REQUIREMENTS FOR WORK AND OTHER ACTIVITIES WITHIN SUBTRANSMISSION RESERVATIONS

DETAILS THE REQUIREMENTS FOR PERMITTED ACTIVITIES AND DEVELOPMENT, APPROVAL PROCESS AND PROHIBITED ACTIVITIES IN UNDERGROUND AND OVERHEAD SUBTRANSMISSION RESERVATIONS AND EASEMENTS

All persons who intend to undertake activities in sub transmission reservations must comply with this document. This is to ensure the safety of the public, prevent damage to electricity network assets and the environment and minimise disruption to customers.

CONTENTS

1. INTRODUCTION

Subtransmission easements and reservations are corridors of land set aside for overhead and electrical infrastructure operating at voltages of 66kV and above, in the Evoenergy network, subtransmission cables and conductors typically carry 132kV. There are restrictions on developments and activities that are allowed to take place within a subtransmission easement / reservation, these restrictions are designed to manage:

- Risks to public safety
- Risk to electricity network assets
- Risks to supply of electricity to customers
- Risks to the environment

The purpose of this document is to outline the requirements and restrictions that the public, developers, construction companies and the any third party must adhere to when working within subtransmission reservations.

Note: The Safe Work Australia code of practice document “Working in the vicinity of overhead and underground electric lines” is an important resource in the application of this requirement.

2. RESERVATIONS AND EASEMENTS

Reservations define an area surrounding subtransmission infrastructure where activities are limited in order to protect people, the electricity network, and the environment. Reservations exist around all Evoenergy subtransmission assets. Easements are formal land access agreements primarily allowing Evoenergy access to subtransmission assets located on that land. Generally, transmission assets are located in an easement, however, for the purpose of activities, the requirements for reservations detailed in this document apply whether an easement exists or not.

Reservations surrounding subtransmission infrastructure use clearances, development and activity limitation and prohibition to protect the public from the risk of harm from the electrical infrastructure carrying hazardous voltages. This includes risks of electric shock by inadvertent contact, step, and touch potentials from earth fault currents as well as induced and capacitive voltages. Additionally, the clearances and prohibitions reduce the risk from fallen conductors and the possibility of fires, including bushfires.

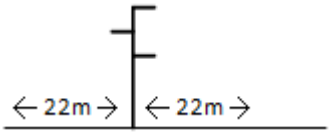
Clearances, restriction and prohibition of development and activities prevent damage to the subtransmission assets and risk to supply reliability from faults caused by contacting lines, striking cables, and damaging or undermining structures.

The easement or reservation also allows unencumbered access to subtransmission assets by Evoenergy for lifecycle management of the subtransmission assets including construction, maintenance, and replacement.

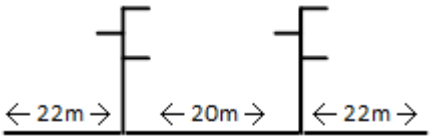
3. CLEARANCES IN RESERVATIONS

The table below lists the clearances for subtransmission network assets above and below ground.

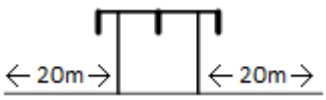
1. Single Pole Line.
   (maximum 20 metre height)
   44 metre reservation (exc. tower width)



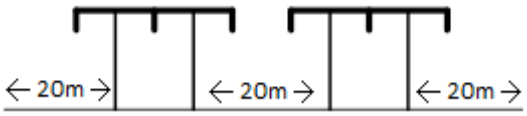
2. Twin Single Pole Lines
   (maximum 20 metre height)
   22 + 20 + 22 = 64 metre reservation (exc. tower width)



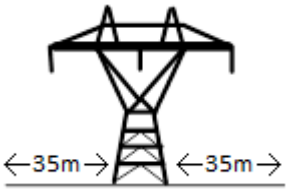
3. Single "H" Pole Line
   (maximum 18 metre height)
   40 metre reservation (exc. tower width)



