Ministry for the Environment
Manatū Mō Te Taiao

Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016

USERS' GUIDE

New Zealand Government

Disclaimer

The information in this publication is intended to assist with the interpretation and implementation of the regulations. However, users of this publication are advised that:

- the information provided has no official status and so does not alter the laws of New Zealand, other official guidelines or requirements
- it does not constitute legal advice, and users should take specific advice from qualified professionals as appropriate before taking any action as a result of information obtained from this publication
- the Ministry for the Environment and Ministry of Business, Innovation and Employment do not accept any responsibility or liability whatsoever whether in contract, tort, equity or otherwise for any action taken as a result of reading, or reliance placed on this publication because of having read any part, or all, of the information in this publication or for any error, or inadequacy, deficiency, flaw in or omission from the information provided in this publication.

Acknowledgements

This users' guide was prepared by 4Sight Consulting for the Ministry for the Environment and Ministry of Business, Innovation and Employment.

The Ministry for the Environment and the Ministry of Business, Innovation and Employment would like to extend a particular thanks to the members of the Technical Advisory Group (TAG), whose advice and technical input has been invaluable in the production of this users' guide.

Members of the TAG were from the following organisations: Local Government New Zealand, Wellington City Council, New Zealand Telecommunications Forum, Tasman District Council, Porirua City Council, Chorus Ltd, Northpower Fibre Ltd, Enable Network Services Ltd, Spark New Zealand Ltd, 2Degrees Mobile Ltd, Vodafone New Zealand Ltd, Te Runanganui o Ngati Porou, Crown Fibre Holdings, Nga Pu Waea and Auckland City Council.

Published in August 2018 by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: 978-1-98-852580-8 (online)
Publication number: ME 1379

This document is available on the Ministry for the Environment website: www.mfe.govt.nz.

Ministry for the Environment
Manatū Mō Te Taiao

Making Aotearoa New Zealand
the most liveable place in the world

Contents

Tables

Figures

1 Introduction

This user guide is a manual for interpreting and implementing the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016 (the NESTF 2016). It supports the implementation of the NESTF 2016 by providing guidance and information to local authorities, telecommunication network operators and the public generally.

The NESTF 2016 replaces the previous Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2008 (the NESTF 2008), and expands on that to allow a greater range of telecommunication facilities in a wider range of locations.

This users' guide provides information on:

- the structure and scope of the NESTF 2016
- applying and understanding the regulations
- regulated activities under the NESTF 2016, and relevant standards and examples
- areas with identified values where district plan rules may be more stringent than the NESTF 2016
- requirements for radiofrequency fields
- implementation of the NESTF 2016.

A complete copy of the regulations is included as **appendix A**, and a summary of the development of the NESTF 2016 is included as **appendix B.**

1.1 Overview of national environmental standards

National environmental standards (NESs) are regulations made under sections 43 and 44 of the Resource Management Act 1991 (RMA). They set out nationally consistent technical standards or requirements for particular activities and decision-making processes, which can help to protect people and the environment. This helps to give certainty around what is expected in specific situations.

NESs regulate activities in the same the way as a rule in a regional or district plan, and may specify that:

- an activity is permitted, or prohibited
- a resource consent is required.

Local authorities must observe NESs, and enforce each standard to the extent their powers enable them to do so.[1]

[1] Sections 44A(7) and 44A(8) of the RMA.

1.2 National Environmental Standards for Telecommunication Facilities

1.2.1 NESTF 2008

The first NES for telecommunication facilities came into effect in October 2008, providing a national planning framework that allowed telecommunication network operators, as permitted activities, to install a limited range of telecommunication infrastructure in the road reserve. It also set a national standard for radiofrequency field exposure for all telecommunication facilities.

The NESTF 2008 provided for the:

- installation and operation of a telecommunication facility (such as a mobile phone transmitter) that generates radio frequency fields as a permitted activity, provided it complies with the New Zealand Standard (NZS 2772.1: 1999 Radiofrequency Fields Part 1: Maximum Exposure Levels 3kHz to 300 GHz)
- installation and operation of telecommunication equipment cabinets in the road reserve as a permitted activity, subject to specified conditions on their size and location, and controls on the noise emitting from the cabinets
- installation or replacement of masts and antennas on existing structures in the road reserve as a permitted activity, subject to specified conditions on height and size.

1.2.2 NESTF 2016

The NESTF 2016 extends the scope of the NESTF 2008 to permit a wider range of telecommunication facilities in locations, both in and out of the road reserve. The amendments are intended to be enabling, with the primary objective of the NESTF 2016 to provide greater national consistency in the rules for telecommunication infrastructure across New Zealand, while ensuring the effects on the environment are managed appropriately.

The NESTF 2016 is designed to support the efficient deployment and development of telecommunication networks across the country, reducing compliance costs and timeframes for service providers, councils, and consumers. The NESTF 2016 regulates the following activities as permitted activities, provided the prescribed standards are met:

- cabinets:
  - in the road reserve
  - outside the road reserve
  - servicing antenna on buildings
- antennas on existing poles in the road reserve
- antennas on new poles in the road reserve
- replacement, upgrading and co-location of existing poles and antennas outside road reserve (with different conditions in residential and non-residential areas)
- new poles and antennas in rural areas
- antennas on buildings (above a permitted height in residential areas)
- small-cell units on existing structures
- telecommunication lines (underground, surface mounted, and overhead).

The following changes have also been made to the standards in the NESTF 2016 compared to those in the NESTF 2008:

- increasing the size envelope for antennas on a pole in the road reserve
- increasing the height that replacement poles can be increased by in the road reserve
- allowing for replacement cabinets in the road reserve to be erected before existing cabinets are removed
- changing the existing reference to the superseded 1999 radiofrequency measurement standard to the 2016 radiofrequency standard, AS/NZS 2772.2
- including a wider range of areas with identified values (visual amenity, historic heritage, landscape, ecological, coastal) where district plan rules may be more stringent than the NESTF 2016.

The NESTF 2016 provides greater national consistency to enable the roll-out and upgrading of telecommunication networks and technologies as these continue to evolve. However, the NESTF 2016 does not regulate all types of telecommunication facilities, nor does it override regional plan rules. For more details on the scope of the NESTF 2016 and the regulated activities, see section 2.2 – Activities provided for under the NESTF 2016.

The NESTF 2016 applies to 'facility operators', which are defined in regulation 4 as:

- a network operator (as defined in section 5 of the Telecommunications Act 2001[2])
- the Crown (as defined in section 2(1) of the Public Finance Act 1989)
- a Crown agent (as defined in section 10(1) of the Crown Entities Act 2004).

Information on network operators can be found on the Ministry of Business, Innovation and Employment website.[3]

Further information on the development of the NESTF 2016, including the evaluation of the NESTF 2008 and the public consultation process, is included in **appendix B** and can be viewed on the Ministry of the Environment's website.[4]

1.3 Other legislation and regulations

Telecommunication facilities continue to be subject to other legislation and regulations, which need to be considered and complied with as relevant alongside the NESTF 2016. In some situations, this may mean that a proposal may comply with the NESTF 2016 while also requiring consent under another Act. Relevant legislation and regulations for telecommunication facilities include, but are not limited to, the:

- Telecommunications Act 2001
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
- Utilities Access Act 2010, and the National Code of Practice for Utility Operators' Access to Transport Corridors

[2] www.legislation.govt.nz/act/public/2001/0103/latest/DLM124974.html

[3] www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/telecommunications-broadcasting-network-operators

[4] www.mfe.govt.nz/rma/legislative-tools/national-environmental-standards/national-environmental-standards-0

- Heritage New Zealand (Pouhere Taonga) Act 2014.

Section 7.5 of this guide provides more details on these Acts and regulations, and how they may need to be considered alongside the NESTF 2016.

1.4 Document structure

This guide is structured as follows.

- **Chapter 2** provides an overview of the NESTF 2016, including the structure of the regulations, the regulated activities under the NESTF 2016, and exclusions.
- **Chapter 3** provides guidance on understanding and applying the regulations, including the different types of telecommunication equipment, how to assess compliance with the NESTF 2016, baseline dates, and measurements.
- **Chapter 4** outlines the types of facilities permitted under the NESTF 2016 and provides some specific scenarios and examples.
- **Chapter 5** provides an overview of the radiofrequency field standards and requirements under the NESTF 2016.
- **Chapter 6** outlines the areas with identified values where district plan rules may be more stringent than the NESTF 2016, and examples from district plans.
- **Chapter 7** provides an overview of the implementation of the regulations, including the requirements for local authorities to observe and enforce the NESTF 2016.

2 Overview

2.1 Structure of the National Environmental Standards for Telecommunication Facilities 2016 (NESTF 2016)

The NESTF 2016 is structured into four parts.

- **Part 1 – Preliminary matters**: sets out the purpose of the regulations, key definitions, terminologies and measurements, and where the regulations do not apply.
- **Part 2 – Carrying out regulated activities:** provides direction on the regulated activities under the NESTF 2016, and an activity's status if the relevant standards are not complied with.
- **Part 3 – Regulated activities and standards**: sets out the regulated activities and relevant standards that apply to each. The regulations are broken down into different subparts relating to each of the telecommunication facilities regulated under the NESTF 2016 (ie, cabinets, antennas, small cell units, telecommunication lines, earthworks, and radiofrequency fields). Each subpart describes the activity and relevant standards that must be complied with in order for an activity to be permitted.
- **Part 4 – Miscellaneous**: outlines the areas where district plan rules can be more stringent than the NESTF 2016, and makes it clear that natural hazard rules do not apply to regulated activities under the NESTF 2016.

2.2 Activities regulated under the NESTF 2016

The NESTF 2016 regulates six main types of telecommunication facilities and activities, outlined in table 1 below. A 'facility' is defined in the NESTF 2016 as "an antenna, cabinet, telecommunication line or small cell unit" and regulation 5 outlines what the 'installation and operation' of a telecommunication facility means.

This clarifies that when installing and operating ancillary equipment the following are all part of the 'installation and operation' of a facility:

- plinth and foundations
- lightning rods
- carrying out repairs and maintenance as well as earthworks (of or in association with any facility or those additional structures).

See section 3.2 for an overview of telecommunication facilities and associated equipment.

Table 1: Telecommunication facilities and activities regulated under NESTF 2016

Subpart	Regulation
Cabinets – Part 3, sub-part 1	Installation and operation of cabinets (Regulations 19–25)
Antennas – Part 3, sub-part 2	Installation and operation of antennas on: • existing poles in road reserve (Regulations 26–27) • new poles in the road reserve (Regulations 28-29) • existing poles outside road reserve and in residential zones (Regulations 30-31) • existing poles outside road reserve and not in a residential zone (Regulations 32-33) • new poles outside road reserve and in rural zones (Regulations 34-35) • buildings (Regulations 36-37)
Small cell units – Part 3, sub-part 3	Installation and operation of small-cell units on an existing structure (Regulation 38)
Telecommunication lines – Part 3, sub-part 4	Installation and operation of: • customer connection lines (Regulations 39-40) • aerial telecommunication lines (Regulations 41-42) • underground telecommunication lines (Regulation 43)
Earthworks – Part 3, sub-part 6	Earthworks associated with the installation and operation of telecommunication facilities (Regulations 53-54) Earthworks are also referred to in relation to each regulated telecommunication facility.
Radiofrequency fields – Part 3, sub-part 7	Requirements for facilities that generate radiofrequency fields (Regulation 55)

Telecommunication facilities and activities that are not regulated under the NESTF 2016 continue to be managed through the relevant district and regional plans. These may include:

- new poles and antennas that are not located in the road reserve or rural zones
- the installation, operation and maintenance of a self-contained power unit[5] to generate power for the facility and any associated earthworks
- the establishment, operation and maintenance of an access track to a telecommunication facility and any associated earthworks
- new telecommunication lines and associated support structures
- telecommunication exchanges.

It is also important to note that the NESTF 2016 does not apply to any telecommunication facility or activity located in the coastal marine area (see Regulation 8) or over the bed of a lake or river (see Regulation 52). See section 6.10 for more information.

The NESTF 2016 does not override any regional earthwork rules, where these apply (see Regulation 54).

[5] 'Self-contained power unit' is defined in the NESTF 2016 as equipment installed to generate power for the facility, including any cables connecting the unit to the facility (regulation 5).

3 Guide to understanding and applying the regulations

This section provides a guide to understanding and applying the NESTF 2016, including:

- how to identify the applicable standards in the NESTF 2016, based on the nature of the proposal and where it is located
- how the NESTF 2016 applies to antennas on new and existing poles through baseline poles and baseline dates
- the different types of telecommunication facilities and the associated equipment permitted under the NESTF 2016
- the different areas (zones) where the NESTF 2016 permits telecommunication facilities
- how measurements in relation to height, width, footprints and noise are calculated under the NESTF 2016.

3.1 Applying the regulations

3.1.1 How to identify the applicable standards

There are a number of steps to determine the standards in the NESTF 2016 that apply, based on the specifics of the proposal. The main steps are:

- **step 1 – check if subpart 5 applies**: this should be the first step, as it will determine whether the proposal needs to comply with the relevant district plan rules, and the activity status of the proposal
- **step 2 – understand the proposal:** the applicable standards in Part 3 of the NESTF 2016 will be determined by whether it involves: cabinets (subpart 1), antennas (subpart 2), a small cell unit (subpart 3), or telecommunication lines (subpart 4), earthworks (subpart 6) and radiofrequency fields (subpart 6)
- **step 3 – identify the location of the proposal**: with regard to the road reserve, residential zones, non-residential zones and buildings[6]
- **step 4 – confirm whether the activity involves earthworks:** the applicable earthworks standards vary for each regulated activity (see section 4.13 – earthworks).

[6] Although it should be noted that this is only a relevant consideration for certain regulated activities.

3.1.2 Compliance and non-compliance with the NESTF 2016 standards

Part 3 of the NESTF 2016 sets out the standards for each regulated activity that must be complied with. Regulation 11 states that a regulated activity is permitted if it is carried out in accordance with the standard. In general, regulated activities will be permitted provided:

- the activity carried out is clearly what is described in sub-regulation (1) of the relevant regulation
- the relevant standards referred to in sub-regulation (2) of the relevant regulation are complied with.

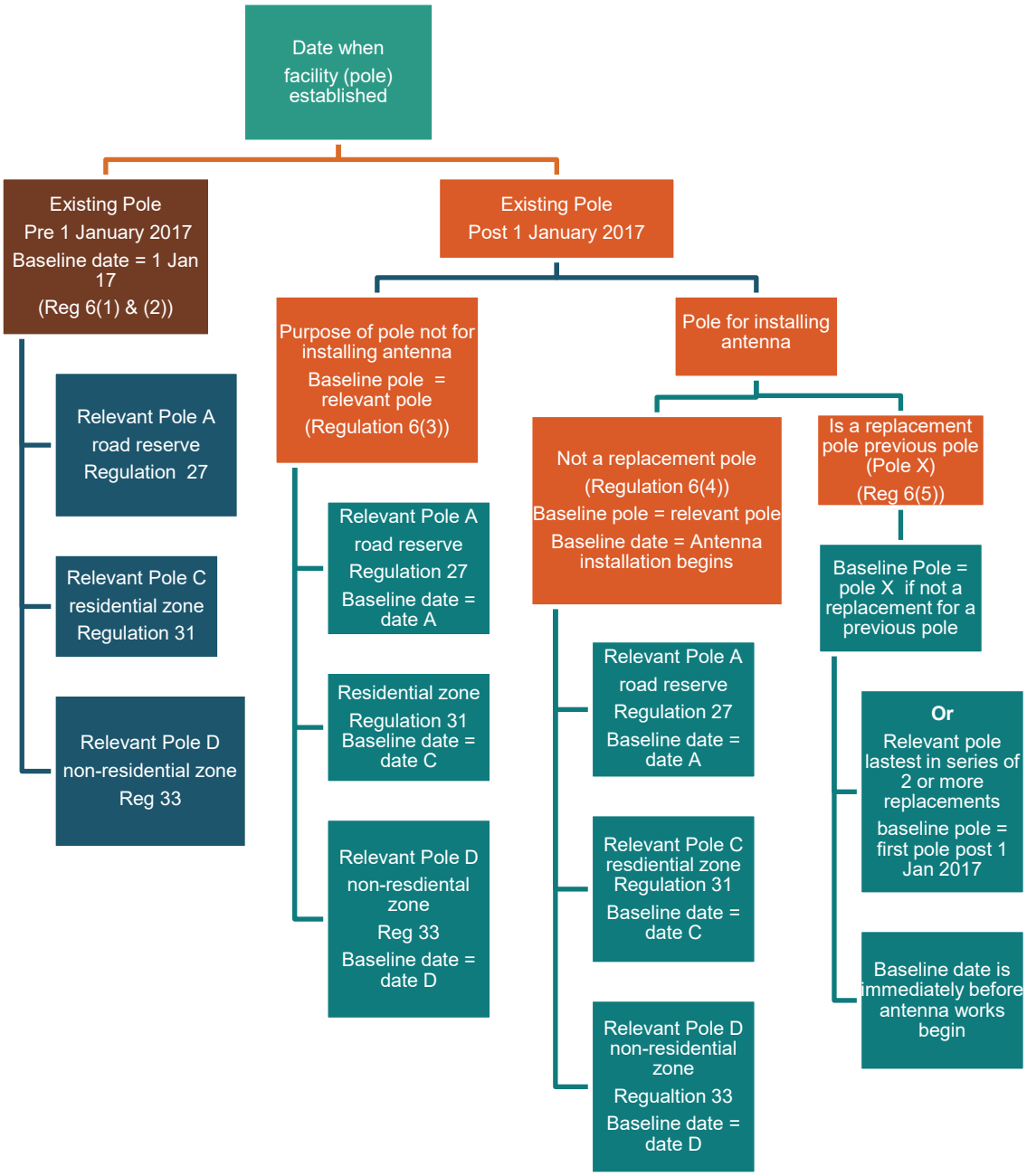
Where a regulated activity does not comply with the permitted activity standards in the NESTF 2016, its activity status will be determined by regulations 12-18. This generally results in the activity status defaulting to the activity given in the relevant district plan. There are two exceptions under the NESTF 2016 (as there were under the NESTF 2008).

- If the underlying district plan permits a telecommunication facility that does not comply with the NESTF 2016 standards, resource consent is required for a *controlled activity*. The assessment matters are limited to the part of the standard under the NESTF 2016 not complied with (Regulation 14(2)). For example, if the facility does not comply with the pole height standards then the assessment should be limited to the effects associated with the additional height.
- If there is non-compliance with the radiofrequency field standards, resource consent is required for a **non-complying activity** (Regulation 13(3)).

3.1.3 Baseline pole and date

The NESTF 2016 uses two important terms, **baseline pole** and **baseline date**, to determine which regulations apply to a proposed telecommunication facility when upgrading and replacing poles already in place when the regulations came into force, or upgrading and replacing poles erected after the regulations came into force on 1 January 2017. Regulation 6 (**Meaning of baseline pole and baseline date**) defines these different scenarios. The following flow chart in figure 1 summarises the content of Regulation 6 in relation to 'baseline pole' and 'baseline date', to assist in understanding these terms when applying the regulations relating to antennas on existing poles in different locations (Regulations 27, 31 and 33).

Figure 1: Overview of baseline poles and baseline dates



3.2 Telecommunication facilities and equipment provided for under the NESTF 2016

3.2.1 Poles

Pole is a key term in the NESTF 2016 and is defined as:

> "a pole, mast, lattice tower, or similar structure, of a kind that is able to be used (with or without modification) to support antennas."

The NESTF 2016 definition of pole is intended to capture the wide range of poles, masts and towers that can be used to support antennas. This terminology may differ to that used to refer

to the same structures under district plan provisions and industry documentation. For example, structures supporting antennas are often referred to by the telecommunication industry as masts, with the exception of lattice towers and antennas on lighting poles in the road reserve. All of these would fall within the NESTF 2016 definition of pole.

The primary purpose of the pole may be to support antennas or it may have multiple functions, such as a light pole that antennas have been attached to. Examples of typical poles are provided in figure 2.

Figure 2: Examples of typical poles

While the definition of pole in the NESTF 2016 is intended to be relatively broad, there are certain structures this definition is not intended to apply to. Poles not typically used to support antenna are excluded from the definition of pole in the NESTF 2016.

As the NESTF 2016 provides for poles in different scenarios and locations, it uses alphabetical references (eg, Pole A, Pole B) to differentiate between types of poles. This is intended to avoid confusion between the different types of poles and ensure the relevant standards are identified and complied with. The different poles referred to in the NESTF 2016 are outlined in table 2.

Table 2: Pole terms used in the NESTF 2016

Term	Pole A	Pole B	Pole C	Pole D	Pole E
Regulations	26–27	28–29	30–31	32–33	34–35
Scenario and location	Existing pole in road reserve.	New pole in road reserve.	Existing pole in residential zone.	Existing pole in non-residential zone.	New pole in rural zone.

3.2.2 Headframes and mounts

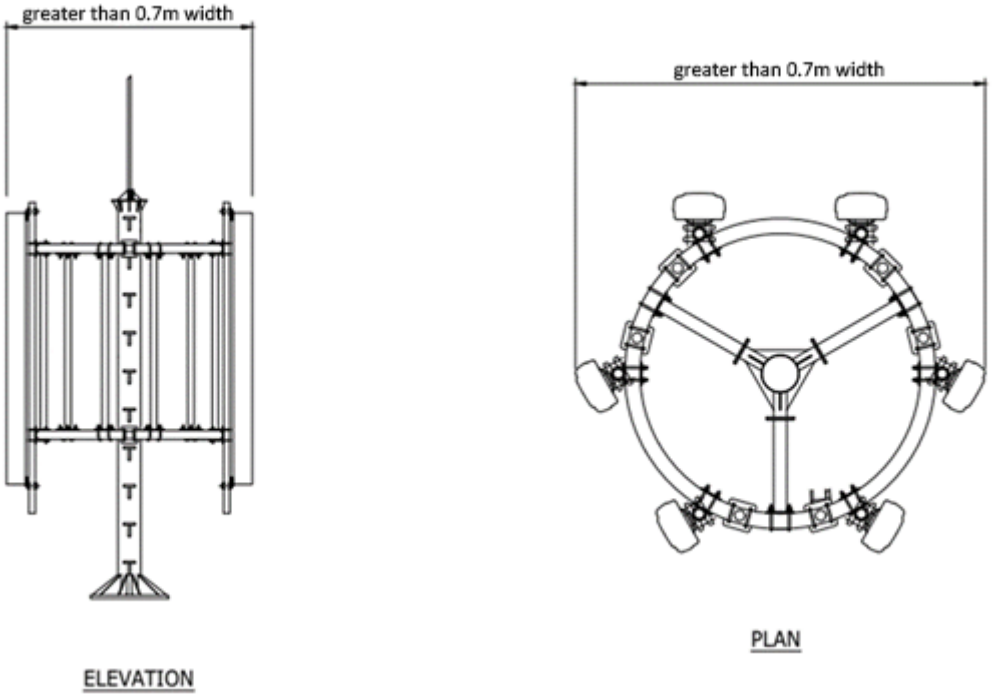
Understanding the difference between headframes and mounts, and how these are attached to poles, is critical to understanding and implementing the NESTF 2016 provisions relating to antennas, as there are different size (width) requirements for each. Headframe is defined in the NESTF 2016 as:

> "… a structure attached to a pole that:
>
> (a) enables more than 1 antenna to be attached to the pole; and
>
> (b) results in the notional envelope of the pole being larger than 0.7m in diameter."

Generally, headframes are larger structures at the top of a pole, which extend out horizontally to enable a range of antennas to be attached. Headframes can also enable multiple operators' equipment to be attached to the same pole, while maintaining the necessary separation distance between their antennas. Some examples of headframes are provided in figure 3, and figure 4 provides a plan and vertical view of a headframe.

Figure 3: Examples of headframes attached to a pole

Figure 4: Elevation and plan views of headframe used to attach antenna to a pole



Mount is defined in the NESTF 2016 as:

> "equipment used to attach—
>
> (a) an antenna to a building;
>
> (b) an antenna to a pole without a headframe;
>
> (c) an antenna to a headframe; or
>
> (d) a headframe to a pole."

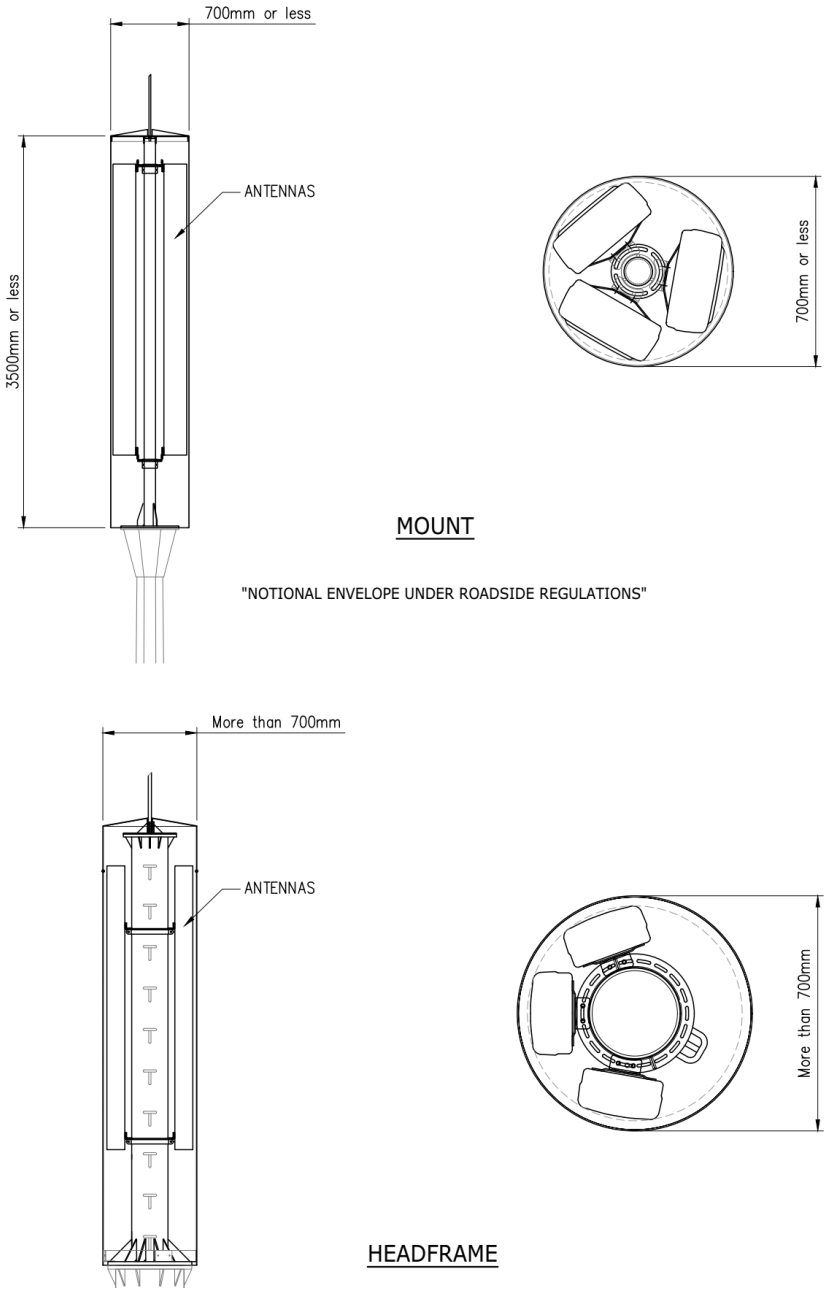
Mounts are smaller in size than headframes and are used in a range of scenarios to attach antennas to poles, headframes and buildings. Mounts are also used to attach headframes to poles. Some examples of mounts are provided in figure 5.

