

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Queenstown Lakes District Proposed
District Plan – Stage 1

**JOINT STATEMENT OF EVIDENCE OF
GRAEME IAN MCCARRISON FOR SPARK TRADING NEW
ZEALAND LTD**

AND

COLIN CLUNE FOR VODAFONE NEW ZEALAND LTD

**IN RELATION TO QUEENSTOWN LAKES DISTRICT
PROPOSED DISTRICT PLAN – STAGE 1**

CHAPTER 30 ENERGY & UTILITIES

15 September 2016

3. QUALIFICATIONS AND EXPERIENCE

3.7 My full name is Graeme Ian McCarrison.

3.8 I am the Engagement & Planning Manager at Spark New Zealand Trading Limited (**Spark**) a position I have held February 2015. Previously, I held the equivalent position at Chorus NZ Limited (**Chorus**) (November 2011 to January 2015), where I advised both Chorus and Spark on resource management and government matters. As part of this I am involved in the review of all regional and district plan plus any related local government documents that have the potential to enable or impact on the telecommunications industry. I lead, provide guidance and co-ordinate the Auckland Utility Operators Group (Spark, Chorus, Vodafone, Counties Power and Vector) involvement, which started four years ago, on the Proposed Auckland Unitary Plan. Currently also involved in the Christchurch Replacement, Queenstown, South Taranaki, Great Wellington, Dunedin, Buller, Hurunui, Palmerston North, Thames Coromandel Plans. We are also in the early stages with engagement and the provision of draft comments on the Waitaki, Selwyn, New Plymouth, Far North and Waikato plans.

3.9 I hold the qualification of Bachelor of Regional Planning (Honours) from Massey University. I am a full member of the New Zealand Planning Institute and have 32 years' experience in New Zealand and overseas. Currently I am on the Technical Advisory Group for the National Environmental Standard Telecommunication Facilities amendments (NESTF amendments). Up until April 2015 I was the chairperson of the Auckland branch of the New Zealand Planning Institute and was recently honoured with a Distinguished Service Award and a best practice award for iwi engagement by NZPI.

3.10 My full name is Colin William Clune.

3.11 I am the Resource Management Manager at Vodafone New Zealand Limited (**Vodafone**), a position I have held since October 2014. Previously, I was an in-house contractor for Vodafone, (September 2010 to September 2014), where I advised Vodafone on resource management and government matters. I hold the qualifications of Bachelor of Urban Planning and Master of Planning from the University of Auckland. Currently I am on the Technical Advisory Group for the National Environmental Standard Telecommunication Facilities amendments

(NESTF amendments). A participating member of the New Zealand Telecommunications Forum. Working to efficiently resolve regulatory, technical and policy issues associated with network telecommunications.

- 3.12 We confirm that we have read the Hearing Commissioners minute and direction on Procedures for the Hearing of Submissions and the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. We provide in-house technical and planning advice to Spark and Vodafone on the provisions of the Proposed Plan that impact on the operational requirements of the business. We are not giving evidence as independent experts. Our evidence should be read in conjunction with the evidence of Mary Barton of Chorus and John Ratuszny/Stephen Holding.

4. SCOPE OF EVIDENCE

Spark, Vodafone, Chorus and Two Degrees Mobile Limited (**2degrees**) developed together and made the same submission on behalf of each company. Further submissions were lodged by Spark, Vodafone and Chorus. The scope of this evidence is structured into general subject areas as follows:

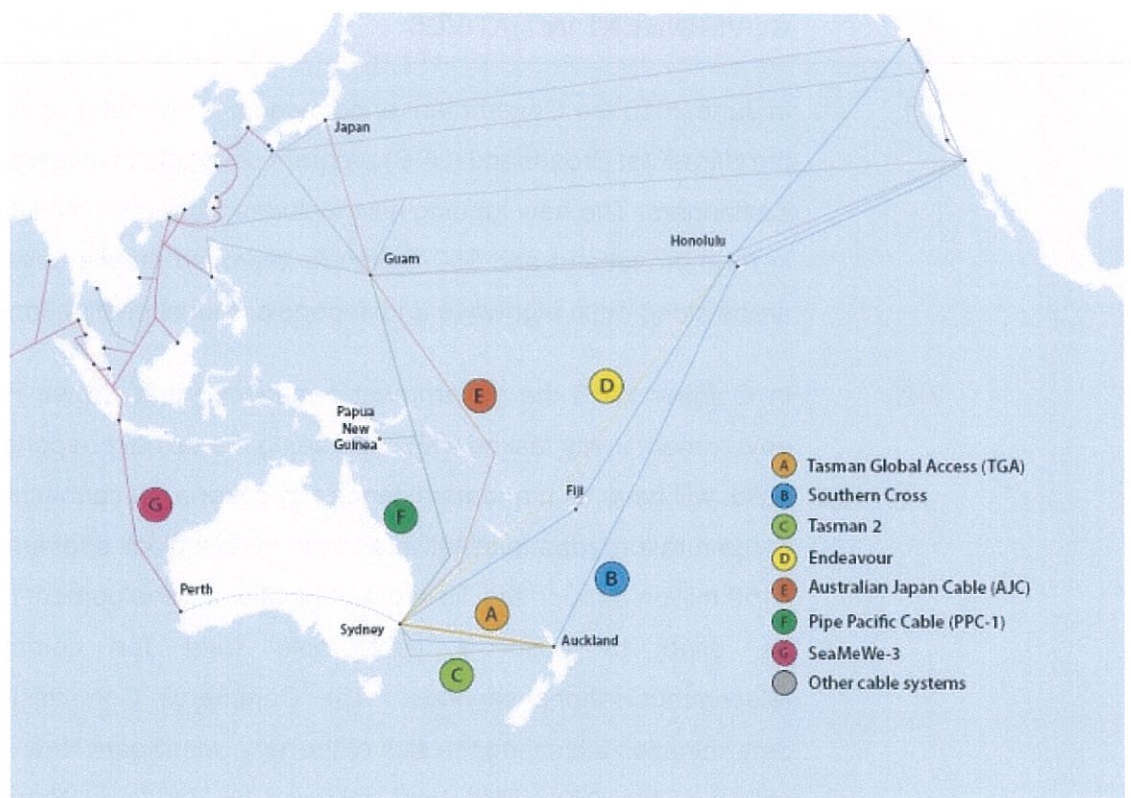
- a. Spark and Vodafone corporate background, operations and how the growth from demand for services is driving expansion of the fixed line and mobile networks. Noting that the evidence by Mary Barton, Chorus, provides comprehensive information on the fixed line networks;
- b. General Comments on the s42A report to support the evidence of Matthew McCallum-Clark and John Ratuszny/Stephen Holding in relation to:
 - i. Site examples
 - ii. Equipment dimensions
 - iii. Lifeline utilities
- c. Outline of the National Environment Standards Telecommunications Facilities amendments

