at Maximum Line Operating Conditions</i> (TransGrid, 2003).</p> <p>If any scarred tree cannot be avoided, the tree will be subject to 3D scanning, followed by salvage of the scarred trunk. The results of this assessment will be reported on in addendum reports.</p> <p>Reports will be provided to RAPs for comment. Final reports will be provided to RAPs and to Heritage NSW.</p>	Detailed design and pre-construction impacts	PEC-W-57, PEC-W-67, PEC-W-80, PEC-W-85, PEC-W-86, PEC-W-88, PEC-W-90, PEC-W-91, PEC-W-99, PEC-W-104, PEC-W-105, PEC-W-106, PEC-W-107, PEC-W-108, PEC-W-109, PEC-W-110, PEC-W-111, PEC-W-112, PEC-W-113, PEC-W-115, PEC-W-118, PEC-W-121, PEC-W-122, PEC-W-127, PEC-W-128, PEC-W-130

Reference	Mitigation measures	Timing	Application location(s)
AH6	<p>All portions of artefact scatters that are to be directly impacted will require surface collection prior to construction commencement in those areas.</p> <p>Additionally, based on the outcomes of the test excavation, items or PADs will be subject to surface collection or salvage prior to the commencement of construction in those areas.</p> <p>The activities will be documented in a surface collection report.</p>	Detailed design and pre-construction impacts	<p>Surface collection (artefact scatters impacted by disturbance area A)</p> <p>PEC-W-6, PEC-W-7, PEC-W-11, PEC-W-12, PEC-W-15, PEC-W-17, PEC-W-18, PEC-W-27, PEC-W-31, PEC-W-35, PEC-W-36, PEC-W-37, PEC-W-45, PEC-W-47, PEC-W-50, PEC-W-51, PEC-W-55, PEC-W-63, PEC-W-74, PEC-W-75, PEC-W-100, PEC-W-102, PEC-W-114, PEC-W-119, PEC-G-7, 39-6-0030</p>

