Summary environmental report guidance notes

EGN 174B

Version 14.8

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Contents

Introduction

Purpose

These guidance notes help SER Assessors and Verifiers complete Ausgrid's NS174A Summary Environmental Report (SER), prepared under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

The information buttons in the SER will link directly to the relevant section in this document.

Scope

This document is to be used by SER trained (ET 005) Ausgrid employees and authorised Accredited Service Providers (ASPs) preparing or verifying SERs.

An SER is used to assess projects requiring an assessment under Part 5. An SER may also be used to determine whether a more detailed environmental impact assessment (EIA), in the form of a review of environmental factors (REF), Environmental Impact Statement (EIS) or Species Impact Statement (SIS), is needed.

Related documents

Ausgrid's Environmental Planning Calculator

Ausgrid's NS174B Environmental Assessment Guidelines:

Ausgrid's NS174C Environmental Handbook for Construction and Maintenance (Environmental Handbook).

Additional information about determining the environmental approval processes, submitting SERs, accessing relevant documents and undertaking training can be found on Ausgrid's Environmental Planning website: enviro.ausgrid.com.au.

Project information

Project information is used record the key Activity details.

The Project number that is used across other Ausgrid platforms and processes should be recorded here.

Complete as much information as possible, even if the fields aren't mandatory.

Create a unique project name by adding sufficient detail, including the asset details if known.

The estimated project cost identifies whether the SER needs to be published on Ausgrid's website or the NSW Planning Portal.

Collect information

1. Check Ausgrid's WebGIS EL. The polygon area used to create the WebGIS EL Report should include all components of the proposal including any site compounds, access tracks and any other ancillary site requirements.

Note: Data of sensitive items is presented in a denatured point format and only includes known and recorded items. A record highlighted in the report should be used as a guide to indicate there may be items present and further investigation is required.

2. Undertake a site inspection. EF 17410 SER Site Inspection Checklist can be used to assist in capturing all relevant site specific features within the Study Area.
3. Consider any community consultation responses (refer to section 1.8) and document the responses in the SER.
4. Where required, request further information from client / developer including specialist assessments and approvals for the work site. For urban residential developments (URDs), request stormwater drainage plan.

Table 1 - Details

1.1 Scope of activities covered by this SER

1.1.1 Description

The scope of the works need to be clearly described since these will be the only activities approved under the EP&A Act.

Sources of information for the description of the proposed Activity could include:

- the development brief
- site inspection
- the project/construction manager
- design drawings.

Note: Ensure the description of the proposed Activity is complete and included in the Council notification to avoid having to re-notify (see section 0).

The description of the proposed Activity should include the plant and equipment to be used as well as all of the activities to be assessed including ancillary works such as:

- earth works including trenching
- fencing
- tree trimming
- access tracks
- lighting
- site compounds
- construction pads.

The description of tree trimming should include details of changes to existing clearance envelopes, number and location of trees to be removed, and details of any trees on private property.

It is mandatory to attach a design drawing (or a construction schematic in the absence of a design) to the SER to assist in describing the proposed Activity.

1.1.2 Expected number of trees (>3m in height) to be removed

Add the number of trees greater than 3m high that are expected to be removed as part of the proposed Activity.

If no trees >3m require removal then enter 0.

1.1.3 Select specific activities that may apply

Select all the relevant activities to assist in assessing the environmental impacts of the proposed Activity.

Selected activities will be used to ensure specific issues have been considered. SERs that have not selected all activities related to the scope may be pulled back.

1.2 Future maintenance activities and ongoing operational requirements

The description of the proposed Activity should include all foreseeable future maintenance activities and ongoing operational requirements, such as:

- operating the network
- transformer maintenance
- access track usage and maintenance
- tree trimming
- pole inspections
- termite treatment.

1.3 Related projects

The description should include any major projects or other related project works that have an environmental assessment (ie REF, SER or SIS) associated with the works. This includes;

- Other works that have been assessed separately by Ausgrid that are either related to a program of work or a larger project,
- any development application (DA) associated with contestable work or otherwise,
- work associated with State Significant Development, or
- works undertaken by other authorities triggering Ausgrid to undertake work (for example, Ausgrid work related to road widening, refurbishment of public spaces)

1.4 Need for the proposed Activity

The need for the proposed Activity must be identified in the SER. In most cases the justification is that the customer requires supply. However, in some cases alternatives may exist (eg new line extension versus new substation installation) and a justification is required as to why this project is needed.

1.5 Route / site option justification

The SER must justify why the route or site was selected for the proposed Activity.

For routine projects with multiple options, a simple desktop analysis is often sufficient to demonstrate why an option is preferred. In some cases site specific studies and/or community consultation will be required to gain a better understanding of the impacts.

For multiple options with multiple competing criteria, EGN 424 Options Analysis Calculator may assist in determining the preferred options. Note that EGN 424 has limitations that need to be considered. For oil filled equipment, assess alternative options using EGN 420 Relative Risk Model.

An options analysis aims to identify the preferred project by finding the best balance of the project's social, environmental, technical and financial objectives. The complexity of the analysis will depend on the nature of these objectives in relation to the options and the extent to which they conflict.

The route / site selected can have important implications for the type of assessment or the permits and approvals required. Sufficient information should be provided into why

that particular route / site was chosen and what other routes / sites were considered as part of the "Stage 1 – preliminary assessment" of Ausgrid's Environmental Assessment Guidelines (NS174B).

Note: It may be necessary to revisit this step after collecting information about the site and/or identifying any specific construction controls in Table 2.

1.6 Indicative commencement date and duration of works

Provide the timing, phasing and schedule of the work to assess the extent and nature of the impacts. Any works outside the standard operating hours shown in the SER template text must be justified and the impacts fully considered in this SER. In these cases it should be noted that additional community consultation and noise mitigation measures will be required.

1.7 Description of the land – environmental characteristics, land use and land ownership

1.7.1 Select any environmental features identified by WebGIS EL report, site inspection and other means

Select all that apply based on the results of the WebGIS EL report, site inspection and other available information.

It is mandatory to attach a WebGIS EL Report for the Study Area to the SER. The report must be less than 6 months old.

1.7.2 Description

Describe the geographic location of the land. Where possible include the title information for the Study Area such as the Lot and DP identifiers.

Describe the environmental characteristics of the Study Area relevant to the potential impacts and the current land use/s as identified in question 1.7.1. The detail required will depend on the type of activity and could also include the following:

- landform and landscape character
- soil types
- visual and scenic quality
- transportation, public utilities and other services
- population, community services, recreation and tourism.

Identify the landowner/s of the Study Area and any relevant implications. Part 4A, Divisions 2 of the *Electricity Supply Act* (NSW) authorises Ausgrid (as a network operator) to carry out any of the following work:

- work comprising the erection, installation or extension of electricity works on public land;
- work on any land comprising or connected with the alteration, maintenance or removal of existing electricity works on any land; and
- work on public land that is connected with the erection, installation, extension, alteration, maintenance or removal of electricity works on any land.

"Public land" includes:

- a public road
- a public reserve
- Crown land within the meaning of the *Crown Lands Act* (NSW) or land within a reserve as defined in Part 5 of that Act
- State forest
- land under the control and management of a “public or local authority”,

but does not include:

- any land (other than State forest) that is occupied under any lease or other arrangement for private purposes that confers a right to exclusive possession of the land, or
- any land leased under the *Western Lands Act* (NSW).

“Public authority” means a public or local authority constituted by or under an Act or a statutory body representing the Crown and includes a Minister and a statutory State owned corporation and its subsidiaries. Examples of “public” and “local authorities” include:

- local Councils
- Ministers and Government Departments, including Crown Lands
- Transport for NSW (TfNSW)
- Hunter Water Corporation and Sydney Water Corporation
- Forestry Corporation of NSW
- Port of Newcastle
- Hunter and Central Coast Development Corporation
- Sydney Metropolitan Development Authority.

Easements, leases and licences may be required to carry out work in locations where the landowner is not Ausgrid.

Title searches are required for works not located on public roads or public reserves.

In general, when on private land, kiosks will require an easement, chamber substations will require a lease and construction compounds will require a licence.

Where there is doubt in relation to whether land is “public land”, a certificate as to the classification of any public land and a copy of the Plan of Management should be obtained from the local Council.

Any acquisition or leasing of land or easements will need the involvement of Ausgrid’s Property Section.

1.8 Community engagement

1.8.1 Select key stakeholders that were consulted as part of the SER

Select all that apply based on the results of the WebGIS EL report and site inspection.

1.8.2 Description

To determine the notification requirements for the works, use the Environmental Planning Calculator.

Key stakeholders may include:

- Local Council - any works excluding repairs, maintenance or emergency works (ES Act 40 days)
- Local Council - excavating footpaths and roads, disrupting pedestrian or vehicular traffic, impacting local heritage or installing a new substation (SEPP(T&I) 21 days)
- National Parks and Wildlife Service - works within or adjacent to a National Park (SEPP(T&I) 21 days)
- Subsidence Advisory NSW - new structures on land in a mine subsidence district (SEPP(T&I) 21 days)
- Adjoining occupiers (see SER Q&As) - new substations (SEPP(T&I) 21 days)
- Heritage NSW - demolishing/transferring an item on Ausgrid's S170 Heritage Register (H Act 14 days)
- Land owners - accessing or impacting private land (ES Act)
- Sydney Water/Hunter Water - works in Drinking Water Catchment areas
- Nearby receivers - restricting access, affecting businesses or sensitive receivers etc.

Under the ES Act (section 45), other than for routine repairs or maintenance work, the local Council must be given notice of a proposal to carry out work and given a reasonable opportunity (being not less than 40 days from the date on which the notice was given) to make submissions to Ausgrid in relation to the proposal.

Under clause 2.45 of the Transport and Infrastructure SEPP, development for the purpose of a new or existing electricity substation of any voltage (including any associated yard, control building or building for housing plant) must not be carried out unless written notice has been given to the occupiers of adjoining land and any response received from the occupiers of adjoining land within 21 days after the notice is given has been taken into consideration.

"Adjacent" or "adjoining" means areas or objects that are not separated by any significant physical barrier and are close enough for you to pass easily from one to another, i.e. houses separated by a road or road related area (as defined by the *Road Transport (General) Act* (NSW)).

Under Part 2.2 of the Transport and Infrastructure SEPP, specified development must not be carried out unless written notice has been given to the specified authority in relation to the development and any response received from that authority within 21 days after the notice is given has been taken into consideration.

The following development is "specified development" and the following authorities are "specified authorities" in relation to that development:

- Development that will have a substantial impact on stormwater management services provided by a council – Council

- Development that is likely to generate traffic to an extent that will strain the capacity of the road system in a local government area – Council
- Development that involves connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a council – Council
- Development that involves connection to, and use of a substantial volume of water from, any part of a water supply system owned by a council – Council
- Development that involves the installation of a temporary structure on, or the enclosing of, a public place that is under a council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential – Council
- Development that involves excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a council is the roads authority under the Roads Act 1993 – Council
- development adjacent to land reserved under the *National Parks and Wildlife Act* 1974 (NSW) (NPW Act) or to land acquired under Part 11 of that Act – Office of Environment and Heritage (OEH)
- development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone – OEH
- development comprising a fixed or floating structure in or over navigable waters – TfNSW
- development on land in a mine subsidence district within the meaning of the Mine *Subsidence Compensation Act*—SA NSW

The above datasets are available on the WebGIS EL (refer to the WebGIS EL Report).

Consultation templates are available here.