5. SPARK NEW ZEALAND TRADING LIMITED

- 5.1 Spark is New Zealand's largest digital services company delivering mobile, fixed and IT products and services to millions of New Zealand consumers and businesses. Our ambition is to be a winning business, inspired by customers to unleash the potential in all New Zealanders.
- 5.2 Spark is a multi-brand business, with principal brands Spark (supporting home, consumer mobile and small business customers) and Spark Digital (supporting government and business customers with strong Cloud services, mobility and ICT capabilities).
- 5.3 Specialist and flanking brands include Skinny (consumer mobile), Revera and Appserv (data hosting services), Lightbox (internet TV), Qrious (data analytics), and Bigpipe (consumer broadband). An in-house incubator, Spark Ventures, is developing other new business opportunities.
- 5.4 Fully privatised since 1990, Spark is listed on the NZX and ASX stock exchanges. Spark New Zealand contributes significantly to the community via the Spark Foundation, whose activities include ownership of Givealittle, New Zealand's first 'zero-fees' online crowdfunding platform through which generous New Zealanders donate millions of dollars annually to thousands of charities and deserving causes; and as a key partner of the Manaiakalani Education Trust, which is transforming digital learning at schools within economically-challenged communities across New Zealand.
- 5.6 The New Zealand mobile market is growing at approximately 6 percent per annum, which is primarily driven by growth in mobile data and handset sales. The increase in mobile data usage has been driven by the increased uptake of smartphones. To support the "smartphone revolution" we are recently upgrading the existing mobile sites with the deployment 4G technology throughout New Zealand including the Queenstown Lakes district. More than 60 percent of mobile customers now use a smart phone, with the ability to receive and upload data. In 2015, 18 percent of data was generated by mobile devices. By 2020 this is projected to be 27 percent.
- 5.7 There has also been significant growth in the transfer of data between devices (Machine to Machine (M2M) communication) and this demand is expected to increase rapidly over the next few years. Aligned to this growth in the "macro"

network, developing technological breakthroughs have enabled the deployment of micro cells, small cells and cel-fl units to provide improved in-building and black spot coverage. Spark is expanding the access to broadband services through Skinny Broadband, a prepaid service, and Wireless Broadband, which since its launch in the middle of last year has attracted more than 11,000 customers. All these wireless broadband services deliver a fast and reliable internet connection using 4G mobile technology instead of a connection using the traditional copper line ADSL network.

5.8 Spark has joined forces with Vodafone and Telstra to lay the 2,300km Tasman Global Access (TGA) submarine cable between New Zealand and Australia to service the growth in trans-Tasman data traffic. New Zealand's international capacity requirements growing 60 percent year-on-year (and projected to grow a whopping 11,000% in 10 years), the TGA Cable will support the future needs of consumers and the growth aspirations of New Zealand businesses. Other benefits of the new cable include strengthened links into fast-growing Asian markets, important redundancy and resiliency, and better connection with the five main international cable systems currently serving Australia.



6. VODAFONE NEW ZEALAND LIMITED

6.1 Vodafone is one of New Zealand's largest telecommunications infrastructure companies. In October 2012 Vodafone acquired TelstraClear, becoming a total communications company covering both mobile and fixed line based telephone and internet services. This follows previous investments in Bell South in 1998, ihug in 2006 and First Mobile in 2010.

6.2 Telecommunications (through fixed line and wireless services) are a basic and essential service in the same way as transportation, electricity, water and wastewater services. In today's society, people want to be connected anywhere, anytime, whether by a fixed line service, a mobile phone, or connecting devices to a "Wifi" network (i.e. a wireless local access network or "hotspot"). To ensure people stay connected, the various components of the fixed line, mobile and wireless telecommunication networks need to be constructed, operated, maintained and upgraded. This work needs to be undertaken in an efficient and affordable way if it is to keep pace with demand. This, in turn, depends on a supportive and workable planning framework.

7. GOVERNMENT INITIATIVES

7.1 In June 2015 the Government announced it is investing up to \$210 million to lift the Ultra-Fast Broadband (UFB) program coverage to at least 80 per cent of New Zealanders. The new funding also includes \$100 million for major improvement in rural broadband and \$50 million to improved mobile coverage in black spot areas along main highways and in popular tourist destinations.

7.2 In October 2015 the government announced that Crown Fibre Holdings, the government entity tasked with overseeing the taxpayer-sponsored fibre network build, will have its mandate extended to cover rural connectivity. The extension to the rural broadband initiative and the mobile black spot fund requires another \$150 million through the Telecommunications Development Levy. The fund will be used to build a contestable fund for commercially unviable telecommunications services. The Commerce Commission issued a draft determination allocating the size of the levy, with Spark New Zealand to pay \$19 million of the \$50 million total, followed by Vodafone New Zealand at \$13.8 million, and Chorus at \$11.1 million. Two Degrees Mobile faces a bill of \$2.9 million, and CallPlus will pay \$1.2 million.

- 7.3 The importance of the previous RBI1 (completed) and UFB1 (completion in 2019) and proposed UFB² and RBI² programme rollouts is highlighted on the Ministry of Business, Innovation and Employment (MBIE) website.

“Together these two programmes will bring benefits of improved internet connectivity to 97.8% of New Zealanders, opening up a huge range of business, educational, community and other opportunities¹”

8. ESSENTIAL INTEGRATED NETWORK

- 8.1 The telecommunications industry is in a unique position of comprising a group of businesses that operate networks on a national scale. The applications and services that these networks enable are essential for businesses, tourism and residential users who expect high speed, reliable services wherever they are and whatever they are doing. The majority of businesses within the district and New Zealand rely on telecommunications services (whether that be fixed or mobile, voice or data) for at least some part of their operation. It is vital that the district plan recognises the importance of telecommunications to the wider economy.

MBIE noted in a recent consultation document² that:

“Digital communications technologies are impacting almost every aspect of our lives. We rely on them for business, government, education, health and in our communities. The communications sector is a critical enabler of economic growth in the twenty-first century.”