Figure 5: Examples of mounts used to attach non-dish antenna

The key difference between a mount and headframe, as defined in the NESTF 2016, is the **width** that it allows the final structure to be. Any structure used to attach antenna to a pole

with a total diameter greater than 0.7m is classified as a headframe, and any structure used for the same purpose where the total diameter of all antennas attached is equal to or less than 0.7m wide is classified as a mount. The difference between the width of mounts and headframes is shown in figure 6, with reference to the notional envelope for non-dish antennas in the road reserve.

Figure 6: Measurement of mount and headframe width



3.2.3 Cabinets

Cabinets are essential equipment for the telecommunication network. A cabinet is defined in the NESTF 2016 as:

> "a casing around equipment that is necessary to operate a telecommunication network, but not any of the following:
>
> (a) a casing around an antenna, a small cell unit, ancillary equipment, or any part of a telecommunication line;

(b) a casing that is wholly underground;

(c) a casing that is inside a building; or

(d) a building."

Cabinets come in a range of sizes and configurations and may be grouped, stacked and/or in separate arrangements within a larger platform. Note that the permitted standards for cabinets in the road reserve are based on those introduced under the NESTF 2008. Examples of telecommunication cabinets are provided in figure 7.

Figure 7: Examples of cabinets in and outside the road reserve

Examples of telecommunication equipment not included in the NESTF 2016 definition of cabinet include underground cabinets, and cabinets in buildings, such as telecommunication shelters that are able to be entered into by technicians as illustrated below in figure 8. These activities continue to be managed through the relevant district plan.

Figure 8: Example of a large telecommunication shelter able to be entered into by technicians

3.2.4 Telecommunication lines

The NESTF 2016 provides for the following types of telecommunication lines, which are explained further below:

- customer connection lines
- aerial telecommunication lines
- underground telecommunication lines.

Telecommunication lines are defined in the NESTF 2016 as:

> "...a wire, or conductor of any kind (including fibre optic cable), referred to in paragraph (a) of the definition of line in section 5 of the Telecommunications Act 2001."

The relevant definition of line in the Telecommunications Act 2001 is as follows:

> "(a) means a wire or a conductor of any other kind (including a fibre optic cable) used or intended to be used for the transmission or reception of signs, signals, impulses, writing, images, sounds, instruction, information, or intelligence of any nature by means of any electromagnetic system; and …"

3.2.4.1 Customer connection lines (regulation 39 and 40)

Customer connection lines are defined in the NESTF 2016 as:

> "... a telecommunication line that connects a telecommunication distribution network to a premises for the purposes of enabling a facility operator to provide telecommunication services to a customer."

A customer connection line can comprise an aerial, underground, or surface-mounted line, or a combination of any of the three. The line may derive from an overhead or underground distribution network, and terminates at a customer's premises or other consumption point (such as an ATM machine). Where it is necessary to link the underground and overhead network for the purposes of providing a customer connection, the line is fixed vertically to a support structure. This is typically contained in a white PVC or grey HDPE plastic protection pipe or similar.

Aerial customer connection line

An aerial customer connection may originate directly from the nearest support structure and attach to the customer's building. This support structure may be on the same side of the road as the customer's property, or it may be on the opposite side of the road, in which case it requires an overhead 'road crossing'. In other instances, an overhead customer connection may go from the distribution network via a support structure to another support structure or structures. Such situations typically occur when the distribution line is located on the opposite side of the road to the property that the customer connection is going to, or along a right of way or long driveway.

To be a permitted activity, an aerial customer connection line must not exceed 30 mm in diameter (regulation 40(2)(b)(i)) and must be supported by existing structures (regulation 40(2)(b)(ii)). For the point of termination, the customer premises are considered a support structure.

Examples of the different configurations for aerial customer connections are shown in figure 9.

Figure 9: Aerial customer connection lines

Underground customer connection lines

An underground customer connection line is a line that is buried below ground, and can be either direct buried or located in new or existing ducting, pipe, or similar. A new underground customer connection line can be installed by way of drilling, open trenching, or direct burying. There are no specific standards that apply to an underground customer connection line in the NESTF 2016 (only the more general requirements relating to earthworks and special areas under subpart 5).

Surface-mounted customer connection line

A surface-mounted line is defined in the NESTF 2016 as:

> "a telecommunication line that is mounted on the surface of a structure (such as a wall, fence, or paving)."

A surface-mounted line is a line that is encased in a ruggedised or strengthened sheath, or in some instances in a conduit or pipe (eg, where there are multiple customers along a right of way). These lines are then secured to hard surfaces or the ground, including (but not limited to):

- driveways, footpaths, curbing
- retaining walls
- fences.

Examples of surface-mounted customer connection lines are shown in figure 10.

Figure 10: Surface-mounted customer connection lines

3.2.4.2 Aerial telecommunication lines (regulations 41 and 42)

Aerial telecommunication lines may be located on support structures (see figure 11). When located on electricity support structures, telecommunication distribution lines may be located beneath the electricity lines (as shown in figure 11 below) but, in some instances, may also be located within the electricity lines corridor. Either position is provided for under regulations 41 and 42 (see section 4.11 – aerial telecommunication lines).

Ancillary equipment associated with an aerial telecommunication line can include a Fibre Access Terminal (FAT), which enables a single customer or multiple customer connection to the network. Other ancillary equipment may include (but is not limited to) clamps, bolts and brackets, PVC or HDPE plastic protection pipe or similar that extends up the pole to connect the underground and aerial network.

Figure 11: Aerial telecommunication lines

3.2.4.3 Underground telecommunication lines (regulation 43)

Underground telecommunication lines (often referred to as cables or microducts) are generally (but not always) located in the road reserve. The lines are sometimes contained in protective ducting (ancillary equipment), and can be installed using a number of methodologies, including the following methods.

Directional drilling or thrusting – trenchless method

Directional drilling uses a machine that drills metal pipes into the ground; the tunnel size is drilled to suit the duct. Entry and exit holes are required for the drill machine approximately every 80–100m, with relief holes sometimes required every 30m depending on soil type and size of the duct. Thrusting involves pneumatically punching a metal head through the ground, and typically is utilised for short distances up to 15m.

Open excavations

Open excavation, requiring open trenching, is associated with the installation of cables, microducts, ducts, joint pits, pedestals, poles and chambers. Open trenching for the main network duct ranges in depth depending on the location and equipment being installed, but is typically between 450–600mm deep. Open excavation methods include hand digging and/or excavations with machinery, airspading, or hydrovac excavations. Airspading utilises

compressed air to remove soil from around roots and services. A hydrovac utilises high pressure water and suction to remove soil from around roots and services.

Underground lines can also be installed in existing duct or pipes.

3.2.5 Ancillary equipment

Ancillary equipment is defined in the NESTF 2016 as:

> "… telecommunications, radiocommunications, electrical or similar equipment it is necessary to install with a facility to enable the facility to operate as intended, but not a self-contained power unit or a lightning rod."

The definition of "ancillary equipment" is focused on technical equipment, being equipment necessary for telecommunication facilities to operate as intended. Some examples of typical ancillary equipment associated with telecommunication facilities are provided in table 3. This is not an exhaustive list, however. It is important to note that this equipment is continually evolving and there are likely to be new forms of ancillary equipment in the future.

Table 3: Examples of ancillary equipment

Ancillary equipment	Purpose
Remote radio units	A remote radio unit is a remote radio transceiver that connects to an operator radio control panel via electrical or wireless interface.
Fibre access terminals (FAT)	Used as an interim connection point between premises (such as a house) and the fibre distribution network. A FAT can also be pedestal based, or pole based.
Air blown fibre flexibility points	A closure for network connections typically contained within a pit or manhole.

3.3 Measurements

3.3.1 Height

3.3.1.1 Pole height

Regulation 7(6) outlines how pole height is to be measured, which is from the bottom to the top of the pole through the centre of the pole. The bottom of the pole should be measured as follows:

- pole at ground level with no plinth – bottom is ground level
- pole includes plinth or other foundation – bottom is top of plinth or foundation
- pole is erected on structure – bottom is the upper surface of the structure.

The top of the pole should be measured at its highest point, not including any headframe, antennas, mount, shroud or ancillary equipment (Regulation 7(6)).

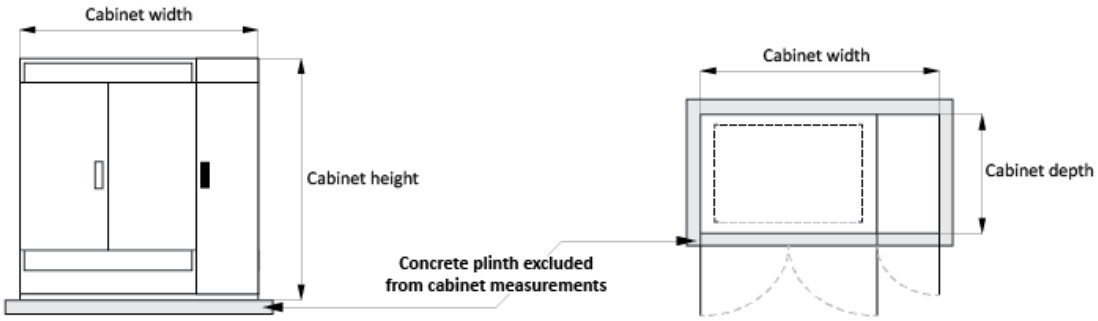
The **pole height rules** (see Regulations 27(5), 29(4), 31(6), 33(7) and 35(2)(a)) control the overall combined height of permitted telecommunication poles and antennas. The height of a pole and all antennas is to be measured from the bottom of the pole (as outlined above) **to the highest point of the pole, any headframe and all antennas**, not including any mount, shroud or ancillary equipment (Regulation 7(7)). Lightning rods are excluded from any measurement

of height (Regulation 7(8)). The measurement of pole height and pole and antenna height is described and illustrated in section 4.

3.3.1.2 Cabinet height and footprint

Regulation 7(1) states that the measurement for cabinet height is to be taken from the bottom of the cabinet at its lowest point (not including any plinth or other foundation) to the highest point of the cabinet. Given that the definition of cabinet does not include the plinth or other foundation, the measurement of cabinet footprint (required under the height, footprint, and grouping rules in regulations 20(3), 21(3), 22(1)(b)) also excludes the plinth or other foundation the cabinets are located on. This is illustrated in figure 12, where the concrete plinth at the bottom of the cabinet is excluded from the height and footprint measurements. This would also apply to any other foundation (eg, an existing concrete pad).

Figure 12: Measurement of cabinet height and footprint



3.3.2 Width of pole, headframe and support structure for telecommunication line

The approach to measuring the width of poles, headframes and support structures for telecommunication lines is essentially the same, with the exclusions slightly different for each. Measurement of width should be as follows:

- pole – width to be measured at widest point of pole, excluding any antenna, headframe, mount, shroud, or ancillary equipment (Regulation 7(2))
- headframe – width to be measured at widest point of headframe and all antennas attached to it, excluding any shroud, or ancillary equipment (Regulation 7(3))
- support structure for telecommunication lines – width to be measured at widest point of structure, excluding the line or ancillary equipment (Regulation 7(4)).

If the structure is circular, the width will be the diameter of the structure (measured at the point set out above). Otherwise the measurement should be at the widest cross-sectional point of the structure.

Note that the measurement of pole width excludes any guy wires attached to the pole, as guy wires are not part of a pole (as defined). Guy wires are tensioned cables designed to add stability to free-standing structures, and are commonly attached to poles in rural areas.

3.3.3 Antenna

3.3.3.1 Non-dish antenna – notional envelope (antenna in the road reserve)

The NESTF 2016 defines the notional envelope for a pole as:

> "… the smallest notional cylindrical shape into which all non-dish antennas attached to the pole (including any shroud but not including any mount or ancillary equipment) would fit."

The size of the notional envelope needs to be considered for non-dish antenna in the road reserve on existing poles and new poles (refer the antenna size rules Regulations 27(3)(b) and 29(3)(a)). Examples of non-dish antennas are provided in figure 13.

Figure 13: Examples of other non-dish antennas

The notional envelope and the measurements relevant to compliance with Regulations 27 and 29 are illustrated in section 4.

3.3.3.2 Dish antenna – protrusion distance (antenna in road reserve and residential zone)

The NESTF 2016 defines protrusion distance as:

> "the amount by which the outer edge of a dish antenna protrudes from the edge of the pole to which it is attached."

The protrusion distance is a relevant consideration under the antenna size rules for dish antenna on existing and new poles in the road reserve, and on existing poles in residential zones (refer Regulations 27(4)(b), 29(3)(b) and 31(4)(b)). The protrusion distance and measurements relevant to compliance with these regulations are illustrated in section 4.

3.3.4 Measuring noise from cabinets

To ensure national consistency, the NESTF 2016 requires compliance with the relevant New Zealand Standard for measuring noise – NZS 6801: 2008 Acoustics – Measurement of environment sound. It also sets out where noise should be measured from, which is the same as the NESTF 2008, and differs depending on the proximity of the cabinets to buildings with a habitable room.

Regulation 24(6) states that where a cabinet is located in the road reserve within 4m of a building containing a habitable room (measured at their closest point), the noise must be measured either:

- 1m from the side of the building
- on the vertical plane of the side of the building.

The point of measurement for noise is to be in the vertical plane to address the situation where habitable rooms may be one or more storeys above street level, but in plan adjoin the boundary. In all other situations, cabinet noise is to be measured at least 3m from the cabinet and within the boundaries of land adjoining the road reserve where the cabinet is located (regulation 24(7)).

3.4 Areas where telecommunication facilities are provided for

The NESTF 2016 includes different requirements for telecommunication facilities in the road reserve, residential zones, rural zones and other 'non-residential' zones. District plans define these zones differently, therefore it is important to understand the zones defined in the NESTF 2016 and the types of areas that are intended to fall within the definitions of each.

3.4.1 Road reserve

The NESTF 2016 defines 'road reserve' as:

> "… a formed legal road and any land next to it up to the legal boundary of the adjoining land."

The definition is essentially the same as under the NESTF 2008, and is intended to be consistent in meaning. A road reserve under the NESTF 2016 specifically only includes formed roads, including any cycleways or bridleways within the legal boundary, but excludes unformed or paper roads. It is noted that the definition is narrower than that used under the Telecommunications Act 2001, the RMA, and various district plans.

3.4.2 Residential zone

The NESTF 2016 defines 'residential zone' as:

> "…an area identified in a district plan or proposed district plan as being zoned primarily for residential activities, but not an area zoned for rural/residential or countryside living activities (however described)."

The phrase 'primarily for residential activities' captures zones that are:

- zoned residential
- primary use residential.

The term 'however described', which is used in several places in the NESTF 2016, recognises that district plans use different terminology to describe zones. Therefore the name of a zone in a district plan does not need to use the exact term 'residential' to meet the terms of this definition. This is illustrated in the examples below.

Mixed-use zones do not fall within the definition of 'residential zones'. Mixed-use zones provide for both commercial and residential activities, therefore the **primary** purpose of a mixed-use zone is not residential activity. Generally mixed-use zones also do not have a residential character that is expected in residential zones.

It is unlikely that **future urban zones** would fall within the NESTF 2016 definition of residential zone, even if they may be used for residential purposes in the future. Future urban zones are typically a signal that the land may transition to an urban use in the future. However, until a full rezoning process occurs, the land remains rural in character and use. Because of this, future urban zones would fall within the definition of rural zones under the NESTF 2016 (see the Auckland Unitary Plan future urban zone example in table 4).

Identifying whether an area is zoned for **rural/residential or countryside living** (as opposed to being zoned primarily for residential activities) is potentially more challenging, particularly in rural districts where some residential areas have low density and a rural outlook. The key test is whether the zone's primary purpose is for residential activities. Some examples are provided below to demonstrate how zones may be classified as either residential or rural in certain situations (also see the section 3.4.3 – rural zone).

3.4.2.1 Examples

Table 4 summarises examples of zones in district plans that may fall within or outside the definition of residential zone in the NESTF 2016 (as at the date of publication). Further information can be found in each respective district plan, and each council will need to determine how these zones relate to the framework of the NESTF 2016.

Table 4: Examples of zones that may fall within or outside the NESTF 2016 definition of 'residential zone'

Plan	Example
Ashburton District Plan 2014 (operative in part)	The Residential C and D zones of the District Plan cover land at the rural/urban interface of Ashburton and other small towns in the district. Residential C: Medium-Low Density zone covers the outer, lower density suburban areas of the district, provides primarily for residential activities, and anticipates that the area will retain an open, planted character with high amenity levels for residents. Residential D: Low Density zone covers land that adjoins the urban edge of Ashburton and other small towns. It also provides primarily for residential activities and is an alternative residential environment to suburban living. However, rural production activities are intended to remain a key feature of the zone, and it is identified as a 'rural-residential interface' area. Under the NESTF 2016, Residential C zone is likely to be considered a 'residential' zone', while Residential D zone is likely to be considered a 'rural zone'. The key differences are: • Residential C zones are located in urban areas, not 'interface' areas like Residential D zones • Residential D zones also anticipate rural production activities, which means the zone has more a rural character.
Hamilton District Plan 2016 (operative in part)	The District Plan has a 'Large Lot Residential Zone', which anticipates low residential densities. It covers areas that are not suitable for full urbanisation, for topographical or existing land use reasons. The Large Lot Residential Zone is not likely to fall within the definition of 'residential zone' under the NESTF 2016 because: • although the objectives state that the dominant activity in the zone is 'residential activity' and the zone is located in the 'Residential' chapter of the District Plan, the anticipated residential activity of the zone is taking place at a density that is more 'rural/residential' in character • the zone contains special provisions for activities such as effluent disposal and produce stalls, which indicates that the residential activities are taking place in a more rural setting; the background explanation for the zone also indicates that Large Lot residential areas are not intended to transition to being 'fully urban', again indicating that the zone should fall into the 'rural' category under the NESTF 2016.

Plan	Example
Whangarei District Plan 2007 (operative)	The District Plan has zones that clearly fit into either 'residential' or 'rural' classifications under the NESTF 2016, despite the words 'residential' or 'rural' not being used to describe any of the zones. Living Environments 1, 2 and 3 are all 'residential' zones, while the Countryside Environment is a 'rural zone'.
Opotiki District Plan (proposed)	The District Plan has a 'Coastal Settlement Zone', which covers small settlements along the coastal marine area interface. Although some of the settlements have small pockets of commercial activity, the predominant activity in all areas is residential. The secondary purpose of the zone is to manage natural hazards, particularly landslides and coastal inundation. Although this zone is not a typical residential zone, the Coastal Settlement Zone is likely to fall within the definition of a 'residential' zone under the NESTF 2016 because its primary purpose is to provide for residential activity (and it is not more accurately described as providing for rural/residential or countryside living activities).
Auckland Unitary Plan 2016 (operative in part)	The Unitary Plan has a 'Future Urban' zone, which is applied to rural land that is intended to be used for urban purposes at some point in the future. Urban residential development in this zone is a non-complying activity, however, to discourage premature, unplanned urban development occurring prior to a full zoning plan change. As the primary purpose of the zone is to prevent urban development and allow the current rural activities to continue, the Future Urban zone is likely to fall within the definition of a 'rural' zone, not a 'residential' zone under the NESTF 2016.

3.4.3 Rural zone

The NESTF 2016 defines a 'rural zone' as:

> "…an area identified in a district plan or proposed district plan as being zoned primarily for rural activities, including an area zoned for rural/residential or countryside living activities (however described)."

This definition has the potential to capture a wide range of zones, including parts of the coastal environment, rural industrial areas, small farming hamlets and low density rural residential areas. Consistent with the definition of 'residential zone', the phrase 'primarily for rural activities' has some key characteristics:

- zoned rural or rural-residential
- primarily for rural activities.

Consistent with the residential zone definition, the term 'however described' recognises that district plans use different terminology to describe rural zones. Therefore the name of a zone in a district plan does not need to use the exact terms 'rural, 'rural/residential' or 'countryside living' to meet the terms of this definition (which is illustrated in the examples below).

3.4.3.1 Examples

Table 5 provides examples of zones in district plans that may fall within or outside the definition of rural zone in the NESTF 2016 (as at the date of publication). Further information can be found in each respective district plan, and each council will need to determine how these zones relate to the framework of the NESTF 2016.

Table 5: Examples of zones that may fall within or outside the NESTF 2016 definition of rural zone

Plan	Example
Whanganui District Plan 2016 (operative)	The District Plan contains four types of zones in the 'Rural' Chapter: • rural production • rural lifestyle • rural general • rural settlement. All four of these zones cover land in 'rural' areas of the district. However, the Rural Settlement zone is likely to be defined as a 'residential' zone rather than a 'rural' zone under the NESTF 2016. The key difference between the Rural Settlement zone and the other three zones is that the Rural Production, Lifestyle and General zones anticipate development at very low densities (5,000m² through to 10 hectares per lot), whereas the Rural Settlement Zone has no minimum lot size, provided the performance standards of the zone are met. The performance standards (building coverage 40%, height to boundary 2m+45°, height 10m) indicate that subdivision and development of residential activities is intended to have an urban residential character, rather than rural residential.
South Taranaki District Plan 2015 (proposed)	The District Plan has a 'Rural Industrial Zone' that covers existing large-scale industrial processing activities that depend on primary products or natural resources from the rural environment. Although some primary production activities may take place within these zones, the main activities are industrial in nature and the character of the zone is industrial rather than rural. As such, the 'Rural Industrial Zone' is unlikely to fall within the 'rural zone' definition in the NESTF 2016.
Queenstown Lakes District Plan 2016 (operative)	The District Plan includes the 'Gibbston Character Zone', which covers a valley just outside Queenstown known for its viticultural activities. Although the Gibbston Valley contains several elements that may not be thought of as traditionally rural (ie, large buildings for wine production, cellaring and tasting and tourism activities), the primary activity that is undertaken in the zone is agriculture (vineyards). The focus of the zone is on preserving the land resource and enabling rural production activities, therefore it is likely that the zone would be considered a 'rural zone' in the context of the NESTF 2016.
Auckland Unitary Plan 2016 (operative in part)	See notes in table 4 on the Auckland Unitary Plan's Future Urban Zone, which is likely to fall within the definition of 'rural' zone under the NESTF 2016.

3.4.4 Non-residential zones

The NESTF 2016 also permits telecommunication facilities, including cabinets, antennas on existing poles with antenna (Regulation 32–33), small cell units and telecommunication lines, in other areas that are not a road reserve or residential zone (provided the applicable standards are met). These other 'non-residential' zones include:

- industrial zones
- business and commercial zones
- mixed-use zones
- recreation and open space zones
- coastal environment zones (above Mean High Water Spring).

4 Permitted activities and standards

The NESTF 2016 provides for certain telecommunication facilities and activities to be permitted provided they meet certain standards (Regulation 11). The potential adverse effects of these permitted activities were considered during the development of the NESTF 2016 and therefore do not need further "site-specific" consideration. This nationally consistent approach provides the telecommunication industry and the community with certainty about the type and scale of telecommunication infrastructure permitted across New Zealand.

This section outlines which telecommunication facilities and activities (the "regulated activities") are covered by the NESTF 2016 and the standards that each activity must comply with in order to be permitted. Three summary activity tables are also included as follows:

- Activity Table 6 – antennas on existing poles
- Activity Table 7 – antennas on new poles
- Activity Table 8 – telecommunication lines.

This is followed by a more detailed description of each regulated activity, the standards applying to each activity, as well as some specific scenarios. Where applicable, these facilities and activities are also required to comply with the:

- provisions in subpart 5 (section 6 – areas where district plans may be more stringent)
- earthworks standards in Regulations 53 and 54 (section 4.13 – earthworks)
- standards for radiofrequency fields in Regulation 55 (section 5 – radiofrequency).

4.1 Activity tables

4.1.1 Antenna on existing poles

Table 6: Summary of NESTF 2016 standards for antenna on existing poles

	Road Reserve (Regulations 26 and 27)	Residential Zone (Regulations 30 and 31)	Non Residential Zone (Regulations 32 and 33)	
Max pole height and all antennas	No more than the greater of either of the height of existing pole (pole A): • plus 3.5m • and all antennas.	The greater of either of the height of the existing pole (pole C): • plus 3.5m • and all antennas on the existing pole.	**Non Residential and Non Rural Zone** Either: • single operator – 3.5m higher than existing pole (pole D); or • multiple operator – 5m higher than existing pole (pole D) height.	**Rural Zone (if pole was installed under Regulation 34)** The lesser of: • 25m • existing pole (pole D) height plus: – 3.5m (single operator) – 5m (multiple operators).
Max pole width	Either: • no antenna attached to existing pole (pole A) – double the width of existing pole; or • existing antenna attached to existing pole (pole A) – 1.3 times existing pole width.	1.3 times existing pole (pole C) width.	Width of the existing pole (pole D) multiplied by either: • 2, if there is an increase in the number of antenna • 1.3, in all other situations.	Width of existing pole (pole D) if greater than 6m, or the lesser of: • 6m • width of the existing pole multiplied by: – 2, if there is an increase in number of antenna – 1.3, in all other situations.
Max headframe width	• No headframe on existing pole – no headframe permitted. • Head frame on existing pole – headframe width must be no more than the width of the headframe that was previously attached to the pole.	• No headframe on existing pole – no headframe permitted. • Head frame on existing pole then either: – no greater than the existing width if greater than 6m – the lesser of 6m or double width of the existing headframe.	Either: • 6m; or • no greater than the existing headframe width if greater than 6m.	