Note: Wherever possible, the SER should not be verified until the full notification period has expired (see SER Q&As.).

The 21/40 day period should expire before verifying a SER. This ensures that all submissions have been received and given due consideration. However, it is acknowledged that circumstances will arise where this is not practical or even possible. Exceptions to waiting the full period include:

- Emergency works required to restore power;
- Council has provided a written response and has advised (by letter or email) that no further submissions will be provided; and
- Council has provided a written response and has requested the works.

Any other exceptions should be approved by Manager - Environmental Services.

- It is necessary to give due consideration to all submissions made. Details of the notifications (including the date on which they were made), any responses received, and how they have been addressed should be included in the SER.

Additionally, a number of regulations require notification to various authorities depending on the activity and location. Examples include working in special catchment areas, impacting marine vegetation or key fish habitat, transporting asbestos, demolishing a local heritage item on Ausgrid's S170 register.

If an activity is likely to have more than a minimal impact, and there is an opportunity for the community to be involved in the route or site selection then additional community consultation should be considered. Submissions received from this consultation should be incorporated into the options analysis.

The SER must identify whether early community consultation is required and records of all consultation must be attached to the SER where appropriate.

Water Catchment Areas

Sydney Water controlled catchments - Under section 50 of the *Water NSW Act* (NSW), works must not be carried out in Sydney special catchment areas unless 28 days' notice has been given to Water NSW outlining the scope of the proposed works.

Hunter Water controlled catchments - Ausgrid has undertaken a blanket notification under section 55 of the *Hunter Water Act* (NSW) with Hunter Water Corporation (HWC) for Hunter Special Catchment Areas. This blanket notification includes all minor maintenance and upgrade works undertaken by Ausgrid on overhead and underground power lines and substations (voltages of 415V-132kV).

Ausgrid must still notify HWC for the following works within Hunter Special Catchment Areas:

- new power lines outside of an existing easement or alignment (including underground lines)
- new pole top substations or kiosk substation (not replacing existing assets)
- replacement kiosk or pole top substations in a substantially different location
- any new zone or sub-transmission substation.

Other catchments - Contact the local Council for requirements in Council controlled catchment areas such as Central Coast Council, Muswellbrook Shire Council and Singleton Council.

1.9 Approvals, licences and permits

1.9.1 Select approvals and permits that may apply

Select all that apply based on the results of the WebGIS EL report or other available information.

1.9.2 Description

To determine other approval requirements for the works, use the Environmental Planning Calculator.

The SER must identify all factors other agencies will need to determine whether a separate licence or approval can be issued and record that Ausgrid consulted with those agencies to clarify any specific information that should be covered by the assessment documentation.

Examples of approvals include:

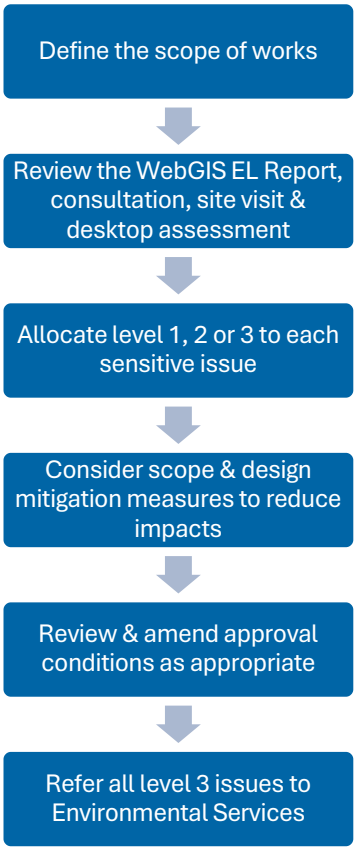
- Potentially impacting Aboriginal heritage (NP&W Act)
- New works in a National Park (NP&W Act)
- Impacting State heritage items/places (H Act)
- Impacting an item of Ausgrid's S170 Heritage Register (H Act)
- Working where a heritage relic is likely to be discovered (H Act)
- New works on Crown Lands which are not a public road or public reserve (NT Act)
- Works in a biodiversity conservation trust agreement areas (NP&W Act and BC Act))
- Works within a State Forest, Flora Reserve or Crown Timber Land (F Act)
- Dredging or reclamation of a natural waterway or harming seagrass, mangroves or salt marsh (FM Act)
- Impacting Ramsar wetlands, Commonwealth heritage, Commonwealth marine areas/parks or Commonwealth land (EPBC Act)

Where an approval is required it should be attached and a summary of the requirements along with a reference to the approval should be included in the relevant section under the 'Assess' tab.

1.10 Statutory context

It is necessary to confirm the Transport and Infrastructure SEPP is relevant to the activity as described in the scope of works (refer to the Environmental Planning Calculator) .

2 Table 2 - Assess



Using the description of the proposed Activity, WebGIS EL Report, and information gained from other sources such as consultation, site visits and desktop assessment, undertake the environmental impact assessment to describe each feature and identify the specific construction controls required for the project.

Each issue is allocated an environmental risk level of either 1, 2 or 3. The principles for allocation are as follows.

Level 1 - No potential impacts identified

Level 1 applies if both of the following apply:

- No 'sensitive features' are in the Study Area; and
- No 'hazardous activities' would be undertaken.

Where level 1 applies, the default minimum construction controls will be Ausgrid's Environmental Handbook. All text fields can be modified and additional controls added as required by the assessor or verifier to suit specific circumstances.

Level 2 - Impacts would be avoided

Level 2 applies if either of the following apply:

- 'Sensitive features' in the area although would not be impacted and activities would comply with relevant thresholds; or
- 'Hazardous activities' would be undertaken although they would be below relevant thresholds.

Where level 2 applies, standard minimum controls will be automatically populated in the SER. All text fields can be modified and additional controls added as required by the assessor or verifier to suit specific circumstances. The description of potential impacts should demonstrate that the environmental risk from potential impacts is low.

Level 3 - Referral to Environmental Services

Level 3 applies where level 1 and level 2 does not. In these cases the SER ***must*** be referred to Environmental Services. The assessor is to provide ESU details regarding scope, location and impacts to confirm requirements as early as possible to avoid delays.

Environmental Services will consider the issue and depending on the risk, a specialist study may be required to assess the impact. Where specialists are engaged there will be additional costs and time associated with the assessment. Specialist assessments must be attached to SER and the information summarised in the Description of impacts.

Level 3 issues may also require an approval, permit, environmental work method statement or site specific management plan. In some cases the SER will not be able to be verified until the approval is obtained. Some approvals will trigger determining authority requirements for certain public authorities. Implications of other determining authorities will depend on the specific circumstances. Details of correspondence with regulatory authorities must be documented in the SER.

Environmental Services will review specific construction controls for level 3 issues.

Ecology

2.1 Biodiversity (Commonwealth, NSW and other)

2.1.1 Collect information

Refer to the Collect information section on page 5.

In addition if working within 15m of trees, calculate the TPZ and SRZ - EGN 425 TPZ and SRZ Calculator.

2.1.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.1.3 Design measures to avoid/mitigate impacts

- Choose routes/sites which avoid removal of ground cover and understorey vegetation.
- Choose routes/sites which can be accessed by existing access roads where possible.
- Design infrastructure to minimise ongoing trimming requirements (eg aerial bundled conductor).
- Consider design features to avoid any vegetation clearing, pruning, stripping or ground clearing (eg alternative routes, underboring, setbacks, covered conductors etc.). Where avoidance is not practical minimise clearance and disturbance of all vegetation, particularly along watercourses.
- Avoid work within the tree protection zone (TPZ) and structural root zone (SRZ) (refer to Ausgrid's Environmental Handbook). The EGN 425 TPZ and SRZ Calculator can be used to calculate the TPZ and SRZ.
- Choose routes/site which maximise the distance from fauna habitats and vegetated areas.
- Consider use of bird diverters.

2.1.4 Requirements

Commonwealth

Impacts on matters of NES should be avoided wherever possible. Where impacts are unavoidable, specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

Under Parts 3 and 7 of the *Environment Protection and Biodiversity Conservation Act* (Cth) (EPBC Act), any action that could have a significant impact on matters of NES or Commonwealth land must be referred to the Department of Agriculture, Water and the Environment.

Repairing and maintaining existing distribution infrastructure for utilities for power, water and sewage would not normally be expected to have a significant impact on a matter of national environmental significance, unless there is a substantial expansion or modification of these utilities.

Matter of NES as listed in the EPBC Act which are relevant to Ausgrid's network include:

- wetlands of international significance (ie declared Ramsar wetlands)

- Commonwealth listed threatened species or ecological communities
- Commonwealth listed migratory species
- Commonwealth marine areas
- World heritage properties (addressed in Environmental heritage)
- National heritage places (addressed in Environmental heritage)

World heritage properties and national heritage places are assessed as Environmental (refer to section 2.3 (Environmental heritage) of this document).

Other matters of NES which are unlikely to apply include the Great Barrier Reef Marine Park, nuclear actions, and water resources in relation to coal seam gas development and large coal mining development.

Approval is also required for actions likely to have a significant impact on Commonwealth land.

NSW

Impacts on:

- threatened species and ecological communities and areas of outstanding biodiversity value listed/declared under the *Biodiversity Conservation Act* (NSW) (BC Act); or
- threatened species, populations or ecological communities or critical habitat listed/declared under the *Fisheries Management Act* (NSW) (FM Act)

should be avoided wherever possible. Where impacts are unavoidable specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

Where the SER assessment determines the Activity is likely to significantly affect threatened species for the purposes of the BC Act or the FM Act an EIS and an SIS or a biodiversity development assessment report must be prepared and the concurrence of the CEO of the Office of Environment and Heritage (OEH) (and/or, in connection with fish or marine vegetation, the Secretary of the Department of Industry) is required.

Other

Other ecological issues include:

- marine parks
- aquatic / nature reserves
- wild rivers
- national park estate
- declared wilderness areas
- coastal wetlands
- littoral rainforests
- hollow bearing trees
- biodiversity stewardship sites
- wildlife refuge areas / management areas
- conservation agreement areas (BC Act and NPW Act)
- native vegetation
- general biosecurity duty (GBD) (including weeds)
- key fauna habitat
- key fish habitat
- koala habitat (> 1 hectare of bush land)
- significant tree registers (local council)

- remnant roadside vegetation
- trees on private property

Marine parks, Aquatic / Nature reserves, wild rivers

Various assessment, approval and notification requirements apply. Contact Environmental Services.

National park estate, declared wilderness areas - Easements are required for new works in conservation areas, national parks and declared wilderness areas and new works may require a National Parks and Wildlife Service (NPWS) review of environmental factors.

Ausgrid has a protocol (internal document) for maintenance of power lines in land reserved under the NPW Act (for example national parks, reserves or State conservation areas). This protocol requires prior notification and consultation with NPWS before commencing works. All works, including inspection, maintenance and emergency works, on land reserved under the NPW Act must be done in accordance with the protocol between the OEH and Ausgrid.

Conditions include:

- Provide at least 4 days' notice for inspection works (unless the inspections are undertaken by foot or passenger vehicle and do not require the use of equipment).
- Provide at least 2 weeks' notice and a conservation risk assessment for maintenance works.
- Provide notice as soon as practicable after any emergency works have been undertaken.

Access track works within land reserved under the NPW Act must follow the requirements as outlined in the protocol. Refer to the additional requirements in the protocol. Works not covered by the Protocol include abrasive blasting of steel towers for the purpose of removing corrosion, clearing for the purposes of creating asset protection zones around Ausgrid's assets not already approved by OEH, clearing and excavation outside the nominated criteria within the Protocol.