- 8.2 Meeting consumer and business demands for new and improved digital services means constant investment and innovation and strong government support through nationwide policies. In 2013, total telecommunications investment reached \$1.7 billion. This level of investment, compared to revenue, put New Zealand near the top of the OECD in 2013. There has been a rapid deployment of competing 4G mobile networks with the deployment of 5G networks on the horizon. Further deployment into regional areas to provide broadband to rural

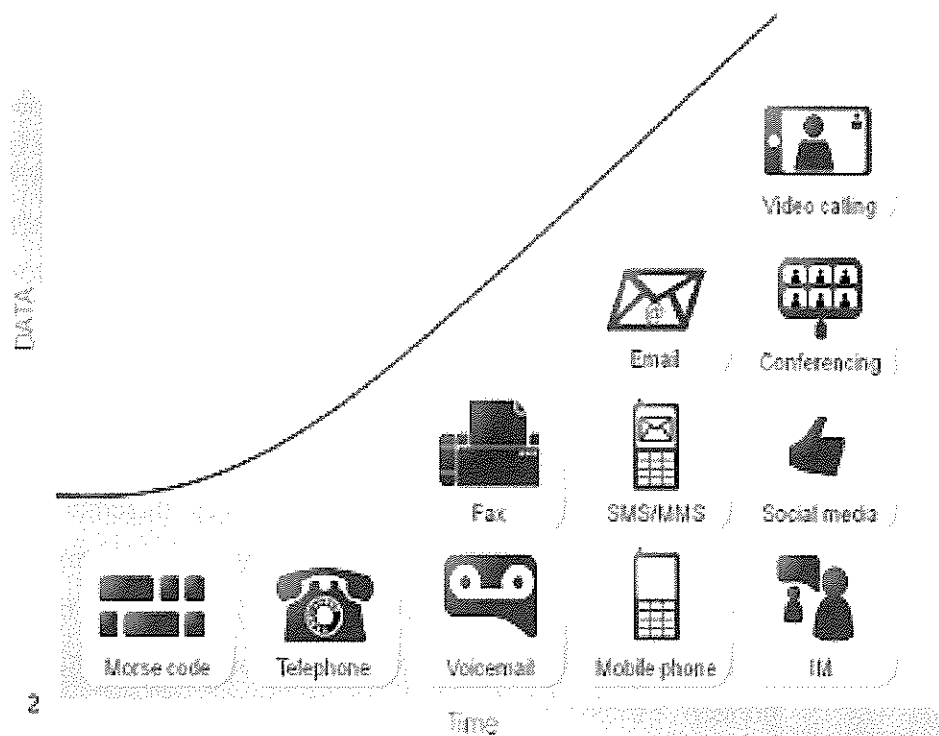
¹ <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband>

² Ministry of Business, Innovation & Employment Review of the Telecommunications Act 2001, Regulating Communications For The Future, September 2015

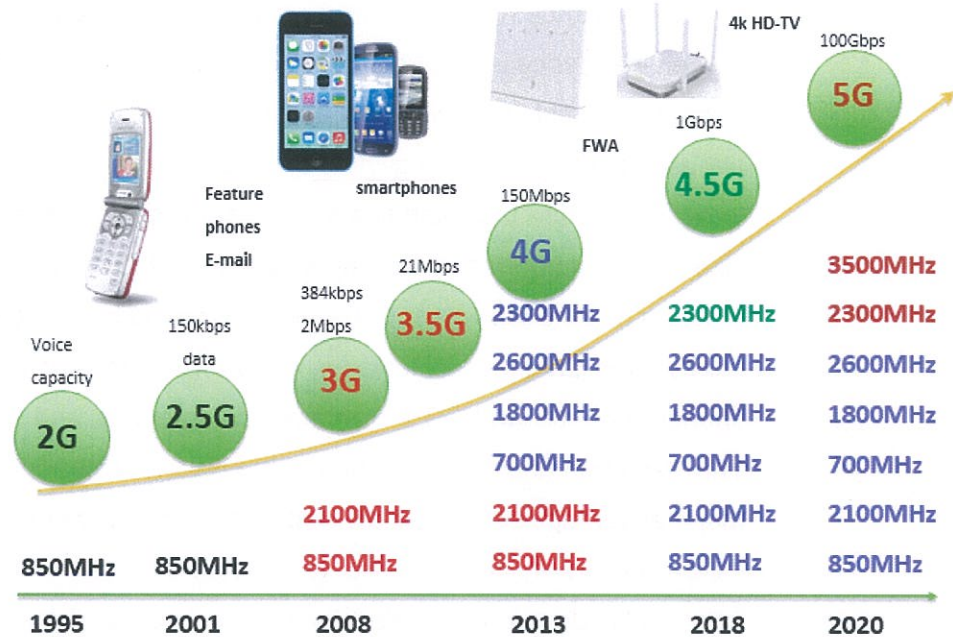
communities via the Government's Rural Broadband Initiative (RBI) continues and New Zealand has seen the fastest uptake of fibre in the developed world³.

8.3 Telecommunications infrastructure is significant and essential, and the safe, reliable and efficient functioning of the network is vital for the national, regional and local economy and is in the public interest (both in terms of allowing people and communities to provide for their "wellbeing", and also for assisting to ensure their "health and safety").

8.4 The network is utilised for a wide range of purposes that are essential to modern mobile society. Access for residents and business to quality, reliable telecommunications is a fundamental requisite for the region to be a competitive, attractive and safe place to live and work. The pivotal role of modern telecommunications as a catalyst for social and economic development is now widely recognised around the world. This includes personal and commercial communications, wireless data transfer, linking financial institutions to convey critical financial transaction data, fire and burglary monitoring and control facilities, and other emergency services communications.



³ TCF 'Telecommunications – Enabling New Zealand's Future' prospectus 2016



8.5 Critical services include access “111” service for emergency calls; receive early warning notices from Civil Defence e.g. Tsunami text or emails replacing local siren warning systems.

8.6 It will be essential that further investment in telecommunications infrastructure can be made efficiently and with as much certainty as possible. The proposed amendments to the National Environmental Standard for Telecommunication Facilities (NESTF) will permit a significant amount of telecommunication activities. The NESTF has to be recognised as providing part of the solution in the Queenstown Lakes district. However there are other opportunities to be explored via the 2GP district plan review if investment in our essential networks is to match rapid customer demand for telecommunications.

9. HOW A MOBILE NETWORK WORKS

9.1 Mobile telecommunications infrastructure is designed around the cellular concept; hence, they are often known as cellular networks. Cellular networks divide the target service area into cells and each cell is served by a central cell site. A cell site typically consists of antenna, an antenna support structure such as a mast or rooftop and a base station which contains electronic equipment, (examples of cell sites are attached as Appendix A) and with the evidence of John Ratuszny. The cell site communicates with individual mobile users within its service area using dedicated radio channels, which are limited by the

spectrum licence holding of the operator. These dedicated radio channels are reused in other cells for better network efficiency. In basic terms the 3G network is for voice text type services and the 4G network is for data services e.g. streamlining films, video calling etc. The antenna being deployed are designed to accommodate the multi spectrum requirements of the operators. While the size of the antennas are increasing the key current benefit is that a single antenna can the job where previously this would have required two and in some cases three antennas. However, as we move toward the network technology change with 4.5 and 5G the number of antennas and locations will increase. This has been anticipated as part of the NESTF amendments 2016. One of the major advantages of the cellular topology is that extra capacity can be added by increasing the number of cells, (each with a smaller service area) in areas of high traffic demand. Modern mobile networks often comprise of a macro coverage layer providing wide-area coverage that is complemented with a micro capacity layer in high traffic areas providing extra targeted capacity.