Reference	Mitigation measures	Timing	Application location(s)
AH7	<p>Aboriginal heritage exclusion zones will be established to protect:</p> <ul style="list-style-type: none"> > known features/items of significance that have been identified to remain in-situ throughout construction (and not subject AH6) > scarred trees that are to remain in-situ. <p>Suitable controls will be identified in the heritage management sub-plan, which may include site fencing and sediment control. Aboriginal heritage zones will be demarcated by a suitably qualified archaeologist in consultation with the RAPs prior to the commencement of construction at each location.</p> <p>Areas of PADs that are located within areas of vegetation clearance where ground disturbance will not occur will be managed through construction methodologies and will not be delineated as exclusion zones. These methodologies will be developed in the heritage sub-plan.</p>	Pre-construction	PEC-W-1, PEC-W-4, PEC-W-5, PEC-W-6, PEC-W-7, PEC-W-10, PEC-W-12, PEC-W-23, PEC-W-27, PEC-W-29, PEC-W-30, PEC-W-35, PEC-W-36, PEC-W-37, PEC-W-38, PEC-W-45, PEC-W-46, PEC-W-47, PEC-W-48, PEC-W-49, PEC-W-52, PEC-W-53, PEC-W-54, PEC-W-60, PEC-W-61, PEC-W-62, PEC-W-66, PEC-W-66, PEC-W-78, PEC-W-81, PEC-W-82, PEC-W-100, PEC-W-101, PEC-W-102, 46-3-0086
AH8	Construction planning and management will ensure that indirect impacts to features of heritage significance located outside areas of direct impact do not occur (including physical disturbance from surface water drainage or other mechanism).	Construction	All locations
AH9	Cultural and historic heritage awareness training will be carried out for all personnel working on the proposal prior to the personnel participating in construction activities. The training shall cover features of heritage significance within and adjacent to project locations and project protocols that must be complied with to minimise and manage potential impacts to those features.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH10	If at any time during construction, any items of potential Aboriginal archaeological or cultural heritage significance, or human remains are discovered, they will be managed in accordance with the Aboriginal heritage unexpected finds protocol (refer to Appendix 2 of the <i>Non-Aboriginal and Aboriginal Cultural Assessment Report</i> (Navin, 2021)).	Construction	All locations
AH11	A temporary repository of any retrieved archaeological material and Aboriginal objects will be appropriately secured and under the care of the archaeological consultant. The strategy for the long-term conservation of salvaged or collected Aboriginal objects will be determined in consultation with the RAPs.	Construction	As relevant
AH12	Features/items of heritage significance that will remain in-situ within the transmission line easement will be mapped and recorded within GIS systems managed by TransGrid. Relevant TransGrid systems and procedures will be updated as required with protocols that will be implemented during operation to ensure that impacts to the features/items of significance do not occur during maintenance activities. to ensure inadvertent impacts do not occur during maintenance activities.	Operation	Transmission line
Non-Aboriginal heritage			
NAH1	A non-Aboriginal heritage exclusion zone will be established for sites PEC-W-H-1 and PEC-W-SE-H1 (Survey Marker Trees). These sites will be fenced during construction and vegetation clearance for the proposal, to avoid inadvertent impacts during works. If impacts cannot be avoided, then the tree will be archivally recorded and research undertaken to confirm the nature and history of the item prior to impact occurring.	Detailed design and pre-construction	Transmission line
NAH2	Should the disturbance area for the proposal extend beyond the survey area, further assessment by an archaeologist will be carried to determine the likelihood of occurrence and significance of potential archaeology and impacts from the proposal (including built heritage) prior to the commencement of construction in these areas. The results of this assessment will be reported on in addendum reports for non-Aboriginal heritage. Reports will be provided to Heritage NSW.	Detailed design and pre-construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
NAH3	If at any time during construction, any items of potential non-Aboriginal archaeological significance, or human remains are discovered, they will be managed in accordance with the non-Aboriginal unexpected finds protocol (refer to Appendix 2 of the <i>Non-Aboriginal & Aboriginal Cultural Heritage Assessment Report</i> (Navin, 2021)).	Construction	All locations
Land use and property			
LP1	During detailed design, access tracks (temporary and permanent) will be determined in consultation with landholders and to minimise impacts to agricultural activities to the greatest extent possible. Where permanent tracks are required, a single access track will be designed to serve both temporary and permanent purposes, where possible.	Detailed design	All locations
LP2	The locations of transmission line structures, other permanent structures and the extents of associated construction areas or compounds) will be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on: <ul style="list-style-type: none"> > cropping and irrigated horticultural land > areas used for set up and pack up of agricultural equipment, entry points and turning areas > radiocommunication sensitive areas > drainage catchments for farm dams > locations of high biosecurity risk. 	Detailed design	All locations
LP3	Final transmission line easement will be located parallel with existing transmission lines or road corridors or along property boundaries, where possible, to reduce potential fragmentation of properties and disturbance to existing land uses, subject to the outcomes of land access negotiations with affected landholders.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
LP4	<p>To minimise disruption to agricultural activities:</p> <ul style="list-style-type: none"> > landholders will be consulted regarding any required adjustments to property infrastructure (fences, access tracks, etc) and the proposed timing and location of construction works, especially where some restriction on vehicular or stock movements will be necessary. Appropriate arrangements will be negotiated with the affected parties and in place prior to any such disruption > property infrastructure (such as gates) will be managed in accordance with landholder requirements and any damage caused by construction will be repaired promptly > use of existing roads, tracks and other existing disturbed areas will be prioritised > where access is required across open spaces, care will be exercised to ensure that minimum damage is caused to the surface by confining vehicular or plant movement, as far as possible, to one route. 	Pre-construction and construction	All locations
LP5	Disturbed areas will be stabilised and appropriately rehabilitated as soon as feasible and reasonable following the completion of construction. This will be carried out in consultation with the relevant landholder.	Construction	All locations
LP6	<p>Procedures will be implemented so that potential impacts or conflicts between livestock and construction activities are appropriately managed. Procedures will be developed in consultation with affected landholders will include management of:</p> <ul style="list-style-type: none"> > noise intensive activities during sensitive periods within the livestock production cycle (such as lambing and calving) > vehicle movements and other activities within the vicinity of livestock > movement of stock away from potential stressors created by construction activities. 	Construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
LP7	<p>Biosecurity controls will be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls will include (but not limited to):</p> <ul style="list-style-type: none"> > inspections and cleaning of vehicles, machinery, and personnel equipment prior to movement on and off the construction work areas or between properties > minimising movements across adjoining farmland including trip numbers and locations > additional measures where localised areas of high biosecurity risks have been identified. <p>The specific controls applicable to a property will be identified in consultation with the affected landholder. The effectiveness of these controls will be regularly monitored.</p>	Construction	All locations
LP8	Where present, weeds will be managed in consultation with Western Local Land Services (LLS), Wentworth Shire Council and NSW Department of Primary Industries.	Construction	All locations
LP9	In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per <i>Biosecurity Act 2015</i> and <i>Biosecurity Regulation 2017</i> .	Construction	All locations
LP10	Fencing and access arrangements along the transmission line easement, such as locked gates, will be determined in consultation with landholders and implemented.	Operation	Transmission line
LP11	Biosecurity controls, confirmed in consultation with the affected landholders, will be implemented during operation to minimise the risk of off-site transport or spread of disease, pests or weeds during maintenance activities.	Operation	All locations
LP12	Where present within the operational transmission line easement and associated areas for permanent infrastructure, weeds will be managed in accordance with the <i>Biosecurity Act 2015</i> .	Operation	All locations
LP13	Management of access including opening and closing of gates and monitoring of fencing will be done in accordance with landholder requirements. Any damage caused by maintenance activities will be repaired promptly.	Operation	All locations