Under the SEPP – Transport and Infrastructure (Division 1) development adjacent to land reserved under the NPW Act must not be carried out unless written notice has been given to OEH in relation to the development and any response received from that authority within 21 days after the notice is given has been taken into consideration.

Littoral Rainforests and Coastal Wetlands – Under the *State Environmental Planning Policy – Resilience and Hazards*, development consent (Designated Development) is required for works in areas defined as Coastal Wetlands or Littoral Rainforests (excludes proximity areas). Under the SEPP – Transport and Infrastructure emergency works and routine maintenance works would not require consent, but rather require a Part 5 assessment.

Hollow bearing trees - where there are no reasonable alternatives to affecting hollow bearing trees, include a justification for the chosen location in the SER. Complete the rest of the SER and refer the project to Environmental Services.

Note: A specialist ecological investigation will be required when affecting hollow bearing trees.

Biodiversity stewardship sites, wildlife refuge areas, conservation agreement areas - Works in these areas will need to comply with the conditions of the agreement.

There are some exceptions, however, assessment, approval and notifications requirements will apply. Contact Environmental Services.

Remnant native vegetation - Where there are no reasonable alternatives to clearing remnant native vegetation ensure the SER includes a justification for the chosen location in Table 1. Complete the rest of the SER and refer the project to Environmental Services. A suitably qualified ecologist will need to be consulted when affecting native vegetation. An ecological report may not be required if the project only involves clearing landscaped vegetation.

General Biosecurity Duty (GBD) (including weeds) - The *Biosecurity Act* (NSW) (B Act) outlines the principles that apply to biosecurity duties, prohibited matter, control orders, biosecurity zones, mandatory measures, biosecurity direction, biosecurity undertaking and emergency orders.

Under section 22, any person who deals with biosecurity matter or a carrier and who knows, or ought reasonably know, the biosecurity risk posed or likely to be posed by the biosecurity matter, carrier or dealing has a biosecurity duty to ensure that, so far as reasonably practicable, the biosecurity risk is prevented, eliminated or minimised.

There is a shared responsibility for biosecurity risks (including weeds) across government, community and industry, and applies to all land in the state regardless of whether it is publicly or privately owned.

Any person who fails to discharge their biosecurity duty is guilty of an offence. NSW DPI administers the B Act and local Councils are responsible for enforcing weed legislation.

Weeds pose the second greatest threat to biodiversity after land clearing and habitat loss. State-wide management of weeds is directed by the NSW Invasive Species Plan. This identified 4 goals: prevent the establishment of new invasive species, eliminate, or prevent the spread of new invasive species, reduce the impacts of widespread invasive species, and ensure NSW has the ability and commitment to manage invasive species.

Regional strategic weed management plans identify regional priority weeds including management objectives and outcomes to demonstrate compliance with the GBD.

Where GBD issues have been identified within the proposed work area or on land Ausgrid owns, weed management actions will need to be prepared in accordance with the regional strategic weed management plan and B Act.

Weed management control measures within the Ausgrid's Environmental Handbook (or construction environmental management plan (CEMP) for major projects) need to be followed. Identification and control actions of regional priority weeds should be part of any vegetation assessment report.

Significant tree register - Some local Councils maintain significant tree registers. The registers identify and recognise the importance of significant trees in the local area and are used by local Councils to guide the management to ensure their protection for the future.

Remnant roadside vegetation - Native vegetation along roadsides can be significant in that it has never been cleared or grazed, and in some areas is virtually the only remaining example of the original vegetation. It provides habitat for native wildlife, and often supports populations of threatened species. Roadside trees can also facilitate movements of wildlife, particularly birds, through the landscape.

Trees on private property – Where new works require the removal of trees on private property, consult with the landowner to seek their consent.

2.1.5 Further information

For information on the EPBC Act: www.environment.gov.au/epbc/index.html

For the threatened biodiversity profiles search: www.environment.nsw.gov.au/threatenedSpeciesApp or www.dpi.nsw.gov.au/fisheries/species-protection/conservation.

For an overview of the legislation: https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity

For additional information on areas of outstanding biodiversity value: https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value

For coastal wetland information: https://www.nsw.gov.au/environment-land-and-water/coasts-waterways-and-marine/wetlands

For littoral rainforest information: www.environment.nsw.gov.au/determinations/LittoralRainforestEndSpListing.htm

For Biobank information: www.environment.nsw.gov.au/bimsprapp/biobankingpr.aspx

For priority weed information refer to local council websites and here: https://weeds.dpi.nsw.gov.au/

For Regional Strategic Weed Management Plans refer to the Local Land Services website www.lls.nsw.gov.au/biosecurity/weed-control

For declared wilderness areas information: https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/protected-areas/wilderness

For wild rivers information: https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/protected-areas/wild-rivers

For national parks information: www.nationalparks.nsw.gov.au/

2.2 Marine vegetation (mangroves, seagrass etc.)

2.2.1 Collect information

Refer to the Collect information section on page 5.

2.2.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.2.3 Design measures to avoid/mitigate impacts

- Choose routes/sites which avoid removal of ground cover and understorey vegetation.
- Choose routes/sites which can be accessed by existing access roads where possible.
- Design infrastructure to minimise ongoing trimming requirements (eg aerial bundled conductor).
- Consider design features to avoid any vegetation clearing, pruning, stripping or ground clearing (eg alternative routes, underboring, setbacks, covered conductors etc.). Where avoidance is not practical minimise clearance and disturbance of all vegetation, particularly along watercourses.
- Avoid work within the TPZ (refer to Ausgrid's Environmental Handbook). The EGN 425 TPZ and SRZ Calculator can be used to calculate the TPZ and SRZ.
- Choose routes/site which maximise the distance from vegetated areas and waterways.

2.2.4 Requirements

Impacts to marine vegetation should be avoided wherever possible. Where impacts are unavoidable specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

Under section 205 of the FM Act and *Fisheries Management (General) Regulation* (NSW) (FM Regulation) a person must not harm (ie. gather, cut, pull up, destroy, poison, dig up, remove, injure, prevent light from reaching or otherwise harm) certain types of marine vegetation on public water land, or any area that is the subject of an aquaculture lease (including the foreshore of any such land) without a permit.. Such action must not be taken in relation to saltmarsh in a protected area, mangroves, seagrasses, and attached marine and estuarine macroalgae. Saltmarsh is identified within the endangered ecological community layer on the WebGIS EL.

Ausgrid has been granted a permit, under Parts 7 and 14 of the FM Act and Regulation (respectively), which provides an exemption to the prohibition on harming marine vegetation under section 205 of the FM Act, subject to Ausgrid meeting a number of specific conditions. The permit allows Ausgrid employees or contractors to undertake mangrove clearing works for maintaining the visibility of warning signs, maintenance of access tracks and maintaining clearances to power lines. Conditions of the permit include notification requirements, site delineation, restrictions on material storage and stockpiling, requirements for site restoration and clean up, machinery access restrictions, no go areas and visual inspections. Use EF560 to ensure you meet the requirements of the permit.

Note: The permit does not cover new works.

Under the FM Act (Cl199), 21 days notification is required before carrying out dredging and reclamation work on water land (ie. land submerged by water whether permanently or intermittently and whether forming an artificial or natural body of water, including wetlands).

"Dredging work" means any work that involves:

- excavating water land;
- the removal of woody debris, snags, gravel beds, cobbles, rocks, boulders, rock bars or aquatic vegetation; or
- the removal of any other material that disturbs, moves or harms those things.

"Reclamation work" means any work that involves:

- using any material (such as sand, soil, silt, gravel, concrete, oyster shells, tyres, timber or rocks) to fill in or reclaim water land;
- depositing any such material on water land for the purpose of constructing anything over water land (such as a bridge); or
- draining water from water land for the purpose of its reclamation.

Under Part 7 (Clause 219) of the FM Act, a permit is required to create an obstruction across or within a river or creek or across or under a flat where fish will be blocked or left stranded, or immature fish will or could be destroyed, or the free passage of fish will or could be obstructed.

Dredging, disturbing a creek or waterway

Under the *Water Management Act (NSW)* (WM Act), a controlled activity approval under section 91 is required to excavate within 40 m of a water body (river, creek, canal, ocean, lake), however, clause 40 of the Water Management (General) Regulation 2011 (NSW) provides that Ausgrid is exempt in relation to the construction, modification, repair or maintenance of, or emergency work on Ausgrid's electricity infrastructure, being activities:

- that are carried out in, on or under waterfront land relating to a river, estuary or lake (other than in or on the bed or banks of a river, the bed or shore of a lake, or the bed or land lying between the bed and the mean high water mark of an estuary), and
- that do not cause any change in the course of the river, and
- the environmental impact of which has been considered under section 111 of the EP&A Act (or is exempt from the need for such consideration under section 110E of that Act).

Regarding contestable works undertaken by ASPs, if the works meet all of the following criteria, a controlled activity approval is not required:

- the proposed works are carried out on behalf of Ausgrid
- Ausgrid approves the design/specification for the proposed works
- Ausgrid signs off on the work complete.

As such, the majority of contestable work will not require a controlled activity approval.

Under section 256 of the WM Act, approval is required to construct any building, fence or structure in, on, or adjacent to, a levee bank.

2.2.5 Further information

Mangroves are a group of trees and shrubs that are capable of growing in marine, estuarine and, to a limited degree, fresh water. They occupy the fringe of intertidal shallows between the land and the sea. The term 'mangrove' is used to describe

individual trees or shrubs and also the general habitat, although the habitat is often called a ‘mangrove forest’ or ‘mangal’.

Coastal saltmarsh (also referred to as saltmarsh) is an intertidal community of plants, such as sedges, rushes, reeds, grasses, succulent herbs and low shrubs that can tolerate high soil salinity and occasional inundation with salt water. The term ‘saltmarsh’ is used to describe individual plants, groups of plants and the general estuarine habitat dominated by these plants.

Seagrasses are a unique group of specialised marine plants. They have evolved from land plants and are adapted to living and reproducing entirely within sea water. Seagrasses occur in sheltered areas and shallow waters, growing in soft sediments such as sand or mud.

Seagrasses generally look like land grasses. The leaves are either strap-like or oval-shaped and they grow from rhizomes (underground stems).

Seagrass can easily be confused with marine macroalgae (seaweed). However, there are many important differences between the two. Unlike seaweed, seagrasses produce flowers, fruits and seeds during their reproductive cycle, and have specialised plant tissue which allows them to absorb nutrients from soft sediment and transport it internally.

For aquatic habitat information: www.dpi.nsw.gov.au/fishing/habitat/aquatic-habitats

For saltmarsh information:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/459628/Coastal-Saltmarsh-Primefact.pdf

For mangrove information:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/236234/mangroves.pdf

For seagrass information:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0019/203149/seagrasses-primefact-629.pdf

Heritage

2.3 Environmental heritage

2.3.1 Collect information

Refer to the Collect information section on page 5.

2.3.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.3.3 Design measures to avoid/mitigate impacts

- Select sites/route that avoid works within the curtilage of known heritage listings.
- Consider the visibility of pillars, kiosks, underground to overhead connections (UGOH) and any subsequent connections to houses.