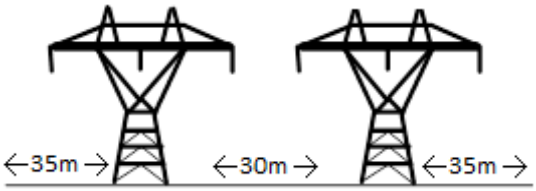
4. Twin “H" Pole Line
(maximum 18 metre height)
20 + 20 + 20 = 60 metre reservation (exc. tower width)



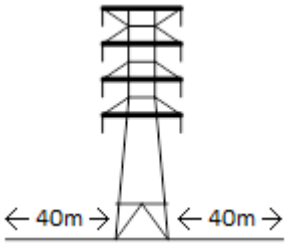
5. Single Circuit Steel Tower Lines
(maximum 30 metre height)
70 metre reservation (exc. tower width)



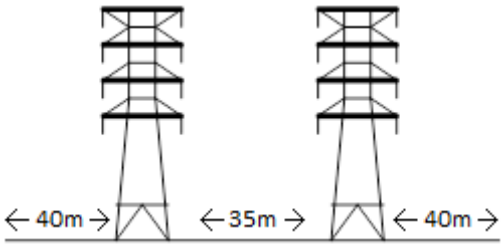
6. Twinned Single Circuit Steel Tower Lines
(maximum 30 metre height)
35 + 30 + 35 = 100 metre reservation (exc. tower width)



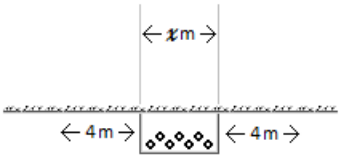
7. Double Circuit Steel Tower Lines
(supporting one or two circuits, maximum 35 metre height)
80 metre reservation (exc. tower width)



8. Twinned Double Circuit Steel Tower Lines
(supporting one or two circuits, maximum 35 metre height)
40 + 35 + 40 = 115 metre reservation



9. Underground Subtransmission Cables
(minimum 4 metres from edge of the cable)
4 + *x* + 4 = *x* + 8 metre reservation
x is width of trench



Note: Above drawings are not to scale.

4. SAFE APPROACH DISTANCES

Safe approach distances are specific exclusion zones around network assets that MUST be observed, including when conducting permitted activities within a subtransmission reservation or easement that have been approved by Evoenergy. The Evoenergy Electrical Safety Rules define a safe approach distance as:

Safe approach distance is the minimum distance that must be maintained by a person, worker, vehicle, or mobile plant (including its load, controlling ropes and any other accessories) when approaching electrical apparatus other than for work with an access authority.

Section 2 of The Electrical Safety Rules details the requirements regarding safe approach distances for all Evoenergy network assets, including subtransmission level, for people by authorisation level and for vehicles and plant. This section includes the requirements for vegetation management.

5. REQUIREMENTS WHEN CONDUCTING PERMITTED DEVELOPMENT AND ACTIVITIES

Developers/contractors wishing to undertake permitted works within an easement or reservation must meet the following requirements:

5.1 Authorisation

From January 2020, companies wanting to work on or near the electricity network must be accredited with Evoenergy, and their workers must be authorised with Evoenergy prior to commencing that work.

Evoenergy's accreditation and Authorisation process is detailed in the Evoenergy Accreditation and Authorisation Procedure which is available on the Evoenergy website.

Evoenergy has legal obligations under the Utilities (Technical Regulation) Act 2014 to ensure people are trained in the Evoenergy Electrical Safety Rules (ESR) and that Evoenergy maintain accurate records of every accredited company and worker authorised who to work on or near the Evoenergy network.