	Road Reserve (Regulations 26 and 27)	Residential Zone (Regulations 30 and 31)	Non Residential Zone (Regulations 32 and 33)
Pole location	The relocated or replaced pole must: • remain in the road reserve • not be more than 5m from the location of the existing pole.	The relocated or replaced pole must: • not be in the road reserve • remain in a residential zone • not be more than 5m from the location of the existing pole.	The relocated or replaced pole must not be: • in the road reserve • in a residential zone • more than 5m from the location of the existing pole.
Max non-dish antenna size	Non-dish antenna with headframe: • new antenna – width of 0.7m • replacement antenna – either: – width of 0.7m; or – width of existing antenna if greater than 0.7m. Non-dish antenna without headframe: • new antenna – within a notional envelope of no greater than 3.5m in length and 0.7m in diameter • replacement antenna – either: – within a notional envelope of no greater than 3.5m in length and 0.7m in diameter; or – size of existing pole's notional envelope if greater than 3.5m in length and 0.7m in diameter. (see section 3.3.3 for definition of notional envelope)	• New antenna – 0.7m width. • Replacement antenna – either: – 0.7m width; or – width of the existing antenna if greater than 0.7m.	Maximum antenna size – panel antenna: • new antenna width – 0.7m • replacement antenna, width either: – 0.7m; or – no greater than the existing width if this is greater than 0.7m. • Maximum antenna size – width of other non-dish antenna – no applicable standards.
Max dish antenna size	• New antenna – 0.38m diameter. • Replacement antenna – either: – 0.38 diameter; or – width of existing antenna if greater than 0.38m diameter.	• New antenna – 0.38m diameter. • Replacement antenna – either: – 0.38 diameter; or – width of existing antenna if greater than 0.38m diameter.	• Either: – 1.2m diameter; or – no greater than the existing width if greater than 1.2m diameter.

	Road Reserve (Regulations 26 and 27)	Residential Zone (Regulations 30 and 31)	Non Residential Zone (Regulations 32 and 33)	
Max dish antenna protrusion distance	• New antenna – 0.6m. • Replacement antenna – either: – 0.6m; or – the protrusion distance of existing antenna if greater than 0.6m. (see section 3.3.3 for definition of protrusion distance)	• New antenna – 0.6m. • Replacement antenna – either: – 0.6m; or – the protrusion distance of existing antenna if greater than 0.6m.	No specific standards to comply with.	
Max number of dish antenna	• New antenna – 2. • Replacement antenna – the existing number if more than 2.	• New antenna – 2. • Replacement antenna – the existing number if more than 2.	No limits on number of dish antenna.	
Earthworks	Any applicable regional earthworks rules (Regulation 54).	Any applicable: • 'special place earthworks' (Regulation 53(7)) • regional earthworks rules (Regulation 54).	**Non Residential and Non Rural Zone** Any applicable: • 'special place earthworks' (Regulation 53(7)) • regional earthworks rules (Regulation 54).	**Rural Zone** • Earthworks must be no greater than 450m^3 per facility (excludes access tracks) (Regulation 53(2)(b(i)). • Management plan requirements (Regulation 53((3)-(6)). • Any applicable: – 'special place earthworks' (Regulation 53(7)) – regional earthworks rules (Regulation 54).

4.1.2 Antenna on new poles

Table 7: Summary of NESTF 2016 standards for antenna on new poles

	Road Reserve (Regulations 28 and 29)	Rural Zone (Regulations 34 and 35)
Max pole height	If there is a neighbouring pole: • in one direction – height of neighbouring pole plus 3.5m • in two or more directions – average height of all neighbouring poles, plus 3.5m. (see section 4.4.2.1 for explanation of neighbouring pole)	25m including all antenna.
Max pole width	• Neighbouring pole(s) in one direction: – with antenna attached – 1.3 times the width of neighbouring pole – with no antenna – two times the neighbouring pole width. • Neighbouring pole in two or more directions: – with antenna attached – 1.3 times the width of neighbouring pole – with no antenna - double the average widths of neighbouring poles.	No more than 6m.
Max headframe width	The new pole must not have a headframe.	No more than 6m.
Max non-dish antenna size	Within a notional envelope no greater than 3.5m in length and 0.7m in diameter.	Panel antenna width of 0.7m or less. Other non-dish antenna width - no applicable standards.
Max dish antenna size	Diameter no more than 0.38m.	Diameter of 1.2m or less.
Max dish antenna protrusion distance	Protrusion distance no more than 0.6m from the edge of the pole to the outer edge of the dish.	N/A
Sensitive building setback	No setback standards to comply with.	At least 50m away from buildings used for residential or educational purposes.
Max number of dish antenna	No more than two.	N/A
Earthworks	Any applicable regional earthworks rules (Regulation 54).	• Earthworks volume must be no greater than 450m^3 per facility (Regulation 53(2)(b(i)). • Management plan requirements (Regulation 53((3)-(6)). • Any applicable: – 'special place earthworks' (Regulation 53(7)) – regional earthworks rules (Regulation 54).

4.1.3 Telecommunication lines

Table 8: Summary of NESTF 2016 standards for telecommunication lines

<table>
<tr><th>Type of Line</th><th>Activity specific standards</th><th>Earthworks</th><th>Other applicable regulations</th></tr>
<tr><td>Surface-mounted customer connection line</td><td>• Diameter of line no more than 30mm.
• Diameter of conduit no more than 32mm.
• Line and conduit must be supported by existing structures.</td><td rowspan="3">Earthworks must comply with:
• Subpart 5 where relevant, except if the earthworks are in a road reserve; and
• any applicable regional earthworks rules (Regulation 54).</td><td>Surface-mounted lines must comply with all of Subpart 5 where relevant.</td></tr>
<tr><td>Aerial customer connection line</td><td>• Diameter of line no more than 30mm.
• Line must be supported solely by an existing structure.</td><td rowspan="2">All customer connection lines must comply with Regulations 44 and 45 in Subpart 5.</td></tr>
<tr><td>Underground customer connection lines</td><td>No specific standards to comply with except for earthworks.</td></tr>
<tr><td>Aerial telecommunication line and support structures</td><td>New aerial telecommunication lines are limited to the following circumstances:
• there is an existing aerial power line or telecommunication line in place
• the new line is supported by one or more of the following:
– existing support structures in their original locations
– existing support structures after they have been relocated
– new structures established to replace existing support structures
• the new line is supported by the structures in the same order as the existing line.
<table><tr><td>Diameter of line</td><td>No more than 30mm.</td></tr><tr><td>Volume of ancillary equipment on each support structure</td><td>No more than 0.4m^3.
Note: this relates to new ancillary equipment installed in association with Line A.</td></tr><tr><td>Location of replacement support structure</td><td>No more than 3m from existing support structure location.</td></tr></table></td><td>Earthworks must comply with:
• Subpart 5 where relevant, except if the earthworks are in a road reserve
• any applicable regional earthworks rules (Regulation 54).</td><td>Aerial telecommunication lines must comply with Regulations 44 and 45 in Subpart 5.</td></tr>
</table>

Type of Line	Activity specific standards		Earthworks	Other applicable regulations
	Replacement support structure	• Height – no more than 1m higher than existing support structure. • Width – no more than 1.5 times the width of the existing support structure. **OR** If **minimum road clearance height** for replacement support structures is greater than the heights permitted under Regulation 42(4), then: • height must be more than the **minimum road clearance height** • width no more than that reasonably necessary for the structure height.		
Underground telecommunication line	No specific standards apply other than for earthworks.		Earthworks must comply with any applicable regional earthworks rules (Regulation 54).	• Regulation 44, if the installation of underground telecommunication lines is carried out in the road reserve. • Subpart 5, if the installation of underground lines is carried out outside the road reserve.

4.2 Cabinets (Regulations 19–25)

4.2.1 Overview

Cabinets contain equipment that is essential for the operation of the telecommunication network and are a key component of any radiofrequency generation (RFG) facility. Regulations 19–25 provide for the installation and operation of cabinets as a permitted activity in the road reserve, residential and non-residential zones, and buildings.

To manage any potential adverse effects arising from the installation or operation of cabinets, the NESTF 2016 includes certain standards for height, footprint, and noise that are required to be met. There are also additional standards that apply in the road reserve to manage the location and grouping of cabinets.

4.2.2 Standards

Cabinets are subject to a number of standards, which vary depending on where the cabinet is located. These are summarised in table 9. Regulation 19(1) sets out that these standards apply to the installation and operation of each cabinet by a facility operator rather than to each site or building the cabinets are located in or on.

Table 9: Summary of standards for cabinets in NESTF 2016

Location	Road reserve adjoining or in residential zone	Any other cabinet in road reserve	Residential zone (not in road reserve)	Non- residential zone (not in road reserve)	Cabinets servicing antenna on buildings
Max height	1.8m	2m	2m	2.5m	2m
Max footprint per cabinet	1.4m^2	2m^2	2m^2	5m^2	2m^2
Noise limits do not exceed	• 50dBLAeq (5min) between 7am–10pm • 40dBLAeq (5min), and 65 dBLAFmax between 10pm–7am.	• At any time 60dBLAeq(5min) • 65dBLAFmax between 10pm–7am.	Relevant district plan rules.	Relevant district plan rules.	Relevant district plan rules.
Group rules	Must be complied with – see section 4.2.2.1.	Must be complied with – see section 4.2.2.1.	N/A	N/A	N/A
Earthworks	Any applicable regional earthworks rules (Regulation 54).	Any applicable regional earthworks rules (Regulation 54).	Any applicable regional earthworks rules (Regulation 54).	Any applicable regional earthworks rules (Regulation 54).	Any applicable regional earthworks rules (Regulation 54).
Power supply (if required)	Connected from underground or inside cabinet.	Connected from underground or inside cabinet.	Connected from underground or inside cabinet.	Connected from underground or inside cabinet.	Connected from underground or inside cabinet.

Location	Road reserve adjoining or in residential zone	Any other cabinet in road reserve	Residential zone (not in road reserve)	Non- residential zone (not in road reserve)	Cabinets servicing antenna on buildings
Other applicable standards	• Subpart 5 must be complied with • Radiofrequency fields (Regulation 55).	• Subpart 5 must be complied with • Radiofrequency fields (Regulation 55).	• Subpart 5 must be complied with • Radiofrequency fields (Regulation 55).	• Subpart 5 must be complied with • Radiofrequency fields (Regulation 55).	• Subpart 5 must be complied with • Radiofrequency fields (Regulation 55).

4.2.2.1 Power supply for cabinets

Regulations 20 and 21 require that if a cabinet is powered, that the power supply is either:

- a self-contained power unit (eg, solar panels or diesel generator)
- connected from under the ground or inside the cabinet.

It is important to note that it is the point of connection between the power supply and the cabinet itself that is required to be inside the cabinet or underground. This regulation is not intended to control the method by which power is provided to a particular site, for example through the use of overhead power lines, or power coming out of a cabinet.

Overhead power lines are often the most cost-effective way of getting power to sites in more rural locations, and it is usually the lines company, rather than the network operator, that determines the most appropriate method for supplying power. This is illustrated by figure 14, which shows overhead power lines providing power to the telecommunication cabinets with an underground connection.

Figure 14: Power supply to telecommunication cabinets in rural site

In this regard, this regulation is also not intended to regulate the use of the small above-ground junction boxes or power plinths that may supply power to a site, provided the point of connection between the power supply and the cabinet itself is located inside the cabinet or underground. Examples of junction boxes used to supply power connection in rural areas are provided in figure 15.

Figure 15: Examples of junction boxes used to supply power connection to cabinets

4.2.2.2 Group rules for cabinets in road reserves

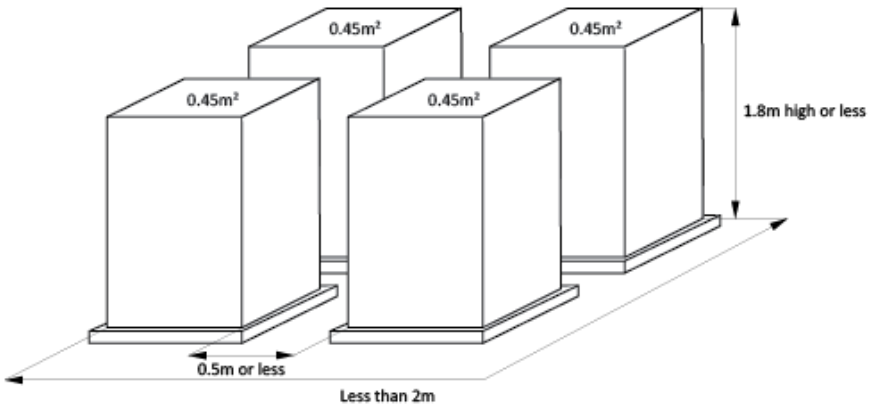
Where more than one cabinet is located in the road reserve, the cabinet group rules (Regulations 22 and 23) must be complied with. The group rules state that each cabinet must be either:

- 30m away from any other cabinet on the same side of the road
- in a group of cabinets.

Cabinets are considered to be in a group where there are two or more cabinets, with a separation distance from the next nearest cabinet of no more than 0.5m.

Where a cabinet is in a group, each cabinet in the group must be at least 30m away from any cabinet on the same side of the road that is not in the group. The total footprint of all cabinets must not be more than $2m^2$, and the maximum height for the cabinets is 1.8m in the road reserve adjoining or within a residential zone and 2m in any other road reserve. Cabinet group, footprint, and height rules in a road reserve adjoining residential zone are shown in figure 16.

Figure 16: Cabinet group, height and footprint standards in road reserve adjoining residential zone



Temporary contravention of group rules

Upgrading networks may mean that replacing the existing cabinet or cabinets is required. Regulation 23 allows the temporary contravention of the group rules in regulation 22 where a new cabinet is being installed to replace the equipment in an existing cabinet. This recognises

that during construction, the total maximum cabinet footprint area may be exceeded while the new cabinet is being installed and before the old cabinet has been removed or in instances where customers have yet to migrate to the new network. In these circumstances, a temporary contravention of the group rules in relation to the new cabinet is permitted, provided the equipment in the new cabinet either:

- is for the same purpose as the existing equipment in the old cabinet
- relates to a telecommunication network that will replace the existing network equipment in an old cabinet (eg, replacing a copper cabinet with a fibre cabinet).

This temporary contravention provision means that the group rules do not need to be complied with until three months from when either the new cabinet is installed or the old telecommunication network is discontinued (depending on which of the equipment replacement scenarios applies).

4.3 Antennas in road reserve – existing pole (Regulations 26 and 27)

4.3.1 Overview

Regulations 26 and 27 provide for the installation and operation of antennas on existing poles (with or without antennas) in the road reserve as a permitted activity, subject to compliance with the relevant standards. Establishing and operating antennas on an existing pole in the road reserve may be permitted if antennas are to be attached to:

- an existing pole, which is not being moved
- an existing pole after the pole has been moved to a new location no more than 5m from the location of the existing pole
- a replacement pole no more than 5m from the location of the existing pole.

The regulations refer to:

- existing poles in the road reserve as pole A
- new poles that are replacing existing poles as final pole
- new antenna as antenna A.

This is intended to avoid confusion with the other antennas and poles permitted under the NESTF 2016. The definition of pole is discussed further in section 3.2.1 – poles.

These provisions allow existing poles in the road reserve to be utilised, replaced and upgraded more easily and efficiently for the purposes of attaching antennas. The provisions also allow some flexibility in the location of the final pole, recognising that existing poles may not always be in the optimal location. For example, an alternative pole site in close proximity to an original pole may be a more structurally sound location and/or provide improved telecommunication coverage.

The NESTF 2016 ensures that the overall height of poles in the road reserve does not incrementally increase over time through multiple upgrades to poles. The NESTF 2016 uses the baseline pole and date concept (explained in more detail in section 3.1.3 – baseline pole and date) to ensure that upgrades that increase the height and width of a pole will only be measured against the dimensions of the baseline pole (as defined in Regulation 6) and not against the dimensions of the last upgrade.

4.3.2 Standards

The standards for antennas on existing poles in the road reserve are outlined in table 10.

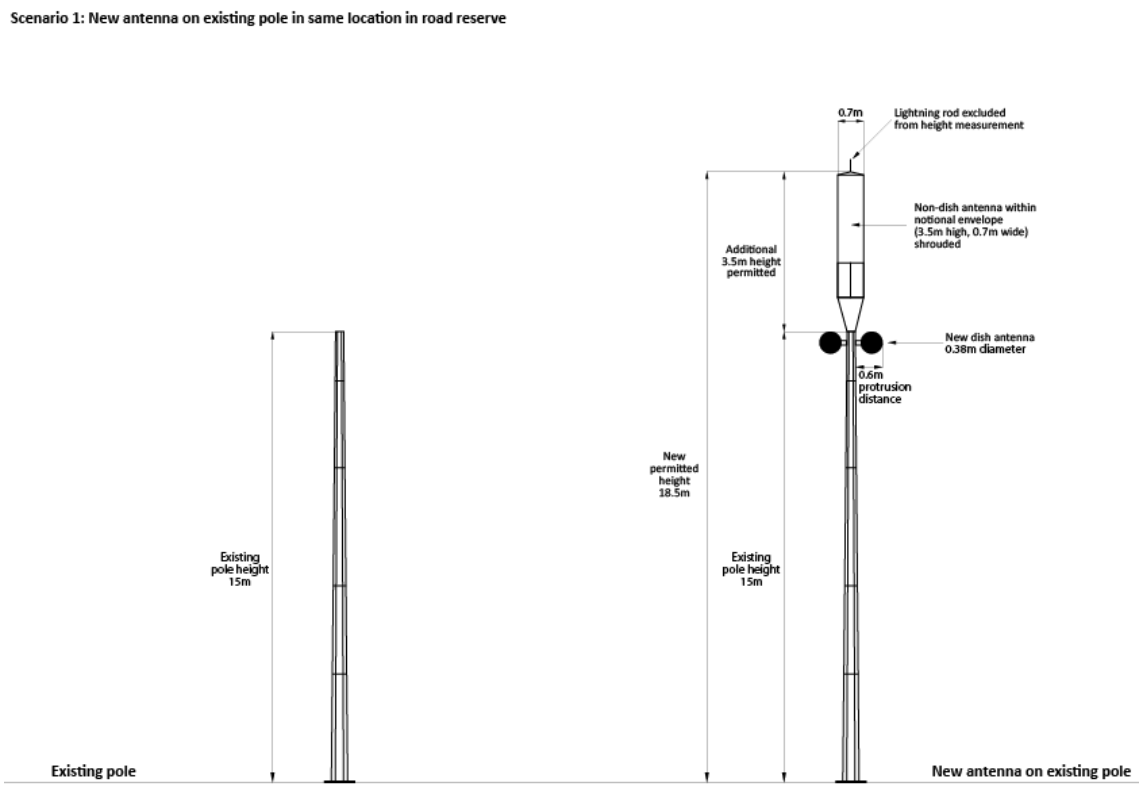
Table 10: Summary of standards for antennas on existing pole in road reserve

Controls	Standards
Maximum pole height	No more than the greater of either the height of the existing pole (pole A): • plus 3.5m • and all antennas.
Maximum pole width	Either: • no antenna attached to existing pole (pole A) – two times the width of existing pole; or • existing antenna attached to existing pole (pole A) – 1.3 times existing pole width.
Maximum headframe width (replacement only)	• No headframe on existing pole (pole A) – no headframe permitted. • Headframe on existing pole (pole A) – headframe width must be no more than the width of the headframe that was previously attached to the pole.
Maximum antenna size – non-dish antenna	Non-dish antenna with headframe: • new antenna – width of 0.7m • replacement antenna – either: – 0.7m; or – the width of existing antenna if greater than 0.7m. Non-dish antenna without headframe: • new antenna – within a notional envelope of 3.5m in length and 0.7m in diameter • replacement antenna – either: – within a notional envelope of 3.5m in length and 0.7m in diameter; or – size of existing pole's notional envelope if greater than 3.5m in length and 0.7m in diameter. (see section 3.3.3 for definition of notional envelope)
Maximum antenna size and maximum antenna protrusion distance - dish antenna	Dish antenna size: • new antenna – 0.38m diameter • replacement antenna – either: – 0.38m diameter; or – the original width of existing antenna if greater than 0.38m diameter. Dish antenna protrusion distance: • new antenna – 0.6m from the edge of the pole to outer edge of the dish • replacement antenna – either: – 0.6m from the edge of the pole to outer edge of the dish; or – the protrusion distance of existing antenna if greater than 0.6m.
Maximum number of dish antenna	• New antenna – 2. • Replacement antenna – the existing number if more than 2.
Earthworks	Any applicable regional earthworks rules (Regulation 54).
Other applicable standards	• Subpart 5 (Regulations 44-52) where relevant. • Radiofrequency fields (Regulation 55).

4.3.3 Examples

The figures below provide different scenarios of telecommunication facilities permitted in the road reserve, in accordance with Regulations 26 and 27. Calculations are provided to show how measurements are to be undertaken under the NESTF 2016, and how to determine compliance with the relevant standards.

Figure 17: Scenario 1 – new antenna on existing pole in same location in road reserve

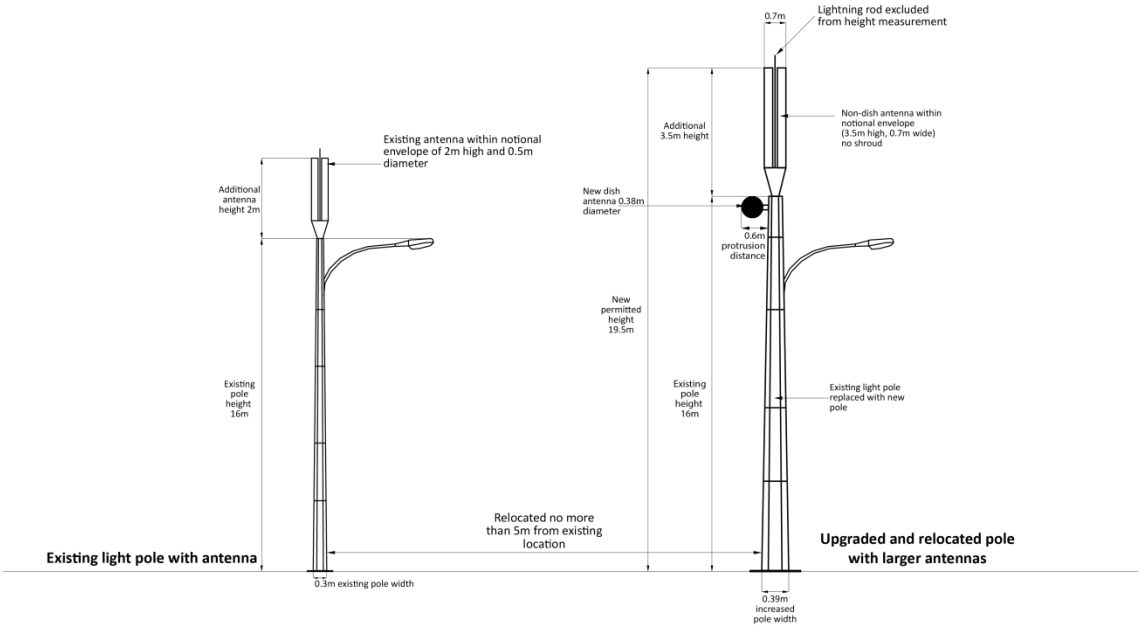


Scenario 1 provides an example of antenna being attached to an existing pole with no antenna in the road reserve, in accordance with Regulations 26 and 27. The calculations below illustrate how the facility complies with the relevant standards:

- pole height = baseline pole height (15) + 3.5m = 18.5m
- pole width = baseline pole width 0.3m x 2 = 0.6m
- non-dish antenna = notional envelope of 3.5m in height and 0.7m diameter (including shroud if used)
- new dish antenna = diameter no greater than 0.38m and protrusion distance no more than 0.6m (maximum of two).

Headframe: no headframe on existing pole = no headframe on new pole.

Figure 18: Scenario 2 – upgrade and relocation of existing light pole with antenna in road reserve



Scenario 2 provides an example of antennas being attached to an existing light pole with antennas in the road reserve in accordance with Regulations 26 and 27. The calculations below illustrate how the facility complies with the relevant standards:

- pole height = baseline pole height (16) + 3.5m = 19.5m

  When pole is a light pole, if light arm extends higher than the vertical centre of the pole, measure pole height to highest point of light arm (through the vertical centre, not along the curve of the light arm)

- pole width = baseline pole width 0.3m x 1.3 = 0.39m
- replacement non-dish antenna = notional envelope of 3.5m in height and 0.7m diameter
- new dish antenna = diameter no greater than 0.38m and protrusion distance no more than 0.6m.

Headframe: no headframe on existing pole = no headframe on new pole.

4.4 Antennas in road reserve on a new pole (Regulation 28 and 29)

4.4.1 Policy intent

Regulations 28 and 29 of the NESTF 2016 provide for the installation and operation of antennas on new poles in the road reserve as a permitted activity, subject to compliance with the relevant standards. This includes the requirement for any new pole to be installed within 100m of an existing pole in the road reserve. The intent of this standard is to discourage the installation of new poles in areas of road reserve that do not have any existing poles.

The NESTF 2016 refers to any new pole in the road reserve as pole B, and any new antenna in the road reserve as antenna B. The intent of these regulations is to enable new poles and antenna to be established in the road reserve more efficiently, while ensuring the size of any new pole is consistent with existing infrastructure in close proximity. This recognises that existing infrastructure in the road reserve may not provide the most optimal location for new telecommunication infrastructure. This also recognises that new telecommunication infrastructure in the road reserve will generally have a low environmental impact if it is designed to be consistent with the scale of existing infrastructure.

4.4.2 Standards

The NESTF 2016 standards for antennas on new poles in the road reserve are outlined in table 11.

Table 11: Standards for antennas on new pole in road reserve

Controls	Standards
Maximum pole height	Neighbouring pole in: • one direction - height of neighbouring pole plus 3.5m • two or more directions – average height of all neighbouring poles plus 3.5m. (see **neighbouring pole** explanation below)
Maximum pole width	• Neighbouring pole in one direction with: – any antenna attached - 1.3 times the width of neighbouring pole – no antenna – 2 times the neighbouring pole width. • Neighbouring poles in two or more directions with: – any antenna attached (to any of the neighbouring poles) – 1.3 times the average of the widths of neighbouring poles – no antenna (on any of the neighbouring poles) – two times the average widths of neighbouring poles. (see **neighbouring pole** explanation below)
Headframe	No headframe permitted.
Maximum antenna size and maximum antenna protrusion distance	Non-dish antenna (ie, panel antenna): • notional envelope no greater than 3.5m in length and 0.7m in diameter. Dish antenna: • diameter no more than 0.38m • protrusion distance no more than 0.6m (being amount by which the outer edge of the dish protrudes from the edge of the pole).
Maximum number of dish antenna	No more than two.
Earthworks	Any applicable regional earthworks rules (Regulation 54).
Other applicable standards	• Sub-part 5 (Regulations 44–52) where relevant. • radiofrequency fields (if applicable) (Regulation 55).