10. COMMENTS ON THE S42A REPORT & RECOMMENDATIONS

- 10.1 During the proposed plan review process there has been limited but useful engagement and discussion with Council on the Vodafone, Chorus and Spark submission points. On 25 May 2016 I organised a workshop involving Transpower, Chorus, Vodafone and Spark with Kim Banks and Rachel Law representing Council to discuss the opportunities for consideration of the various submission points. One of the outcomes was that Vodafone, Chorus and Spark provided Council with a track change version of the Chapter 30 of the alterations that the telecommunications companies considered to be appropriate. The s42A report is comprehensive and provided reasoning as to why the Reporting Officer had reached the recommendations on the various submission points.
- 10.2 In a few instances, the officer Craig Barr has either accepted Spark's, Vodafone's or Chorus's submission points or the alternative relief that is recommended within the s42A report is considered appropriate. It is acknowledged that the structure of Chapter 30 has improved. However as outlined in the evidence of Matthew Callum-Clark there are number of changes required before the Objective/policy framework is appropriately supported with the rules to enable the efficient and effective upgrading and rollout of new telecommunications technically that reasonably support the district and

especially international and domestic tourism. John Ratuszny, RF Manager Spark, provides technical evidence on the mobile network requirements in Queenstown.

Maximum dimensions Masts or Poles

10.3 Under rule 30.4.13 the permitted height is set at the building height for each zone. With relevance on the evidence of John Ratuszny and our experience with the establishment of sites and upgrading of existing sites around New Zealand typically telecommunication facility heights are set at 3m to 5m above building height or a specific maximum height as in the Auckland Unitary Plan being 25m for a number reasons including:

- a. The site antenna have to be high enough to enable a device to have reasonable of sight.
- b. The NESTF (both 2008 and draft 2016) recognises that for example facilities in the road can be 3.5m higher than the pole or mast the antenna are being attached to.
- c. Efficient coverage, refer to slide 10, 13 and 14. Slide 11 shows that a mast on an elevated location such as at Glendhu Bay get no advantage coverage wise from additional height. However slide 13 and 14 show the significant coverage advantage of a 20m high mast over 8m facility. The example is at Lake Hayes which is under high growth pressure.
- d. Compliance with radiofrequency thresholds refer to slides 15 and 16.
- e. Higher masts have been requested in the urban area where an urban style is not considered to out of scale with the surrounding built environment. These are the locations that are under growth pressure.
- f. Additional height enables the opportunity for co-location of providers on a single mast.
- g. We have provided some Queenstown lakes examples and those that represent topical mast/pole dimensions, refer to appendix A.

10.4 It is worth noting that the actual height of any particular mast is determined by a number of criteria which often means that the masts constructed to heights below the maximum District Plan height limits. The criteria include:

- (i) Physical environment e.g. contours of the locality, height of existing buildings or shelter belts/vegetation that interfere with coverage
- (ii) Regulatory requirements i.e. development controls such as height, colour and radiofrequency

- (iii) Build costs
- (iv) Proximity to potential customers – generally the aim is to have within close proximity to the customers
- (v) Site characteristics e.g. wind, soil conditions, access to the site and power, slope of the property
- (vi) Access to appropriate property/s i.e. reasonable lease agreement with the owner/s

Diameter of Headframes/arrays

10.4 The design of a sites head array is variable from site to site. The vast majority of work undertaken by the telecommunications companies is upgrading existing sites which typically including updating and changing antenna and the associated ancillary equipment to enable the delivery of a new technology or services for example Within the proposed 2016 NESTF in relation to existing sites (not located in a residential zone) there will be provision to increase the existing head frames by a factor of 30%.

10.5 Within rural and rural residential zones typically the size of sites are structurally larger. The proposed 2016 NESTF provides as a permitted activity in both the rural-residential and rural zones a 6.0m diameter head array/headframe. In appendixes A & B is a range of rural designs that are commonly in use around New Zealand.

11. NES TELECOMMUNICATION FACILITIES

11.1 The 2008 NES Telecommunications facilities is currently undergoing review to extensive expand its provisions. The expanded provisions (the existing cabinets and utility pole solution are retained) in summary include the opportunity for:

- a. New standalone masts/antenna in roads;
- b. Upgrading increasing additional height of existing masts and antenna;
- c. Antenna on buildings;
- d. New rural masts/antenna;
- e. Provision for small cell units attached to any structure.

11.2 Public submissions have been received on the proposed amendments. The introductory paragraph on page 5 of the MFE discussion document dated March 2015 states.

There are significant technological developments and innovations occurring across the economy that rely on fast, reliable broadband. Many activities in New Zealand, including education, health care and business, would benefit greatly from modern communications technologies. The ability for New Zealand to remain competitive internationally depends on investment in new communications infrastructure. Because of this, the Government is making significant investments in upgrading the national telecommunications network.

10.2 The amended NESTF is now expected to be in use late in 2016 as there has been delays in the drafting stage. The NESTF will be in place and effective it would seem before the recommendations of the Panel and decisions of Council. While that detail of provisions are not publicly available the scope of the submissions as outlined in Appendix B is wide enough to enable a number of the provisions in Chapter 30 to be changed to align the proposed NESTF. The following from the Ministry Business Innovation and Employment (MBIE) table setouts progress to date (noting it is now slightly out of date).

Stage	Key decision point	Status
1 - Define	Decide whether an NES is the most appropriate instrument	Complete
2 – Design	Design the policy Convene technical advisory group Prepare discussion document	Complete
3 – Consult	Public and iwi notification Consultation period	Complete
4 – Redesign	Analyse submissions Revisit and redesign policy Cabinet approval to draft regulation	Complete
5 – Deliver	Prepare draft regulations Targeted exposure draft testing (<i>some councils are participating</i>) Cabinet approval of final regulation	In progress
6 – Implement	Regulations come into force Users' Guide published	Expected mid-2016

10.3 In September 2015 MBIE and MFE published the recommended NESTF amendments which were approved by Cabinet in 2015 for drafting into regulation. Attached in appendix C is a copy of the September 2015 report. It

is considered that the following matters are relevant to the telecommunication provisions in Chapters 5, 10 and 16.