Reference	Mitigation measures	Timing	Application location(s)
Landscape and visual amenity			
LV1	Opportunities for the retention and protection of existing trees within the disturbance area will be identified during detailed construction planning. Trees that do not pose any risk to the safe operation of the transmission infrastructure will be retained where practicable.	Detailed design	Whole of proposal
LV2	Temporary and permanent access will be designed to minimise vegetation removal, changes to landform, and visual impacts.	Detailed design	Whole of proposal
LV3	Proposed permanent engineering batters and water management measures will be designed to integrate with the existing landforms and natural features.	Detailed design	Whole of proposal
LV4	Lighting at construction compound and accommodation camps will be designed and operated in accordance with AS4282-2019 Control of the obtrusive effects of outdoor lighting.	Detailed design	Construction compound and accommodation camps
LV5	Transmission line structures, where possible, are designed: <ul style="list-style-type: none"> > to maximise distance from private residences > to use local vegetation and landform to provide screening from residences or from the road > to be regularly spaced to reduce the potential visual impact where the proposal alignment is visible for a long duration, and in open landscapes > to be positioned alongside existing transmission line structures where they are adjacent to existing transmission lines where feasible > to avoid the location of transmission line structures on locally prominent landforms > to minimise clearing along creeklines. 	Detailed design	Whole of proposal
LV6	Where the transmission line crosses a roadway, transmission line structures will be located to maximise the distance from the roadway where feasible and where it will achieve an improved visual amenity outcome, where feasible and reasonable.	Detailed design	Transmission line
LV7	The Tree Protection Zone (as defined in AS4970-2009 Protection of Trees on Development Sites) of retained trees within or immediately adjacent to the disturbance area will be protected through the restriction of construction activities (refer Section 4.2 of AS4970-2009), to minimise the impact of the works on the long term health of these trees.	Pre-construction	Whole of proposal

Reference	Mitigation measures	Timing	Application location(s)
LV8	Opportunities for screening vegetation to be provided on private property will be investigated where, once at a mature height, will reduce an identified visual impact from a residence. This will be undertaken in negotiation with the affected resident. This will be informed by further assessment to determine the extent of the impact and appropriateness of any screening vegetation. Any such screening vegetation will be planted prior to completion of construction and will be maintained by the landholder.	Construction	Transmission line
LV9	Lighting at the substation will be designed and operated in accordance with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.	Operation	Buronga substation