2.3.4 Requirements

Impacts on Environmental heritage should be avoided wherever possible. Where impacts are unavoidable specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

'Heritage' is the term which describes those aspects of the past which are important to the community. Heritage may be embodied in a place, an idea or in an activity. Environmental heritage includes:

- world heritage properties under the EPBC Act
- national heritage places under the EPBC Act
- State heritage items under the *Heritage Act* (NSW) (Heritage Act)
- local heritage items under the Heritage Act or a local or regional environmental plan
- heritage items listed on the Heritage and Conservation Register under section 170 of the Heritage Act
- an archaeological area where there is a possibility of disturbing a relic under the Heritage Act
- moveable heritage under the Heritage Act.

Environmental heritage items can include places such as buildings, places and trees that are of historical, cultural, social, architectural, natural or aesthetic value.

Heritage class	Requirements (*multiple classes may apply*)
World, Commonwealth, National	Impacts to Commonwealth or World or National heritage could require a heritage assessment and/or approval, unless *works* involve only minor repairs and maintenance to electrical infrastructure or the sites management plan states that the area or item does not embody heritage values.
State	Impacts to State heritage require a heritage assessment and/or approval, unless in accordance with a S57 exemption or Ausgrid specific exemption. **Note:** State heritage items typically encompass the land (curtilage) on which the building(s) are located.
Local	More than minor or inconsequential impacts to local heritage or heritage conservation areas listed by local council require a statement of heritage impact, written notification to council and due consideration of council's response.
Relic	Excavating land where it is likely to uncover, expose, move, damage, or destroy a *relic* requires a S140 excavation permit, unless in accordance with an S139 exception.
Ausgrid's S170 register	Demolition, removal or sale of heritage items on Ausgrid's S170 register (*employees*) requires 14 days written notice to NSW Heritage.
Movable	Impacts to Ausgrid's movable heritage (Tier 1) require approval by Environmental Services in accordance with EF 17440 Movable heritage form. Impacts to Ausgrid's movable heritage (Tier 2) require a Photographic Archival Recording in accordance with EF 17440. Contact Environmental Services for assistance.

There are three exemptions under the *Heritage Act* that apply to our activities. The S57 exemption and Ausgrid specific exemption generally relate to minor repairs and maintenance of Ausgrid buildings. The S139 exception relates to *works* or activities that have minimal impact on archaeological relics. It does not apply to *relics* of State heritage significance. Some exemptions may require professional advice to be sought.

2.3.5 Further information

For Environmental heritage information: www.heritage.nsw.gov.au

State Heritage Inventory provides more detail about Environmental heritage items including statements of significance

For information on local heritage items, refer to the local Council LEP.

Areas where relics are likely to be discovered are available on the archaeological zoning plans from the local Council.

For moveable heritage information (internal link): https://ausgrid.sharepoint.com/teams/SP0571/Lists/MovableHeritageRegister/WorkingList.aspx.

2.4 Aboriginal cultural heritage

2.4.1 Collect information

Refer to the Collect information section on page 5.

2.4.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.4.3 Design measures to avoid/mitigate impacts

Select sites/route that avoid works near known Aboriginal cultural heritage objects or undisturbed land.

2.4.4 Requirements

Impacts to Aboriginal cultural heritage should be avoided wherever possible. Where impacts are unavoidable specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

Aboriginal cultural heritage consists of places and objects that are of significance to Aboriginal people because of their traditions, observances, lore, customs, beliefs and history. These can include artefacts, middens, axe-grinding or tool sharpening grooves, scarred or carved trees, paintings, rock engravings and burial sites.

Aboriginal cultural heritage provides evidence of the lives and existence of Aboriginal people before European settlement through to the present. Aboriginal cultural heritage is dynamic and may comprise objects or places. Potential archaeological deposits are also commonly recorded as a result of predictive modelling / investigations and are areas where sub-surface artefacts are likely to be found during excavation.

Aboriginal objects and places are protected under the NPW Act. When an activity is likely to impact upon Aboriginal cultural heritage an Aboriginal heritage impact permit may be required under Part 6 of the NPW Act. *The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH, 2010) sets out the steps to be followed to decide whether Aboriginal objects are likely to be present and whether further approvals are necessary. For level 3 issues, an Aboriginal Heritage Due Diligence Assessment may be required.

As part of the Due Diligence Assessment, Aboriginal Heritage Information Management System (AHIMS) site cards will need to be obtained for all objects within the vicinity of the works. To obtain AHIMS site cards, you must logon to AHIMS web services: www.environment.nsw.gov.au/awssapp/login.aspx . If you are a first time user you will need to register using an email address. You will be asked to fill in some details and a password.

Using information in the site cards, confirm if these objects are located in the area where the works are proposed. If you are aware of any other sources of information, you need to use these to identify whether or not Aboriginal objects are likely to be present in the area. Other sources of information can include previous studies, reports or surveys which you have commissioned or are otherwise aware of.

2.4.5 Further information

For Aboriginal cultural heritage information:
www.environment.nsw.gov.au/licences/achregulation.htm

Pollution

2.5 Air quality (dust and other emissions)

2.5.1 Collect information

Refer to the Collect information section on page 5.

2.5.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.5.3 Design measures to avoid/mitigate impacts

- Identify, and where appropriate, maximise distance to sensitive receivers eg schools, hospitals, cafes, high pedestrian traffic areas.
- Choose site/route which minimises disturbance of soil, vegetation and ground cover.
- Select site/route that minimises fumes and odours being generated (eg avoid excavating or disturbing contaminated soils or acid sulfate soils (ASS)).
- Design project so that all exposed surfaces can be stabilised as soon as practical.
- An erosion and sediment control plan (ESCP) or soil and water management plan (SWMP) is required to be prepared which addresses revegetation / stabilisation where more than 250m^2 of soil will be disturbed. A suitably qualified person (ie completed an International Erosion Control Association (IECA) endorsed course or passed the examination for Certified Professional in Erosion and Sediment Control (CPESC)) must prepare the ESCP or SWMP in accordance with 'Managing Urban Stormwater – Soils and Construction' (Landcom, 2004) (the Blue Book).

Minimise fumes and odours through design features (eg orient substation vent(s) away from receivers). Abrasive Tower Blasting

Abrasive tower blasting *works,* requires a site specific *EMP*.

Key controls include:

- Notify occupants of the site and neighbouring properties of the commencement date and expected duration.
- Delineate and cover (with geotextile matting or similar) a construction zone to a minimum of 5m (subject to site constraints) around the tower base.
- Use only inert products for abrasive blasting.
- Adjust intensity and scope to the environment and weather conditions.
- Create a monitoring zone based on wind speed, direction and height of blasting, and inspect regularly.
- Place white discs within the monitoring zone to compare against the project criteria.
- Where the project criteria are exceeded, or materials are identified outside the construction zone that cannot be readily recovered, stop work and reassess.

For abrasive tower blasting within 100m of an *ecologically sensitive area* or *sensitive receivers*, contact Environmental Services. A specialist assessment may be required.

2.5.4 Requirements

Vegetation and ground cover protects soils from erosion. Exposed soils are more likely to produce dust from wind, vehicle movement or use of equipment.

Dust generation can have adverse effects on surrounding vegetation and waterways, and health and amenity implications for workers and residents.

Odours can affect not only workers, but also public amenity. Odours account for the largest source of air pollution complaints to the EPA's Environment Line.

Offensive odour is defined by the *Protection of the Environment Operations Act* (NSW) (POEO Act) to include an odour that is harmful to, or likely to be harmful to, a person who is outside the premises from which it is emitted or interferes unreasonably with, or likely to interfere unreasonable with, the comfort or repose of a person who is outside the premises from which it is emitted.

The POEO Act creates offences for causing air pollution as a result of failing to maintain and operate plant and equipment or deal with materials in a proper and efficient manner.

Some proposals will require the use of SF6 gas insulated equipment. As a guide, typical SF6 gas insulated equipment and typical gas volumes are listed below:

- SF6 filled pole mounted recloser 2.0 kg
- 11kV Ring Main Circuit Breaker 1.2 kg
- 11kV SF6 Ring Main Fuse Switch Unit < 1.0kg
- 36kV Dead Tank Circuit Breaker 3.0 kg
- 72kV Dead Tank Circuit Breaker 14.0 kg
- 145kV Dead Tank Circuit Breaker 27.0 kg

1. Include the volume of SF6 proposed to be installed in equipment as part of the proposal in the SER.

2.5.5 Further information

For air quality information: www.environment.gov.au/protection/air-quality & www.epa.nsw.gov.au/your-environment/air

2.6 Oils, fuels and other chemicals

2.6.1 Collect information

Refer to the Collect information section on page 5.

2.6.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.6.3 Design measures to avoid/mitigate impacts

- Avoid siting oil filled equipment in sensitive areas (adjacent to wetlands, waterways, flood prone areas, drinking water / special catchment areas, etc). Refer to EGN 420 Relative Risk Model (Oil Filled Equipment), NS122 Pole Mounted Substation Site Selection and Construction, and NS141 Site Selection and Preparation for Kiosk Type Substations.
- Consider design features to minimise potential oil loss eg use bunded substations (see NS117 Design and Construction Standards for Kiosk Type Substations) or secondary containment.
- Consider design features to minimise risk to sensitive areas (eg additional absorptive capacity of the pathway to water such as a grassy area rather than concrete).

2.6.4 Requirements

It is an offence under Part 5.3 of the POEO Act to cause pollution of waters.

When assessing impacts to water quality, take into consideration the potential to contaminate soils and water from handling oil, fuel and chemicals.

There are specific requirements for the transport of Dangerous Goods. Refer to section 0 for information on Dangerous Goods.

Where there are no reasonable alternatives to siting oil filled equipment within 40 m of a sensitive area or within 5 m upstream of a drain, include justification for the chosen location in the SER and complete the rest of the SER. Secondary containment may be required.

Prepare an Environmental Work Method Statement for oil transfers greater than:

- 25,000 L or
- 5,000 L in a sensitive area (eg adjacent to a wetland, waterway etc).

Contact Environmental Services for assistance.

2.6.5 Further information

These Network Standards apply to locating new oil filled network asset:

- NS141 Site Selection and Site Preparation Standards for Kiosk Type Substations - outlines the siting requirements for kiosks
- NS122 Pole Mounted Substation Construction - outlines the siting requirements for pole transformers
- NS117 Design and Construction Standards for Kiosk Type Substations - general requirements for kiosk design and installation.

- NS113 Site Selection and Construction Design Requirements for Chamber Substations - outlines the design and siting requirements for chamber substations
- NS89 Oil containment for Major Substations - design requirements for oil containment ay major substations

2.7 Water quality (erosion, sedimentation, discharges, extraction)

2.7.1 Collect information

Refer to the Collect information section on page 5.

2.7.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.7.3 Design measures to avoid/mitigate impacts

- Avoid ground disturbing activities in erosion prone areas (eg slope ≥ 18°, sandy soils), areas of concentrated water flow (eg drainage lines, grates, drains, inlets and dish drains), areas subject to bogging (eg low lying areas, floodplains, swampy areas) and areas slow to regenerate (eg salt marshes, wetlands).
- Give preference to sites/route with less vegetation clearing requirements (including access to the site).
- Consider construction methods to minimise disturbance and time soils are exposed (eg directional drilling, utilising existing conduits, spanning over sensitive areas).
- Identify groundwater issues as part of trial holes and geotechnical investigations, where undertaken, and where possible avoid works below the water table or with tidal influence.
- Where possible, avoid working in areas of potential groundwater contamination eg groundwater in areas of ASS is likely to be contaminated.
- If not possible to avoid, use design features to minimise water ingress eg water diversion measures, seal cable ends and avoid basement substations.
- An ESCP or SWMP is required which addresses revegetation / stabilisation where more than 250m2 of soil will be disturbed at any one time. A suitably qualified person (ie completed an IECA endorsed course or passed the examination for CPESC) must prepare the ESCP or SWMP in accordance with the 'Blue Book'.
- For all works on land reserved and acquired under the NPW Act:
    - Undertake works in accordance with the protocol between the OEH and Ausgrid.
    - Restrict maintenance and inspection activities, as defined under the protocol, to periods of dry weather and daylight hours to minimise any damage to access tracks that could increase erosion.