4.4.2.1 Neighbouring pole

A key term in relation to the location, height and width of new poles in the road reserve is ‘neighbouring pole’. Regulation 29(6) states that a pole is a neighbour of a proposed/new pole (pole B), and therefore a “neighbouring pole”, if it:

- is in the road reserve

- was there before the new pole is erected
- is located no more than 100m from the new pole
- is nearest to the new pole in that direction along the road reserve.

The intent of this provision is to ensure that new poles (and new antenna) are located in reasonably close proximity to other infrastructure in the road reserve, and that any new poles are of a scale consistent with existing poles. Distance and location parameters are used so that this does not become overly onerous. For example, only poles located within 100m of the new pole can potentially be neighbouring poles. If a new pole is not located within 100m of an existing pole then it is not a regulated activity under the NESTF 2016.

An existing pole is only a neighbouring pole if it meets all of the criteria listed in Regulation 29(6). The first two criteria are straightforward.

To identify poles located in the road reserve no more than 100m from the new pole, the distance between the poles is to be measured at their closest point. The measurement of distance must remain within the road reserve. This could look like a curve or a straight line, depending on the shape of the road reserve.

Poles outside the road reserve and poles that are not along the road reserve from pole B will not meet the fourth criteria, so these are excluded. Considering the criteria in Regulation 29(6) together, identifying a possible neighbouring pole involves:

- considering the legally formed road that pole B is on
- identifying poles in the road reserve in any direction along that road (but no more than 100m away)
- identifying the nearest pole in each direction that will be a neighbouring pole.

Where pole B is on a single road, there will likely be two directions along the road reserve (to the left and right of the pole). Where there are two existing poles within 100m in one direction (for example, to the left) but one pole is on the opposite side of the street, the 'neighbouring pole' is the nearest pole. Under the NESTF 2016, the definition of road reserve includes the road itself, so an existing pole on the opposite side of the street can still be the nearest pole "in that direction along the road reserve".

If there is an existing pole directly opposite the new pole, however, there could potentially be poles in three directions along the road reserve, as the pole opposite is neither to the left nor right direction from the new pole, but opposite it.

Where the proposed new pole site is on the corner of two or more legally formed roads, the road reserve will go in multiple directions as each of the legally formed roads is the road reserve of the new pole. The nearest pole (no more than 100m from the new pole) in each direction will be a neighbouring pole.

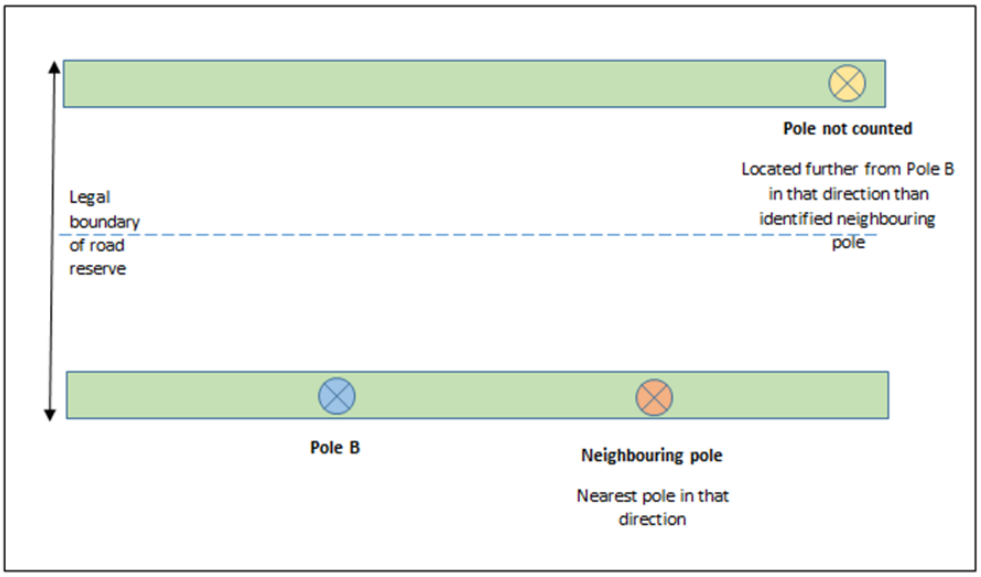
If there are two poles 'in that direction' that are exactly the same distance from the new pole, but on opposite sides of the street, both poles would be 'nearest' and therefore a 'neighbouring pole'. Both would be included in the height and width calculations discussed below. The neighbouring pole concept is illustrated in the diagrams below, and further discussed in table 11.

The calculation of average height and widths of 'neighbouring poles' is meant to be a one-off exercise, undertaken at the time the new pole is installed. Once a new permitted pole is installed any changes made to other poles in the road reserve over time do not change the permitted status of that pole. For example, if a taller neighbouring pole is taken away or replaced with a smaller pole this does not then reduce the 'average' height of neighbouring poles and result in the telecommunication pole becoming non-compliant with the NESTF 2016.

It is good practice though for both facility operators and/or councils to keep a record of how the average height and width of neighbouring poles was calculated for each new pole at the time it was installed.

Examples of how to calculate the maximum allowable height and width of Pole B under different neighbouring pole scenarios is shown in figures 19 to 21.

Figure 19: One neighbouring pole

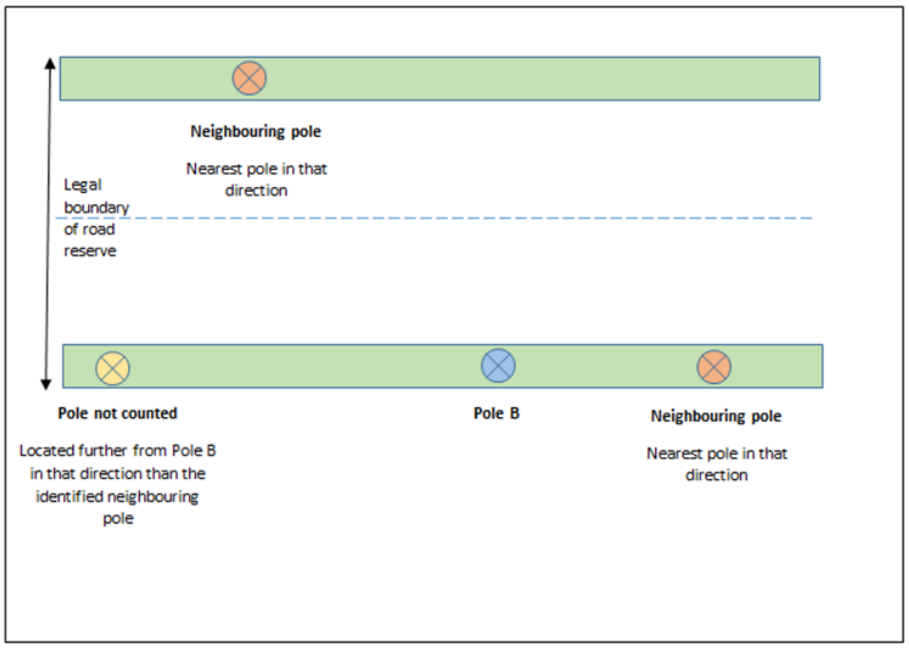


Pole B is on a straight section of road reserve. The only structure that would meet the definition of a 'neighbouring pole' is a 10m high light pole with a 0.7m diameter at the widest point, located 45m from pole B in an easterly direction. This light pole does not currently support any antennas or other equipment (but is the type of pole that is capable of being used to support antennas).

Based on this scenario, the maximum allowable height and width for pole B would be as follows:

- height of neighbouring pole (10m) + 3.5m = 13.5m max height for pole B
- width of neighbouring pole (0.7m) x 2 (as no existing antenna) = 1.4m max width for pole B.

Figure 20: Two neighbouring poles



Pole B is on a straight section of road reserve. The two closest poles are located 25m to the east on the same side of the road, and 15m to the west on the opposite side of the road. While there are other poles further down the street in both directions, these two are the neighbouring poles, as they are closest to pole B in each direction. The other poles are not "neighbouring poles".

The heights and widths of the two neighbouring poles are as follows:

- An existing telecommunication pole supporting a three-panel antenna inside a shroud. Height 15m (including existing antenna and shroud) and diameter 1.1m.
- An existing light pole with no existing antenna. Height 12.5m and diameter 0.8m.

Based on this scenario, the maximum allowable height and width for pole B would be as follows.

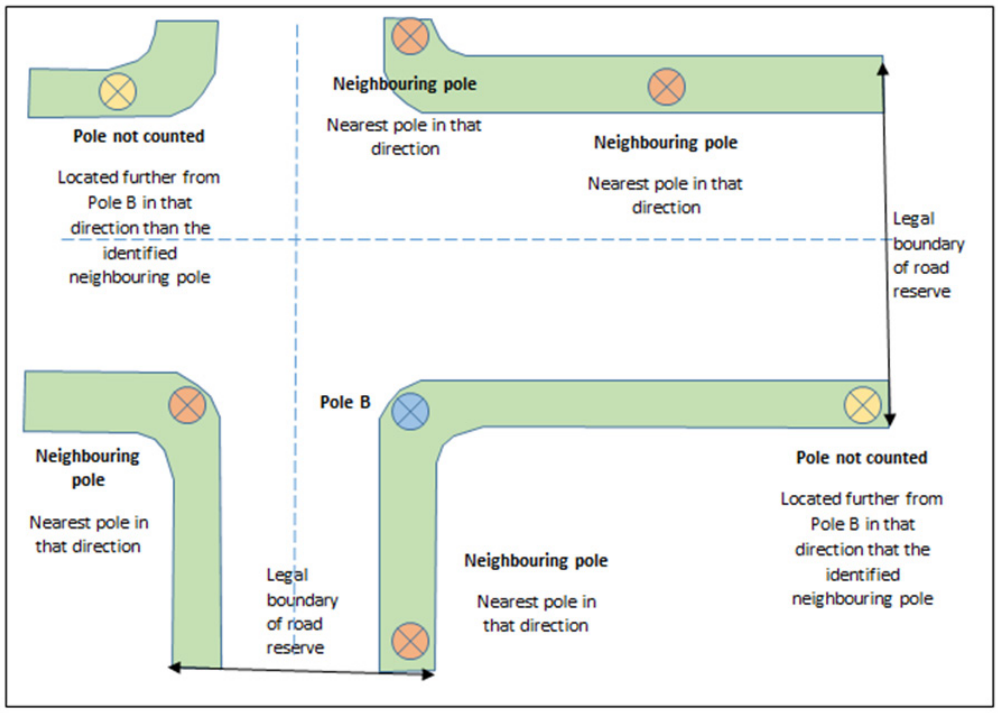
Max height:

- Add heights of neighbouring poles (12.5m + 15m) ÷ 2 = 13.75m average height of neighbouring poles.
- Average height of neighbouring poles (13.75m) + 3.5m = 17.25m max height for pole B.

Max width:

- Add widths of neighbouring poles (1.1m + 0.8m) ÷ 2 = 0.95m average width of neighbouring poles.
- Average width of neighbouring poles (0.95m) x 1.3 (as one of the neighbouring poles already has antenna) = 1.235m max width for pole B.

Figure 21: Four neighbouring poles



The proposed pole site is at the corner of a four-way intersection. There are four neighbouring poles located in four different directions along the road reserve from the proposed pole site. Two of these are located on opposite corners of the intersection from pole B to the north and west (but not diagonally across) and the other two located to the east and south, further down the two intersecting streets that form the corner of the intersection.

The heights and the widths of the four neighbouring poles are as follows:

- An existing power supply support pole with no existing antennas. Height 13m and width 2m (at top of pole where the cross bar supports the lines).
- Two existing light poles – one 12.5m in height with no antennas and the other 15.5m in height with two existing antenna. Both light poles have a width of 0.8m.
- An existing telecommunication pole with three existing antennas. Height 14.2m and width 1.2m.

Based on this scenario, the maximum allowable height and width for pole B would be as follows.

Max height:

- Add heights of neighbouring poles (13m + 12.5m + 15.5m + 14.2m) ÷ 4 = 13.8m average height of neighbouring poles.
- Average height of neighbouring poles (13.8m) + 3.5m = 17.3m max height for pole B.

Max width:

- Add widths of neighbouring poles (2m + 0.8m + 0.8m + 1.2m) ÷ 4 = 1.2m average width of neighbouring poles.
- Average width of neighbouring poles (1.2m) x 1.3 (as at least one of the neighbouring poles already has antenna) = 1.56m max width for pole B.

4.4.3 Examples

The diagrams below illustrate different types of scenarios to identify neighbouring poles, depending on whether pole B is located on a single road, a T-intersection, or a four-way intersection.

To identify poles located in the road reserve no more than 100m from the new pole, the distance between the poles is to be measured at their closest point. The measurement of distance must remain within the road reserve. This could look like a curve or a straight line, depending on the shape of the road reserve.

Figure 22: Single road – one neighbouring pole

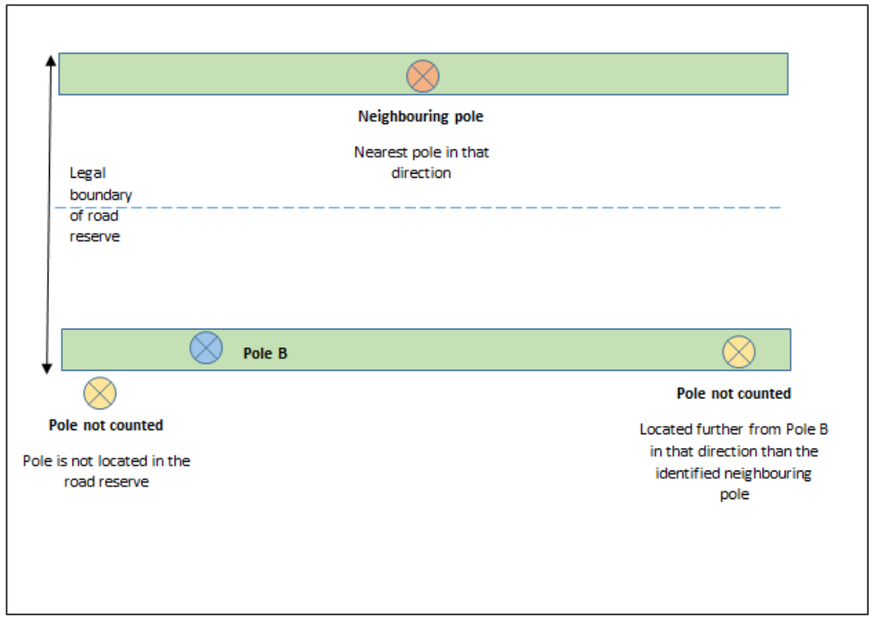


Figure 23: Single road – three neighbouring poles

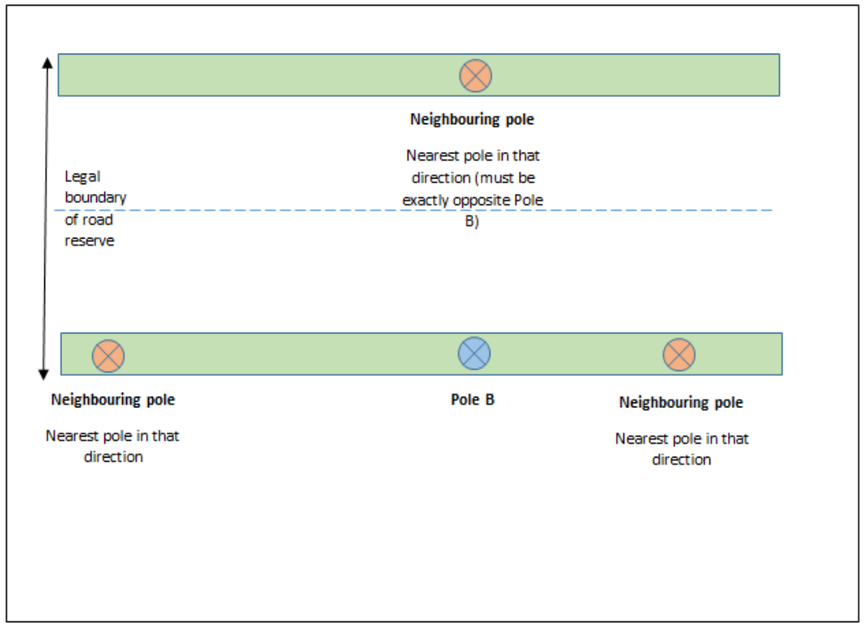


Figure 24: Single curved road – two neighbouring poles

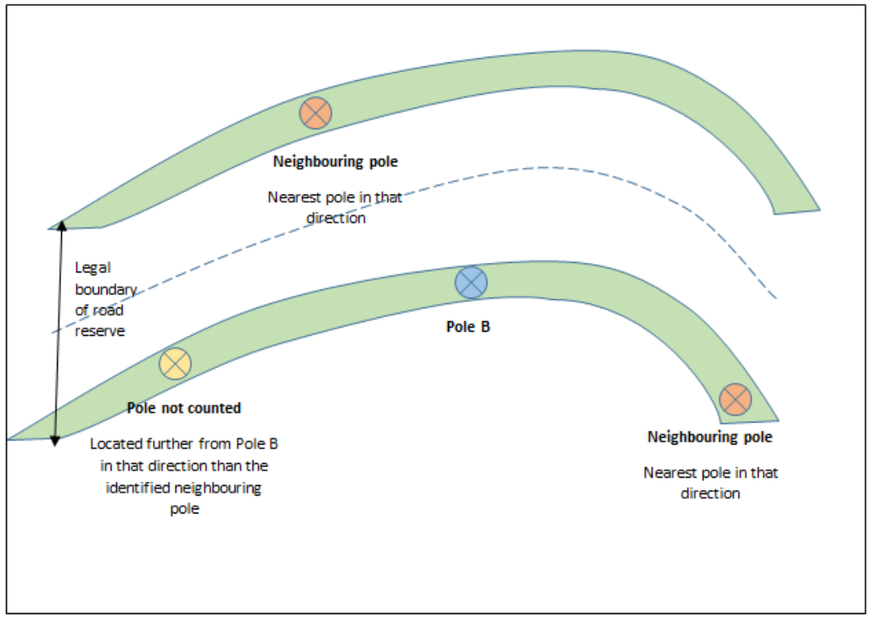


Figure 25: Site on T-intersection – three neighbouring poles

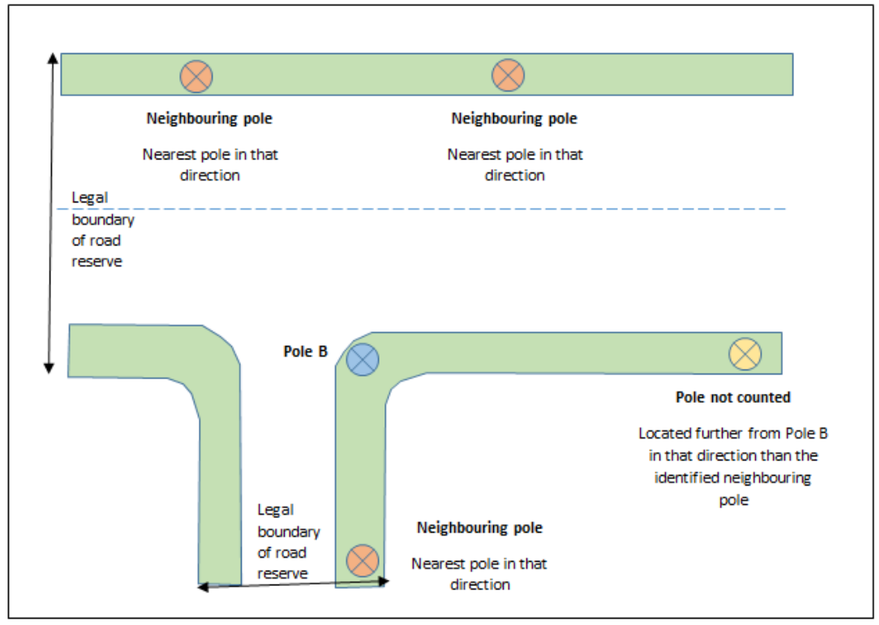
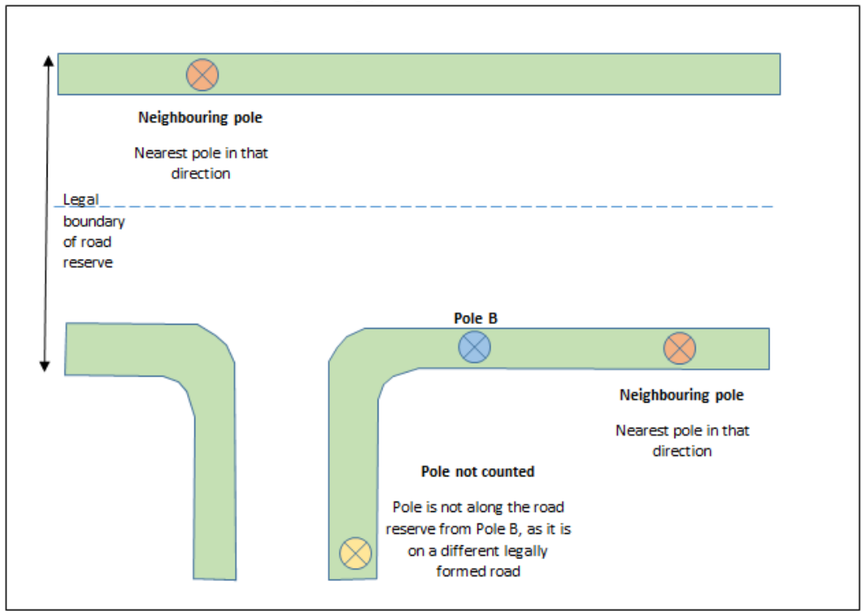


Figure 26: Site near T-intersection – two neighbouring poles



4.5 Antennas on existing pole outside the road reserve in residential zone (Regulations 30 and 31)

4.5.1 Overview

Regulations 30 and 31 provide for the installation and operation of antennas on an existing pole with antenna outside the road reserve in residential zones, including the co-location of multiple operators' equipment on the same pole. There is also provision for the existing pole to be moved or replaced, subject to compliance with the relevant standards. These regulations refer to poles and antennas outside the road reserve in the residential zone as follows:

- existing – pole C and existing antennas
- moved or replaced – final pole and antenna C.

To be permitted, all existing antennas on pole C must have been lawfully established and operated (whether it is operated by the same or a different operator). The NESTF 2016 allows new antennas (both non-dish and dish antennas) to be installed and operated in residential zones on an existing or replacement pole that is either:

- staying in the same location
- no more than 5m from the original location.

The intent of these regulations is to enable existing telecommunication facilities to be upgraded efficiently and effectively. The NESTF 2016 standards relating to location, height and width are also intended to ensure that the upgraded or replacement pole is consistent with the scale of existing telecommunication poles in residential zones. As with Regulations 26 and 27, the intention is that the overall height of poles in residential areas does not incrementally increase over time through multiple rounds of upgrades to poles. The NESTF 2016 uses the baseline pole and date concept (explained in more detail in section 3.1.3 – baseline pole and date) to ensure that upgrades that increase the height and width of the pole will only be measured against the dimensions of the baseline pole (as defined in Regulation 6), and not against the dimensions of the last upgrade.

4.5.2 Standards

The standards for the installation and operation of antennas on an existing pole with antenna in residential zones (outside the road reserve) are outlined in table 12.

Table 12: Standards for antennas on existing pole with antenna in residential zone

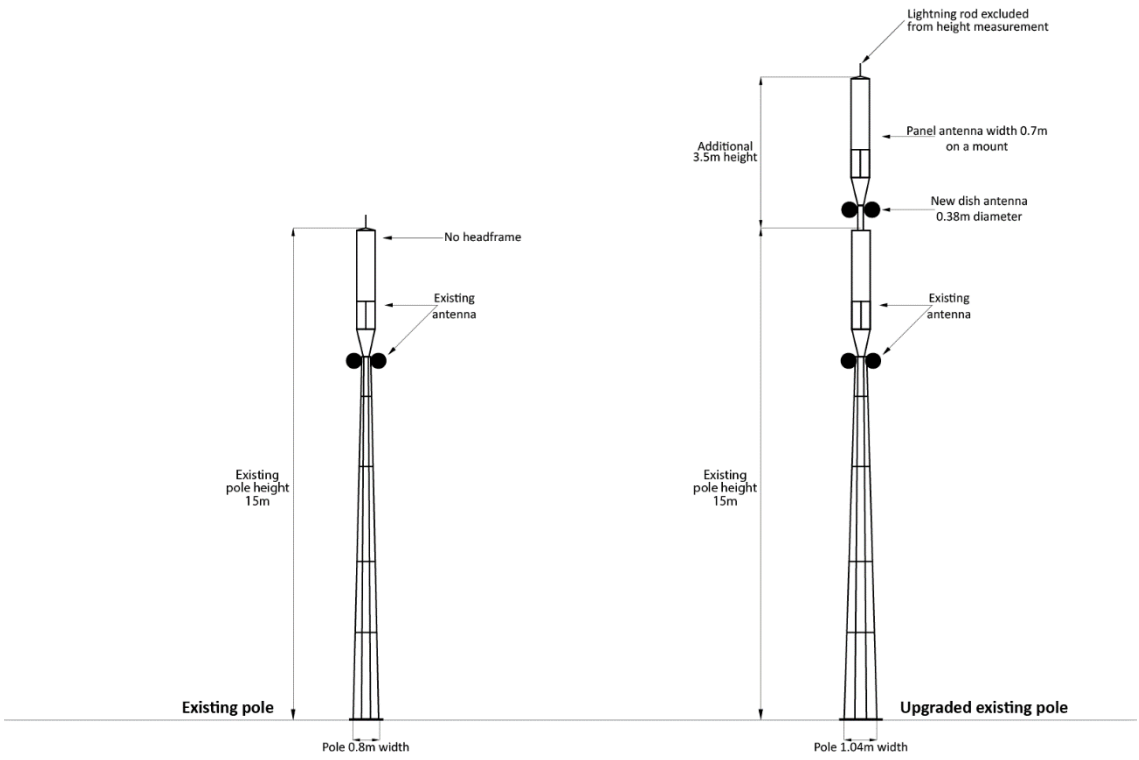
Controls	Standards
Maximum pole and all antennas height	The greater of the height of the existing pole (pole C): • plus 3.5m • and all antennas on the existing pole.
Maximum pole width	No greater than 1.3 times the width of the existing pole (pole C).
Maximum headframe width	No headframe on existing pole (pole C, at date C) – no headframe permitted. Headframe on existing pole (pole C, at date C), then either: • no greater than the existing width if this is greater than 6m; or • the lesser of: – 6m – two times the width of the existing headframe.