NESTF provision	District Plan rules
NESTF defers to District Plans rules in regard to the protection of trees and vegetation; historic heritage, visual amenity, significant indigenous vegetation, significant habitats for indigenous fauna and outstanding natural landscapes and features. Therefore when a site is located in one of more of these areas the QLDP rules and requirements apply except in regard to telecommunication lines.	
Underground telecommunication cabling, (including fibre) and associated earthworks permitted.	Rule 30.422 permitted activity subject to earthworks and reinstatement of the ground surface.
Aerial telecommunication cabling on poles where there is existing cabling above and below ground telecommunication cabling for customer connections	Rule 30.4.11 – controlled activity. Discretionary for new structures in the outstanding natural environments
New standalone telecommunication facilities (includes cabinet, antenna and mast) within the road reserve	Covered by NESTF
Telecommunication facilities (antennas) located on buildings. Residential buildings over 15m in height.	The combination of height and antenna size rule in 30.4.13-14 and 30.4.19 to 30.4.21 are more restrictive than the NESTF. Likely to commonly trigger resource consent
Upgrading and expanding an existing mast and antenna with larger antennas for new mobile technologies (such as 4G) not within the road reserve.	The combination of height and antenna size rule in 30.4.13-14 and 30.4.19 to 30.4.21 are more restrictive than the NESTF. Likely to commonly trigger resource consent.
Small cell units up to 0.11m ³ in area on buildings, bus stops anywhere	Probably generally covered within the definition of telecommunication facility. Reasonably permitted due to the small size in areas not in an overlay for ONLs etc.
New rural (including rural residential) telecommunication facilities (masts and	Rule 30.4.13 restricts the height to 8m.

NESTF provision	District Plan rules
antennas up to 25m with up to a 6.0m diameter head frame; including a setback of 50m from the closest external wall of a dwelling, residential home, educational facility, or church)	
Earthworks for mobile telecommunication facilities. Earthworks will be controlled via standards in the NESTF	Chapter 22 Earthworks. NESTF will provide comprehensive standards of control
Natural hazards	Rule 30.4.17 controlled activity for a building in a natural hazard area.
Noise related to equipment within cabinets on or outside the road. Noise will be controlled via standards in the NESTF	NESTF will provide comprehensive standards of control for noise.

10.4 The proposed amendments to the NESTF significantly increases the comprehensiveness. However district plans still need to make provision for telecommunications not covered within the NESTF 2016, for example new telecommunication facilities in residential, business and industrial areas. Natural areas are defined as outstanding natural features or landscapes, coastal marine, significant indigenous vegetation or significant habitats of indigenous fauna. It is recognised and accepted that the vast majority of the Queenstown Lakes district is defined an outstanding natural feature or similar category that means the NESTF will defer to the District Plan activity status and rules. It would appear that growth pressure will be focused in those areas generally outside the significant natural or heritage areas. These areas that it would be useful to consider better development rule alignment to the NESTF. It is considered appropriate to consider the following:

- Telecommunication facilities in rural zones including rural residential as a permitted subject to the following rules:
 - Maximum height 25m
 - Maximum width of a panel antenna 0.7m
 - Setback from the external wall of a building for residential and educational purposes
 - Maximum diameter of a headframe is 6.0m

- Upgrading of existing telecommunication facilities within the following zones:
 - Queenstown Business Mixed Use zone;
 - High Density Residential Queenstown – Flat, Queenstown Town Centre, Wanaka Town Centre (Wanaka Height Precinct) or Airport Mixed Use zones;
 - Local Shopping Centre, Wanaka Business Mixed Use or Jacks Point zonesand subject to the following rules:
 - Maximum width of a panel antenna 0.7m;
 - Additional height of up to 3.5m for a single operator facility or up to 5.0m for a multiple operator facility

- Small cells 0.11m³ up to 2.5m³ on any structure controlled activity subject to colour control.

- Antenna on buildings within the following zones:
 - Queenstown Business Mixed Use zone;
 - High Density Residential Queenstown – Flat, Queenstown Town Centre, Wanaka Town Centre (Wanaka Height Precinct) or Airport Mixed Use zones;
 - Local Shopping Centre, Wanaka Business Mixed Use or Jacks Point zonesand subject to the following rules:
 - Maximum face of a panel antenna is 1.5m²
 - Antennas shall not extend 5.0m above the highest point of attachment to the building

11.5 It is also worth noting that the proposed RMA amendments include a change to S43B enabling a district plan provision that is more lenient than a NES condition to override the NES. This change provides the opportunity during the district plan making process for a community to decide to have rules that meet the specific needs of that city/district that are more lenient than the NES national baseline standards. Currently under S43B where a district plan has permitted rules that are more lenient than the NESTF it would trigger a controlled activity application.

12. LIFELINE UTILITIES

12.1 The provision of resilient telecommunication networks during emergencies is critical, as has been highlighted in the case of the Canterbury earthquakes. Telecommunications are recognised as Essential Infrastructure i.e. the whole network and a critical lifeline utility under the Civil Defence Emergency Management Act 2002 (CDEM Act 2002). As a lifeline utility the companies are required to plan for and manage the range of emergency impacts on the networks. Under section 59 CDEM Act 2002 a lifeline utility is required to take “all necessary steps to undertake civil defence emergency management” and be able, under section 60, to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency. Resilience comes from a variety of sources:

- multiple networks (different providers offering alternative networks);
- multiple technologies (fibre fixed networks available alongside mobile networks);
- telecommunication facilities such as cabinets and masts are exempt from the Building Act. However the facilities are designed and certified by certified professional engineers; and
- telecommunication providers building their own networks with resilience in mind (building redundancy into their networks so that network component failures have a minimum impact).

12.2 It is recognised that telecommunications is probably the most complex of the lifeline utilities given that users have access multiple networks including the mobile networks of Vodafone, 2 Degrees and Spark and the fixed line copper network of Chorus plus the new fibre network in Queenstown. The experience of the telecommunications industry during an emergency is that it is extremely rare for customers to have no access to telecommunications when there is access to multiple telecommunication services.

13. CONCLUSIONS

13.1 Telecommunications infrastructure is essential for shaping and enabling the future of Queenstown Lakes district by ensuring that its residents and businesses have the opportunity to be connected internationally and across New Zealand. Changes in the way people access and use telecommunications and data

networks is rapidly evolving. The pace of change in technology to meet demand and growth means that critical that the regulatory framework enables efficient roll out of current and future technology.

- 13.2 New telecommunication facilities such as cell sites will be required in new growth areas and high mobile traffic areas to service demand and to future proof the network for future growth. It is now common place for taller masts that provide the opportunity for co-location by multiple providers the rules in the rural and CBD edge and industrial zones need to accommodate these sites. The benefit of co-location of multiple providers on a single site is that there will be a potential to reduce the number of new sites required in the future. Telecommunications networks unlike any other utility undergo continual upgrading, reconfiguration and new technologies are introduced. The proposed District Plan provisions require change in relation to telecommunications to enable the community and tourists to access the level of service they demand while recognising the significance natural environment. The changes recommended in this evidence, that of Matthew Callum-Clark, John Ratuszny and combined with NESTF amendments provide for the reasonable on-going investment in the digital networks so critical to the success of Queenstown Lakes district.