Undertake maintenance of access tracks in accordance with the Blue Book, Volume 2C Unsealed Roads' (DECC, 2008) and 'Erosion and sediment control on unsealed roads – A field guide for erosion and sediment control maintenance practices' (OEH, 2012).

Directional drilling

Directional drilling requires a Frac-Out Management Plan (FOMP).

Where the risks of a Frac-out are deemed high (environmentally sensitive area and/ or poor soil conditions), the FOMP may need to be prepared in consultation with technical experts and/or geotechnical engineers.

As a minimum, the FOMP would include measures to;

- monitor and control drilling fluid pressure,
- utilise inert biodegradable drilling fluids, when in environmentally sensitive areas,

- track the location of the drill head to target and respond to any potential frac outs immediately, and
- ensure incident response procedures (See Section 9 of NS174C) are effectively in place for the project and are relative to the risk(s) identified
- the exit of the drill head at the receive hole is planned and in a controlled environment where all drill fluids are contained, controlled and recovered from a designated work area

2.7.4 Requirements

Erosion and sediment runoff

It is an offence under Part 5.3 of the POEO Act to cause pollution of waters.

Category 2 regulated land

Erosion prone land (vulnerable land) typically includes land > 1 hectare with a slope > 18 degrees, or land within 20 m of a prescribed stream. Vulnerable land is mapped as category 2 regulated land on the native vegetation regulatory map under the *Local Land Services Act* (NSW) (LLS Act).

Vulnerable land and other category 2 regulated land (LLS Act) are available on the WebGIS EL (refer to the Web GIS EL Report).

Vulnerable land is especially vulnerable to soil erosion, sedimentation and landslip if appropriate techniques are not used when clearing vegetation.

Clearing native vegetation in a regulated rural area is on offence unless:

- The clearing is for an allowable activity
- The clearing is authorised by a land management (native vegetation) code
- The clearing is authorised by an approval of the Panel
- The clearing is authorised under other legislation (this includes a part of or ancillary to the carrying out of exempt development or an activity carried out by a determining authority within the meaning or Part 5 of the EP&A Act).

Water quality

Only clean rain water is allowed to enter a waterway or drain. Any other liquid or solid is considered a pollutant.

Water accumulated in trenches, pits and substations must be assessed and either managed by a documented procedure or tankered to a waste facility. Usually the most effective way of managing accumulated water is to avoid the situation in the first place.

Groundwater extraction can potentially lower or contaminate the local groundwater table. In some areas groundwater is used for domestic purposes such as irrigation.

It is an offence under Part 5.3 of the POEO Act to cause pollution of waters.

Under the WM Act, an Aquifer Interference Approval may be required for groundwater extraction or dewatering.

Under the *Water Act* (NSW), for any temporary or permanent works not defined in a gazetted water sharing plan under the WM Act, a licence or permit is required to extract:

- water from a stream, river, or water course via a pump or other work

- groundwater via any type of bore, well, spear point or groundwater interception scheme (including dewatering).

Under the POEO Act, a licence is required to discharge any pollutant to stormwater. To discharge to a stormwater system, permission must be obtained from the relevant water supply authority, for example Sydney Water if they are the owner of the stormwater system (Sydney Operations).

2.7.5 Further information

For water management information: www.industry.nsw.gov.au/water/what-we-do/legislation-policies/acts-regulations

For vulnerable land (category 2 regulated land) information: www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/native-vegetation-regulatory-map

For water licensing information: https://www.industry.nsw.gov.au/water/licensing-trade

For aquifer interference approvals: https://www.industry.nsw.gov.au/water/licensing-trade/approvals

For water pollution information: www.environment.nsw.gov.au/water/polltreatment.htm

Noise

2.8 Construction noise and vibration

2.8.1 Collect information

Refer to the Collect information section on page 5.

To calculate potential noise impacts use the EGN 421 Construction Noise Calculator.

2.8.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.8.3 Design measures to avoid/mitigate impacts

- Choose sites/route which maximise the distance to sensitive receivers. Vibration levels and structural integrity goals are typically within criteria when works are beyond these approximate separation distances:
  - rock hammering ~ 3 – 5 m
  - excavation ~ 2 m
  - ripping trench walls and road base > 5 m
  - compacting > 5 m
  - excavator tracking ~ 3 m.
- Specify the site layout to minimise impacts:
  - Arrange the work site to take advantage of natural barriers (eg hills, trees) and structures (eg fences, work trucks, stockpiles) to break the line of sight between working equipment and receivers. Consider reflective noise.
  - Site the noisiest equipment furthest away from the most receivers.
  - Orientate the equipment so that noise is directed away from sensitive receivers.
  - Consider installing portable screening around high impact activities so noise is directed into the work site.
  - Install road plates to the TfNSW specification (ie recessing, inspecting and assessing noise impact, plate thickness, bearing support, additional or modified fixings to reduce noise).
  - Consider the site layout to minimise movements that would activate audible reversing and movement alarms especially during out of hours work.
- Choose sites/route and schedule works to avoid coinciding with other developments:
  - Keep to standard operating hours, unless the works comply with out of hours work requirements (refer to Ausgrid's Environmental Handbook section 4.2).
  - Avoid noisy work during sensitive time periods (eg school class/exam times, restaurant meal times, places of worship services).
  - Provide respite periods for high impact receivers. Examples include
  - 1 hour respite every 3 consecutive hours
  - 1 day respite after every 3 consecutive days.
  - For out of hours work, do not affect a receiver for more than 2 nights during any single week unless justified as necessary due to unavoidable and exceptional circumstances and targeted consultation has been undertaken.
  - Refer to Ausgrid's Environmental Handbook for out of hours work requirements.

- Consider design features to minimise noise (eg avoid excavation in rock).
- Specify substitute equipment for noisy works in sensitive areas.
- Highlight controls in Ausgrid's Environmental Handbook that are critical to managing noise impacts.

Assessing the impacts

Where required, use the EGN 421 Construction Noise Calculator to compare the predicted noise level against the investigation criteria. Under the *Interim Construction Noise Guidelines* (NSW DECC 2009), the assessment method that applies to the project depends on the duration of the works. Construction works with a duration:

- of less than 3 consecutive weeks can be assessed using a qualitative method which focuses on work practices
- longer than 3 consecutive weeks require a detailed quantitative assessment and may require noise monitoring.

A noise and vibration management plan (NVMP) is required where works may impact a receiver for greater than 3 consecutive weeks or works will impact a receiver and works cannot meet the minimum requirements in the Environmental Handbook. The NVMP must be in accordance with the *Interim Construction Noise Guidelines* (NSW DECC 2009).

2.8.4 Requirements

Ausgrid receives more complaints about construction noise than any other construction issue. The impacts of noise may include reduced productivity, loss of business, adverse health effects or property damage.

Proper management and consultation can minimise complaints and avoid costly worksite shut downs and delays. Most complaints can be avoided if people are clear on what is happening and why.

Parts 5.5 of the POEO Act creates offences for causing noise pollution as a result of failing to maintain and operate plant and equipment or deal with materials in a proper and efficient manner.

Sensitive areas could be considered as, but not limited to, schools, nursing homes, hospitals, childcare centres, high density residential areas, adjacent to businesses, sensitive fauna nesting / roosting areas. In assessing the sensitive area topography and activities being proposed need to be considered to accurately assess the impact of construction noise and vibration.

Sensitive time periods could include, but limited to, school class/exam times, restaurant meal times, times of worship, and sensitive fauna breeding times.

2.8.5 Further information

For construction noise information: www.epa.nsw.gov.au/noise/constructnoise.htm.

2.9 Operational noise and vibration

2.9.1 Collect information

Refer to the Collect information section on page 5.

To calculate potential noise impacts use the EGN 422 Transformer Noise Calculator.

2.9.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.9.3 Design measures to avoid/mitigate impacts

Noise at the receiver will depend on the, type of source, distance from source, obstacles and several other factors. Substations emit low frequency noise which is not noticeably reduced by many factors apart from distance and obstacles. For point sources like a substation, the sound pressure level will generally decrease by 6 decibels (dB) per doubling of distance.

Determine prospective site(s) for the substation:

- Select sites located away from sensitive receivers.
- Select sites that make use of any existing barriers.
- Consider future developments (eg construction works, related projects when undertaking contestable works, advice received by council etc).
- Prioritise the sites if there is more than one option.
- Use the EGN 422 Transformer Noise Calculator to compare options.

Assessing the impacts

Use the EGN 422 Transformer Noise Calculator to compare the predicted noise level against the criteria. For assessing other operational noise impacts, a specialist noise assessment may be required.

2.9.4 Requirements

Transformer noise has come to prominence, mainly because of increased urban density, encroachments and land rezoning. It is becoming even more necessary to locate these assets carefully and some planning ahead of time is needed.

2.9.5 Further information

For operational noise information: www.epa.nsw.gov.au/your-environment/noise

Contamination and waste

2.10 Contamination

2.10.1 Collect information

Refer to the Collect information section on page 5.

2.10.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.10.3 Design measures to avoid/mitigate impacts

- Select sites/route that avoid/minimise works in areas of contamination.
- If contaminated areas cannot be avoided, contact Environmental Services as soon as possible. Working in contaminated areas can add significant time and cost to a project.

2.10.4 Requirements

- Disturbance of contaminated land should be avoided wherever possible. Where impacts are unavoidable specialist assessments and/or approvals will be required to ensure impacts are minimised to an acceptable level.

Contaminated sites can present a risk for workers, Ausgrid's infrastructure, the public and the environment.

Contaminated sites may require a specialist assessment to determine necessary health, safety and environmental controls. Most contaminated sites are not known or recorded.

Some examples of where you may find a contaminated site include fuel storage areas, areas where oil filled equipment are being used or have been used, petrol stations, drycleaners and industrial sites.

Indicators of contaminated land include: odorous material (eg fuel, solvents, rotten egg gas), oil staining, oil sheen on groundwater, underground storage tanks, buried waste (eg asbestos in soil, construction waste, containers), imported fill (eg ash, coke, asbestos), unusually coloured material (eg green clay), 132kV transmission cable trenches installed before 1980.

Where possible (and economically viable) design to avoid contaminated land. Where there are no reasonable alternatives to siting works in contaminated land, ensure the SER includes a justification for the chosen location and consider the requirements of other network standards. Complete the rest of the SER and refer the project to Environmental Services.

Where the site is contaminated, Ausgrid would in most cases require satisfactory assurances (supported by suitably qualified technical advice) that:

- there are no contaminants which would present any risks to the integrity and long-term viability of Ausgrid's infrastructure
- there are no contaminants which would present any risks to the health and safety of employees, contractors and the public

- there are no contaminants (in excess of the existing land use criteria) which would result in additional construction, handling, transport and disposal expenses to Ausgrid (both now and in the future).

When working within a regulated contaminated site the works must comply with any applicable requirement in the Site Management Plan or documentation relating to the site. Any Site Management Plan required for operation and maintenance purposes must be sent to Environmental Services so it can be flagged via the WebGIS and provided to future work groups.