5.2 Approval

Permitted development works (Appendix A) require written approval from Evoenergy prior to commencement of any work, this allows Evoenergy to check that all aspects of the development/works are safe to proceed. Failure to obtain Evoenergy approval may result in unsafe situations as well as stoppage of work in near vicinity and/or having to move/modify the development at the developer's expense. There also may be regulatory penalties applied by the ACT Government.

5.2.1 Approval Process

A summary of the key requirements are provided in flowchart form below (Figure 1).

FIGURE 1. PLANNING AND CONSTRUCTION PROCESS FOR DEVELOPER

Developer to submit the following information to Customer Delivery Evoenergy (network.connectionadvice@evoenergy.com.au):

DETAILED DESCRIPTION OF THE WORKS

- Copy of site safety plan inclusive of SWMS for working in the easement / reservation area including the adherence to safe approach distances and compliance with the Evoenergy Electrical Safety Rules.
- List of mobile plant and equipment likely to operate in the easement / reservation.
- Sketch showing where mobile plant and vehicles will operate, and how construction materials including spoil and fill will be transferred into, out of and stored in the easement / reservation.
- Project timing for work in the vicinity of Evoenergy assets.
- Study showing that the Earth Potential Rise (EPR) of any conductive structure within statutory safety limits.
- Study showing that the Electromagnetic Radiation (EMR) effects are within prescribed limits as given by the Energy Networks Association (ENA).
- Copy of facility management plan for the ongoing maintenance of the site (within the easement area) after it is completed. Evoenergy will not be held responsible for the maintenance of any part of the site

Industry Interface and Coordination Lead from Customer Delivery need to forward the received information to:

- Work Practices Manager for review and vetting of SWMS and their operation in reservation area
- Overhead Assets Manager for review & vetting EPR & EMR are within prescribed limits of ENA

Industry Interface and Coordination Lead from Customer Delivery need to forward the Approval from Evoenergy for working within Subtransmission Reservation to Developer

Developer to place signs outlining the conditions of entry to the site at all entrances. Where there is an access gate, developer to ensure that it is at least 4.5 metres wide.

DEVELOPER TO PROCEED WITH CONSTRUCTION:

- If required, Evoenergy will provide outages and/or safety observer for work that may take place in the Spotter Required Zone near overhead lines at the developer's expense.
- Ensure that works comply with the requirements of AS2550.1, inclusive of any increased clearance provided by Evoenergy for working in the various safety zones.
- Ensure that work complies with the ACT Safety Codes of Practice for working near overhead lines.
- Written approval form Evoenergy, with any additional requirements must be received and a copy available on site and made available to Evoenergy representatives and Worksafe inspectors

VERSION CONTROL

VERSION	DETAILS	APPROVED
1.0	Document reference updated; Document updated in new template; No version control in old document therefore starting with Version 1.	Azizi, Nadeem; Acting Asset Standards Manager; 10/03/2022
1.1	Minor updates in Figure 1	N. Azizi; 30/03/2022
2.0	Underground subtransmission cables and reference to safe approach distances included, activities moved to appendices and updated on new template	J. Primmer, N. Azizi; 20/12/2023

DOCUMENT CONTROL

DOCUMENT OWNER	DOCUMENT CUSTODIAN	PUBLISH DATE	REVIEW DATE
Group Manager Strategy and Operations	Principal Engineer Standards and Specifications	08/01/2024	08/01/2026

APPENDIX A – PERMITTED DEVELOPMENT AND ACTIVITIES

The following developments and activities are permitted within Subtransmission Reservations provided Evoenergy requirements including the Electrical Safety Rules and relevant Safe Work requirements are followed

Horticultural Development

The planting of trees and shrubs is permitted under the following conditions:

- The mature growth height must not exceed the height as described in Evoenergy Standard Drawing: 3811-018 (Vegetation Clearance Requirement for UG & OH Subtransmission Line Assets in ACT).
- Vegetation density shall be limited to control the total quantity of burnable materials on the easement / reservation.
- A tree clear area of 3 metres radius must be provided around tower/pole sites, unless a smaller clearance has been approved by Evoenergy as per Evoenergy Drawing 3811-018.
- 4 metres are to be maintained between edge of the subtransmission cable and tree canopy dripline.
- Vegetation management as Evoenergy document Vegetation Management Work Near Overhead Powerlines.