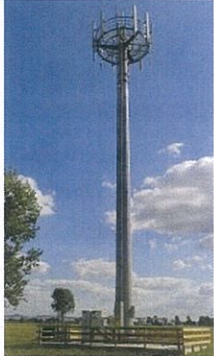

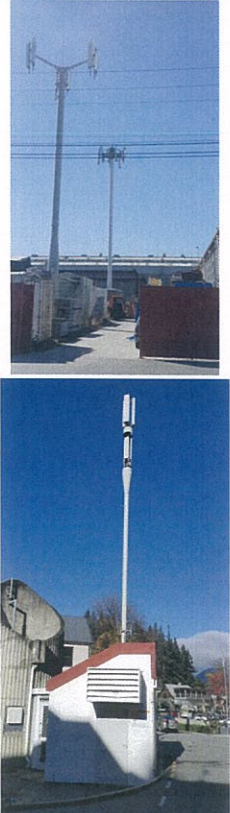
Graeme Ian McCarrison
2 September 2016






Colin William Clune
2 September 2016

Appendix A

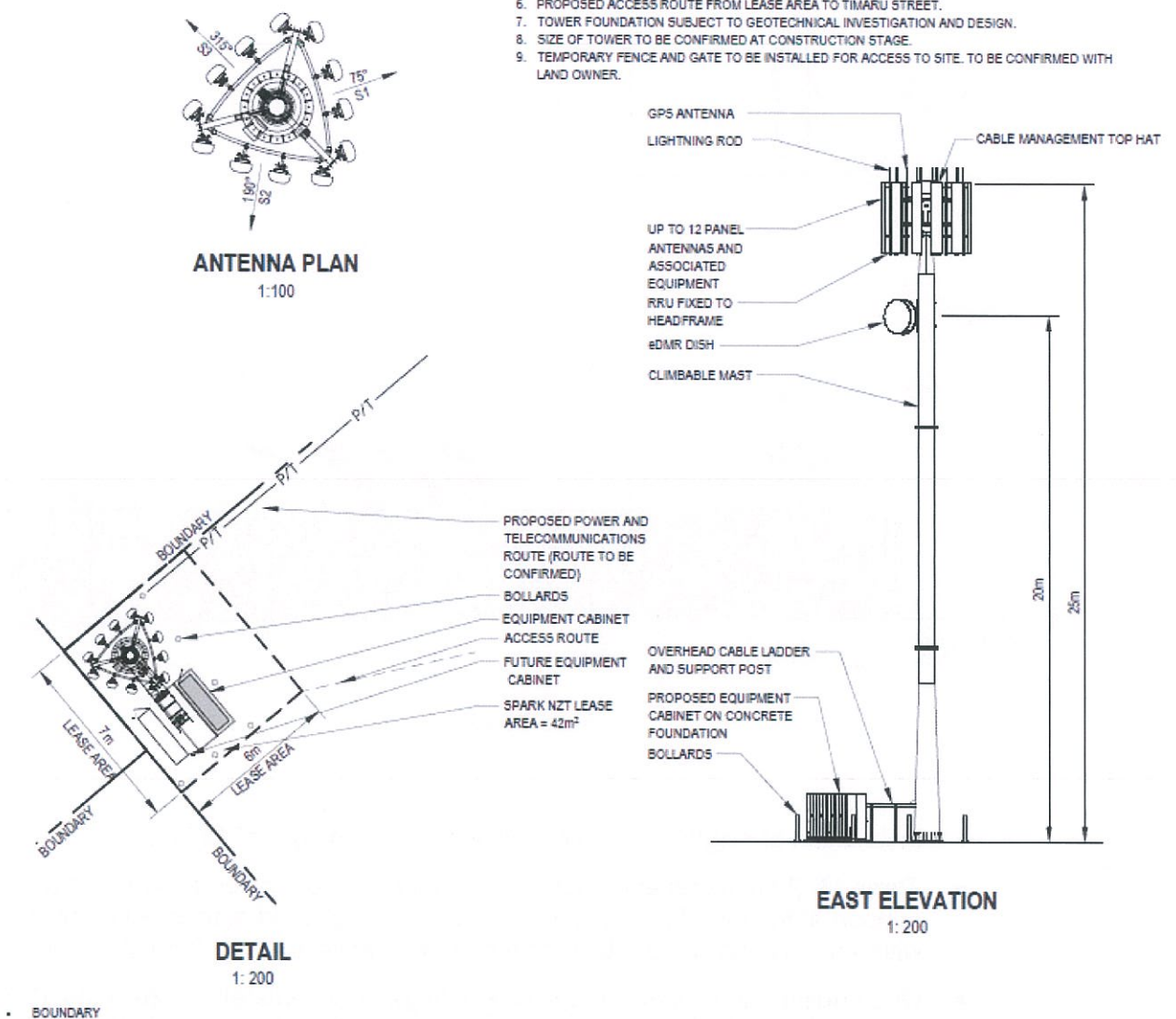
Cell Site Examples

Cell sites	Descriptions	Photos
Rural (RBI)	<ul style="list-style-type: none"> • Monopoles/Lattice • Provide outdoor wide-area coverage • Higher transmit power and high capacity <p>Typically 25 m plus high masts</p>	
Rural	<p>Monopole</p> <ul style="list-style-type: none"> • Provide outdoor wide-area coverage • Higher transmit power and high capacity <p>Typically 9-20m plus high masts</p>	
Urban cells	<p>Monopoles/lamppost</p> <ul style="list-style-type: none"> • Provide outdoor wide-area coverage • Higher transmit power and high capacity <p>Typically 15-25m high masts</p> <p>Bottom photo is Queenstown central 19m</p>	

<p>Urban cells</p>	<p>Monopoles/lamppost</p> <ul style="list-style-type: none"> • up to 15m high masts • Queenstown airport 13m 	
<p>On building</p>	<p>Rooftop</p> <ul style="list-style-type: none"> • Provide outdoor wide-area coverage • Higher transmit power and high capacity • Antennas attached to rooftops/walls on highrise buildings 	
<p>Micro cells</p>	<p>Small cells</p> <ul style="list-style-type: none"> • Provide small area outdoor/indoor coverage • Medium transmit power and medium capacity for localised, high concentration of outdoor/ indoor traffic • Antennas attached to street furniture (e.g., lamp post, bus stops) and sides of buildings • Typically mounted 5-10 m high 	