Social and economic

SE1	<p>A Community and Stakeholder Engagement Plan will be implemented. This will include:</p> <ul style="list-style-type: none"> > targeted stakeholder consultation with Local Government, chamber of commerce, Traditional Owners, landholders, emergency services and service providers to ensure plans for the proposal are integrated with local needs and priorities and proactively respond to community or stakeholder concerns including those of neighbouring or nearby landholders > culturally appropriate ceremonies of recognition aligned with proposal activities and key milestones, in alignment with the TransGrid Reconciliation Action Plan. 	Detailed design and construction	All locations
SE2	All acquisitions of privately-owned land would be carried out in consultation with the landholders through the private treaty process or in accordance with the requirements of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> and the supporting NSW Government Land Acquisition Reform 2016.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
SE3	<p>A Local Business and Employment Strategy will be implemented to guide local opportunities during construction, and where possible, align with existing plans and strategies of Wentworth Shire Council and Mildura Rural City Council, and TransGrid's Reconciliation Action Plan. The initiatives will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and key community stakeholders and organisations in the region.</p> <p>The strategy will consider local market conditions and capacity, and will include initiatives for:</p> <ul style="list-style-type: none"> > local supplier and labour procurement targets > Aboriginal workforce and business participation > training and upskilling programs for local labour force > programs to inform local businesses of contracting opportunities and requirements > consideration of use of available local infrastructure and services for construction activities such as the Wentworth Aerodrome, where feasible > transitioning the local workforce following the completion of construction. 	Detailed design and construction	All locations
SE4	<p>A Community Benefit Plan will be implemented to guide opportunities to deliver benefits to local communities during and following construction. The plan will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and key community stakeholders and organisations in the region, and will align with TransGrid's Community Partnerships Program.</p> <p>The plan will include (but is not limited to):</p> <ul style="list-style-type: none"> > initiatives to create positive social contributions in local communities and to respond to community priorities and needs > initiatives for Aboriginal heritage impacts of the proposal to be managed in partnership with local Aboriginal organisations > exploring opportunities to repurpose temporary infrastructure to address local infrastructure needs. 	Detailed design and construction	All locations
SE5	<p>A Workforce Management Plan will be implemented to provide construction workforce support services to promote health and wellbeing and to manage positive social integration with existing communities.</p> <p>The plan will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and social infrastructure service providers near accommodation camps so that the needs of the construction workforce are coordinated to minimise pressure on existing health services and social infrastructure.</p>	Detailed design and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
Hydrology, flooding and water quality			
HF1	Permanent operational infrastructure and landforms within the transmission line corridor will be designed and implemented/formed to minimise any potential scour and erosion risks associated with surface water runoff.	Detailed design	All locations
HF2	<p>Detailed construction planning will consider flood risk at construction areas. This will include identification of measures that will be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the 1% AEP flood event, and review of site layout and staging of construction works to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required.</p> <p>Procedures as detailed in the flood emergency management procedures will be implemented in response to flood events, including the evacuation of personnel.</p>	Pre-construction and construction	Transmission line and construction sites within flood prone land
HF3	<p>A water quality monitoring program will be implemented to establish baseline water quality conditions in the Darling River, Darling Anabranh and Murray River prior to construction, and to observe any changes in water quality that may be attributable to the proposal during construction. The frequency, location and duration of sampling will be detailed in the monitoring program, but will include:</p> <ul style="list-style-type: none"> > at least two monitoring locations located downstream and upstream of the proposal on the Darling River, Darling Anabranh and, Murray River > monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus. <p>Sampling will commence at least 6 months prior to the commencement of construction at each respective location, and then monthly during construction until the surfaces in the vicinity of the waterways that were disturbed by proposal activities are adequately stabilised and no longer pose a significant sedimentation risk to the waterways.</p> <p>The monitoring program will include corrective and preventative actions that will be taken to address any water quality issues caused by the proposal, as indicated by the water quality monitoring results.</p>	Pre-construction and construction	Transmission line - Darling River, Darling Anabranh, and Murray River
HF4	Water supply options and management will be undertaken in accordance with agreements between the construction contractor and Wentworth Shire Council.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
HF5	<p>Erosion and sediment measures will be implemented in accordance with the principles and requirements in:</p> <ul style="list-style-type: none"> > <i>Managing Urban Stormwater – Soils and Construction, Volume 1</i> (Landcom 2004), and <i>Volumes 2A and 2C</i> (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book' > Best Practice Erosion and Sediment Control (IESCA – 2008) > TransGrid's HSE Guideline > Guidelines for Controlled Activities on Waterfront Land (NRA 2018). 	Construction	All locations
HF6	Maintenance works in the vicinity of waterways will be conducted in accordance with the TransGrid's HSE Guideline.	Operation	Transmission line
Air quality			
AQ1	<p>Construction air quality management measures will be detailed in the Air Quality Management Plan and implemented during construction to minimise particulate and gaseous emissions as far as possible. Measures will include (but not limited to):</p> <ul style="list-style-type: none"> > use of water sprays or dust suppression surfactants as required for dust suppression where required and appropriate > adjusting the intensity of activities based on observed dust levels and weather forecasts > minimising the amount of materials stockpiled and position stockpiles away from surrounding receivers > vehicle movements to be strictly limited to designated entry/exit routes and parking areas, and measures to minimise the tracking of material onto paved roads > covering of loads > stabilising disturbed areas as soon as practicable, including new access routes > minimising the extent of disturbance as far as practicable > regularly conducting visual inspections of dust emissions and applying additional controls as required. 	Construction	All locations
AQ2	Ensure that all vehicles and machinery are fitted with appropriate emission control equipment and maintained in a proper and efficient manner.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AQ3	<p>Measures will be implemented at concrete batching plants to minimise emissions to air as far as possible and will be regularly inspected with additional controls implemented as required. Measures to minimise emissions to air may include:</p> <ul style="list-style-type: none"> > all aggregate and sand will be stored appropriately in storage bins or bays to minimise dust generation, and material will not exceed the height of the bay > cement silos and hoppers will be fitted with dust filters > all inspection points and hatches will be fully sealed > all dry raw materials to be transferred into the bowl of an agitator via front end loaders by maintaining adequate moisture levels and/or an enclosed conveyor > the cement silo will be fitted with fitted with emergency pressure alert and automatic cut off overfill protection > transfer of cement from storage to batching will occur via sealed steel augers > regularly inspect dust emissions and apply additional controls as required. 	Construction	Concrete batching plant(s)
AQ4	<p>To minimise dust emissions associated with the proposed crushing and screening activities, the following will be implemented:</p> <ul style="list-style-type: none"> > ensure screen covers are fitted to the screening operations > control dust emissions from crushing operations using water sprinklers, where required and appropriate > inspect the water sprinklers on a regular basis to ensure operational efficiency > where practicable, install wind breaks in appropriate locations adjacent to the dust generating equipment and processes > prior to crushing, dampen the rocks during dry weather conditions. 	Construction	Buronga substation construction compound

Reference	Mitigation measures	Timing	Application location(s)
AQ5	<p>To ensure potential odour emissions from the wastewater treatment plants are minimised, the following additional management measures will be implemented:</p> <ul style="list-style-type: none"> > prevent excessive inorganic material accumulating on the screens by disposing of screened material in waste bins on a regular basis > place waste bins containing screened material and sludge as far away as practicable from the construction compound and accommodation sites > ensure waste bins are fully closed at all times > remove screened material and sludge from site at regular intervals and dispose in an appropriate manner. 	Construction	Buronga substation and Wentworth construction compound and accommodation sites