Work health and safety (WHS) requirements fall outside this document and should be considered when in or adjacent to contaminated land,

Note: EPA's register relates only to contaminated sites that the EPA has determined pose a significant risk of harm and in relation to which it has issued a notice under the *Contaminated Land Management Act* (NSW). Other contaminated sites may be addressed by local councils through the planning process in accordance with *State Environmental Planning Policy Resilience and Hazards 2021* (NSW) under the EP&A Act. The contamination may also be the subject of regulatory action under the POEO Act.

Decommissioning substations

Where decommissioning a substation on private property (under easement, lease, ownership or other) upon which Ausgrid is absolving their occupation, additional intrusive investigations may be required.

Further investigations will be required when:

- Decommissioning substations with indicators of contaminated land.

Prior to the commencement of any work, undertake a site walkover survey to:

- identify past or present contamination (including potential contamination from surrounding land use)
- identify the presence of staining, spills or leaking equipment, and
- to determine if a more detailed investigation is required.

When decommissioning and removing a kiosk on private property:

- Inspect and photograph the subsurface soils for indicators of contamination. Photos must be recorded as part of Ausgrid Field book notes, placed on Ausgrid's WebGIS Photo Catalogue against the asset or sent to environmentalservices@ausgrid.com.au.
- Where contamination is found, stop work and contact Ausgrid's Environmental Services.
- If there are no indicators of contamination as a result of Ausgrid's activities, the site may formally hand back the site to the landowner by the Project Manager. If there is tenure over the site, discuss any formal handover requirements with Ausgrid Strategic Property in the first instance. Refer to EG180 for additional information.
- For Accredited Service Providers (ASPs), and upon completion of site investigation, site handover back to the landowner should be discussed with the Ausgrid Contestability Project Coordinator (CPC). The CPC will discuss with Ausgrid Strategic Property, where Ausgrid have a tenure over the site.

When decommissioning and removing equipment and Ausgrid occupation from a chamber substation:

- Inspect and photograph any exposed subsurface soils for indicators of contamination

- Inspect and photograph the condition of the substation floor (materials, cracks, repairs, substantial oil staining).
- Concrete lined pits should be suitably covered or backfilled with clean fill and any conduit collars permanently sealed. Photo's should be taken.
- All photos must be recorded as part of Ausgrid Field book notes.
- Pending the results of the HAZMAT report, additional measures may be required to manage any remaining hazardous materials and/ or dusts to ensure no exposure risk to future occupants.
- If there are no indicators of contamination as a result of Ausgrid's activities, the site may formally hand back the site to the landowner by the Project Manager. If there is tenure over the site, discuss any formal handover requirements with Ausgrid Strategic Property in the first instance. Refer to EG180 for additional information.
- For Accredited Service Providers (ASPs), and upon completion of site investigation, site handover back to the landowner should be discussed with the Ausgrid Contestability Project Coordinator (CPC). The CPC will discuss with Ausgrid Strategic Property, where Ausgrid have a tenure over the site.

Note: Ausgrid employees can refer to EG 180 Contaminated Land.

2.10.5 Further information

For contaminated land information: www.epa.nsw.gov.au/clm/index.htm

2.11 Acid sulfate soils

2.11.1 Collect information

Refer to the Collect information section on page 5.

2.11.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.11.3 Design measures to avoid/mitigate impacts

- Select sites/route that avoid/minimise works in areas of acid sulfate soils.

2.11.4 Requirements

Disturbance of ASS should be avoided wherever possible. Where impacts are unavoidable management plans and/or specialist assessments/approvals will be required to ensure impacts are minimised to an acceptable level.

Where there are no reasonable alternatives to siting works in ASS areas, ensure the SER includes a justification for the chosen location.

For excavations ≤ 50 m³ of ASS that do not involve discharging groundwater, Ausgrid employees can use the generic ASS management plan Ausgrid's Environmental Work Method Statement (EWMS) 167 Acid Sulfate Soils.

If excavating > 50 m³ of ASS at any one time or discharging groundwater, a specialist assessment or an ASS management plan may be required (Ausgrid employees can contact Environmental Services).

2.11.5 Further information

For ASS information: www.environment.nsw.gov.au/topics/land-and-soil/soil-degradation/acid-sulfate-soils

Guidance for the dewatering of acid sulfate soils in shallow groundwater environments (Commonwealth, June 2018): https://www.waterquality.gov.au/sites/default/files/documents/dewatering-acid-sulfate-soils.pdf

2.12 Waste

2.12.1 Collect information

Refer to the Collect information section on page 5.

2.12.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.12.3 Design measures to avoid/mitigate impacts

- Identify which waste materials will be generated by the project (eg concrete, timber, plasterboard, soil, scrap metal) and determine quantities and reuse opportunities. Avoid, reduce or reuse resources through efficient design, such as:
  - Minimise the amount of materials required (eg minimise numbers of poles, cut and fill design).
  - Avoid using scarce resources (eg avoid imported timber sourced from native or old growth forests; specify materials with recycled content where suitable).
  - Adopt a design that has lower ongoing maintenance requirements.
  - Adopt a design that has lower operating costs (eg incorporate passive ventilation measures).
  - For initiatives applicable to substation projects see EG 320 Major Substation Embodied Impacts - Interim Guidelines.

2.12.4 Requirements

Waste is defined very broadly under the POEO Act to include any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment and any discarded, rejected, unwanted, surplus or abandoned substance – even if it is intended for sale or for, recycling, processing, recovery or purification or may be processed, recycled, re-used or recovered . Good waste management reduces waste going to landfill, minimises disposal costs, conserves resources and avoids environmental damage.

Waste types may be identified by specialist reports such as a hazardous materials survey or contaminated land assessments. The wastes identified could be lead paint, asbestos containing materials including paint, hydrocarbon or heavy metal impacted soils, etc. Other hazardous materials may be known to be unique to specific assets.

Hazardous, restricted solid, liquid or special waste

Under the POEO Act, licences may be required to store, transport or process hazardous, restricted solid, liquid or special waste (generally more than 5 tonnes stored, more than 200 kg transported or any processing). It should be noted that there are a number of exemptions and thresholds (refer to section 5.3 of Ausgrid's Environmental Handbook). Ausgrid holds a number of Environment Protection Licences (EPLs) for the storage of transformer oil, PCBs and oily water at certain depots. Ausgrid employees intending to rely on these EPLs must comply with the specific licence conditions, including reporting and record keeping requirements.

Hazardous, restricted solid, liquid and special wastes require consignment approval and completion of waste tracking documentation prior to transporting by licensed

transporters. Exemptions apply in some cases (refer to section 5.3 of Ausgrid's Environmental Handbook). In particular, Ausgrid employees do not need a licence to transport wastes in Ausgrid vehicles between Ausgrid locations (eg from a substation to a depot).

The full list of hazardous, restricted solid, liquid or special waste is available at www.epa.nsw.gov.au/waste/index.htm

Hazardous chemicals

Hazardous chemicals must be stored and handled in accordance with the *Work Health and Safety Act* (Cth) and Work Health and Safety Regulation 2017 (Cth). Notification to WorkCover NSW is required for storage of hazardous chemicals in excess of specific quantities contained in Schedule 11 of the *Work Health and Safety Regulation 2017* (Cth).

Labelling and signs are also required where the quantity of hazardous chemicals exceed the placarding quantity. Liquid hazardous chemicals must be stored to eliminate the risk of a spill or leak entering the environment. For further information refer to AS 1940-2004 The Storage and Handling of Flammable and Combustible Liquids or AS/NZS 1596-2008 The Storage and Handling of LP Gas.

For information on dangerous goods driver licences:
www.epa.nsw.gov.au/dangerousgoods/training.htm

The ASP process for sampling and returning equipment is detailed in the Policy for ASP/1 Premises Connections.

Scheduled chemical waste (SCW)

Under the SCW Chemical Control Order (CCO), a licence is required to store more than 1 tonne of scheduled chemical waste. Scheduled chemical wastes are the chemicals listed in Schedule A to the CCO with a concentration of total scheduled chemicals of more than 2ppm (2mg/kg). Scheduled chemical wastes include benzene, chlordane, heptachlor and OCPs such as aldrin, dieldrin, endrin and pentachlorophenol.

Soil and accumulated water from below the slab of Ausgrid's 132 kV cables, installed prior to 1980, may be contaminated with OCPs.

Requirements for keeping of SCW include where more than:

- 50 kg but less than one tonne is stored; the storage area must be sited and constructed so as to prevent any discharge to the external environment
- one tonne is stored; the scheduled chemical waste must be kept in an approved manner or in a storage facility in accordance with the conditions of a licence under the *Protection of the Environment Operations Act* (POEO Act)
- SCW may also be classified as a dangerous good under the *Dangerous Goods (Roads and Rail Transport) Act* (NSW) and may require a dangerous goods licensed vehicle and driver for transport.

2.12.5 Further information

Hazardous, restricted solid, liquid or special wastes include:

- Asbestos and ACM
- batteries (lead acid and NiCad)
- bioguard bandages

- contaminated soil (above general solid waste thresholds)
- chemicals
- clinical waste (eg syringes)
- industrial cleaning agents
- PCB waste (greater than or equal to 2ppm)
- pesticides / biocides / herbicides / fungicides (including container rinsate)
- sulfur hexafluoride (SF_6) and chlorofluorocarbon (CFCs)
- liquid waste
- wastes classified as dangerous goods (some exemptions apply).

Dangerous goods include:

- gases such as aerosol cans, gas cylinders, LPG bottles
- flammable solids and liquids such as fuel and solvents
- explosive, corrosive, radioactive, toxic, oxidising or infectious substances
- scheduled PCBs (> 50 ppm)

PCBs or scheduled chemical wastes include:

- benzene
- chlordane
- heptachlor
- OCPs such as aldrin, dieldrin and endrin.

For dangerous goods information:
www.infrastructure.gov.au/transport/australia/dangerous/index.aspx
For hazardous chemicals information: www.safeworkaustralia.gov.au/chemicals
For further information on pesticides: www.epa.nsw.gov.au/pesticides/Pesticides.htm

Hazards

2.13 Hazardous materials

2.13.1 Collect information

Refer to the Collect information section on page 5.

2.13.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.13.3 Requirements

Asbestos

Asbestos fibres must be prevented from becoming airborne. Asbestos containing materials (ACM) must be assessed, classified, registered, stored, handled, transported and disposed of in accordance with legal requirements. Labelling and licensing may be required for the removal, transport, storage and disposal of asbestos wastes.

All works with the potential to disturb ACM must be undertaken in accordance with WHS requirements, SafeWorkNSW Code of Practice – How to Safely Remove Asbestos, the specific work instructions detailed in NS211 Working with asbestos products and Ausgrid's Asbestos training.

Lead

Lead is a metal that has been widely used in the Ausgrid work environment including conductors, solder, lead acid batteries, building flashing and in paint systems. Lead can also be found in accumulated dust. It has the potential to cause detrimental health effects and have a negative impact on the environment if not managed appropriately.

When planning work on the network or in the depot environment a check of the Asbestos Register for the presence of lead paint or lead levels in dust must be undertaken. If there are no entries relating to lead and a substation or depot was constructed prior to mid-90s an assessment of paint systems or dust that may be disturbed during the works is to be undertaken. The Hazmat Field Manager in Contracted Services can provide support with lead assessment and lead removal. Any work involving the disturbance of lead products must be undertaken in accordance with the relevant SWMS for the task and comply with the controls listed in Be Safe Hazard Guideline 20: Lead.