In the absence of any buildings or similar significant permanent structures, market gardens, orchards and horticultural nurseries are permitted in accordance with Evoenergy Standard Drawing: 3811-018 provide no metallic supports or structures are used.

Landscaping and Light Infrastructure

The following landscaping and light infrastructure are permitted:

- Water storage dams, subject to sufficient clearances from cables, conductors, and tower/poles.
- Landscaping, paving and roadwork, subject to sufficient clearances to the cables, conductors, and tower/poles if changes to the natural surface levels are proposed.
- Non-metallic fences up to 3 metres in height, subject to sufficient clearances from cables, conductors, and tower/poles.
- Metallic fences or railings below 2.4 metres in height with all sections effectively earthed; Metallic handrails longer than 3 metres must be sectionalised; Handrails made of non-conductive materials without earthing; are permitted subject to sufficient clearances from cables, conductors, and tower/poles.
- Sewerage, drainage, and water pipes made of non-conducting materials, but no closer than 20 metres to tower/poles and 4 metres to underground subtransmission cables.
- Lighting poles, subject to sufficient clearance to the cables, conductors, and tower/pole (AS 7000 clause 3.11.2.2, *Easements* shall be maintained). The power supply must be underground, and the lighting columns must be able to be lowered to the ground for servicing of the luminaires.

Digging/excavation

Digging/excavation is permitted under the following conditions:

- Non-destructive techniques such as hydro vac must be used.

- The excavation contractor must obtain the appropriate Before You Dig (BYD) authorisation prior to commencing work.
- The excavation contractor must develop a Safe Work Method Statement (SWMS) that reflects the nature of the work to be undertaken prior to commencing work and submit to Evoenergy for vetting as per Chapter 5.
- The excavation contractor must develop a risk assessment plan prior to commencing work and submit to Evoenergy for vetting.
- The excavation contractor understands that they must not touch any buried metal that may be inadvertently exposed during excavation.
- The ground in the excavated area at completion of the works must be returned to its original, or an approved condition.
- If temporary fencing is required, it must be of a type supported above ground and not use pickets of any kind.
- An appropriate earthing system or alternate mitigation such as barriers, must be fitted to excavators (or any other machinery used for excavation or digging) and be in use at all times during operation.
- When excavating in the vicinity of underground cable and overhead conductors, the clearances for mobile plant must be maintained as per PO0677, Evoenergy Electrical Safety Rules.
- If at any time the equipment comes in contact with underground cables and/or aerial conductors or there is any arc (without touching the conductor), all the works (within reservation) must cease immediately and Evoenergy must be notified immediately. Until assistance is received, a competent person must remain on site in a prominent position to warn of the danger of electrocution, following the specific guidelines provided in AS2550.1 Clause 6.20.4.

Car Parks and Vehicles

Car parks are permitted within easements/reservations under the following conditions:

- The car park must come within a specific clearance height as determined by Evoenergy. This height will be calculated considering the ground clearance over the carriageway of a minor road plus the height of a sedan or utility type vehicle when the conductors are at maximum operating temperature, for the specific design of the overhead lines present.
- Vehicles shall only park in designated bays.