Controls	Standards
Maximum antenna size – non-dish antenna	• New antenna – 0.7m width. • Replacement antenna – either: – 0.7m width; or – the width of the replaced antenna if greater than 0.7m.
Maximum antenna size and maximum antenna protrusion distance - dish antenna	Dish antenna size: • new antenna – 0.38m diameter • replacement antenna – either: – 0.38m diameter; or – width of replacement antenna if greater than 0.38m diameter. Dish antenna protrusion distance: • new antenna – 0.6m from the edge of the pole to outer edge of the dish • replacement – either: – 0.6m; or – the protrusion distance of existing antenna if greater than 0.6m.
Maximum number of dish antenna	• Two. • The number that was attached to the pole if this is greater than two.
Earthworks	Any applicable: • 'special place earthworks' in the district plan (Regulation 53(7)) • regional earthworks rules (regulation 54). (see 'special place earthworks' explanation in section 4.13.2)
Other applicable standards	• Subpart 5 (Regulations 44–52) where relevant. • Radiofrequency fields (Regulation 55).

4.5.3 Examples

The diagram on the next page provides an example of an upgraded telecommunication pole and antennas in the residential zone in accordance with Regulations 30 and 31. Calculations are also provided to show how measurements are to be undertaken under the NESTF 2016 and how to determine compliance with the relevant standards.

Figure 27: Scenario 3 – upgrade existing pole with antenna outside road reserve in residential zone – same location



Scenario 3 provides an example of antenna being attached to an existing pole with antennas outside the road reserve in a residential zone, in accordance with Regulations 30 and 31. The calculations below illustrate how the facility complies with the relevant standards:

- pole height = baseline pole height (including all antennas) (15) + 3.5m = 18.5m
- pole width = baseline pole width = 0.8m x 1.3 = 1.04m
- new non-dish antenna = width no greater than 0.7m
- new dish antenna = diameter no greater than 0.38m, protrusion distance no greater than 0.6m.

Headframe: no headframe on existing pole = no headframe on new pole.

4.6 Antennas on existing pole outside the road reserve in non-residential zone (Regulations 32 and 33)

4.6.1 Policy intent

Regulations 32 and 33 provide for the installation and operation of antennas on an existing pole with antenna outside the road reserve in non-residential zones. There is also (limited) provision for the existing pole to be moved or replaced. This provides for the upgrading of existing telecommunication poles and antennas in all non-residential zones, including the co-location of multiple operators' equipment on a single pole.

The regulations refer to poles and antennas in non-residential zones as follows:

- existing – pole D and existing antennas

- final pole (upgraded, moved or replaced) – final pole
- final antenna – antenna D.

The NESTF 2016 allows new antennas (panel and dish antennas) to be installed and operated outside the road reserve in non-residential zones on an existing or replacement pole either:

- in the same location; or
- no more than 5m from the original location of the existing pole.

The intent of Regulations 32 and 33 is similar to Regulations 30 and 31, except that they apply to antennas on poles outside the road reserve in non-residential zones. The regulations allow existing telecommunication facilities to be upgraded, and enable the co-location of different operators' equipment on a single pole to reduce the number of structures in a particular area.

The standards impose maximum antenna size restrictions on panel and dish antenna only; there are no applicable standards for any other non-dish antenna. However, other non-dish antenna would have to meet any other applicable standards, for example pole height rules.

4.6.2 Standards

The standards for the installation and operation of antennas on an existing pole with antennas (outside the road reserve) in non-residential zones are outlined in table 13.

Table 13: Standards for antenna on existing pole with antenna in non-residential zone

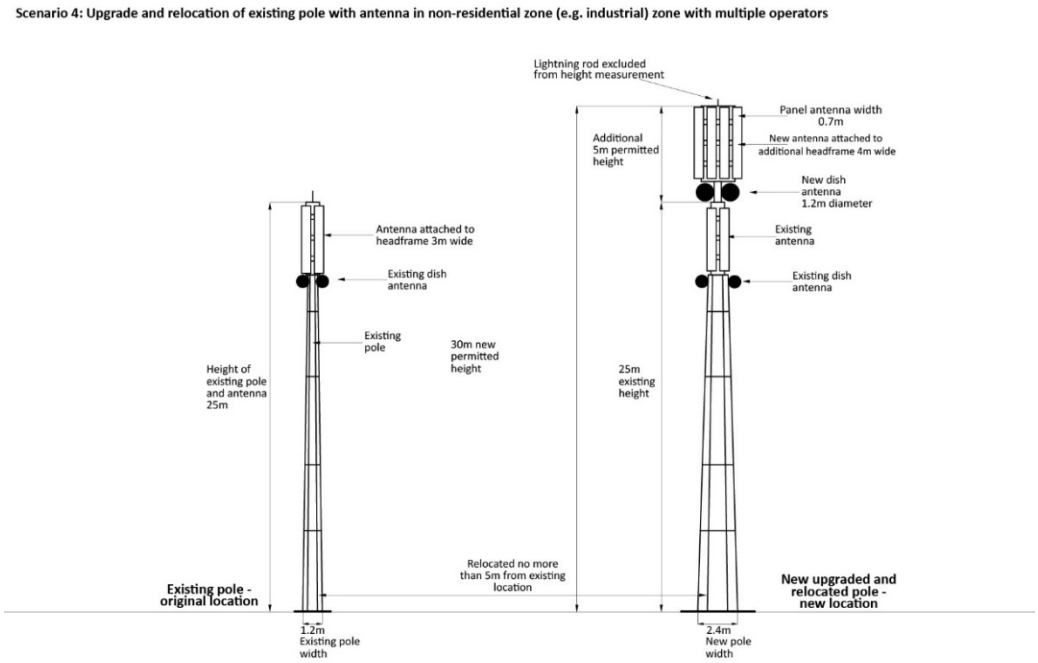
Controls	Standards
Maximum pole and all antennas height	Permitted height increase when existing pole (pole D) was not established in accordance with Regulation 34 is the existing height of pole (pole D) and all antennas, plus an increase of: • single operator of all antenna – 3.5m higher than existing pole • multiple operators of antennas – 5m higher than existing pole. When existing pole (pole D) was established in accordance with Regulation 34, the permitted height increase is the lesser of: • 25m; or • the existing height of pole and all antennas, plus an increase of: – single operator of all antenna – 3.5m higher than existing pole – multiple operators of antennas – 5m higher than existing pole.
Maximum pole width	**Rural zone** Either: • existing width of pole if greater than 6m; or • the lesser of: – 6m – the width of the existing pole, multiplied by: • 2, if there is an increase in number of antenna • 1.3, in all other situations. **Non-rural zone** Width of the existing pole, multiplied by: • 2, if there is an increase in the number of antenna • 1.3, in all other situations.
Maximum headframe width	• No greater than the existing width if greater than 6m. • Otherwise a 6m width.

Controls	Standards
Maximum antenna size – panel antenna	• New antenna – 0.7m. • Replacement antenna, either: – 0.7m; or – no greater than the existing width if this is greater than 0.7m. • Other non-dish antenna – no applicable standards.
Maximum antenna size – Dish antenna	• New antenna – 1.2m diameter. • Replacement antenna, either: – 1.2m diameter; or – no greater than the existing diameter where it is greater than 1.2m.
Earthworks	• Any applicable 'special place earthworks' in the district plan (Regulation 53(7)) must be carried out in accordance with any applicable district rules. • For any (other) rural zone earthworks: – maximum volume 450m³ per facility excluding any access track (Regulations 5(1)(d) and 53(2)(b)(i)) – the earthworks management plan requirements must be complied with (Regulation 53(3)-(6)). • Any applicable regional earthworks rules (Regulation 54). (see explanation of 'special place earthworks' in section 4.13.2)
Other applicable standards	• Subpart 5 (Regulations 44-52) where relevant. • Radiofrequency fields (Regulation 55).

4.6.3 Examples

The diagrams below provide examples of an upgraded telecommunication pole and antennas in non-residential zones, in accordance with Regulations 32 and 33. Calculations are also provided to show how measurements are to be undertaken under the NESTF 2016 and how to determine compliance with the relevant standards.

Figure 28: Scenario 4 – upgrade and relocation of existing pole with antenna in non-residential zone (eg, industrial) outside of road reserve with multiple operators



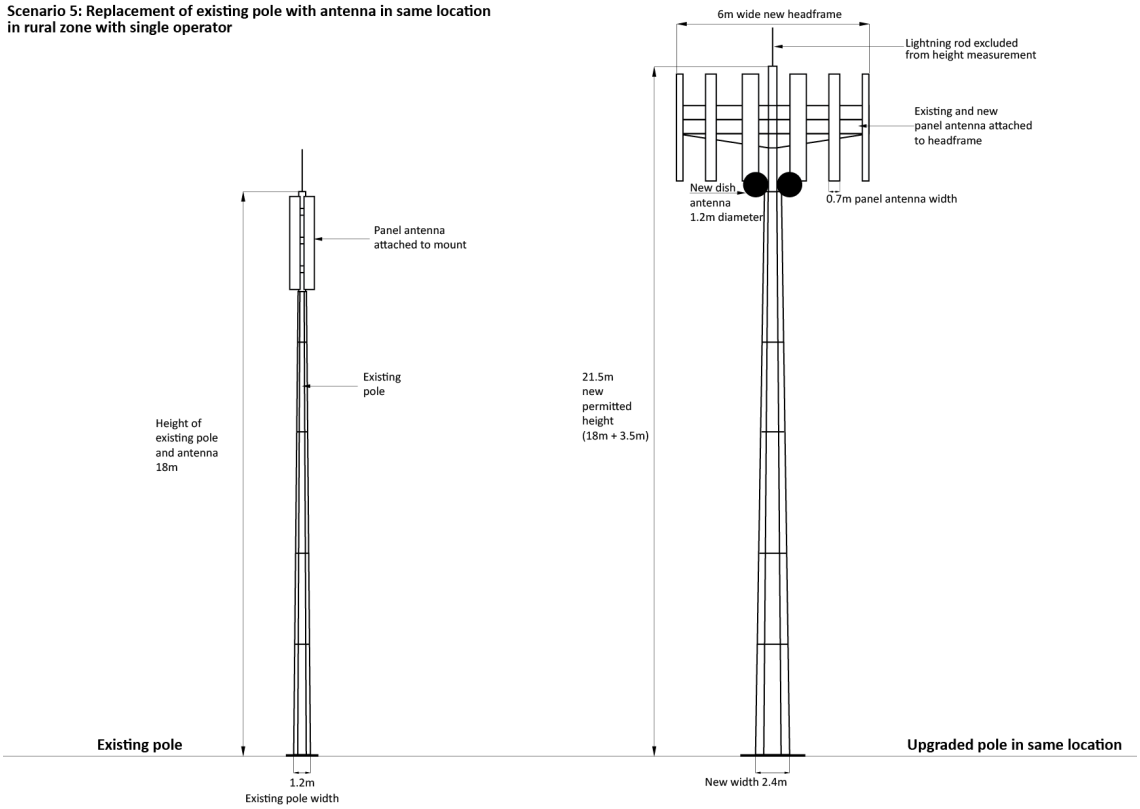
Scenario 4 provides an example of an antenna being attached to an existing pole with antennas in an industrial zone (outside the road reserve), in accordance with Regulations 32 and 33. The calculations below illustrate how the facility complies with the relevant standards.

Note that co-location of multiple operators on a pole will also involve additional cabinets (see cabinets – regulations 19–25).

- Pole location = no more than 5m from the pole's original location
- Pole height = baseline pole height (25) + 5m (multiple operators) = 30m
- Pole width = baseline pole width x 2 (increase in number of antenna) = 2.4m
- New panel antenna = 0.7m width
- New dish antenna = diameter no greater than 1.2m.

Additional headframe: additional headframe on existing pole with existing headframe less than 6m = width no greater than 6m.

Figure 29: Scenario 5 – replacement of existing pole with antenna with single operator in same location in rural zone outside of road reserve

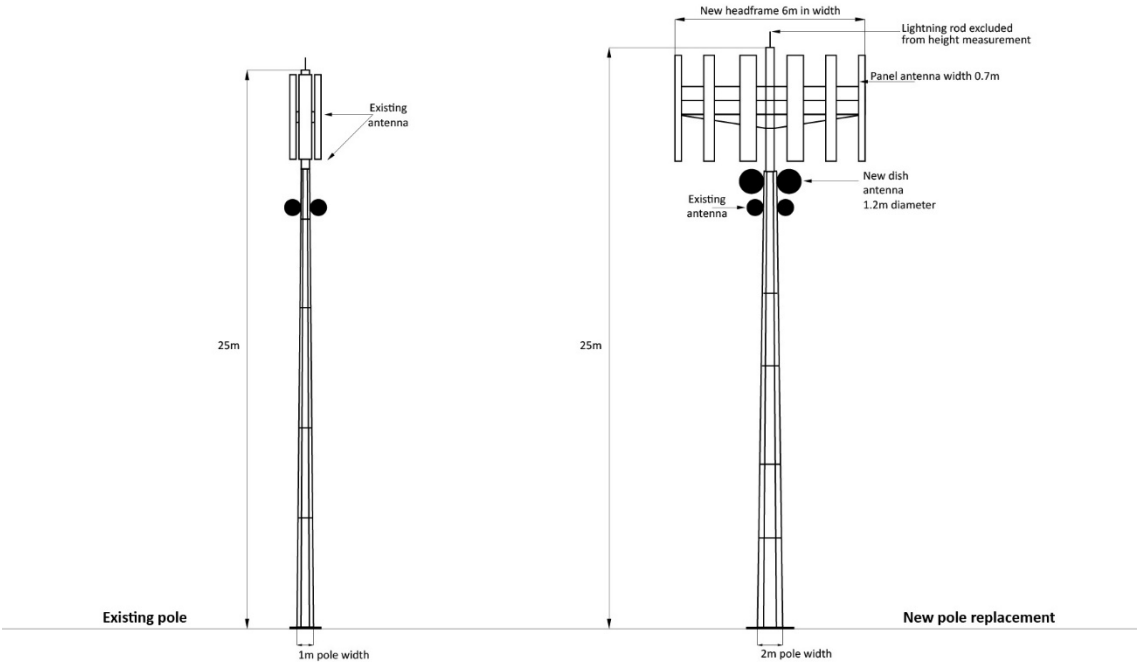


Scenario 5 provides an example of antenna being attached to an upgraded pole with existing antenna in the rural zone, in accordance with Regulations 32 and 33. The calculations below illustrate how the facility complies with the relevant standards.

- Pole height = baseline pole height (18) + 3.5m (single operator) = max 21.5m
- New pole width (same location) = 1.2m x 2 = 2.4m
- New panel antenna = max 0.7m width
- New dish antenna = diameter no greater than 1.2m.

New headframe: width no greater than 6m.

Figure 30: Scenario 6 – upgrading rural pole outside road reserve in accordance with Regulation 34



Scenario 6 provides an example of an existing rural pole established post-1 January 2017 without consent, in reliance on Regulation 34. It is being upgraded through the co-location of multiple operators. The calculations below illustrate how the facility complies with the relevant standards.

- Replacement pole height = the lesser of 25m or the existing height (25m) plus permitted height increase (multiple operators) (5m) = max 25m
- Replacement pole width = the lesser of 6m or the baseline pole width x 2 (increase in number of antenna) = max 2m
- New panel antenna = max 0.7m width
- New dish antenna = diameter no greater than 1.2m.

New headframe: width no greater than 6m.

4.7 Antennas on new poles outside the road reserve in rural zone

4.7.1 Policy intent

Regulations 34 and 35 provide for the installation and operation of a new pole and antennas outside the road reserve in the rural zone as a permitted activity, subject to compliance with the relevant standards. The NESTF 2016 refers to new poles and antennas in the rural zone as (pole E) and (antenna E).

These provisions enable new telecommunication facilities to be established more efficiently in rural areas while ensuring that there are appropriate controls on pole height and width, antenna size, setbacks from sensitive buildings, and earthworks. This supports the

management of any potential adverse effects arising from the installation and operation of these facilities.

The standards impose maximum antenna size restrictions on panel and dish antenna only; there are no applicable standards for any other non-dish antenna. However, other non-dish antenna would have to meet any other applicable standards, for example pole height rules.

4.7.2 Standards

The standards for antennas on new poles outside the road reserve in rural zones are outlined in table 14.

Table 14: Standards for new poles and antenna in rural zone

Controls	Standards
Min sensitive building setback	At least 50m away from buildings used for residential or educational purposes.
Maximum antenna size	Panel antenna: • width of 0.7m or less • other non-dish antenna – no applicable standards. Dish antenna: • diameter of 1.2m or less.
Maximum pole height	25m, including all antenna. If built to maximum height, any future increases in height will require resource consent under the relevant District Plan.
Maximum pole width	No more than 6m (Note: "pole" includes lattice towers. It does not include guy wires).
Maximum headframe width	No more than 6m (Note: there is no limit on the number of headframes).
Earthworks	• Any applicable 'special place earthworks' in the district plan (Regulation 53(7)). • For all rural zone earthworks: – maximum volume 450m3 per facility excluding any access track (Regulations 5(1)(d) and 53(2)(b)(i)) – the earthworks management plan requirements must be complied with (Regulation 53(3)-(6)). • Any applicable regional earthworks rules (regulation 54).
Other applicable standards	• Subpart 5 (Regulations 44-52) where relevant. • Radiofrequency fields (Regulation 55).

The setback requirements are intended to manage potential adverse visual amenity effects on buildings used for residential or education purposes. The 50m setback should be measured from the telecommunication facility and the building at their closest points (Regulation 7(8)).

It will generally be obvious when a building is used for residential purposes, and in a rural context this may include worker accommodation. A building used for educational purposes is intended to include any buildings associated with a primary or secondary school, early childhood education, kōhanga reo, or tertiary institution.

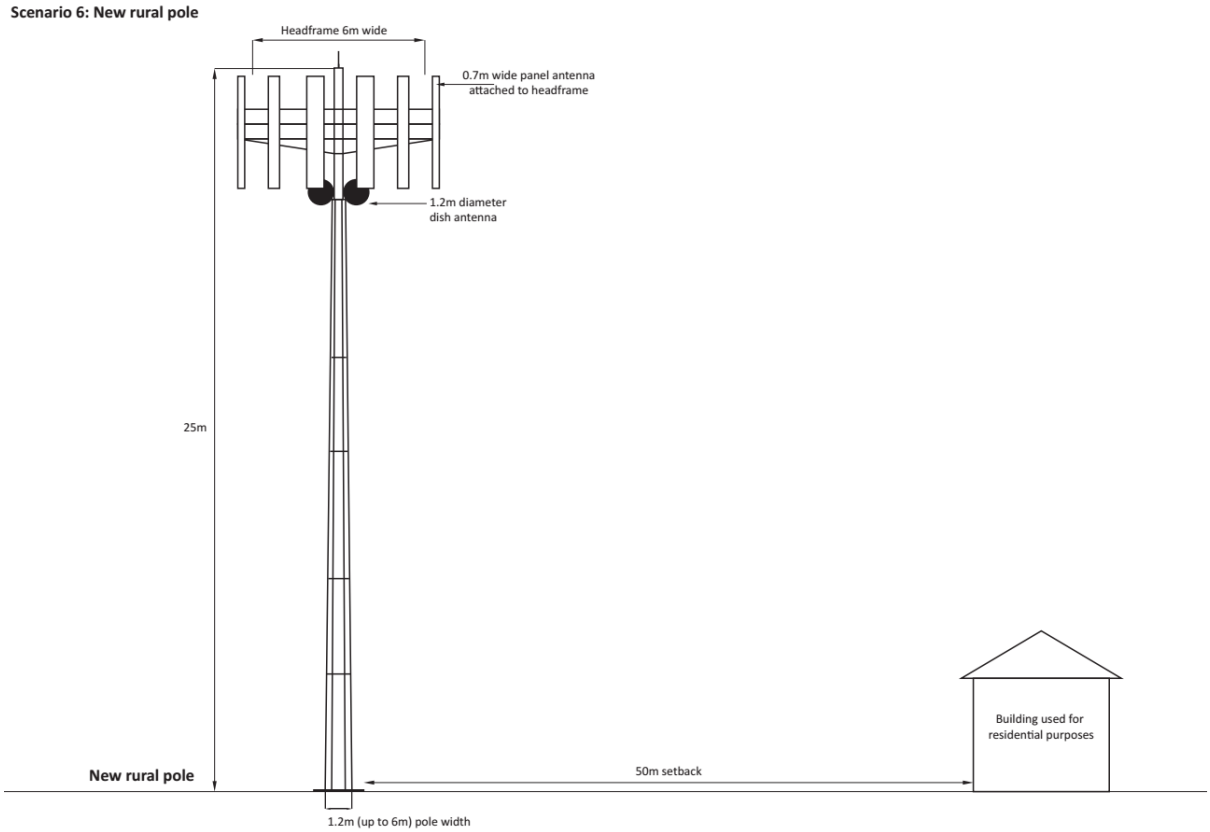
The NESTF 2016 also imposes additional requirements for earthworks in rural zones, which are outlined in section 4.13 – earthworks.

4.7.3 Examples

The diagram below provides an example of a new pole and antennas established in a rural zone, in accordance with Regulations 34 and 35. Calculations are also provided to show how

measurements are to be undertaken under the NESTF 2016 and how to determine compliance with the relevant standards.

Figure 31: Scenario 7 – new rural pole



Scenario 7 provides an example of an antenna on a new pole outside the road reserve in a rural zone, in accordance with Regulations 34 and 35. The calculations below illustrate how the facility complies with the relevant standards:

- pole location = setback at least 50m from buildings used for residential or educational purposes
- pole height = 25m (maximum pole height)
- pole width = 1.2m (up to 6m permitted)
- panel antenna = width no greater than 0.7m
- dish antenna = diameter no greater than 1.2m.

Headframe: width no greater than 6m.

4.8 Antennas on buildings

4.8.1 Policy intent

Regulations 36 and 37 provide for the installation and operation of non-dish and dish antennas on buildings as a permitted activity, subject to compliance with the relevant standards. This recognises that the installation of antennas on buildings is a common, low-impact method of telecommunication equipment deployment, and can be particularly effective at providing coverage in built-up urban areas. The reference to 'on a building' is not intended to limit permitted antennas to the top of buildings; it also covers antennas located on the exterior

sides of buildings (referred to as the 'vertical surface' in the NESTF 2016), which is common in urban areas.

The standards impose maximum antenna size restrictions on panel and dish antenna only; there are no applicable standards for any other non-dish antenna. However, other non-dish antenna would have to meet any other applicable standards, for example attachment rules.

4.8.2 Standards

The standards for antennas on buildings are outlined in table 15.

Table 15: Standards for antennas on buildings

Controls	Standards
Maximum antenna size	**Panel antenna** • 1.5m^2 for the area of the panel. **Dish antenna** • No more than 1.2m diameter. **Other non-dish antenna** • No applicable size standards.
Maximum height of antenna above point of attachment	Antenna: • attached on vertical surface, no more than 5m above the top of the vertical surface directly above where the antenna is attached to building • on a building, no more than 5m above the point at which the antenna is attached to building.
Minimum attachment height of antenna – residential zone	Antenna attached to building in residential zone must be at least 15m above ground at its lowest point.
Earthworks	Any applicable regional earthworks rules (Regulation 54).
Other applicable standards	• Subpart 5 (Regulations 44–52) where relevant. • Radiofrequency fields (Regulation 55).

4.8.3 Examples

Figure 32: Antenna on vertical surface of building (non-residential

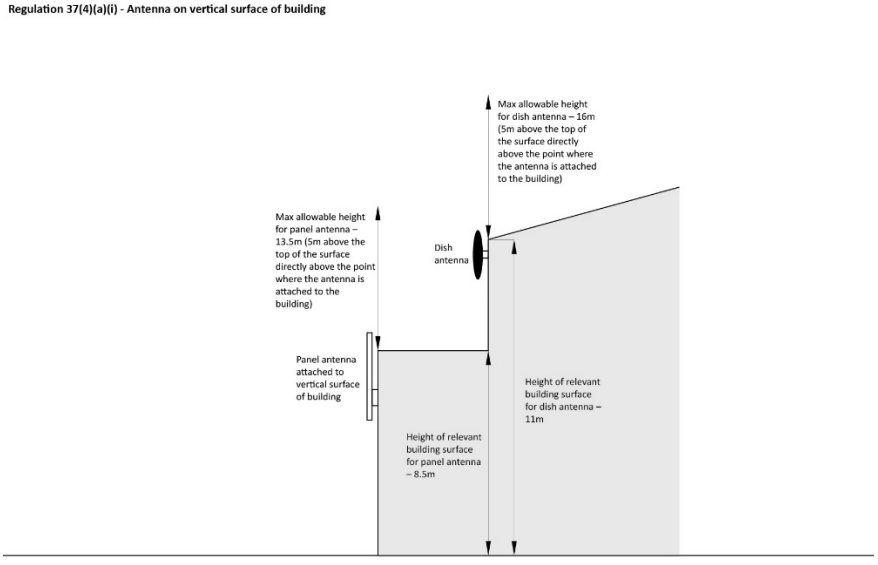
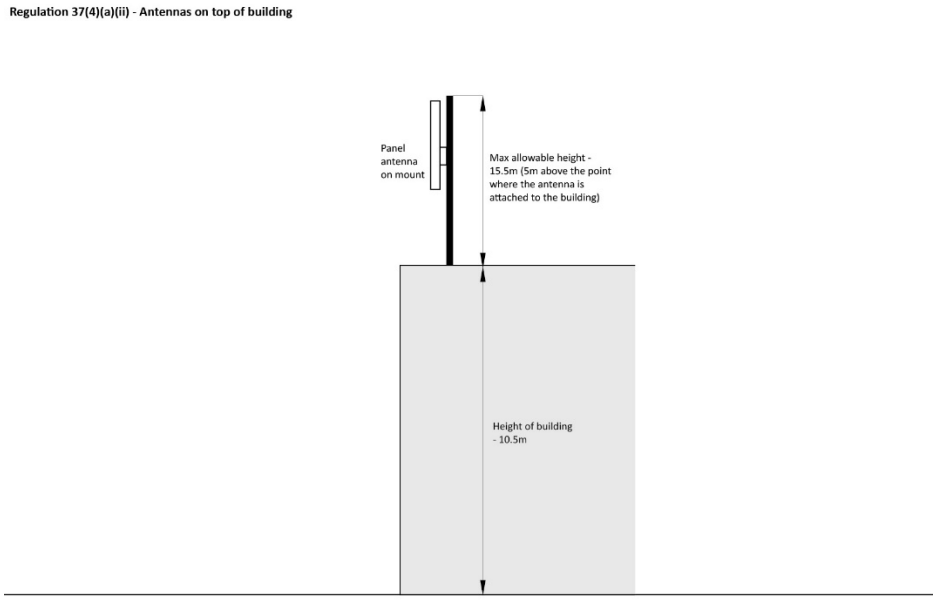


Figure 33: Antenna on top of building (non-residential zone)



4.9 Small cell units

4.9.1 Policy intent and conditions

Regulation 38 provides for the installation and operation of a small cell unit as a permitted activity, subject to compliance with the relevant standards. A "small cell unit" is defined in the NESTF 2016 as:

> **"…**a device–
>
> (a) that receives or transmits radiocommunication or telecommunication signals; and
>
> (b) the volume of which (including any ancillary equipment, but not including any cabling) is not more than 0.11 m3".