Where equipment that is coated in a lead paint system is being decommissioned and scrapped the Reclamation Advisor in Logistics must be informed to enable appropriate disposal of the equipment.

PCBs

Equipment manufactured prior to 1997 (or where the date is uncertain) requiring disposal or return to stores must be tested for the presence of PCBs prior to transporting. The PCB level can be obtained either from the PCB register or via an oil test undertaken at a suitable National Association of Testing Authorities, Australia (NATA) accredited laboratory. Ausgrid's preferred option for PCB oil testing is to use the PLUS ES Chemical Testing Laboratory (9410 5117).

An Oil Test Report specifying the PCB content of the oil or an extract from the PCB register must accompany oil filled equipment movement requests (except for new oil or equipment). Oil filled equipment must not be drained until the PCB content is known.

A PCB licence is required for the transport or storage of scheduled PCBs > 1 tonne. Where a PCB licence is required:

a) Use PCB licensed transporters and storage facilities OR

b) Transport and store in accordance with Ausgrid's PCB licence including:
   - Transport only between Ausgrid premises by Ausgrid employees.
   - Promptly arrange disposal.
   - Store in a covered and secure bunded area.

c) Have current oil spill response training if involved in the handling, transport or storage of oil.

d) Label scheduled PCBs with the scheduled PCB waste label

e) When transporting, carry completed transport documentation.

f) When transporting receptacles > 500 kg(L), use a dangerous goods licensed driver and vehicle and placard receptables in accordance with the ADG Code.

g) When transporting receptacles > 500 kg(L) or aggregate loads ≥ 1000 kg(L),
   - Carry specific PPE, safety equipment, Emergency Response Guides and an emergency information holder in transport vehicles.
   - Placard the vehicle in accordance with the ADG Code.

a) Dispose of PCB waste only to an EPA licensed facility.

b) Comply with waste tracking requirements (refer to section 5.3 of Ausgrid's Environmental Handbook).

c) To arrange disposal Ausgrid employees can contact:
   - Ausgrid's workshops for non-scheduled PCB oil.
   - ESU for all other PCB waste. Use PCB waste removal form (EF 104) or PCB insitu treatment form (EF 105).

2.13.4 Further information

For asbestos information: www.safework.nsw.gov.au/health-and-safety/safety-topics-a-z/asbestos/asbestos-at-work

For lead information: www.safework.nsw.gov.au/health-and-safety/safety-topics-a-z/hazardous-chemical/lead-work

Hazardous chemicals are classified under the Work Health and Safety Regulation 2011 (NSW).

Dangerous goods are classified under the Australian Dangerous Goods Code.

2.14 Electromagnetic energy

2.14.1 Collect information

Refer to the Collect information section on page 5.

2.14.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.14.3 Design measures to avoid/mitigate impacts

Consider “no” or “low cost” options for reducing EMF exposure for the project such as:

- Locate the substation away from receivers or in areas less frequented (eg adjacent to car parks, walkways, store rooms, switch rooms, amenity areas or fire stairs).
- Plan the substation layout with the low voltage (LV) side further away from receivers than the high voltage (HV) side. The HV side has a substantially smaller current than the LV side and therefore has lower associated EMF.
- Locate the incoming and outgoing cables associated with a substation in areas away from receivers.
- Choose a conductor configuration which will reduce fields (eg triangular arrangements, compact construction, bundled cabling, multicore cables).
- Arrange the phases to minimise the magnetic field (eg balance load on phases RWB/BWR).
- Increase the distance between the source and the receiver (eg raise conductor height).
- Make use of existing access restrictions (eg property line, fencing, landscaping).
- Choose a layout for adjacent apartments which minimises EMF exposure (eg locate bedrooms and lounge rooms away from the substation, locate bathrooms, laundry, storage rooms and entrances close to the substation).

Ausgrid employees can find further guidance in NEG SE01 Power Frequency EMF – Prudent Avoidance.

Ausgrid’s EMF Calculator (EGN 423) can be used to model the indicative magnetic field from a power line or kiosk for a given load. The results should be considered indicative only and it should be remembered that prudent avoidance is about considering low cost ways of reducing exposure, not achieving some arbitrary level.

2.14.4 Requirements

Ausgrid’s policy involves designing and operating our network prudently within the Australian guidelines. Prudent avoidance means designing new electrical infrastructure to minimise EMF exposure where this is both practicable and low cost (undergrounding or arbitrary setbacks fall outside this definition).

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) advises that: *"the scientific evidence does not establish that exposure to the electric and magnetic fields found around the home, the office or near power lines causes health effects.”*

International Commission on Non-Ionizing Radiation Protection (ICNIRP) has set exposure limits for established health effects:

(a) Public exposure limit of 200μT which should also be applied to pregnant workers

(b) Occupational exposure limit of 1,000μT (for Ausgrid workers)

2.14.5 Further information

ENA: https://www.energynetworks.com.au/electric-and-magnetic-fields/

ARPANSA: www.arpansa.gov.au/

2.15 Climate change

2.15.1 Collect information

Refer to the Collect information section on page 5.

2.15.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.15.3 Design measures to avoid/mitigate impacts

- Select sites/route that avoid/minimise works in areas of flood prone land.
- Refer to NS113 Site selection and construction design requirements for chamber substations.
- Refer to NS141 Site selection and site preparation standards for kiosk type substations.

2.15.4 Requirements

Climate change is resulting in more frequent extreme weather events such as heatwaves, bush fires, droughts, storms and flooding as well as and gradual changes such as higher sea levels and higher mean high tides. The Intergovernmental Panel on Climate Change predicts that based on current emissions, the sea level will rise 60-110cm by 2100.

Flood areas are areas where flood related development controls apply and includes the following four areas:

- Flood Planning Area. The area lower than the Flood Planning Level (FPL). The FPL is generally the 1% AEP plus an appropriate freeboard (typically an additional 0.5m).
- 1% Annual Exceedance Probability (AEP) flood (1 in 100 year flood).
- Probable maximum flood (PMF). The largest flood that could possibly occur (known as flood liable land floodplain or flood prone land).
- Historical flood levels.

Coastal vulnerability areas include areas subject to coastal hazards such as coastal erosion and tidal inundation.

Areas below projected sea level rise (1m above mean high-water mark) are likely to be submerged this century.

1. Kiosk substations should not be installed in flood areas or below projected sea level rise (1m above mean high-water mark) unless Ausgrid determines there is no reasonable alternative.
2. Avoid siting infrastructure in flood areas coastal vulnerability areas or below projected sea level rise (1m above mean high-water mark) where reasonably practicable.
3. When siting infrastructure within the flood planning area comply with all relevant Network Standards including:
    - NS113 Site selection and construction design requirements for chamber substations
    - NS141 Site selection and site preparation standards for kiosk type substations

Works that cannot meet the above controls will require further assessment and may require a specialist assessment and/or approval from Ausgrid's Asset Management Group. Under section 256 of the WM Act, approval is required to construct any building, fence or structure in, on, or adjacent to, a levee bank.

2.15.5 Further information

Climate change impacts: https://www.climatechange.environment.nsw.gov.au/sea-level-rise

2.16 Fire Hazard

2.16.1 Collect information

Refer to the Collect information section on page 5.

2.16.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.16.3 Design measures to avoid/mitigate impacts

- Consider site / route / access (for both construction and maintenance) that avoid bushfire prone land.
- Consider the use of covered or underground conductors instead of bare overhead conductors.
- Consider fitting low voltage (LV) spreaders on bare overhead conductors.
- Where possible locate switches and drop out fuses away from bushfire prone land or vegetated areas.

2.16.4 Requirements

Section 63(1) of the *Rural Fires Act* (NSW) requires public authorities to take all notified steps (if any) and any other practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of bushfires on or from:

- any land vested in or under its control or management, or
- any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.

Under section 63(2) the owner or occupier of land also has a duty to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from, that land.

Ausgrid manages bush fire risk by adopting a risk management approach to ensure that our assets and our customer's private power lines are properly designed, equipped and maintained by the responsible party. All new and replacement assets must utilise appropriate technology in order to limit bush fire risks.

The location of kiosk substations on land which is declared bush fire prone land by the local Council and for the purposes of the *Rural Fires Act* (NSW), where there is a significant risk that a kiosk fault or fire could cause a bush fire, should be avoided wherever reasonably practicable.

All zone substation developments on land that is designated as bush fire prone land must consider bush fire risk and meet the requirements of NSW Rural Fire Services guide, *Planning for Bush Fire Protection 2006* and AS3959 – 2009 Construction of Buildings in Bushfire-prone Areas.

Zone substation developments must comply with Ausgrid's *NS187 Passive Fire Mitigation Design of Substations* which provides details for the design of passive fire mitigation requirements for substations and for safe egress from substation buildings and switchyards in the event of a fire. Substations under NS187 deemed to be in bush fire prone areas shall satisfy all the requirements of *AS3959 – 2009 Construction of Buildings*

in Bushfire-prone Areas and the NSW Rural Fire Services guide, *Planning for Bushfire Protection 2006*.

2.16.5 Further information

For information on building in a bushfire area: www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area

For substation design: NS141 Specification for Site Selection for Kiosk Type Substations

NS187 Passive fire mitigation design of substations

Ausgrid employees can refer to Bushfire Risk Management Plans and Ausgrid's Environmental Handbook.

Community

2.17 Traffic and access

2.17.1 Collect information

Refer to the Collect information section on page 5.

2.17.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.17.3 Design measures to avoid/mitigate impacts

- Select sites/routes that avoid State roads and busy regional and local roads.

Access track construction

New access tracks should generally be constructed in accordance with *Managing Urban Stormwater: Soils and construction - Volume 2C*.

Access track maintenance and upgrades should be undertaken in accordance with *OEH A field guide for erosion and sediment control maintenance practices*.

Specific controls could include:

- clearly mark the limits of clearing
- for lower grade tracks, where possible, construct the track simply by slashing or blading the surface vegetation. Avoid blading soil except where it is necessary to build a track bench on side slopes, to form drainage line approaches or to make rough surfaces trafficable
- limit borrow areas by balancing cut to fill earthworks along an alignment as much as possible
- minimise cut volumes for earthworks

Additional requirements may apply for access tracks in National Parks.

2.17.4 Requirements

Traffic

Classified roads fall into three major categories, State roads, regional roads and local roads, and include freeways, state highways, main roads, tourist roads and secondary roads.

If works are proposed on a public road, consent is required under section 138(1) of the *Roads Act* (NSW). Consent is not required in relation any unclassified road other than a Crown road. To apply for a section 138 consent, write to TfNSW for State roads or the relevant local council for regional roads and local roads to request approval, providing a description of the work and including a plan showing the extent of the works. Ausgrid employees should use the relevant templates from Appendix 1 of Ausgrid's Procedure to Seek Consent Under Section 138 of the Roads Act.

After section 138 consent is obtained and prior to starting works, a road occupancy licence (ROL) will need to be obtained for works as outlined in Appendix 6 of the memorandum of understanding (MoU) between Ausgrid and TfNSW (Ausgrid employees). An ROL is required in the Sydney region for all classified state roads, classified regional roads, and local roads within 100 m of a traffic signal or a classified state road and in the Hunter region for all state roads.

An ROL is not required prior to verification of the SER. Further information on applying for ROLs is available on the TfNSW Road Occupancy Licence application website.

If works will require out of hours works (ie night works), ensure that it is sufficiently addressed in Table 2 of the SER under construction noise.