Noise and vibration

NV1	<p>An Operational Noise Review will be prepared to confirm the predicted noise impacts from the proposal (based on the final detailed design) and refine the operational mitigation measures that will be implemented so operational noise impacts complies with the project proposal noise trigger levels, where feasible and reasonable.</p>	Detailed design	All locations
NV2	<p>Where exceedances of the proposal specific trigger noise levels are predicted, feasible and reasonable operational noise and vibration mitigation measures will be further investigated during detailed design, in consultation with the affected receivers. This may include (in order of priority):</p> <ul style="list-style-type: none"> > land use planning and provision of appropriate buffer distances to increase the distance between the final transmission line alignment and the surrounding sensitive receivers and ultimately minimise the number of sensitive receivers within the audible risk noise zones > noise control at the noise source > noise control along the noise transfer path, such as noise barriers. > noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. <p>Additional measures identified through this process will be implemented prior to commencement of operation.</p>	Detailed design	Transmission line (330kV only)

Reference	Mitigation measures	Timing	Application location(s)
NV3	<p>Construction methodologies and measures that minimise noise and vibration levels during construction will be investigated during detailed design and implemented where feasible and reasonable.</p> <p>This will be supported through the completion of additional assessments (where construction noise levels are likely to exceed relevant noise management levels based on the final construction methodology). This will:</p> <ul style="list-style-type: none"> > consider the proposed layouts of work areas or construction compounds and accommodation camps > the noise and vibration generating activities that will take place > assess the predicted noise and vibration levels against the relevant management levels > incorporate feasible and reasonable mitigation and management measures in accordance with the ICNG. 	Detailed design and construction	All locations
NV4	<p>Further engagement and consultation with affected receivers will be carried out to understand their preferences for mitigation and management measures where exceedances of noise management levels are predicted. Based on this consultation, appropriate mitigation and management options will be considered and implemented where feasible and reasonable to minimise the impacts.</p>	Detailed design and construction	All locations
NV5	<p>A Construction Noise and Vibration Management Plan (CNVMP) will be prepared by the construction contractor prior to construction works and would will (as a minimum):</p> <ul style="list-style-type: none"> > examine feasible and reasonable noise mitigation where management levels are likely to be exceeded > examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified at any sensitive receiver > describe associated noise and vibration monitoring programs, as required > describe proactive and reactive strategies for dealing with any noise complaints > outline community consultation measures including notification requirements. <p>This CNVMP will be implemented for the duration of construction.</p>	Detailed design and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
NV6	<p>An out of hours works (OOHW) protocol will be implemented for all construction activities likely to generate noise levels above the relevant noise management level at any sensitive receiver outside the standard construction hours defined in <i>Interim Construction Noise Guideline</i> (DECC, 2009). The OOHW protocol and will include:</p> <ul style="list-style-type: none"> > details of what works are required outside standard construction hours > noise management safeguards and other reasonable and feasible mitigation and management measures (including agreement with sensitive receivers), including avoiding or minimising activities or the use of equipment likely to generate the highest noise levels, and implementing respite periods where works are likely to result in NML exceedances for sensitive receivers > community consultation procedures, including letterbox drops, notification protocols, and site contact information for the works > complaints handling procedures. > The OOHW protocol would not apply to the operation of the accommodation camps at Buronga and Wentworth. 	Detailed design and construction	All locations
NV7	Where noise intensive equipment is to be used near sensitive receivers and is likely to result in an exceedance of the applicable noise management level, the works will be scheduled during standard construction hours (unless agreements with affected sensitive receivers have been reached).	Construction	All locations
NV8	<p>Where residences or other sensitive receivers/structures are within the minimum working distances for vibration (as identified in Table 17-3 of the EIS):</p> <ul style="list-style-type: none"> > different construction methods with lower source vibration levels will be investigated and implemented, where feasible > attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels at the structure. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria. 	Construction	All locations
NV9	Temporary batching plants along the transmission line corridor will be positioned to ensure compliance with NMLs at the nearest sensitive receivers.	Construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
NV10	<p>If blasting is required, a blasting vibration and overpressure assessment will be completed to demonstrate that blasting and associated activities will not exceed noise and vibration limits at residences or other sensitive receivers.</p> <p>Based on outcomes of this assessment, a blast management strategy will be implemented that details how blasting will be carried out in a manner that complies with relevant noise and vibration limits, and notification requirements with landholders.</p>	Construction	Blasting
Traffic			
TA1	<p>Site access / egress points will be designed to minimise conflicts with vehicle movements on the road network and in accordance with relevant safety requirements. This may include the provision of acceleration and deceleration lanes at accommodation camp locations. Any designs will be in accordance with the Traffic Control at Worksites, Austroads Guide to Road Design and Austroads Guide to Traffic Management, and approved by the relevant road authority.</p>	Detailed design	All roads that intersect with the transmission line corridor or are on haulage routes
TA2	<p>Road pre-condition will be carried out for the public road network in the vicinity of access points to construction compounds, construction camps and construction areas, and for roads for which proposal-related traffic within the Wentworth Shire LGA will be the main source of traffic prior to the use of the roads by proposal-related heavy vehicles. The pre-condition surveys will be undertaken in consultation with relevant councils and road owners. This will include identification of existing conditions and mechanisms to repair damage to the road network caused by construction vehicles associated with the proposal.</p>	Pre-construction and construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA3	<p>The community will be notified in advance of proposed road network changes through appropriate forms of communication.</p>	Construction	All locations
TA4	<p>Road Occupancy Licence(s) will be sought (as required) for any road closures (full or partial) prior to any such closure. The timing of any closures will be carried out to minimise impacts to the road network in accordance with the conditions of the licence.</p>	Construction	All roads that intersect with the transmission line corridor or are on haulage routes