The standards in the NESTF 2016 controlling small cell units are minimal due to the low impact nature of these devices. The definition of small cell units and Regulation 38 require, however, that:

- the volume of a small cell unit is (by definition) to be no more than 0.11m³ (including ancillary equipment but excluding cabling)
- small cell units must be installed on an existing structure.

Note that the RMA defines '*structure'* as "any building, equipment, device, or other facility made by people and which is fixed to land; and includes any raft".

The NESTF 2016 also requires small cell units to comply with Subpart 5, which is any applicable regional earthworks rules (Regulation 54), and the standards for radiofrequency fields in Regulation 55 if it is a RFG facility.

4.10 Customer connection lines

4.10.1 Regulated activity and standards

Regulations 39 and 40 provide for customer connection lines to be installed and operated as a permitted activity, subject to compliance with the relevant standards. The permitted activity standards for customer connection lines are outlined in table 16. Note that if a customer connection line is more than one type of line (surface-mounted, aerial or underground) then the relevant standards will need to be complied with for each section of the line.

Table 16: Standards for customer connection lines

Controls	Specific standards	Earthworks	Other standards
Surface-mounted customer connection line	• Diameter of line no more than 30mm. • Diameter of any conduit enclosure no more than 32mm. • Line and conduit solely supported by existing structures.	Any earthworks must comply with: • Subpart 5 if earthworks undertaken outside the road reserve • any applicable regional earthworks rules (Regulation 54).	Subpart 5 must be complied with if applicable.
Aerial customer connection line	• Diameter of line no more than 30mm. • Line supported solely by an existing structure.		Regulations 44 and 45 must be complied with if applicable.
Underground customer connection line	N/A – there are no specific standards to comply with.		

4.11 Aerial telecommunication lines

4.11.1 Regulated activity and standards

Regulations 41 and 42 provide for aerial telecommunication lines to be installed and operated as a permitted activity, subject to compliance with the relevant standards. The NESTF 2016 uses the term 'current line' to refer to existing lines and 'line A' to refer to new lines. New aerial telecommunication lines are limited to where:

- there is an existing aerial power line or telecommunication line in place
- the new line is supported by one or more of the following:
  - existing support structures in their original locations
  - existing support structures after they have been relocated
  - new structures established to replace existing support structures
- the new line is supported by those structures in the same order as the existing line (see explanation of 'same order' below).

An existing support structure for this particular activity is a structure that supported the existing line before the installation of the new line.

Aerial telecommunication lines are a permitted activity, subject to a number of standards, which are summarised in table 17.

Table 17: Standards for aerial telecommunication lines

Controls	Standards
Diameter of line	No more than 30mm.
Total volume of ancillary equipment on each support structure	No more than 0.4m^3. Note: this relates to new ancillary equipment installed in association with Line A.
Location of replacement support structure (if moved)	No more than 3m from existing support structure location.
Replacement support structure size rules	• Height – no more than 1m higher than existing support structure. • Width – no more than 1.5 times the width of the existing support structure. **Or,**Where the minimum road clearance height for replacement support structures is greater than that above, then the following standards apply: • height – must not be more than the minimum road clearance height • width – no more than is reasonably necessary for the structure height.
Earthworks	• Subpart 5 if applicable. • Any applicable regional earthworks rules (Regulation 54).
Other applicable standards	Regulations 44 and 45 must be complied with if applicable.

The 'minimum road clearance height' for a support structure is defined in regulation 42(5) as "the minimum height necessary to enable the facility operator to meet its obligations under the Telecommunications Act 2001 relating to the height of line A."

Section 149 of the Telecommunication Act 2001 requires that:

> "(1) A network operator must not intentionally place the wires of a line so that they interfere with the lawful traffic on a road.
>
> (2) However, wires of a line do not interfere with the lawful traffic on the road if the wires are placed at a height of 5.5m or more above the surface of the road where the wires cross a public road, or at a height of 4.25m or more elsewhere."

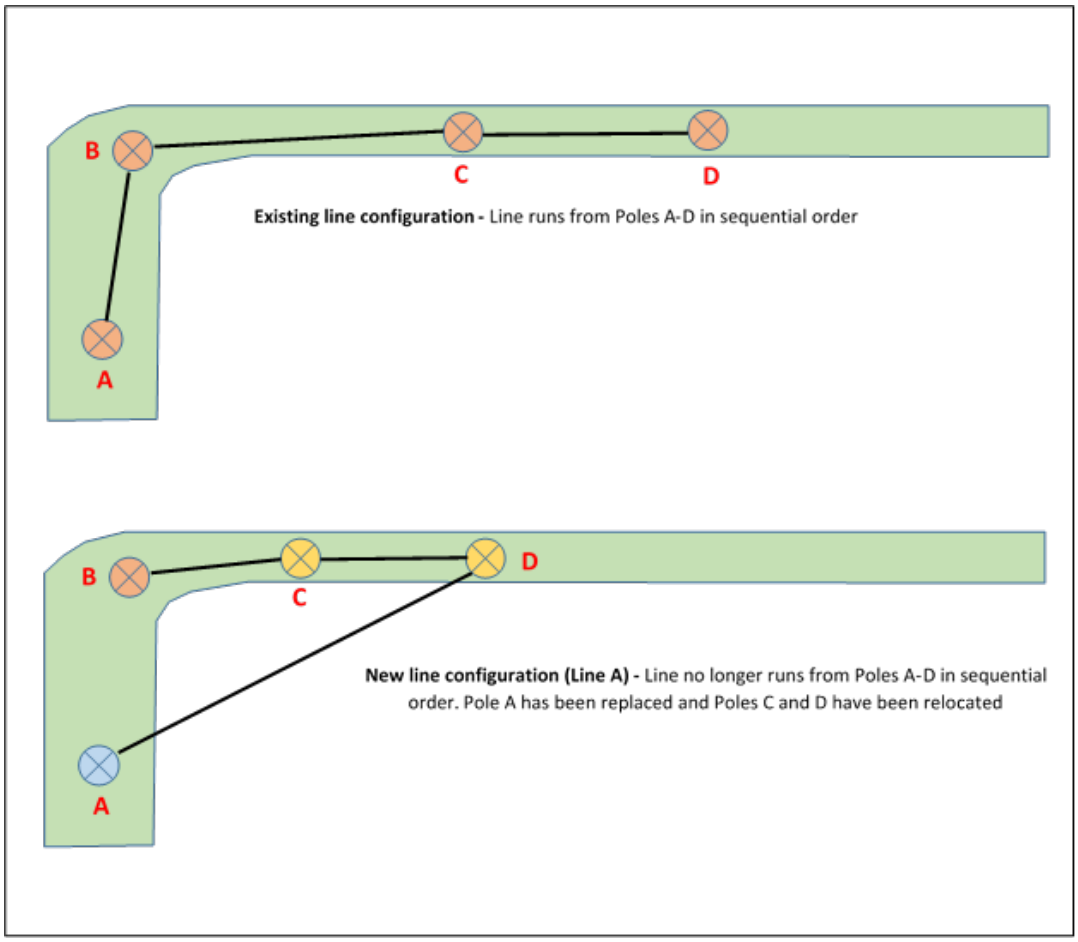
Aerial telecommunication lines must comply with Regulations 44 and 45, which relate to the protection of trees and vegetation in the road reserve and the protection of significant trees outside the road reserve. If the aerial lines involve earthworks (eg, through the replacement of any support structures) Subpart 5 and any applicable regional earthworks rules must also be complied with.

4.11.1.1 The requirement to be in the 'same order' as existing lines

The intent of this requirement is to ensure that any new aerial telecommunication lines follow the same route as an existing aerial power or telecommunication line, avoiding the creation of new routes across the existing supporting structures. The reference to 'same order' in Regulation 41(1)(d) means that any new line (line A) is supported by structures in the same order as the current line.

It is also important to note that Regulation 41(1)(c) envisages a number of scenarios for line A to be supported (ie, existing structures in original locations, existing structures after they have been moved to new locations, and new structures erected to replace existing structures). This is illustrated in the figures below, which show a replacement aerial line configuration that does not comply with Regulation 41.

Figure 34: Aerial lines – non-compliant replacement scenario



4.12 Underground telecommunication lines

4.12.1 Regulated activity and standards

Regulation 43 provides for the installation and operation of underground telecommunication lines as a permitted activity, subject to compliance with the relevant standards. The standards in the NESTF 2016 on underground telecommunication lines are limited, due to their low impact nature. However, where applicable, underground telecommunication lines are required to comply with:

- Regulation 44, protecting trees and vegetation where the installation of underground telecommunication lines is carried out in the road reserve
- Regulations 45 to 51, where the installation of underground lines is carried out at a place outside the road reserve
- Regulation 54, which requires compliance with any applicable regional earthworks rules (no district plan earthworks rules apply).

4.13 Earthworks

4.13.1 Overview

Regulations 53 and 54 provide for earthworks associated with telecommunication facilities to be permitted, subject to compliance with the applicable standards. Regulation 53 applies to earthworks associated with antenna established in accordance with Regulation 30 (antennas in residential zone and not in road reserve), Regulation 32 (antennas in non-residential zone and not in road reserve), and Regulation 34 (antennas on new pole in rural zone). Regulation 54 applies to earthworks associated with all telecommunication facilities under the NESTF 2016. The earthworks standards that apply to telecommunication facilities vary according to the type of facility and location, as outlined in table 18.

When a facility involving earthworks is located in an area subject to Subpart 5, then the earthworks must comply with the district plan earthworks rules (refer to the 'special place earthworks' section 4.13.2). However, this requirement does not apply to cabinets, earthworks in road reserve (except earthworks associated with aerial lines), or earthworks associated with small cell units.

If there are no applicable 'special place earthworks', and the earthworks are not located in the rural zone, regulation 53(1)(a) permits earthworks associated with the installation and operation of certain antenna on poles (including relocated or replaced poles) without specific conditions.

Where the installation and operation of antenna on new or existing poles (including relocated or replaced poles) involving earthworks is in a rural zone, the earthworks are subject to specific standards under Regulation 53(2)(b), namely a maximum volume of the earthworks of 450m^3 per facility, and a requirement to operate in accordance with the management plan requirements (outlined below). The exception is where the earthworks are 'special place earthworks', in which case Regulation 53(2)(b) does not apply (as the definition of rural earthworks excludes 'special place earthworks').

The NESTF 2016 does not override regional council earthworks rules, and any applicable rules in this regard must be complied with (Regulation 54).

Earthworks associated with access tracks and self-contained power units do not fall within the scope of the NESTF 2016, and continue to be managed under the relevant district and regional plans (Regulation 5(2)).

4.13.2 Standards

4.13.2.1 Applicable earthworks standards for different telecommunication facilities

Table 18: Applicable earthworks standards for telecommunication facilities under NESTF 2016

Earthworks associated with	Applicable regional earthworks rules	Special place earthworks	Earthworks management plan requirements	Earthworks volume standards
Cabinets (Regulations 19-25)	✓	N/A	N/A	N/A
Antenna on existing pole in road reserve (Regulations 26-27)	✓	N/A	N/A	N/A

Earthworks associated with	Applicable regional earthworks rules	Special place earthworks	Earthworks management plan requirements	Earthworks volume standards
Antenna on new pole in road reserve (Regulations 28-29)	✓	N/A	N/A	N/A
Antenna on existing pole in residential zone (Regulations 30-31)	✓	✓	N/A	N/A
Antenna on existing pole not in residential zone (and not in rural zone) (Regulations 32-33)	✓	✓	N/A	N/A
Antenna on existing pole in rural zone[7] (Regulations 32-33)	✓	✓	✓	✓
New poles with antenna in rural zone[8] (Regulations 34-35)	✓	✓	✓	✓
Small cell unit (Regulation 38)	✓	N/A	N/A	N/A
Customer connection lines in road reserve (Regulations 39-40)	✓	N/A	N/A	N/A
Customer connection lines outside road reserve (Regulations 39-40)	✓	✓	N/A	N/A
Aerial lines (Regulations 41-42)	✓	✓	N/A	N/A
Underground lines in road reserve (Regulation 43)	✓	N/A	N/A	N/A
Underground lines outside road reserve (Regulation 43)	✓	✓	N/A	N/A

4.13.2.2 Standards for rural earthworks

The standards for rural earthworks apply to earthworks that are carried out in a rural zone and not in a road reserve, and are not 'special place earthworks' (as the 'special place earthwork' rules will apply to those earthworks). These standards are outlined in table 19.

Table 19: Standards for earthworks in rural zone

Controls	Standards
Volume	450m^3 per facility.
Management plan requirements	Must prepare prior to commencing, and then adhere to an earthworks management plan for rural earthworks.

[7] As noted above, where rural earthworks are located in an area subject to 'special place earthworks', then the 'special place earthworks' rules prevail.

[8] As above.

Controls	Standards
	Must provide a copy to local authority if requested at any time before the expiry of six months from the completion of the earthworks. The earthworks management plan must set out: • location of the earthworks • nature and scale of the earthworks • dates for earthworks (start and end date) • measures taken to ensure that earthworks do not, as far as practicable, cause or contribute to any of the following: – sediment run-off from the site – soil or debris from the works entering any water body or the coastal marine area – land instability or subsidence of a slope or other surface – erosion of the bed or a bank of water body or the coastal marine area – drainage problems, flooding, or the diversion of overland flow paths – dust problems on adjoining land • measures/steps that will be taken to complete the earthworks in a way that will, as far as practicable: – restore the site to previous condition – stabilise the site against subsequent erosion.

The earthworks management plan requirements are intended to ensure good management measures are taken to mitigate the potential adverse effects arising from any earthworks based on the nature of the earthworks and any site-specific risks, including any sensitive receiving environments. An earthworks management plan must be prepared before any rural earthworks commence, and must be provided to the local authority on request.

The management plan must be set out in a level of detail that is reasonable and proportionate for the nature, scale, duration and location of the earthworks.

The mitigation measures implemented as part of the management plans must be:

- designed to minimise the effects on the environment of the earthworks
- reasonable and proportionate, having regard to the nature, scale, duration and location of earthworks.

The intention is that a relatively concise management plan will be sufficient when the scale of earthworks is minimal and there are limited site-specific risks or sensitive receiving environments in close proximity to the earthworks. A more detailed management plan (and associated management measures) is expected where the scale of earthworks is larger, or there are site-specific risks that need to be managed.

4.13.2.3 Special place earthworks

'Special place earthworks' in Regulation 53(7) refers to earthworks undertaken in one of the areas referred to in Subpart 5. Where a regulated activity requires any earthworks to comply with Subpart 5 or Regulation 53, earthworks in those places must comply with the district plan earthworks rules for that area.

5 Radiofrequency fields

5.1 Introduction

5.1.1 Radiofrequency fields

Subpart 7 (Regulation 55) of the NESTF 2016 requires compliance with the Standards New Zealand standard *NZS 2772: Part 1: 1999 Radiofrequency Fields Part 1 – Maximum Exposure Levels – 3 kHz to 300 GHz*, and is relevant to all telecommunication facilities that generate Radiofrequency (RF) fields in any location. NZS 2772: Part 1: 1999 incorporates advice on health effects and appropriate exposure levels from exposure guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP 1998 guidelines).

Regulation 55 states:

55 Radiofrequency fields

(1) This regulation applies to an RFG [radiofrequency generation] facility.

(2) This regulation is complied with if—

(a) the facility is installed and operated in accordance with NZS 2772.1; and

(b) before the facility becomes operational, the facility operator gives the local authority—

(i) written or electronic notice of the facility's location; and

(ii) a pre-commencement report that complies with subclause (3); and

(c) either—

(i) the facility operator gives the local authority a post-commencement report that complies with subclause (4) within 3 months after the facility becomes operational; or

(ii) under subclause (5), the facility operator is not required to give a post-commencement report.

(3) A pre-commencement report must—

(a) be prepared in accordance with AS/NZS 2772.2; and

(b) take into account exposures arising from other telecommunication facilities in the vicinity of the facility; and

(c) predict whether the radiofrequency field levels at places in the vicinity of the facility that are reasonably accessible to the general public will comply with NZS 2772.1.

(4) A post-commencement report must—

(a) be prepared in accordance with AS/NZS 2772.2; and

(b) provide evidence that the actual radiofrequency field levels at places in the vicinity of the facility that are reasonably accessible to the general public comply with NZS 2772.1.

(5) The facility operator is not required to give a post-commencement report if the prediction referred to in subclause (3)(c) was that the radiofrequency field levels will not reach 25 per cent of the maximum level authorised by NZS 2772.1 for exposure of the general public.

(6) In this regulation,—

AS/NZS 2772.2 means AS/NZS 2772.2:2016 Radiofrequency fields – Part 2:Principles and methods of measurement and computation – 3 kHz to 300 GHz

NZS 2772.1 means NZS 2772.1:1999 Radiofrequency fields – Maximum exposure levels – 3 kHz to 300 GHz.

Regulation 55 ensures that radiofrequency (RF) field exposures from mobile phone transmitters and other telecommunication structures are controlled in a manner consistent with Ministry of Health recommendations, the existing voluntary New Zealand standard, and international guidance from the ICNIRP 1998 guidelines. For the activity to be permitted under Subpart 7, facility operators are required to comply with NZS 2772 throughout New Zealand.

Where a telecommunication facility does not comply with Regulation 55, it will require resource consent as a non-complying activity in relation to RF fields. This Regulation is therefore straightforward in that there are only three possible scenarios:

- The facility complies with the relevant sub-clauses of Regulation 55 and the predicted exposures are <25 per cent of the NZS 2772.1 limit = permitted in terms of RF fields
- The facility complies with the relevant sub-clauses of Regulation 55 but predicted exposures are ≥25 per cent of the NZS 2772.1 limit = permitted in terms of RF fields but evidence of exposure levels is required post-installation
- The facility does not comply with the relevant sub-clauses of Regulation 55 = non-complying activity in terms of radiofrequency fields. Resource consent required.

If consent is required, it will need to be sought from the relevant local authority. Table 20 below illustrates these scenarios.

Table 20: Requirement for facility operators to submit reports to local authority

	RF Exposure level	Provide pre-commencement report to authority	Provide post-commencement report to authority
Compliant with Regulation 55	**Less than 25%**	Yes – submit report in accordance with AS/NZS 2772.2, including an uncertainty estimate.	Not required to be submitted (facility must still operate in accordance with AS/NZS 2772.2).
	Equal to or more than 25%	Yes – submit report in accordance with AS/NZS 2772.2, including an uncertainty estimate.	Yes – submit report in accordance with AS/NZS 2772.2, including an uncertainty estimate.
Non-Compliant with Regulation 55	**N/A**	Non-complying activity in terms of radiofrequency fields requiring resource consent from relevant local authority.	Non-complying activity in terms of radiofrequency fields requiring resource consent from relevant local authority.

5.1.2 New Zealand radiofrequency field exposure standard

The New Zealand RF field exposure standard *NZS 2772.1: 1999 Radiofrequency Fields Part 1: - Maximum Exposure Levels 3 kHz to 300 GHz* is based on guidelines published by the ICNIRP. The ICNIRP 1998 guidelines, and their underlying basis, have been adopted in a number of countries. A full discussion of the standard and why it is considered relevant is beyond scope of this guide, but further information can be obtained from the ICNIRP website,[9] the WHO International EMF Project website,[10] or the Ministry of Health website.[11]

[9] www.icnirp.org

[10] www.who.int/peh-emf/

[11] www.health.govt.nz – use the search term 'radiofrequency research'.

The standard sets maximum exposure limits for the public that are around 50 times lower than the recognised threshold for established effects. In addition to compliance with these numerical limits, clause 10(d) of the standard requires:

> "Minimising, as appropriate, RF exposure which is unnecessary or incidental to achievement of service objectives or process requirements, provided that this can be readily achieved at modest expense."

5.1.3 New Zealand radiofrequency field measurement standard

The joint Australian/New Zealand standard *AS/NZS 2772.2:2016 Radiofrequency fields – Part 2: Principles and methods of measurement and computation – 3 kHz to 300 GHz* sets out requirements for the assessment of exposures to RF fields by computation and measurement. The standard is based on current best practice techniques for the assessment of exposures by calculation and measurement, and includes guidance on how this should be undertaken. It also covers the estimation of uncertainty in exposure assessments, and how this should be used when determining compliance (or non-compliance) with exposure limits.

5.2 Pre-commencement report

Regulation 55(2)(b) requires that the facility operator provides a pre-commencement report to the relevant local authority, prepared in accordance with AS/NZS 2772.2. The pre-commencement report predicts whether RF field levels, at places in the vicinity of the facility that are reasonably accessible to the public, comply with the public limits in NZS 2772.1. It should take account of existing exposures from other telecommunication facilities in the vicinity.

It is recommended that a simple standard form be used. An example form is presented in Appendix C. This may be supplemented by additional information such as:

- exposure information – this could be in the form of exposure contours[12] around antennas showing where levels that are 100 per cent and 25 per cent of the limit in the standard are met, or a plot or other means showing exposure levels in accessible areas around the site
- general technical specifications for the site (power, frequency, antenna gain, etc).

Inclusion of this type of information can assist a local authority in auditing the report. If this type of information is not supplied, the facility operator should be prepared to make it available if requested.

5.2.1 Compliance with NZS 2772.1 – Maximum RF field exposure levels

NZS 2772.1 specifies limits in terms of basic restrictions on the amount of RF power absorbed by the human body. Because RF power absorption is difficult to measure, the standard prescribes reference levels in terms of the more easily measured and calculated electric and magnetic field strengths, and power flux density. Compliance with the reference levels ensures compliance with the basic restrictions, and in most cases they can be regarded as "exposure limits" (although this term is not used in the standard).

The exposure assessment Standard AS/NZS 2772.2 permits computations that evaluate exposures either in terms of the basic restrictions or in terms of the reference levels.

---

[12] These exposure contours are sometimes referred to as "lobe" or "plume" diagrams. "contour" or "lobe" may be preferable, because the word "plume" usually refers to emissions of by-products (generally waste) into the air, whereas RF fields are an intentional product of telecommunication facilities.

Evaluation in terms of the basic restrictions is complex, and requires very specialised software and computational models, and an approach in terms of the reference levels is normally sufficient.

5.2.2 Uncertainty estimates in the pre-commencement report

Regulation 55 requires that if the exposures in public areas are predicted to be equal to or greater than 25 per cent of the public limit, then a post-commencement report must be submitted that confirms that exposures do comply with the limits in NZS 2772.1. AS/NZS 2772.2 requires that any exposure assessment be accompanied by an estimate of the uncertainty in that assessment.

This requirement originated in the recognition[13] that manufacturing tolerances can mean that exposures are higher or lower than predicted. In addition, reflections of the radio signals off some surfaces can lead to localised increases and decreases in the RF field levels above and below those calculated using simple models. A threshold of 25 per cent was set as a pragmatic approach to ensure that in situations where such sources of variation resulted in exposures higher than predicted, compliance with the limits could still be confirmed once the site was operational. In effect, this requirement allows for the fact that there is inevitably some uncertainty in the calculated exposures.

5.2.3 Computation parameters

Transmitter power

The standard permits exposures to be averaged over a six-minute period. In determining whether exposures comply with the limits, it should normally be assumed that the telecommunication facility is operating at maximum power all the time, unless data is available to show that the average power is always less than the maximum possible. For example, if a transmitter operates with a fixed-duty cycle (ie, it does not transmit continuously but in bursts with fixed on/off periods), then time averaging of exposures can be considered.

The output power of cell sites is controlled dynamically so it is just sufficient to handle calls going through the site. If the facility operator has data from other sites of a similar type (eg, from other sites in urban areas near a planned facility) that provide a high degree of confidence that the maximum power averaged over any six-minute period in actual operation is less than the maximum possible power, then this more realistic value of the maximum power may be used.

Antenna characteristics

The transmission patterns of some types of antenna (such as those with variable downtilts used on cell sites, for example) can be adjusted by the facility operator to optimise the radio coverage provided by a facility. One approach to take account of this variability in the pre-commencement report is to calculate exposures assuming that any of the possible downtilts might be chosen. If, however, the facility operator can be confident that only a limited range of all the possible adjustments might be used, and can demonstrate that there are procedures in place to trigger a new exposure assessment should it become necessary to make an

[13] Ministry for the Environment, Ministry of Health publication. 2000. *National guidelines for managing the effects of radiofrequency transmitters*. Wellington: Ministry for the Environment. Pages 39–40.

adjustment outside that range, the pre-commencement report can be based on calculations using the limited range of adjustments.

Spatial averaging

The standard also allows the power flux density (PFD) to be averaged over an area when making comparisons against the reference levels. It may be reasonable to apply the spatial averaging provisions if, for example, only a very small part of the body (eg, the hands) might be exposed to either the 100 per cent or 25 per cent thresholds.

5.2.4 What areas are reasonably accessible to the general public?

Regulation 55 uses the term "reasonably accessible to the general public", but does not define what this means. It is difficult to provide a precise definition, but in most cases it should be fairly easy to determine what areas might and might not be reasonably accessible. For example, it is reasonable to assume that members of the public might be in areas on the ground near an RFG facility that is not fenced off by the facility operator. On the other hand, it is not reasonable to assume that a member of the public would hire a crane or cherry picker to position themselves right in front of a cell site antenna that is located in an otherwise vacant area.

In general, areas accessible to the public should include anywhere that might under normal circumstances be occupied by a member of the public. This could include both public and private property (eg, in the street, or on private land). Another way of thinking about it could be in terms of areas where members of the public have lawful access but may be unaware of exposures to RF fields.

The following tables provide examples of areas that might be considered reasonably accessible or not reasonably accessible to the public.

Table 21: Examples of reasonably accessible

Reasonably accessible area	Comment
Inside homes and workplaces, on balconies, etc.	
On rooftops of existing private homes and buildings adjacent to a telecommunication facility but not in the control of the network operator.	These areas should be considered accessible even if access is controlled, because people going onto the rooftops will generally be unaware of exposures.
On public and private land, except land securely fenced off around an RFG facility.	Any area where radiofrequency fields exceed public exposure limits must have signs installed. Such signage must comply with NZS2772:1, and in particular signs must comply with AS 1319. For example: 

Table 22: Examples of areas not reasonably accessible

Not a reasonably accessible area	Comment
On locked rooftops housing telecommunication antennas.	Access to the rooftop should be controlled, and there should be warning signs at the entrance.