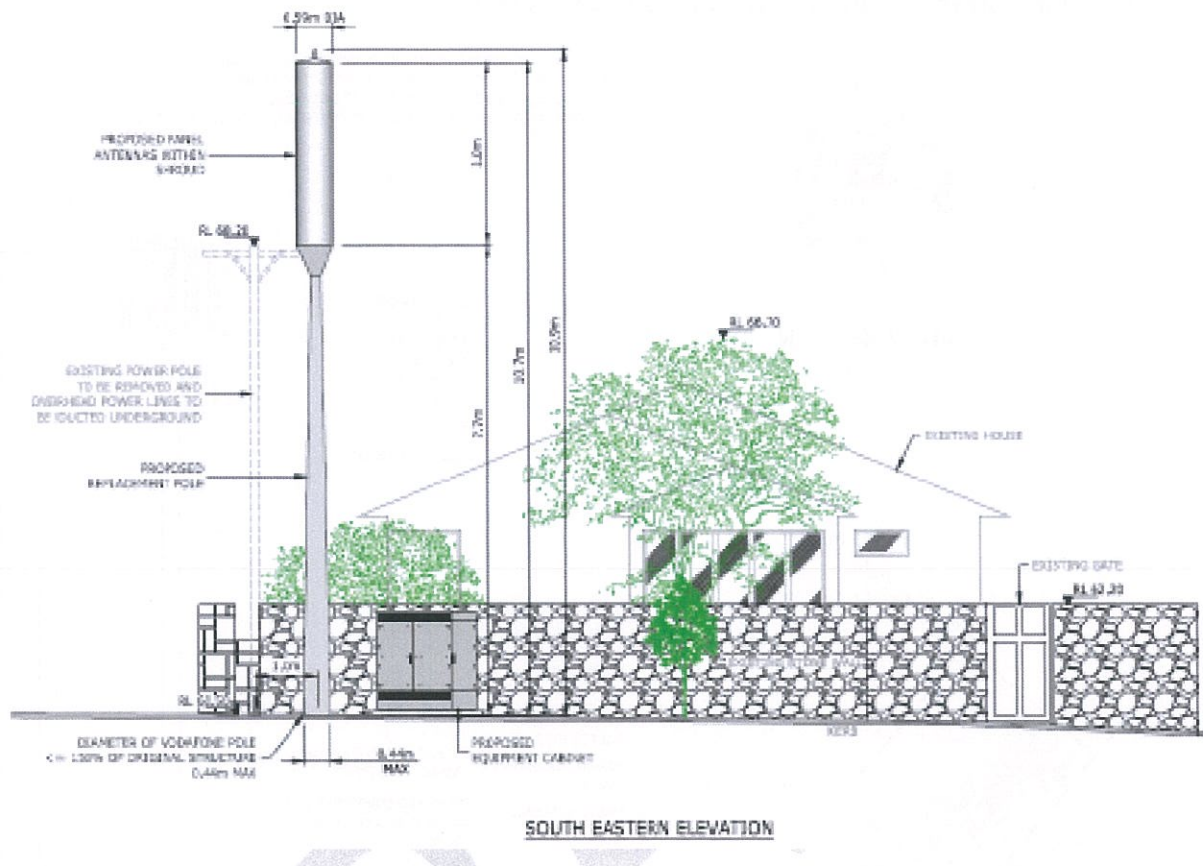
Examples of typical designs

44 Timaru Street Dunedin – CoC issued 30 October 2015



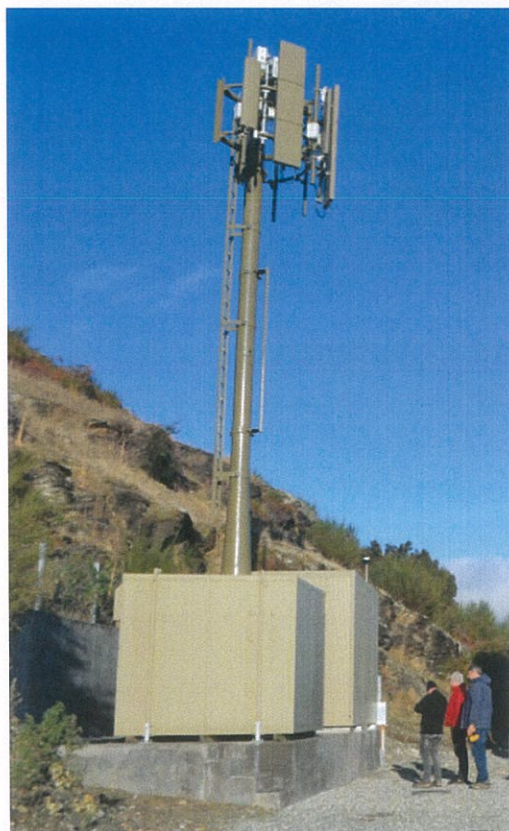
- 25m high mast with 1.0m diameter at base tapering to 0.610m at the top
- Head frame/array of 3.5m diameter
- 12 antenna and 1 dish antenna

Road reserve example



- Installation of single monopole mast with a total height of 10.7m.
- Three (3) 2.5m panel antennas. The panel antennas will be attached to a support at the top of the monopole mast. The proposed antennas will be located within a cover having a total length of 3.0m and width of 0.59mØ diameter.
- One equipment cabinet (to replace existing), approximately 1.62m wide, 0.86m deep and 1.6m high when measured from the top of the concrete plinth. Covering a total area of 1.39m².
- All equipment is finished in a recessive “grey” colour.