Reference	Mitigation measures	Timing	Application location(s)
TA5	Permits from the National Heavy Vehicle Regulator (NHVR) will be obtained where required to provide oversized and overmass vehicles access during construction. Permit applications will be supported by a Vehicle Movement Plan (VMP), prepared to indicate the proposed heavy vehicle route(s). The Vehicle Movement Plan will consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways.	Construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA6	Construction access/egress, and construction movements, will be managed to ensure pedestrian and cyclist safety.	Construction	Sturt Highway (George Chaffey Bridge)
TA7	Adjustments to haulage routes in response to road closures by Wentworth Shire Council (e.g. during wet weather conditions or during other maintenance or other upgrade activities) will be identified in consultation with Wentworth Shire Council and affected residents, and suitable management measures identified and implemented.	Construction	Local roads within the study area
TA8	Access to properties for emergency vehicles will be provided at all times.	Construction	All locations
TA9	Access to properties will be maintained or alternative arrangements agreed in consultation with landholders.	Construction	All locations
TA10	Following completion of construction, condition surveys will be carried out. Any damage as a result of construction vehicles will be repaired following the completion of construction (and as needed through the construction period to maintain safe road conditions).	Construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA11	TransGrid will commit to a Road Maintenance Agreement with Wentworth Shire Council to ensure appropriate remediation of roads used by project-related vehicles to address any damage and deterioration caused by the construction of the proposal.	Construction	Roads maintained by Wentworth Shire Council
Hazards and risk			
HR1	The proposal will be designed and constructed in accordance with the Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz – 100 kHz) (International Commission on Non-Ionizing Radiation Protection (ICNIRP), 2010) The design will meet the EMF exposure guidelines set out in Table 19-2 of the EIS and worst case scenarios within TransGrid's <i>Transmission Line Design Manual – Major New Build</i> .	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
HR2	<p>A minimum 50m wide managed Asset Protection Zone will be provided to the hazard perimeter of the fixed construction equipment and camp site buildings unless an alternative fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist during detailed design.</p> <p>Any Asset Protection Zone will be regularly maintained to provide a maximum grass height of 100mm -150mm during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured.</p> <p>Vegetation inside the main construction compounds and accommodation camp sites will be regularly maintained to a maximum height of 75mm.</p>	Detailed design and construction	Main construction compounds and accommodation camps
HR3	Buildings within the construction compound and camp site will be constructed to comply with Section 3 and Section 5 (BAL 12.5) of A.S. 3959 – 2018 – ‘Construction of Buildings in Bushfire Prone Areas’. The sub-floor space of each building will be enclosed with stainless steel flymesh securely fixed to the external wall/s and buried into the ground. All joints will be overlapped and sealed.	Detailed design and construction	Main construction compounds and accommodation camps
HR4	<p>Water for fire-fighting operations will be confirmed during detailed design with consideration to occupancy density and site layout. This will include onsite static water supply and fire-fighting hose reels.</p> <p>All weather access having a minimum width of 4 metres will be provided to the static water supply tanks.</p>	Detailed design and construction	Main construction compounds and accommodation camps
HR5	Consultation with emergency services, including the Rural Fire Service and Fire and Rescue NSW will be undertaken during detailed design to ensure emergency access provisions are provided during operation.	Detailed design	All locations
HR6	Prior to the occupation of the construction camps and offices, all bush fire protection and mitigation measures would be certified as compliant with relevant regulatory requirements by a suitably qualified bush fire consultant	Construction	Main construction compounds and accommodation camps
HR7	<p>Shielding will be used and a water supply (nine kilogram water fire extinguisher) and trained operator present during all outdoor hot works/grinding activities, and during vegetation slashing within and adjacent to the construction compound and camp sites.</p> <p>No outdoor hot works will be undertaken during periods of Total Fire Ban and Catastrophic Fire Weather Days unless there is a suitable fire suppression unit present on site and only with prior agreement with local fire services.</p>	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
HR8	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.	Construction	All locations
HR9	Dangerous goods and hazardous substances will be transported in accordance with relevant legislation and codes, including the <i>Dangerous Goods (Road and Rail Transport) Act 2008</i> , Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998 and the <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i> (National Transport Commission, 2007).	Construction	All locations
HR10	Appropriate spill containment equipment will be provided and located at strategic, accessible locations.	Construction	All locations
HR11	Security measures will be implemented to minimise the risk of arson within and adjoining construction areas. The location of appropriate security measures will be determined using a risk based approach.	Construction	All locations
HR12	All chemicals or other hazardous substances at the Buronga substation will be stored in bunded and weatherproof facilities away from drainage lines, and in accordance with supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of the bunded area will be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on the site plans.	Operation	Buronga substation
HR13	Emergency spill procedures will be implemented to avoid and manage accidental spillages of fuels, chemicals or fluids during operation and maintenance activities in accordance with the TransGrid's HSE Guideline. Environmental spill kits will be provided at strategic, accessible locations, and staff will be trained in spill response procedures.	Operation	All locations
HR14	The proposal will be designed, operated and maintained in accordance with TransGrid's Bushfire Risk Management Plan. This includes reduction in fuel loads, management of asset protection zones and inspections of infrastructure.	Operation	All locations
HR15	The Buronga substation Emergency Response Manual will be updated to include the new proposed design and required revised emergency response procedures.	Operation	Buronga substation