Parking of sedan and utility types of vehicles is permitted if the following conditions are met:

- Barriers of a design that has been approved by Evoenergy must be installed to protect tower/poles from any damage by vehicles.
- If a tower/pole is within 20 metres of a car park boundary or located within a car park, then it must be protected by a barrier such as a non-metallic bollard. In case of underground subtransmission cable, the car park boundary must have 4 metres of separation.
- Bollards cannot be closer than 1.5 metres to a tower/pole or anchorage point. In case of underground subtransmission cable, the bollards must have 4 metres of separation. In both cases, the bollards must be installed using a non-destructive technique such as hydro vac.
- The relevant approach distance, as determined by Safe Work Australia (SWA), must be adhered to PO0677, Electrical Safety Rules. If there is to be a person working from or standing on a vehicle, different approach distances apply as outlined in SWA's Code of Practice *Working in the Vicinity of Overhead and underground Electrical Lines.*

Cranes

The use of cranes during construction is permitted provided that the conditions set out in Australian Standard AS2550.1, Section 6.20 are adhered to. In particular, the following conditions must be met:

- The crane must be operated at a safe distance away from live aerial conductors, as shown in AS2550.1 Clause 6.20.3 Figure 6.20.3. Where the crane is to be operated within the 'Spotter

Required Zone' or 'No Go Zone', written permission must be granted by Evoenergy and the specific requirements outlined in AS2550.1, Clause 6.20.3 satisfied.

- A documented site-specific risk assessment must be undertaken before commencement of the work by a trained and competent person. This document must be vetted by Evoenergy, and its accuracy verified immediately before work commences. If circumstances affecting the relevance of the risk assessment change during the job, work must cease immediately and not commence until a new risk assessment has been undertaken and approved.
- If mobile machinery is to be used within the minimum approach distances of landing bay or underground cables/conductors, the developer must apply to Evoenergy to have the power supply to the conductors isolated prior to operation, unless other control measures are developed in collaboration with Evoenergy.
- If areas of possible voltage step potential are accessible at a ground level to people not involved in construction activities, barriers must be set up and appropriate warning signs displayed on the barriers.
- The crane operator shall be the only person to come in contact with any part of the crane during operation. If the load needs to be steadied during lifting, a non-conducting tag line must be used. All persons involved in the crane operation in contact with the ground must be provided with appropriate means of insulation from the ground.
- An appropriate earthing system must be fitted to the crane and be in use at all times during operation.
- If at any time the crane or load comes in contact with underground cables and/or aerial conductors or there is any arc (without touching the conductor), all the works (within reservation) must cease immediately and Evoenergy must be notified immediately. Until assistance is received, a competent person must remain on site in a prominent position to warn of the danger of electrocution, following the specific guidelines provided in AS2550.1 Clause 6.20.4.

APPENDIX B – PROHIBITED DEVELOPMENT AND ACTIVITIES

The following developments and activities are prohibited within Subtransmission Line Reservations:

- Houses, other buildings, and structures, including eaves, awnings, canopies, shelters or similar.
- Erection of scaffolding at any time. Steel rods or sections greater than 3 metres in length are not permitted onsite unless securely stored inside a vehicle.
- Installation of temporary buildings such as site sheds
- Shipping containers
- Suspended catenaries, including those to support cables, plantings, decorative lights etc.
- Metallic supports for plantings
- Storage of materials in industrial type waste bins and skips at any time.
- Stockpiling of excavated waste materials at any time, other than that used temporarily during construction to a maximum height of 3 metres.
- Lighting of fires
- Storage or handling of flammable materials, liquids, or gases.
- Transfer of fuels.
- The electrical detonation or storage of explosives including fireworks.
- Repairs to plant and equipment. Repairs to sedans or utility vehicles and the removal of these vehicles using a tow truck is permitted.
- Flying objects that may encroach minimum electrical clearances (no flying kites or balloons or operating model aircraft / drones, unless the subtransmission reservation is for underground cable

- Use of vehicles and equipment such as cranes, excavators, elevated working platforms or similar exceeding 3 metres in operating height without written permission from Evoenergy.
- Parking of large trucks and caravans (traversing or crossing easements / reservations is permitted).
- Loading, unloading and load adjustments of large trucks.
- Operation of large water spray irrigators of the gun type.
- Metal pipes (including reinforced concrete), power cables and other electrically conductive materials within reservations.