Not a reasonably accessible area	Comment
On masts or lamp-posts with telecommunication antennas mounted on them.	Staff climbing the mast/pole for maintenance are subject to protections (and responsibilities) under laws applying to health and safety.
Inside a securely fenced area around an RFG facility.	If radiofrequency fields inside the fenced area exceed public exposure limits warning signs must be installed. Such signage must then comply with NZS2772:1, and in particular signs must comply with AS 1319. For example: 

If the 25 or 100 per cent exposure contour intersects with an area where there may be room for discussion about whether it is "reasonably accessible to the public" (eg, if the contour is less than 2m above an adjacent rooftop, or if the contour intersects a tree that may be climbable), it would be helpful for the pre-commencement report to state whether this area has been considered accessible, and if not, why.

Areas on commercial or public premises that would normally be accessed only by maintenance staff (eg, air conditioning contractors, painters, window cleaners, lighting contractors) should not be considered "reasonably accessible to the public" even though in terms of NZS 2772.1 these people would be counted as members of the public. The reason for this is that under health and safety legislation, there are others (for example, their employer) who have responsibilities with regards to awareness and management of possible hazards in their workplace. This would include the potential for exposures to RF fields from RFG facilities.

Rooftops of commercial buildings (eg, shops, offices, warehouses) adjacent to RFG facilities would not necessarily be considered as public areas, as people would not normally go up there in the course of their employment (if at all) and it would be others (for example, employers') responsibility to ensure that that part of their workplace is free from hazards. Hence they should not be considered as accessible to the public in the same way as walking down the street is. Nevertheless, exposures in these areas should ideally still be less than the public limit in NZS 2772.1.

5.2.5 Which other telecommunication facilities in the vicinity should be taken into account?

Regulation 55(3)(b) requires that the pre-commencement report take into account "exposures arising from other telecommunication facilities in the vicinity". The intention behind this requirement is that exposures from a new RFG facility (or new transmitter added to an existing facility) should not be considered in isolation but added to the existing contributions from other equipment at the same site or from telecommunication facilities nearby. A "site" may be a mast or pole, or it may be a rooftop or building with antennas mounted on it.

To some extent, radio engineers are already obliged under licensing rules administered by the Radio Spectrum Management (RSM) group at the Ministry of Business, Innovation and Employment to be aware of nearby sites in order to avoid radio interference. The RSM group maintains a publicly available database giving the location of transmitter sites. Most transmitters that are likely to make a significant contribution to exposures should also be easy to see on a site visit (although cell sites disguised behind other structures may be an

exception). The primary use of this database would be to determine whether or not there are nearby sites that should be considered; detailed technical information on likely exposures from those sites would need to be found elsewhere. Although the RSM database does not include unlicensed band services, these are usually very low power and so unlikely to add a significant contribution to exposures.

The primary goal of Regulation 55 is to ensure that exposures comply with the standard. As a check on compliance, measurements are required if exposures are predicted to exceed 25 per cent of the public limit (reference level). As such, Regulation 55 provides a wide margin between the threshold at which measurements are required (25 per cent) and the level at which the public limits might be exceeded (100 per cent), so transmitters on nearby sites that add only a small contribution (a few per cent of the public limit) should not be of particular concern.

Potential contributions to exposures from transmitters that are on the same site should be considered in the pre-commencement report. Beyond that, there are no hard and fast rules to say how far away other transmitters should be before they need not be considered. Measurements made around a variety of transmitters in New Zealand suggest that under most circumstances the exposures in publicly accessible areas from transmitters more than 50m away are less than a few per cent of the public limit, and so are unlikely to make a difference between compliance with the public limits or not.

It is not necessary to make detailed calculations for every antenna nearby. The important thing is that the antenna or facility be considered, even if the result of that consideration is to conclude that it will make a negligible difference to exposures so that detailed calculations are not necessary. For example, dish antennas emit a tightly focused beam, which, to be useful, must be directed away from the ground and buildings, and so can normally be assumed to make no significant contribution to exposures in areas that are reasonably accessible to the public. Contributions from panel antennas not facing towards the publicly-accessible area under consideration can also be neglected under most circumstances.

Network operators should be aware that the question of “cumulative effects” (the possibility that increasing the number of sites leads to rapidly increasing exposure levels) is often of concern to the public, so if in doubt it would be better to include consideration of a “nearby” site even it if turns out to be of little significance.

5.3 Post-commencement report

Should the pre-commencement report conclude that exposures in publicly-accessible areas around an RFG facility are likely to be equal to or greater than 25 per cent of the limit, the facility operator must prepare and submit a post-commencement report to the local authority. This must be submitted within three months of the facility becoming operational to confirm that exposures do, in fact, comply with the limits. This must be prepared in accordance with AS/NZS 2772.2. The post-commencement report must include an estimate of the uncertainty in the measured exposures. This should be used in the overall determination of compliance with the limits as described in section 6 of AS/NZS 2772.2.

Some RFG facilities may be implemented in stages, with progressive installation of transmitters as and when the demand for them arises, up to the maximum envisaged in the original site design. In this case, the exposures once the site is fully operational can be determined by either:

- extrapolating the measured exposures to find those expected when the site is fully configured (this is suitable when no transmitters operating in additional frequency bands will be added in the future); or

- calculating the exposures in the publicly accessible areas of interest from the transmitters yet to be added, and adding those to the measured exposures; or
- a combination of the two approaches.

If the final exposure derived in this way includes some calculated exposures from transmitters yet to be installed, then the uncertainty in those exposure calculations should be estimated and combined with the measurement uncertainty to provide the total uncertainty in the overall exposure assessment. Should the overall exposure derived using any of these methods be found to exceed the public limits (again, following the approach in section 6 of AS/NZS 2772.2), then a further post-commencement report should be prepared and submitted to the local authority once the additional transmitters have been added.

5.4 Good practice

5.4.1 Timing of exposure report

Although Regulation 55 only requires the pre-commencement report to be submitted before the site becomes operational, it is good practice to submit the report to the local authority before construction commences. The report may constitute part of an application for a certificate of compliance (COC), which would provide the opportunity for the council to assess whether resource consent is required.

When issuing a COC, consent authorities may choose to remind applicants of their obligation to carry out any post-commencement report (should it be required), by adding an advice note on the COC.

5.4.2 Supplementary information about facility

Regulation 55 requires that the pre-commencement report predict whether exposures comply with the public limits in the standard, and if they will exceed 25 per cent of those limits. There is no obligation to provide any more detail than this. However, it is good practice for network operators to supply additional information that would enable local authorities, if they desired, to independently verify the conclusions in the report. This could include technical specifications and plots showing estimated exposures. This information will already be available in order to prepare the report, so providing it should require little extra effort on the part of the network operator. It will also raise confidence in the report.

5.4.3 Auditing information

A local authority may wish to audit reports, or monitor sites, to assess compliance. The decision to audit or monitor may depend on the council's policies on auditing and monitoring permitted activities, or may be in response to complaints or concerns raised by the public. Note that some operators commission independent monitoring for some of their sites, and so councils may wish to investigate this first to avoid any unnecessary duplication.

5.4.4 Future development on adjacent sites

The pre-commencement report is prepared based on building developments that already exist around the proposed site at the time the report is submitted, rather than what might legally be constructed on adjacent sites in the future. The ongoing legal obligation to comply with Regulation 55 means that an operator would need to modify a site or apply for resource

consent (non-complying activity) if future building on an adjacent site resulted in non-compliance with Regulation 55.

Councils may consider putting a “flag” on adjacent property files so that if new developments are planned there is the opportunity to consider whether further action is required to assess if there is a non-compliance issue with Regulation 55. ‘Reverse sensitivity’ may be an issue for any adjacent development that requires consent and may be rendering the existing facility non-compliant, and a “flag” or onsite observation may be the best means to ensure this is captured during the application process.

6 Areas where district plans may be more stringent

6.1 More stringent district plan rules

Section 43B of the RMA states that a district plan rule may be more stringent than a national environmental standard (NES) if the NES expressly states this. It also sets out that a rule is more stringent than a NES if it prohibits or restricts an activity that the NES permits or authorises.

The NESTF 2008 expressly allowed for more stringent rules to prevail over the NESTF if the activity was located:

- adjacent to an area of identified historic heritage, or visual amenity value
- adjacent to a coastal marine area
- in the dripline of trees or other vegetation protected under the district plan.

The NESTF 2016 permits a greater range of telecommunication facilities in a wider range of areas, including areas with identified values that may be sensitive to the effects of the installation of telecommunication facilities. Accordingly, the areas where more stringent district plan rules may prevail over the NESTF 2016 have also been expanded.

The NESTF 2016 now also includes the protection of outstanding natural features and landscapes, the protection of areas of significant indigenous vegetation, and significant habits of indigenous fauna as special areas where district plan rules are able to be more stringent than the NESTF 2016. This is an important safeguard to ensure that proposals for telecommunication facilities are assessed under the district plan rules applicable to development in those areas, so that the effects on those areas are appropriately considered.

The areas with identified values where district plan rules can be more stringent than the NESTF 2016 are where the activity is located:

- within the dripline of a tree or other vegetation in the road reserve protected in the relevant district plan (Regulation 44)
- within the dripline of a tree, group of trees, or other vegetation outside the road reserve identified as being of special significance (however described) and protected in the relevant district plan (Regulation 45)
- in an area identified in the district plan as having historic heritage values (however described) (Regulation 46)
- in a landscape feature identified in the district plan as having special visual amenity values (however described) (Regulation 47)
- in an area identified in the district plan as a significant habitat for indigenous vegetation (however described) (Regulation 48)
- in an area identified in the district plan as a significant habitat for indigenous fauna (however described) (Regulation 49)
- in an area identified in the district plan as an outstanding natural landscape or feature (however described) (Regulation 50)
- in an area where the district plan has rules to protect the adjoining coastal marine area (Regulation 51).

Subpart 5 requires the district plan rules protecting the values of the identified area, tree or landscape feature to be complied with as they relate to the telecommunication facilities. These identified areas may also include rules that do not relate to telecommunication facilities. These other rules should not be applied to facilities under the NESTF 2016 as a new test. Subpart 5 is intended to preserve existing district plan rules relating to telecommunication facilities to protect the values of the identified area; it is not intended to create new consenting requirements when none exist.

The NESTF 2016 includes the words 'however described' when referring to the areas of value or significance included in Regulations 47–51. This recognises that councils do not always use the specific terminology in sections 6 and 7 of the RMA when identifying places of significance or value in their district plan. This is illustrated in the district plan examples in this section.

There are likely to be instances where district plan rules would fall within the definition of multiple rules subject to Subpart 5. For example, it may not be clear as to whether a 'native tree protection overlay' is caught by Regulation 45 (significant trees), 48 (indigenous vegetation) or 49 (indigenous fauna habitat), as it could easily be covered by all three. As all of the regulations in Subpart 5 are seeking the same outcome (protection of areas with special values), there is no conflict between the regulations and no issue with a district plan rule being caught by one or multiple Subpart 5 regulations – it simply means that the district plan rule prevails over the NESTF 2016.

It is expected that in the majority of cases it will be clear when a site is in an area subject to Subpart 5. However, there may be situations where there is uncertainty about whether an area is located in an area subject to subpart 5. In these situations, it is recommended that open communication and discussion between councils and telecommunication operators is the best means to find resolution, having regard to the objectives of the NESTF 2016 and the guidance/examples below.

6.2 Protection of trees and vegetation in road reserve (Regulation 44)

6.2.1 Policy intent

Regulation 44 allows district plan rules that relate to the protection of trees and other vegetation to prevail if both:

- a facility is proposed to be located in the road reserve within the dripline of a tree or other vegetation; and
- the activity would require a resource consent in the absence of the NESTF 2016.

This means that the proposal will be subject to the relevant tree rules applicable in the district plan, and the status of the activity will be determined by those rules. This condition also applies where a facility operator wishes to install a telecommunication facility in the road reserve within the dripline of a protected tree, where the protected tree is located on private property. In this context, 'protected tree' simply means a tree or vegetation that is protected by some sort of dripline rule in the district plan and can include 'blanket' tree protection rules that may still be in place outside of urban areas.

The policy intent of Regulation 44 is the same as Regulation 6(1) of the NESTF 2008. It is intended that district plan rules that protect trees or other vegetation by restricting activities taking place within driplines will continue to apply to facilities in the road reserve, and will not be overridden by the NESTF 2016.

6.2.2 Examples

Table 23 provides examples of tree and vegetation rules in the road reserve that are likely to be more stringent than the NESTF 2016. These are correct at the time of publication, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 23: Tree and vegetation protection plan rules that are likely to prevail over the NESTF 2016

Plan	Example
Hamilton City Plan (operative in part – 2016)	Any building or structure proposed within the 'root protection zone' of a scheduled significant tree requires resource consent for a Restricted Discretionary activity, regardless of which zone the tree is located in (the road reserve is defined as a 'Transport Corridor Zone').[14] No exemptions are provided for network utility activities. These district plan rules are likely to prevail over the NESTF 2016.
Ashburton District Plan (operative – 2014)	The use of land immediately surrounding a listed tree is a permitted activity provided that any construction, addition or replacement of any structure is set back at least 10m from the base of the tree or within the crown periphery (dripline), whichever is the greater. A facility that cannot meet this standard requires consent for a Restricted Discretionary activity.[15] The district plan rules are likely to prevail over the NESTF 2016.

Note that 'dripline' may be defined and measured in different ways across district plans and may also be referred to as 'root protection zone' or similar. A rule or definition in a district plan need not use the word 'dripline' specifically for Regulation 44 to apply. For example, the Hamilton City Plan uses a table to define 'root protection zone', while the Kaipara District Plan uses a diagram.

6.3 Protection of significant trees outside road reserve (Regulation 45)

6.3.1 Policy intent

Regulation 45 has the same policy intent as Regulation 44, except that it applies to significant trees located outside of the road reserve. While alternative wording is used in Regulations 45 and 44, the effect is the same.

Regulation 45(3) defines 'tree protection rules' as "the district rules about the protection of trees that are identified in that plan as being of special significance (however described)." The intention of this definition is that the protected tree or group of trees must be clearly identified in the district plan in order for the district plan rules to prevail. Common methods to identify significant trees include schedules with specific descriptions, property addresses, or identification on planning maps.

It is noted that 'blanket' tree protection rules in urban areas are no longer a valid district plan mechanism under sections 76(4A)–(4D) of the RMA. It is possible that blanket tree protection rules remain in place for rural areas in some district plans, and these may prevail over the NESTF 2016 where they meet the requirement in regulation 45(3) to 'identify' trees of special significance in the district plan.

[14] Rule 20.3(j), relating to significant trees in schedule 9D of the partially operative Hamilton City Plan 2016.

[15] Rules 12.7.1(f) and 12.7.3(i), relating to listed trees in the operative Ashburton District Plan 2014.

6.3.2 Examples

Table 24 provides examples of the types of 'tree protection rules' that are likely to enable more stringent tree protection rules to prevail over the NESTF 2016. These are correct at the time of publication, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 24: Significant tree protection plan rules that are likely to prevail over the NESTF 2016

Plan	Example
Taupo District Plan (operative – 2007)	There are tree protection rules in place for both 'notable' trees and 'amenity' trees. In this case, both 'notable' and 'amenity' tree protection rules would be likely to prevail over the NESTF 2016 as both types of protected tree are identified spatially on the planning maps.[16]
Upper Hutt City District Plan (operative – 2004)	There are tree protection rules in place for trees that are part of an 'urban tree group'.[17] Each urban tree group is listed on a schedule and described specifically in terms of property address, species and location of trees, ie, urban tree group 86 is described as being located at 39, 41 and 49 Blue Mountains Rd and is a "Cluster of over 30 trees comprised of beech, rimu, toro, kamahi, cabbage tree up to approximately 21m located backing onto reserve, steep bank to rear of dwellings."

6.4 Protection of historic heritage value (Regulation 46)

6.4.1 Policy intent

Regulation 46 allows district plan rules protecting historic heritage values to prevail over the NESTF 2016 if the facility is located in a place or area subject to these rules. This applies to activities carried out both within and outside the road reserve. This is consistent with the NESTF 2008 and is intended to ensure that the expanded NESTF 2016 aligns with the responsibilities of councils in relation to cultural and historic heritage in section 6 of the RMA. In particular, it will help ensure that the following section 6 matters are appropriately recognised and provided for by the NESTF 2016:

> "(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
>
> (f) the protection of historic heritage from inappropriate subdivision, use, and development"

Regulation 46(3) defines 'historic heritage rules' as "the district rules about the protection of historic heritage values (however described)". The definition of 'historic heritage' in the RMA is as follows:

[16] Rule 4e.3 – notable and amenity trees in the operative Taupo District Plan 2007.

[17] Rule 27A.1 – urban tree groups in the operative Upper Hutt City District Plan 2004 (as introduced by plan change 41).

"**historic heritage**—

(a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:

(i) archaeological:

(ii) architectural:

(iii) cultural:

(iv) historic:

(v) scientific:

(vi) technological; and

(b) includes—

(i) historic sites, structures, places, and areas; and

(ii) archaeological sites; and

(iii) sites of significance to Māori, including wāhi tapu; and

(iv) surroundings associated with the natural and physical resources"

This definition is broad and includes sites and areas of historic, archaeological or cultural significance, including wāhi tapu. The regulation only applies to regulated activities carried out in a "place identified" in a relevant district plan as being subject to 'historic heritage rules', however. This encompasses areas or sites identified as being of historic, archaeological or cultural significance and specific rules protecting those historic heritage values, but is unlikely to encompass entire zones or character areas.

6.4.2 Examples

Table 25 demonstrates the types of rules in existing district plans that are likely to be covered by the 'historic heritage rules' in Regulation 46, and would therefore prevail over the NESTF 2016. These are correct at the time of publication, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

The reference to 'however described' in Regulation 46(3) means that rules do not necessarily need to include the words 'historic heritage' in order to prevail over the NESTF 2016, which is demonstrated in the examples below.

Table 25: Historic heritage plan rules that are likely to prevail over the NESTF 2016

Plan	Example
Invercargill City Plan (proposed – 2016)	The District Plan protects a range of buildings, structures and places that have historic heritage values by listing them in an appendix and identifying their locations on the planning maps. Resource consent is required to alter the exterior of buildings, erect new structures within 50m of listed heritage items, or remove/demolish heritage items.[18] Any facility that involved exterior modification of listed items or the erection of structures in close proximity would require resource consent. The District Plan rules would be likely to prevail over the NESTF 2016.
Napier City Plan (operative 2011)	There are a number of areas that are mapped spatially in the District Plan that have been identified as having a particular heritage character worthy of protection, eg, Iron Pot, Hardinge Road, Battery Road and Coronation Street Character Areas.[19] New facilities in these character areas involving additions or alterations to the exterior of buildings must comply with the District Plan standards for the underlying residential zone, as opposed to the network utility rules.[20] These heritage character areas only cover limited areas (in this case a few blocks or streets) that have been specifically mapped and listed in a schedule as having heritage character. The District Plan rules would be likely to prevail over the NESTF 2016.
Hastings District Plan (proposed – 2015)	If a facility is proposed on a piece of land that contains a scheduled wāhi tapu or wāhi taonga, the facility can only be a permitted activity if the excavation, modification or disturbance of the ground does not destroy damage or modify the actual wāhi tapu or wāhi taonga site. Otherwise consent is required for a Discretionary activity.[21] The District Plan rules would be likely to prevail over the NESTF 2016.
Whangarei District Plan (operative 2007)	The District Plan identifies 'Sites of Significance to Maori' by showing them spatially on the planning maps. Identified sites of significance may only cover part of a land parcel or they may cover an entire lot or multiple lots, depending on the nature of the site being protected. The Plan requires resource consent for facilities that disturb any site of significance or propose an aerial or aerial support structure within 20m of the edge of a site of significance.[22] The District Plan rules would be likely to prevail over the NESTF 2016.
Gisborne Combined Regional Land and District Plan (operative 2006)	The Combined Regional Land and District Plan lists archaeological sites in an appendix. It also protects these sites using rules that specify a 'buffer area' around archaeological sites. Maps showing these buffer areas are available from the council. As with sites of significance, archaeological sites may only cover part of a land parcel or they may cover an entire lot or multiple lots depending on the nature of the site being protected. The Plan requires resource consent for facilities that result in land disturbance of an archaeological site or land disturbance in a buffer area where a qualified archaeologist has determined that the works will damage, modify or destroy the archaeological site.[23] The District Plan rules would be likely to prevail over the NESTF 2016.

[18] Rules in Section 3.8 – heritage of the proposed Invercargill City Plan 2016 (decisions version).

[19] Character areas listed in Chapter 56 – Heritage and Appendix 13A of the operative Napier City District Plan 2011.

[20] Rule 56.11 of the of the operative Napier City District Plan 2011.

[21] Rule 16.1.6A of the proposed Hastings District Plan 2015 (decisions version).

[22] Rules in Section 60.1 of the operative Whangarei District Plan 2007.

[23] Rule 3.14 – Archaeological sites and areas in the operative Gisborne Combined Regional Land and District Plan 2006.

6.5 Protection of visual amenity landscapes (Regulation 47)

6.5.1 Policy intent

Regulation 47 provides for the specific protection of landscape features (such as view shafts and ridgelines). The intention of this provision is to protect defined landscape features in district plans that have been identified as having visual amenity values from the visual impact of telecommunication facilities, by providing that these district plan rules prevail over the NESTF 2016. This is intended to align with section 7(c) of the RMA, which requires particular regard to be had to the maintenance and enhancement of amenity values. The emphasis on 'visual' amenity values in Regulation 47 reflects the fact that it is the visual impact of telecommunication facilities that has the greatest potential for adverse effects on amenity values.

The protections for areas with visual amenity value from the NESTF 2008 have been expanded in the NESTF 2016 to cover areas within and outside the road reserve, and refined to refer to visual amenity landscape features rather than visual amenity generally. This is intended to be more confined so that the protection of visual amenity areas applies to specific landscape features identified in plans, and not to entire zones that may have some form of visual amenity value. It is therefore expected that rules that fall within the definition will generally relate to the protection of physical and natural landscapes with special visual amenity, as opposed to the visual amenity of urban areas.

Regulation 47(3) defines 'visual amenity landscape rules' as "the district rules about the protection of landscape features (such as view shafts or ridge lines) identified as having special visual amenity values (however described)". The key term in this definition is 'features'. For the district plan rules to prevail, they must apply to definable features, typically either accurately described in the plan or shown spatially on the planning maps using symbols or a specific overlay. It is not intended to apply to generic overlays or zones that have some type of visual amenity value. These rules differ from those rules protecting landscapes or features identified as 'outstanding' (in accordance with section 6(b) of the RMA), which are covered by Regulation 50.

6.5.2 Examples

The following tables provide examples of rules that are likely to be included or excluded from the 'visual amenity landscape rules' definition. The reference to 'however described' in Regulation 47(3) means that rules do not necessarily need to include the words 'visual amenity' or 'landscape' in order to prevail over the NESTF 2016. These are intended to be illustrative examples only, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 26: Visual amenity landscape feature rules that are likely to prevail over the NESTF 2016

Plan	Example
Tauranga City Plan (operative – 2014)	The District Plan contains a list of 'Important Amenity Landscapes', which are distinct from 'outstanding natural features and landscapes' in the Plan. These landscapes are listed in an appendix,[24] and their spatial extents, key features and core values are described. The boundaries of each amenity landscape are also shown spatially on the planning maps. The District Plan rules for network utilities in Important Amenity Landscapes are likely to prevail over the NESTF 2016.[25]
New Plymouth District Plan (operative 2005)	The District Plan identifies and protects 'Urban Viewshafts' across the district, and these viewshafts are shown spatially on the planning maps. The rules relating to these viewshafts set maximum height limits that override the district plan network utility rules.[26] The District Plan rules protecting viewshafts are likely to prevail over the NESTF 2016.
Wellington City Plan (operative 2005)	The District Plan spatially identifies ridgelines and hilltops that warrant protection from certain activities on the planning maps, including network utilities.[27] The reasons for protecting hilltops and ridgelines relate to preserving visual amenity values,[28] therefore it is likely that these District Plan rules prevail over the NESTF 2016.

Table 27: Visual amenity landscape feature rules that are unlikely to prevail over the NESTF 2016

Plan	Example
Far North District Plan (operative)	The District Plan contains specific visual amenity rules that apply to buildings (in this case telecommunication masts/poles are defined as 'buildings' if they are over 6m in height) in the General Coastal Zone. These rules specify that telecommunication masts/poles must be coloured from a specific palette range in order to be a permitted activity.[29] These visual amenity rules apply across an entire zone and are not designed to protect the visual amenity of any particular feature or site. Therefore it is likely that these rules would not prevail over the NESTF 2016.

6.6 Protection of significant habitats of indigenous vegetation (Regulation 48)

6.6.1 Policy intent

Regulation 48 provides for rules that protect areas of 'significant habitat for indigenous vegetation' to prevail over the NESTF 2016. Significant habitats for indigenous vegetation are recognised as one of the areas of significance that require protection from telecommunication facilities. This approach is intended to align the NESTF 2016 with section 6(c) of the RMA, which must be recognised and provided for as a matter of national importance.

Regulation 48(3) defines 'significant vegetation rules' as "the district rules about the protection of significant habitats for indigenous vegetation (however described)". This is intended to

[24] Appendix 6B: Important amenity landscapes in the operative Tauranga City Plan 2014.

[25] Activity Table 6A.1 in the operative Tauranga City Plan 2014.

[26] Rules OL61–OL79 of the operative New Plymouth District Plan 2005.

[27] Rule 23.1.4.3 of the operative Wellington City Plan 2000.

[28] Section 22.1 – Introduction, objective 22.2.1 and policy 22.2.1.1 of the operative Wellington City Plan 2000.

[29] Rule 10.6.5.1.1(b) of the operative Far North District Plan (version last updated 2015).

cover areas of indigenous vegetation on a wider scale than Regulations 44 and 45 (ie, protecting more than just one tree or a group of trees).

The types of rules that fall within the definition of 'significant vegetation rules' typically protect areas of indigenous vegetation that are much larger, and sometimes these rules refer to a particular sized area of vegetation. For example, it is common for some district plans to have indigenous protection rules for areas that are larger than a particular threshold (eg, indigenous vegetation is protected if it forms part of a contiguous area of more than 1 hectare). These rules may also cover different types of habitats that involve certain types of vegetation with localised values (eg, wetlands, shrublands or dunes), not just trees or bush.

There is some overlap between Regulations 48 and 49 as district plan rules may have a dual purpose to protect both areas of indigenous vegetation and the fauna that live there. As both regulations are seeking the same outcome, there is no conflict between each regulation and both may prevail over the NESTF 2016 where district plan rules are seeking to protect both.