Reference	Mitigation measures	Timing	Application location(s)
Soils, contamination and groundwater			
SCG1	Locations of transmission line structure foundations, and ancillary construction sites will be positioned to avoid disturbance to any known farm dams where practicable.	Detailed design and pre-construction	Transmission line
SCG2	Existing areas of waterlogging and poor drainage will be avoided, where possible, with regard to both access tracks and permanent structures.	Detailed design	Locations mapped as moderate to high-risk salinity
SCG3	Construction materials will be selected to withstand high saline soil and groundwater environment (where applicable).	Detailed design and pre-construction	Locations mapped as moderate to high-risk salinity
SCG4	<p>A review of additional geotechnical and hydrogeology data, and any publicly available mapping of high priority groundwater dependant ecosystems (GDEs) as documented in the latest relevant water sharing plan, will be carried out to confirm the groundwater conditions and to:</p> <ul style="list-style-type: none"> > determine if any additional mitigation measures are required to limit groundwater inflows, or impacts to GDEs > confirm no or minimal impact to groundwater sources as per the minimal impact criteria listed within the Aquifer Interference Policy. 	Detailed design and pre-construction	All locations
SCG5	<p>Disturbance to areas of medium risk of contamination will be avoided or minimised where practicable during construction. This includes the position of foundations for transmission line structures and ancillary construction sites.</p> <p>Areas of medium risk of contamination that will be disturbed by construction activities will be further investigated including completion of a site inspection. Where considered to be required, a Phase 2 investigation will be completed in accordance with NEPM 2013.</p> <p>Mitigation measures identified through further investigation will be implemented.</p>	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
SCG6	<p>To limit the potential for groundwater inflows, the construction methodology for transmission line structure foundations will ensure that excavations will not occur within 40 metres of the Darling River, Great Darling Anabranh or Murray River.</p> <p>Where groundwater may be encountered, the design and construction methodology will be adjusted to minimise groundwater inflows.</p> <p>The depth of groundwater will be confirmed prior to commencement of construction at each relevant transmission line structure locations.</p>	Detailed design and pre-construction	All locations
SCG7	<p>Direct impacts to registered bores GW088454 (nested), GW087531 and GW600452 will be avoided, where possible. If the bores are:</p> <ul style="list-style-type: none"> > not required to be removed during construction, then they will be clearly demarcated with a 5x5 metre construction exclusion zone > are to be removed during construction or unavoidably damaged, then make good provisions will apply in consultation with the registered bore owner. 	Pre-construction and construction	Transmission line - Registered bores GW088454 (nested), GW087531 and GW600452
SCG8	<p>Prior to ground disturbance in areas of potential acid sulfate soil occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), testing will be carried out to determine the presence of actual and/or potential acid sulfate soils. If acid sulfate soils are encountered, they will be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (ASSMAC, 1998) and TransGrid's HSE Guideline.</p>	Pre-construction and construction	All locations
SCG9	<p>Prior to ground disturbance, a visual inspection will be undertaken for the presence of saline soils. Areas of known or suspected salinity will be subject to further testing as required.</p> <p>If salinity is confirmed, excavated soils will be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water</i> (NSW DECC 2008) and the <i>Salinity Training Manual</i> (DPI, 2014) to manage salinity impacts.</p> <p>Erosion controls will be implemented in accordance with <i>The Blue Book</i> (Landcom, 2004).</p>	Pre-construction and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
SCG10	Earthworks and construction activities that result in compaction of soils will be limited where possible in areas within 40 metres of the Darling River, Murray River and Great Darling Anabranch to prevent potential impacts to groundwater.	Pre-construction and construction	Transmission line – locations adjacent to the Darling River, Murray River and Great Darling Anabranch
SCG11	A bore condition assessment is to be conducted prior and post construction on GW088454 (nested), GW087531 and GW600452 where required to identify any adverse impact to the bores integrity that may have resulted during construction. If impacts are identified, repair or replacement of the bore will be undertaken in discussion with the registered owner.	Pre-construction and construction	Registered bores GW088454 (nested), GW087531 and GW600452
SCG12	Construction materials, spoil and waste will be suitably stored to minimise the potential for soil, groundwater or water quality impacts.	Construction	All locations
SCG13	The discovery of previously unidentified contaminated material will be managed in accordance with a contamination unexpected finds procedure.	Construction	All locations
SCG14	The application of treated wastewater will be managed so that: <ul style="list-style-type: none"> > Application rates account for soil conditions and the protection of water quality (including groundwater). This includes salinity conditions and the prevention of runoff from application areas > buffer distances to sensitive receivers (such as waterways and farm dams) as set out in <i>Designing and Installing On-Site Wastewater Systems</i> (WaterNSW, 2019) are met > climatic conditions are considered during application to ensure treated wastewater is applied to intended areas > equipment used will reflect the management of human, livestock and environmental risks. 	Construction	All
SCG15	Incident response procedures for wastewater treatment plants (and use of treated wastewater) will be implemented to avoid, minimise and manage accidental spills or other incidents that impact the function of the wastewater treatment plants.	Construction	Accommodation camps