Access

Issues affecting people in wheelchairs and the effect of electricity works on people with visual impairments should properly be considered when Ausgrid assesses the environmental effects of a particular proposal to place pillars, poles, kiosks etc in footpaths or access ways.

The *Disability Discrimination Act* (Cth) and building standards that sit under that Act, including the Building Code of Australia and the AS1428 series, contain design standards for new buildings and building modifications in order to accommodate people with disabilities.

2.17.5 Further information

For state and regional classified road information: www.rms.nsw.gov.au/business-industry/partners-suppliers/lgr/arrangements-councils/road-classification.html

Ausgrid employees can refer to Ausgrid's Memorandum of Understanding (MoU) with Transport for NSW:
balin.energy.com.au/techpub/agreements_with_other_organisations/mou_index.htm

Designated Strategic Transport Land – The DP&E may designate any land as Designated Strategic Transport Land by causing notice of the designation to be published in the NSW Government Gazette.

2.18 Visual and aesthetics

2.18.1 Collect information

Refer to the Collect information section on page 5.

2.18.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.18.3 Design measures to avoid/mitigate impacts

- Select sites/routes that avoid view corridors of high visual appeal and high numbers of viewers.
- Consider the distance of the infrastructure from viewers (eg foreground, middle ground, background).
- Utilise existing electrical infrastructure and corridors where possible.
- Select materials, textures and colours which blend with the surrounds.
- Bundle overhead cables to reduce aesthetic impact and minimise tree pruning (where applicable)
- Limit the need for vegetation clearing.
- Position poles between property buildings rather than in front of a particular property.
- Utilise the existing topography and vegetation to shield views of the development.
- Install landscape screening between the development and viewers.

2.18.4 Requirements

Visual impacts should be considered and assessed taking into account the extent and nature of the proposal, line of sight and the areas of high aesthetic, scenic, natural or recreational value.

Amenity and aesthetics influence the ‘liveability’ of a place that makes it pleasant and agreeable to be in for individuals and the community.

High aesthetic, scenic, recreational or natural value areas enhance the visual amenity.

Short term and minor construction impacts should be excluded from the assessment.

2.19 Social and economic

2.19.1 Collect information

Refer to the Collect information section on page 5.

2.19.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.19.3 Design measures to avoid/mitigate impacts

- Undertake early community engagement to inform the design process.
- Consult with local and regional development authorities to align the design with long-term economic plans.
- Optimise route selection by minimising disruption to residents and businesses, utilising existing infrastructure and corridors, and avoiding culturally and environmentally sensitive areas where possible.
- Source materials and services for local suppliers and sub-contractors where feasible.
- Incorporate local apprenticeship and training opportunities for local youth and underrepresented groups in the community.

2.19.4 Requirements

Social and economic impacts should be considered to ensure that developments are inclusive, equitable, and sustainable. Evaluating and addressing these factors early in the project planning process minimises impacts, enhances local benefits, and leads to more inclusive, resilient, and sustainable outcomes.

2.19.5 Further information

DPIE Social Impact Assessment Guidelines
https://www.planningportal.nsw.gov.au/sites/default/files/documents/2023/GD1944 SIA Guideline_NEW VI_14_02_23.pdf

Other

2.20 Other issues

2.20.1 Collect information

Refer to the Collect information section on page 5.

2.20.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.20.3 Requirements

Assessments and requirements for other issues will depend on the specific circumstances. Allocate a risk level of 3 for issues which should be referred to Environmental Services.

2.20.4 Further information

Some examples could include:

- encroaching on airspace near airports
- restricting access along a river.

Cumulative

2.21 Cumulative impact

2.21.1 Collect information

Refer to the Collect information section on page 5.

2.21.2 Allocate assessment level

Refer to section 2 and the pre-populated text in the SER form.

2.21.3 Design measures to avoid/mitigate impacts

- Consult with other internal and external Project / Design managers.
- Arrange agreements and methodologies concerning the management activities prior to undertaking work in the area where cumulative impacts are likely.
- Community engagement must be streamlined to ensure an effective feedback mechanism. Ausgrid employees can consult with Ausgrid's designated community liaison officer.

Example 1: 11 kV feeder works are associated with a new zone substation which has been assessed separately. If works are likely to occur at the same time, the combined noise and amenity impacts should be assessed. Reference should also be made to the substation assessment to determine if commitments were made to the community about hours of operation, etc.

Example 2: A kiosk installation will require restricting access to the footpath. There is a major construction site on the opposite side of the road to the kiosk site. The combined traffic and access impacts should be assessed. Consultation should occur with the construction site to identify any specific Development Assessment (DA) conditions in order to ensure that impacts are adequately managed.

The risk assessment should be performed on the total cumulative impact.

2.21.4 Requirements

Cumulative impact is the combined effect of multiple projects on the environment. The other projects may be past, present or future and may be carried out by Ausgrid or others.

Glossary

Term	Meaning
ACM	Asbestos containing material
Activity	Has the same meaning as that prescribed by section 5.1 of the EP&A Act
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ALR Act	*Aboriginal Land Rights Act* (NSW)
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASS	acid sulfate soils
ASP	Accredited Service Provider
B Act	NSW *Biosecurity Act*
BC Act	the *Biodiversity Conservation Act* (NSW)
Blue Book	*Managing Urban Stormwater – Soils and Construction* (Landcom 2004)
CCO	chemical control order
CEMP	construction environmental management plan
CFC	Chlorofluorocarbon
CLC	customer load control
Climate Change	Describes both changed average climatic conditions, such as increased temperature and lower average rainfall, as well as changes in the patterns of extreme events, including increased frequency and intensity of storms and sealevel rise.
CPESC	Certified Professional in Erosion and Sediment Control
DA	development application
dB	Decibels
DP	deposited plan
DPI	Department of Primary Industries
EHC Act	*Environmentally Hazardous Chemicals Act* (NSW)
EIA	Environmental impact assessment
Emergency works	Works for the purpose of maintaining or restoring infrastructure facilities or equipment in order to ensure public safety or to protect buildings or the environment due to: • a sudden natural event, including a storm, flood, tree fall, bush fire, land slip or coastal inundation, or • accident, equipment failure or structural collapse, or • damage caused by vandalism or arson, provided the works involve no greater disturbance to soil or vegetation than necessary and are carried out in accordance with all applicable requirements of the Blue Book.
EMF	electric and magnetic fields
EP&A Act	NSW *Environmental Planning and Assessment Act*
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act* (Cth)
EPI	environmental planning instruments
ESU	Ausgrid's Environmental Services section, who can be contacted on 02 9394 6659 or environmentalservices@ausgrid.com.au

Term	Meaning
EWMS	Environmental work method statement
ES Act	*Electricity Supply Act* (NSW)
ESCP	erosion and sediment control plan
FM Act	*Fisheries Management Act* (NSW)
FM Regulation	*Fisheries Management (General) Regulation* (NSW)
GBD	General Biosecurity Duty
Heritage Act	*Heritage Act* (NSW)
HW Act	*Hunter Water Act* (NSW)
HV	high voltage
HWC	Hunter Water Corporation
ICNG	Interim Construction Noise Guideline
IECA	International Erosion Control Association
ICNIRP	International Commission on Non-Ionizing Radiation Protection
kg	Kilogram
kV	Kilovolts
LEP	local environmental plan
LV	low voltage
m, m^2, mm	metre, metres squared, millimetre
mg	Milligrams
MoU	memorandum of understanding
NATA	National Association of Testing Authorities, Australia.
NDA	Nominated Determining Authority
NES	national environmental significance
NPW Act	NSW *National Parks and Wildlife Act*
NPWS	National Parks and Wildlife Service
NT Act	*Native Title Act* (Cth).
NVMP	Noise and Vibration Management Plan
OCP	organochlorine pesticides
PCB	polychlorinated biphenyls
POEO Act	NSW *Protection of the Environment Operations Act*
PT	pole top transformer
Ramsar	A 'declared Ramsar wetland' is an area that has been designated under Article 2 of the Convention on Wetlands (Ramsar, Iran, 1971) or declared by the Minister to be a declared Ramsar wetland under the EPBC Act.
REF	review of environmental factors
TfNSW	Transport for NSW
ROL	road occupancy licence
SANSW	Subsidence Advisory NSW
SCW	scheduled chemical waste
SF_6	Sulphur hexafluoride

Term	Meaning
SEPP	state environmental planning policy
SER	Summary Environmental Report
SIS	Species Impact Statement
SOPA	Sydney Olympic Park Authority
SRZ	structural root zone
Study Area	The study area for this project has been defined by coordinates indicated in the attached WebGIS EL Report.
SWMP	soil and water management plan
TMP	Traffic Management Plan
TSMP	tree safety management plan
TPZ	tree protection zone
UGOH	underground to overhead connection
WebGIS EL	Ausgrid's environmental geographic information system, WebGIS Environmental Layers
WebGIS EL Report	A report generated from the WebGIS EL.
WHS	Work health and safety
WM Act	NSW *Water Management Act*
WMS	work method statement

Document history

Version	Summary of changes	Author
1.0	Initial release of Table 4 guidance	James Hart
2.0	Guidance for EIA worksheet Tables 1-3 added	James Hart
3.0	Updated guidance for EIA worksheet Tables 1 – 4	Diana Charteris
4.0	Updated s2A.6 to reflect EF 250 and EG 251	Diana Charteris
5.0	Updated Tables 1–3 to reflect current procedures. SMART controls	Diana Charteris
6.0	Updated to reflect the July 2014 NUS 174C. Updated information on crown land and made minor improvements throughout.	Diana Charteris
7.0	Updated s2B.5 regarding works on classified roads.	Diana Charteris
8.0	Updated s3A.4 to remove the requirement to complete EF 17430.	Diana Charteris
9.0	Updated s2A.5 and 2B.5.	Diana Charteris
10.0	Updated s2B.9 and 4.12 for Fire Ant Control Area, s2A.1 (now on the Env GIS), and s4.10 with new TMP calculator.	Diana Charteris
11.0	Updated s1.9 with 40 day notification under ES Act and s3A.4 with additional guidance on contamination assessments	Michelle Quinn
12.0	Updated SER guidance, removed Fire Ant requirements (revoked by DPI)	Michelle Quinn
13.0	New information on SF6 equipment, HWC notifications, bushfire prone land, paint/corrosion removal from transmission towers, EMF	Michelle Quinn
14.0	Updated mine subsidence, legislation titles and department names, hazardous materials, and other minor amendments.	Michelle Quinn
14.1	No longer a public authority under the FM Act (require a permit for dredging work). Updated wording for the WM Act.	Michelle Quinn
14.2	Alignment with NS174C 2017, removed forest agreements, changed SHFA to Place Management, added biodiversity stewardship sites, updated movable heritage process, added oil EWMS and flood planning area requirements.	Michelle Quinn
14.3	Clarified typical construction methodologies and requirements for public land, marine parks, SANSW, consultation timeframes, Biodiversity stewardship sites, Significant tree register, hazardous materials and flood prone land.	James Hart
14.4	Minor amendments following Legal review	James Hart
14.5	Updated notification requirements, decommissioning substations and various minor legislative changes.	James Hart
14.6	Updated to align with revised NS174C Environmental Handbook June 2020.	James Hart
14.7	Updated to include climate change adaptation controls, new controls for decommissioning substations, remove duplicate text with the SER form and other minor amendments.	James Hart
14.8	Aligned with revised NS174C Environmental Handbook June 2025 and new SER form. Removed reference to Planning Code, reordered sections.	James Hart