6.6.2 Examples

The following table provides examples of the types of rules that are intended to fall within the scope of the 'significant vegetation rules' in Regulation 48. The reference to 'however described' in Regulation 48(3) means that rules do not necessarily need to include all the words 'significant habitats' or 'indigenous vegetation' in order to prevail over the NESTF 2016. Other terms that are typically used to describe these areas include 'significant natural areas' and 'significant ecological areas'. These are intended to be illustrative examples only, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 28: Significant indigenous vegetation rules that are likely to prevail over the NESTF 2016

Plan	Example
Kaipara District Plan (operative – 2013)	The District Plan contains rules that protect indigenous vegetation that vary depending on which zone/overlay the facility is proposed in.[30] Resource consent would be required if the facility triggered the need for vegetation removal from a 'continuous area of primarily indigenous vegetation', ranging from 500m² (if the trees are over 3m in height) to 5 hectares depending on the zone/overlay. Note that the sized area rules are the trigger for whether the area of vegetation is protected by the rules; they are not the trigger for how much vegetation can be removed before consent is required (any vegetation removal from a large enough area of vegetation to qualify for protection would require consent). It is likely that these District Plan rules would prevail over the NESTF 2016.
Hamilton City Plan (partially operative – 2016)	The District Plan has scheduled 'Significant Natural Areas' and defined them spatially on the planning maps. These areas cover a range of different vegetation habitats, including bush, scrub areas and riparian margins. The District Plan rules controlling vegetation clearance[31] in these areas are likely to prevail over the NESTF 2016.

[30] Rule 12.10.2a relating to Rural Zones and overlays in the operative Kaipara District Plan 2013.

[31] Rule 20.3 in the partially operative Hamilton City Plan 2016.

6.7 Protection of significant habitats for indigenous fauna (Regulation 49)

6.7.1 Policy intent

Consistent with Regulation 48, Regulation 49 provides for district plan rules that protect areas of 'significant habitats of indigenous fauna' to prevail over the NESTF 2016. Significant habitats of indigenous fauna are recognised as one of the areas of significance that may require protection from the installation of telecommunication facilities. This approach is intended to align the NESTF 2016 with section 6(c) of the RMA, which must be recognised and provided for as a matter of national importance.

Regulation 49(3) defines 'significant fauna rules' as "the district rules about the protection of significant habitats for indigenous fauna (however described)". The scope of this regulation differs slightly from Regulation 48 in that it covers other sorts of habitats that are not related to vegetation (eg, aquatic habitats or habitats of a particular indigenous species). Consistent with Regulation 48, these areas of indigenous fauna habitat do not necessarily need to be defined spatially on a map and a specific description of the area in a schedule may be sufficient.

6.7.2 Examples

Table 29 provides examples of the type of rules that are likely to be included or excluded from the 'significant fauna rules' definition. Refer to the policy intent explanation for Regulation 48 above regarding the overlap between Regulations 48 and 49, including the different term used to describe these areas. These are intended to be illustrative examples only, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 29: Significant indigenous habitat rules that are likely to prevail over the NESTF 2016

Plan	Example
Invercargill City Plan (proposed – 2016)	It is a discretionary activity to alter or remove any vegetation in 'Areas of Significant Indigenous Biodiversity' for the purpose of a new facility, as defined spatially on the planning maps.[32] It is likely that these District Plan rules would prevail over the NESTF 2016.
Kaipara District Plan (operative 2013)	It is a restricted discretionary activity to clear or remove any indigenous vegetation in an area identified as an 'Area of Kiwi Habitation Density', as defined spatially in an appendix of the District Plan.[33] It is likely that these District Plan rules would prevail over the NESTF 2016.

6.8 Protection of outstanding natural landscapes or features (Regulation 50)

6.8.1 Policy intent

Regulation 50 provides for district plan rules that protect 'outstanding natural landscapes and features' to prevail over the NESTF 2016. Outstanding natural landscapes and features are

[32] Rule 3.1.3(b) of the proposed Invercargill City District Plan (decisions version) 2016.

[33] Appendix F of the operative Kaipara District Plan 2013.

recognised as one of the areas of significance that may require protection from the installation of telecommunication facilities. This approach is intended to align the NESTF 2016 with section 6(b) of the RMA, which must be recognised and provided for as a matter of national importance.

Regulation 50(3) defines 'outstanding natural features or landscapes rules' as "the district rules about the protection of outstanding natural features or landscapes (however described)". This focuses on rules that relate to the protection of **outstanding** natural features or landscapes. It is common for district plans to identify these areas in their plan and make reference to section 6(b) of the RMA when describing the policy intent or purpose behind their outstanding natural features or landscapes rules. These features are usually defined spatially on planning maps or well described in a district plan schedule.

Note that the NESTF 2016 only has the potential to override rules in a district plan. Often outstanding natural features and landscapes are also protected by rules in regional plans. Separate resource consent may be required from a regional council where facilities are located in outstanding natural features or landscapes identified in regional plans.

6.8.2 Examples

The table below provide examples of the types of rules that are likely to meet the 'outstanding natural features or landscapes rules' definition in the NESTF 2016. Other sorts of landscapes or features that are not defined as 'outstanding' may also be protected by Regulation 47 if they have visual amenity value. These are intended to be illustrative examples only, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 30: Outstanding natural features and landscapes rules that are likely to prevail over the NESTF 2016

Plan	Example
Hauraki District Plan (operative – 2014)	Outstanding natural features are identified on the planning maps as both individual features (eg, Whiritoa Blowhole) and wider areas (eg, Karangahake Gorge Corridor). As both types of features are defined spatially, the associated rules that make altering these features through the installation of telecommunication facilities a non-complying activity[34] would be likely to prevail over the NESTF 2016.
Far North District Plan (operative)	The District Plan defines three types of features that would fit under Regulation 50 – 'Outstanding Landscape', 'Outstanding Feature' and 'Outstanding Landscape Feature'. As well as being mapped spatially, these landscapes and features are also listed in Appendix 1A. Above-ground utilities require consent if located on an Outstanding Landscape Feature or an Outstanding Landscape,[35] and these rules would be likely to prevail over the NESTF 2016.

6.9 Protection of places adjacent to coastal marine area (Regulation 51)

6.9.1 Policy intent

Regulation 51 provides for the protection of places adjoining the Coastal Marine Area (CMA) by allowing certain plan rules in these areas to prevail over the NESTF 2016. This is intended to

[34] Rule 3.6.5.6(1) of the operative Hauraki District Plan 2014.

[35] Rule 12.1.6.3 of the operative Far North District Plan (version last updated 2015)

align with section 6(a) of the RMA and recognises that telecommunication facilities could have adverse effects on values associated with the coastal environment. The policy intent of Regulation 51 is the same as that of Regulation 6(4) of the NESTF 2008, except that the protections for the CMA have been expanded to include activities both inside and outside the road reserve.

Regulation 51(3) defines 'coastal protection rules' as "district rules that regulate the carrying out of activities in places adjoining coastal marine areas for the purpose of protecting the coastal marine area". The two criteria are that:

- the area where the rules apply must 'adjoin' the CMA (ie, the protected area must be physically next to the CMA)
- the rules' intention must be to **protect the CMA** in some way from adverse environmental effects associated with those activities. These may be visual amenity rules controlling the height of structures, or earthworks or vegetation rules restricting disturbance in close proximity to CMA.

These rules may be applied to land adjoining the coastal marine area either through specific zone rules, ie, a coastal protection yard or coastal setback rule, or through an overlay covering specific parts of the coastal edge area.

Regulation 51(3) is not intended to capture entire coastal zones, as these often cover much larger areas than just the land adjoining the CMA. Coastal zones also contain other rules that do not directly relate to protecting the CMA. Coastal hazard rules are also not captured under Regulation 51 as Regulation 57 of the NESTF 2016 precludes any existing or new natural hazard rules from applying to regulated activities. In general, therefore, it is unlikely that coastal erosion or coastal inundation rules would prevail over the NESTF 2016.

6.9.2 Examples

The following tables provide examples of the types of rules (correct at the time of publication) that are likely to be included or excluded from the 'coastal protection rules' definition. Although some of the examples below are from unitary plans (ie, Auckland and Nelson), the examples used are rules that are specifically identified in the plans as district rules. These are intended to be illustrative examples only, and councils will need to determine how these rules relate to the framework of the NESTF 2016.

Table 31: Coastal protection plan rules that are likely to prevail over the NESTF 2016

Plan	Example
Auckland Unitary Plan (operative in part – 2016)	The Unitary Plan includes a 'Coastal Protection Yard' rule across numerous zones. This rule would require a facility to get resource consent if it was proposed within 10 of mean high water springs.[36] The Unitary Plan also includes a list of specific 'Coastal Protection Yards' in an appendix, which spatially protects areas adjacent to the coastal marine area from built structures for distances up to 200m inland.[37] These rules are likely to prevail over the NESTF 2016.
Nelson Resource Management Plan (operative – 2012)	The Resource Management Plan identifies certain parts of the coastline as being subject to a 'coastal margin overlay'. The parts of the coastline to which the overlay applies are identified in an appendix and marked on the planning maps. A proposed facility on land with an identified coastal margin will be subject to additional vegetation and earthworks controls, ie, earthworks within 20m of the coastal marine area and vegetation clearance within 5m of the coastal marine area are controlled activities.[38] These rules are likely to prevail over the NESTF 2016.

Table 32: Coastal protection plan rules that are not likely to prevail over the NESTF 2016

Plan	Example
Far North District Plan (operative)	The District Plan contains several coastal zones, including a General Coastal Zone, Coastal Living Zone and Coastal Residential Zone.[39] As this zone is focused on protecting a much wider area than just the coastal environment and coastal marine area, it is unlikely that the rules would prevail over the NESTF 2016.
Western Bay of Plenty District Plan (operative – 2012)	The District Plan includes numerous coastal hazard protection rules, including several coastal erosion areas with varying risks and a coastal inundation risk overlay, which are all identified on the planning maps. New facilities would require resource consent for either a controlled, restricted discretionary or discretionary activity, depending on the type of hazard risk.[40] It is likely these rules meet the definition in that they regulate activities in areas adjoining the CMA, for the purpose of protecting the CMA. Regulation 57, however, precludes any natural hazard rules applying to telecommunication facilities regulated by the NESTF 2016.

6.10 Rivers and lakes (Regulation 52)

Regulation 52 relates to Regulation 8, which states that the NESTF 2016 does not apply to anything done in, on, under or over **the bed of a river or lake**. However, the NESTF 2016 does apply to anything done over a river or lake (such as on a bridge). For example, the NESTF 2016 may apply to a telecommunication line spanning the airspace over a lake, a telecommunication line attached to a bridge that traverses a river, or telecommunication equipment installed on a bridge.

Regulation 52 clarifies that if there are any regional rules that apply to telecommunication activities carried out over a river or a lake (as distinct to activities carried out over the bed of the river or lake), those rules prevail over the NESTF 2016.

[36] For example, Table H3.6.8.1 – Yards in the single house zone of the Auckland Unitary Plan (operative in Part) 2016.

[37] Appendix 6 of the Auckland Unitary Plan (operative in Part) 2016.

[38] Rules apply across all zones in Volume 2 of the operative Nelson Resource Management Plan 2012.

[39] Three types of residential zone in the operative Far North District Plan (version last updated 2015).

[40] Section 8 of the operative Western Bay of Plenty District Plan 2012.

6.11 Natural hazards (Regulation 57)

Regulation 57 makes it clear that natural hazard rules in district plans do not apply to a regulated activity under the NESTF 2016. It also makes clear that territorial authorities cannot make natural hazard rules that apply to regulated activities under the NESTF 2016. This is because resilience is already factored into industry practice, and they will either avoid hazard areas or engineer structures to be resilient to the hazard risk. Natural hazards encompass the full breath of hazards including flooding, instability, earthquake and climate change.

There may be some overlap between Regulations 57 and 51 where rules relate to the protection of the coastal environment generally, including coastal hazards. In these situations, any relevant coastal protection rule needs to be complied with while disregarding any consideration of coastal hazard risk. If there is any doubt about the purpose of the rule (ie, whether it relates to protection of the coastal environment generally or is specially related to hazards), then this should be discussed with the relevant council.

7 Implementation of the regulations

This section provides guidance on the implementation of the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016 (the NESTF 2016), including:

- the relationship between national environmental standards (NESs) and district plans
- recognition of NESs
- the relationship between NESs, resource consents and certificates of compliance
- issuing certificates of compliance
- the relationship with other legislation and strategies.

7.1 Relationship between NES and district plans

7.1.1 Rules that are more stringent or lenient

Section 43B of the RMA outlines the effect of an NES. This provision states that a rule in a district plan cannot be:

- more stringent than the NES unless the NES expressly says that it may be
- more lenient than the NES unless the NES expressly says that it may be.

A rule is more stringent than a standard if it prohibits or restricts an activity that the standard permits or authorises.

Regulation 56 expressly states that certain district plan rules may be more stringent than the NESTF 2016 as follows:

- Regulation 25 – district plan rules for noise where a cabinet is located
- Regulations 44–51 – district plan rules to protect certain trees, vegetation and areas with identified values
- Regulation 52 – regional rules about an activity over a river or lake
- Regulations 53 and 54 – which relate to regional and district rules for earthworks.

7.1.2 Plan rules that duplicate or conflict with NES provisions

Under section 44A of RMA, a local authority must remove certain rules in a plan or proposed plan if the rule:

- duplicates a provision in the NES, as plan rules may only deal with the effects of the activity that are different from those dealt with in the terms or conditions specified in the standard[41]
- conflicts with a provision in the NES because either:
  - the rule is more stringent than the standard's provision because it prohibits or restricts an activity the NES permits, and the NES does not expressly allow this; or

[41] Section 43A(5)(C)

– the plan rule is more lenient than the provisions in the NES.

In these situations, local authorities must amend their plan or proposed plan to remove the duplication or conflict without using the RMA Schedule 1 process, and as soon as practicable after the date the NES comes into force. Councils may also choose to amend their plans to include references to an NES (such as in other rules where compliance with the standard may be relevant) without having to use Schedule 1.[42] This may help to provide more clarity for plan users.

There is no requirement in the RMA to notify plan changes made in accordance with section 44A. However, good practice would be to issue a public notice advising of the amendments. Once a council has amended its plan, there should be no confusion between the plan and the NES requirements in relation to telecommunication facilities.

Where rules do not duplicate or conflict with the NESTF 2016, councils do not need to amend their plans; they just need to be aware of the NESTF 2016 standards and how these apply.

7.1.3 Effects that are different from those addressed in the standards

Section 43A of the RMA states in relation to the influence of an NES on district plans and proposed district plans:

> "(5) If a national environmental standard allows an activity and states that a resource consent is not required for the activity, or states that an activity is a permitted activity, the following provisions apply to plans and proposed plans:
>
> (a) a plan or proposed plan may state that the activity is a permitted activity on the terms or conditions specified in the plan; and
>
> (b) the terms or conditions specified in the plan may deal only with effects of the activity that are different from those dealt with in the terms or conditions specified in the standard; and
>
> (c) if a plan's terms or conditions deal with effects of the activity that are the same as those dealt with in the terms or conditions specified in the standard, the terms or conditions in the standard prevail."

The NESTF 2016 includes standards and requirements to address the main effects associated with telecommunication facilities, including visual amenity effects (through controls on height, size, location, etc), noise, earthworks and radiofrequency. It also allows for district plan rules to be more stringent than the NESTF 2016 in certain circumstances, to manage the effects of telecommunication facilities on local areas with identified values. There are therefore unlikely to be many situations where section 43A(5)(b) will apply in relation to the NESTF 2016,.

7.2 Recognition of NES (section 44A)

7.2.1 Requirement to observe NES

Local authorities are required to observe NES and enforce that observation to the extent that their powers enable them to do so.[43] The NESTF 2016 makes a wider range of telecommunication facilities permitted activities that will not require resource consent, provided the specified conditions are met. Therefore observation of the NESTF 2016 will often

[42] Section 44A(6).

[43] Section 44A(7) and (8).

require monitoring of permitted activities to ensure the relevant standards are complied with and/or the processing or issuing of certificates of compliance.

7.3 Relationship with existing resource consents and certificates of compliance

A land use consent granted before the NESTF 2016 came into effect (ie, 1 January 2017) prevails over the regulations. A resource consent also prevails over the NES if the consent application was the subject of a decision on whether (or not) to notify the application before the date the NESTF 2016 came into effect.[44]

7.4 Certificates of compliance

The NESTF 2016 also does not apply to certificates of compliance issued before the regulations came into effect, as these are treated as resource consents that complied with the relevant plan provisions and/or NESTF 2008 at the time they were issued.

Section 139 of the RMA enables a person to request a consent authority to issue a certificate of compliance. These certificates confirm that an activity is being carried out lawfully in a particular location without a resource consent. Certificates of compliance can be sought to confirm a person carrying out an activity is complying with the NESTF 2016, and telecommunication operators often apply for a certificate of compliance to provide certainty that the activity can be undertaken without a resource consent.

Certificates of compliance are to be treated as a resource consent that contains the conditions specified in the NES.[45] There can be no additional conditions, limitations or provisos of any kind attached to a certificate of compliance.

7.5 Relationship with other legislation and regulations

Telecommunication facilities continue to be subject to other Acts and regulations and these obligations continue to apply in addition to the NESTF 2016. Some Acts and regulations of particular relevance to telecommunication facilities are summarised below.

7.5.1 Telecommunications Act 2001

The Telecommunications Act 2001 regulates the supply of telecommunications services in New Zealand, together with aspects of the deployment and operation of infrastructure by the telecommunications industry for public telecommunications networks.

The Act includes provision for telecommunications operators to be granted Network Operator status, and thereby be conferred specific rights to access road reserve land, be granted Requiring Authority status under the RMA and be subject to the controls that are prescribed in NESTF 2016.

[44] Section 43B(7).

[45] Section 139(10)(a).

7.5.2 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) came into effect on 1 January 2012 and provides a nationally consistent set of planning controls and soil contaminant values. It ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed – and if necessary the land is remediated or the contaminants contained to make the land safe for human use.

Under the NESCS, land is considered to be actually or potentially contaminated if an activity or industry on the Hazardous Activities or Industries List (HAIL) has been, is, or is more likely than not to have been undertaken on that land. Telecommunication facilities are often located on land affected or potentially affected by soil contaminants. In these situations, the requirements of the NESCS must be met in addition to the NESTF 2016 standards. For more information, see the NESCS webpage on the Ministry for the Environment's website.[46]

7.5.3 Utilities Access Act 2010, and the National Code of Practice for Utility Operators' Access to Transport Corridors

The *National Code of Practice for Utility Operators' Access to Transport Corridors*[47] is made under the Utilities Access Act 2010. This sets out the processes and procedures for:

- utility operators to exercise their right of access to the road corridor for the placement, maintenance, improvement and removal of utility structures
- corridor managers to exercise their right to apply reasonable conditions on work carried out in the corridor.

The purpose of this code is to enable access by utility operators to transport corridors to be managed in a way that:

- maximises the benefit to the public while ensuring that all utility operators are treated fairly
- ensures that disruptions to roads, motorways, and railways caused by work by utility operators are kept to a minimum, while maintaining safety
- provides a nationally consistent approach to managing access to transport corridors.

There are mandatory requirements in the code for utility operators that need to be complied with, along with any reasonable conditions set by the corridor manager in relation to its works. For more information, see the New Zealand Utilities Advisory Group website.[48]

7.5.4 Heritage New Zealand Pouhere Taonga Act 2014

The purpose of the Heritage New Zealand Pouhere Taonga Act 2014 (the HNZPTA) is to "promote the identification, protection, preservation, and conservation of the historic and cultural heritage of New Zealand". Under the HNZPTA, an 'archaeological authority' (consent) is required from Heritage New Zealand if any activity is likely to modify or destroy a pre-1900

---

[46] www.mfe.govt.nz/land/nes-assessing-and-managing-contaminants-soil-protect-human-health/about-nes

[47] Version 1, 10 September 2015, with subsequent minor amendments, 16 September 2016.

[48] http://nzuag.org.nz/

“archaeological site” (as defined in the HNZPTA). The HNZPTA requirements apply if a person “knows, or ought reasonably to have suspected, that the site is an archaeological site”.

The HNZPTA requirements apply in addition to any RMA controls, and are not affected by the NESTF 2016. It is important that telecommunication operators are aware of the requirements in the HNZPTA, as if there are unanticipated archaeological finds during the installation of a telecommunication facility and an archaeological authority is not in place, work must stop immediately. For more information on the HNZPTA requirements, see the Heritage New Zealand website.[49]

[49] www.heritage.org.nz/about-us/heritage-new-zealand-pouhere-taonga-act

Appendix A: Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016

A copy of the regulations is included with this guide, but can also be accessed through the New Zealand Legislation website, at
www.legislation.govt.nz/regulation/public/2016/0281/latest/DLM6697001.html?src=qs

Appendix B: Background to NESTF 2016

Evaluation of the 2008 regulations

The Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2008 (NESTF 2008) came into effect in October 2008. The NESTF 2008 was developed to provide national consistency under the Resource Management Act 1991 (RMA) for the placement of low-impact telecommunication infrastructure in road reserves, and a national standard for human exposure to radiofrequency fields for all telecommunication infrastructure.

In 2013, the Ministry for the Environment evaluated the NESTF 2008 and found that it had largely achieved its objectives. In particular, the NESTF 2008 had been successful in:

- reducing timeframes and compliance costs for telecommunication providers and councils
- lowering costs for making new services available to customers
- assisting telecommunication providers to design and source equipment for roll-outs
- reducing council workloads through permitting low impact facilities such as cabinets.

The evaluation also found that a national environmental standard (NES) was an efficient and effective way to achieve national consistency for the deployment of low-impact telecommunication facilities. However, the evaluation also highlighted some limitations within the NESTF 2008. In particular, the NESTF 2008 only provided for a very limited range of telecommunication facilities, and was becoming less fit-for-purpose in the rapidly evolving telecommunication landscape.

Telecommunication technology continues to evolve and the demand for widespread connectivity across the country is growing. Large-scale government-funded roll-out programmes, such as Ultra-Fast Broadband (UFB), and the Rural Broadband Initiative (RBI), have been instrumental in supporting the deployment of broadband connectivity in New Zealand, but required the installation of fibre-optic cabling, and the placement of new masts and antennas to improve coverage beyond the scope of the NESTF 2008. This meant that these projects were subject to significant inconsistency in district plan rules across the country, despite the environmental effects from this type of technology and infrastructure being largely the same. The variation in planning controls under the RMA creates uncertainty for providers, increases compliance costs, and can delay the installation of new telecommunication facilities. These costs ultimately result in delays in improvements to telecommunication coverage and services and increased costs to consumers. As such, it was concluded that the NESTF 2008 should be updated and expanded to ensure it can continue to meet its original objectives as telecommunication technologies continue to evolve.

Developing the 2016 Regulations

The process for developing the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016 (NESTF 2016) has taken a number of years and involved a period of public consultation. It also involved ongoing input from a Technical Advisory Group (TAG), made up of representatives from the telecommunication industry, local

government and iwi organisations.[50] The process to develop the NESTF 2016 is summarised in table 33.

Table 33: Overview of process to review and develop the updated NESTF 2016

Process to develop updated NESTF 2016
2013: Review and evaluation of the NESTF 2008 to assess whether the NES was achieving its objectives.
March–April 2015: Public release of the *Proposed Amendments to the National Environmental Standards for Telecommunication Facilities* discussion document,[51] outlining the Government's proposals to amend the NESTF 2016 for feedback, comments and review. The public consultation period ran for six weeks between 3 March and 17 April 2015.
September 2015: Report on summary of submissions from public consultation and a report on the recommended amendments to the proposed NESTF 2016 prepared and publicly released.
March–September 2016: Exposure draft period. This exposure draft process involved a series of workshops to consider the drafting and technical elements of the NESTF 2016 and road testing of the regulations by industry groups and selected council representatives to identify any practical issues. TAG provided extensive comments, including an independent legal review.
October–November 2016: Redrafting of the regulations and the preparation of the various reports, including the section 32 costs and benefits report required to support the regulations and recommendations to the Cabinet Legislation Committee.
November 2016: Cabinet Legislation Committee approval of amended regulations and promulgation.
1 January 2017: NESTF 2016 takes effect.

[50] Members of the Technical Advisory Group (TAG) were from: Local Government New Zealand, Wellington City Council, New Zealand Telecommunications Forum, Tasman District Council, Porirua City Council, Chorus Ltd, Northpower Fibre Ltd, Enable Network Services Ltd, Spark New Zealand Ltd, 2Degrees Mobile Ltd, Vodafone New Zealand Ltd, Te Runanganui o Ngati Porou, Crown Fibre Holdings, Nga Pu Waea and Auckland City Council.

[51] Ministry for the Environment. 2015. *Proposed Amendments to the National Environmental Standards for Telecommunication Facilities.* Wellington: Ministry for the Environment. Retrieved from www.mfe.govt.nz/publications/rma/proposed-amendments-national-environmental-standards-telecommunication-facilities

Appendix C: Radiofrequency Reporting Template

Notice of new telecommunication facility generating radiofrequency fields

Provided in accordance with regulation 55(2)(b)(ii) of the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016.

Location of telecommunication facility

Address:	
Facility on road reserve?	☐ Yes ☐ No
Grid reference:	
Physical structure consent requirements	☐ Permitted (NESTF 2016) ☐ Permitted (district plan) ☐ Requires resource consent
Estimated date of starting operation:	

Network operator details

Operator name:			
Contact person:			
Address:			
Phone/fax:		**Email:**	

Compliance checklist

	Yes	**No**
Design and operation Facility planned and operated in accordance with *NZS 2772.1: 1999*, including compliance with clause 10(d)[reg 55(2)(a) of NESTF 2016]		
Predicted exposure levels report Is report on predicted exposure levels attached? [reg 55(3) of NESTF 2016] Report prepared in accordance with AS/*NZS* 2772.2 [reg 55(3)(a) of NESTF 2016] Other transmitters nearby taken into account? [reg 55(3)(b) of NESTF 2016] Exposures in areas reasonably accessible to the public predicted to equal or exceed 25% of public limits (post-installation measurements required)? [reg 55(3)(c) of NESTF 2016]		

	Yes	No
Will exposures in areas reasonably accessible to the public exceed public limits specified in *NZS 2772.1: 1999*?[52] (If yes, then facility will be non-complying)		

Supporting documentation attached (tick all applicable)

Location plan:	
Site plan:	
Elevation drawing:	
Technical specifications:	
Others:	

Other information

(Note: if a certificate of compliance is required, check the specific information requirements of the relevant local authority.)

Name of person responsible for this report:	
Qualification/experience:	
Signature of person responsible for this report:	

[52] If the answer is YES, then resource consent will be required before the facility can be installed.