Reference	Mitigation measures	Timing	Application location(s)
SCG16	<p>A site-specific risk assessment will occur for locations where there is a risk of encountering UXO. The risk assessment will be carried out prior to any activities that could interact with UXO. This will include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment will occur with input from an appropriate UXO specialist and will identify if and when an explosives engineer is required during site activities.</p> <p>An unexpected finds procedure will be implemented. The procedure will specify the actions that site personnel must take to minimise the risk to and from any UXO encountered.</p> <p>The management actions identified in the risk assessment will be implemented prior to and during all relevant site activities. All personnel conducting intrusive works within an identified UXO area will be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.</p>	Construction	Til Til UXO area Oak Plains UXO area

Waste management and resources

WM1	The proposal will achieve an ISCA verified 'Design' and 'As-built' rating of Excellent under v1.2 of the IS rating tool.	Detailed design and construction	All locations
WM2	Measures to minimise excess spoil generation will be investigated at detailed design. This will include a focus on optimising the design to minimise spoil volumes and the reuse of material on-site.	Detailed design	All locations
WM3	Opportunities to re-use or recycle construction and demolition waste will be investigated during detailed design.	Detailed design	All locations
WM4	All waste will be assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).	Construction	All locations
WM5	Waste streams will be segregated to avoid cross-contamination of materials and maximise reuse and recycling opportunities.	Construction	All locations
WM6	All waste generated and surplus spoil to be removed from the construction of the proposal will be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
WM7	Waste during operations will be managed in accordance with TransGrid's existing Environmental Management System and processes for the identification, classification, handling and management of waste.	Operation	All locations
WM8	All waste will be assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).	Operation	All locations
Cumulative impacts			
CI1	Co-ordination of traffic management arrangements between major construction projects will occur in consultation with the relevant road authorities (Transport for NSW and local councils) and/or other proponents as relevant. This will consider any potential conflicts in relation to deliveries and identified haulage routes during the program.	Construction	Silver City Highway and Arumpo Road

Uncertainties and resolution

The proposal as presented in this EIS (and as amended by the Amendment Report) is conceptual in the sense that a corridor for the proposal has been selected and assessed and final location within the corridor will be subject to further detailed design. As outlined in amended Chapter 5 (Proposal infrastructure and operation) and Chapter 6 (Proposal construction) (refer to Appendix A and Appendix B of the Amendment Report), the proposal study area and transmission line corridor have been developed to avoid and minimise environmental impacts, while providing flexibility in the detailed design of the proposal and the final construction methodology. Aspects of the proposal that may be subject to further refinement include:

- > the final transmission line alignment and design, including the specific location, height and type of transmission line structures, location of access tracks and associated extent of the disturbance area
- > the final disturbance area for the Buronga substation upgrade and expansion, including the earthwork material sites
- > final layouts of the main construction compound and accommodation camp sites, and the location of any additional sites if required
- > construction method and staging.

These refinements may require further field investigations, such as biodiversity and heritage. Refinements to optimise the design outcomes and construction method would be carried out to:

- > further avoid or minimise environmental impacts. This includes approaches to avoid or minimise native vegetation clearing, impacts to areas of biodiversity value, and areas of moderate to high Aboriginal archaeological potential
- > reduce impacts on the community during construction and/or operation
- > reduce the duration of construction
- > improve the operation of the proposal without increasing the potential environmental impacts.

The final design would be reviewed for consistency with the assessment contained in the EIS, this Submissions Report and Amendment Report including the revised mitigation measures, and any conditions of approval. If design refinements are not consistent with any approval from the Minister for Planning and Public Spaces, approval would be sought from the Minister for any such modifications in accordance with the requirements of Division 5.2 of the EP&A Act.