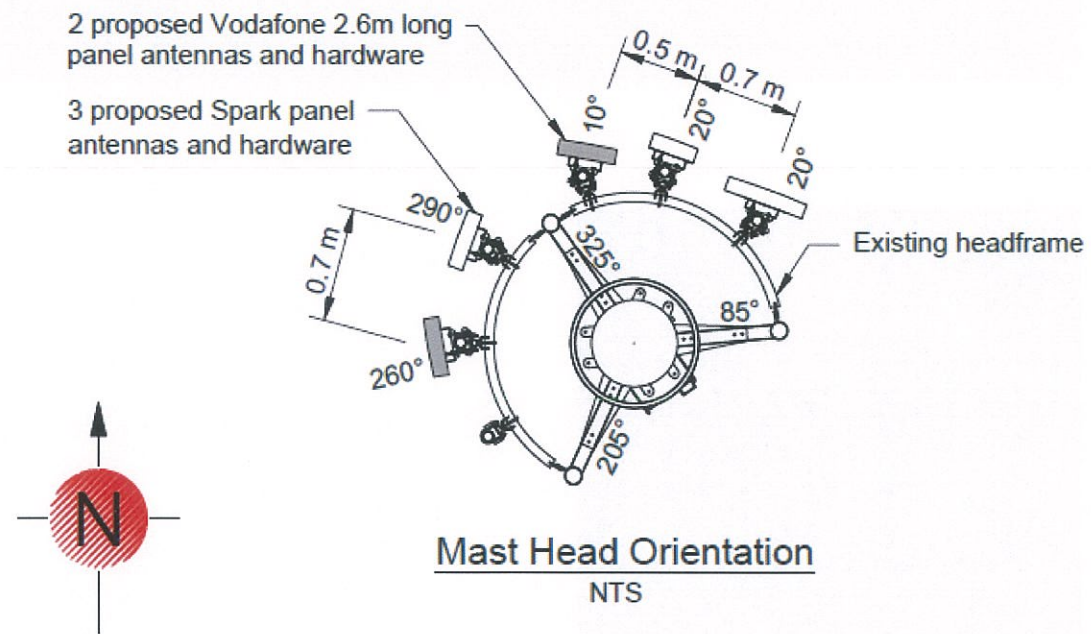
**Peninsula reservoir
11m monopole**

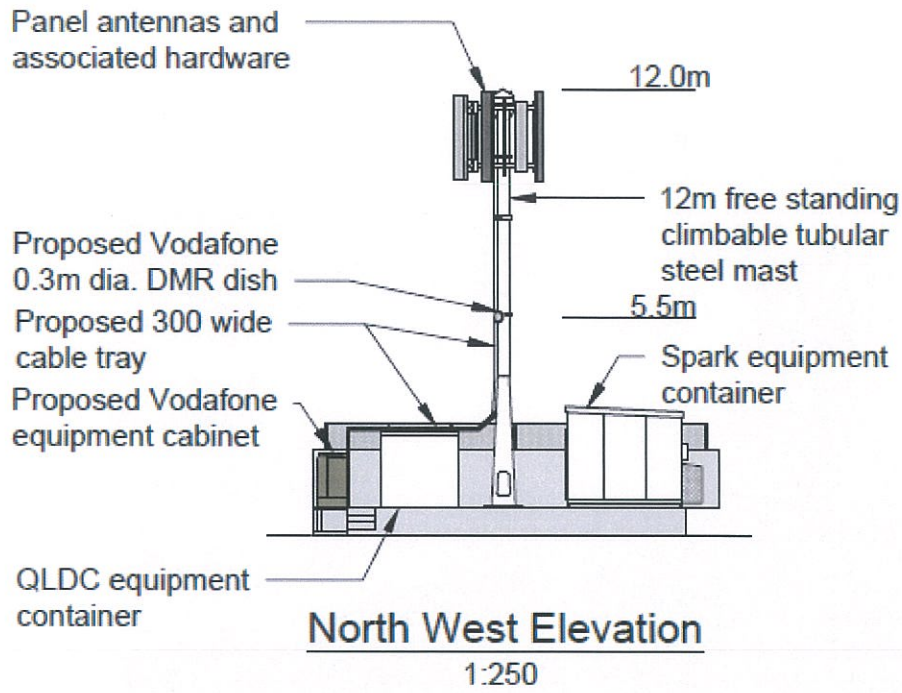


Existing Spark head array



Plan of the approved Vodafone & Spark Co-location Uses the existing pole and headframe





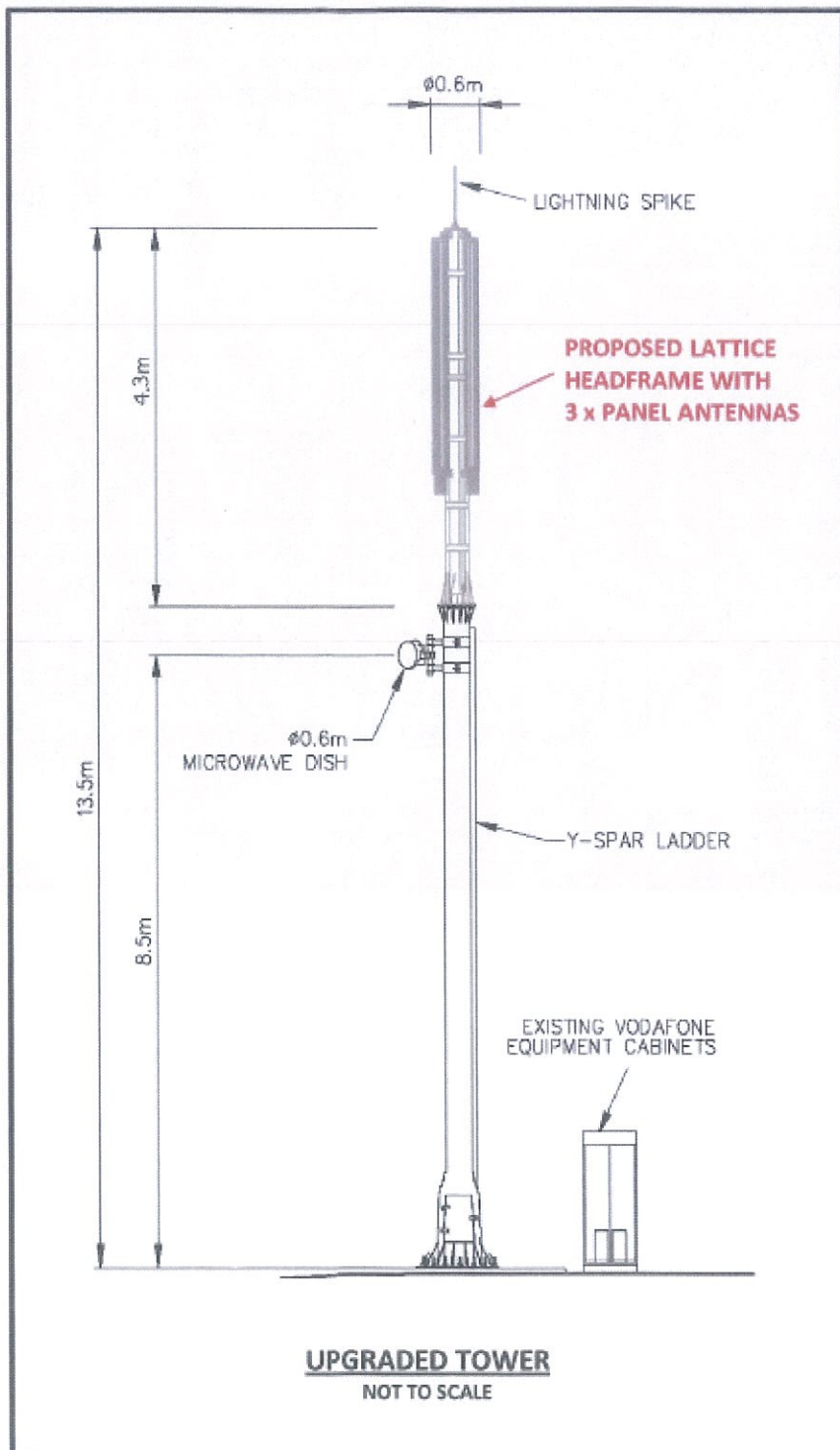
**Glendhu Bay
Vodafone site
9m monopole**



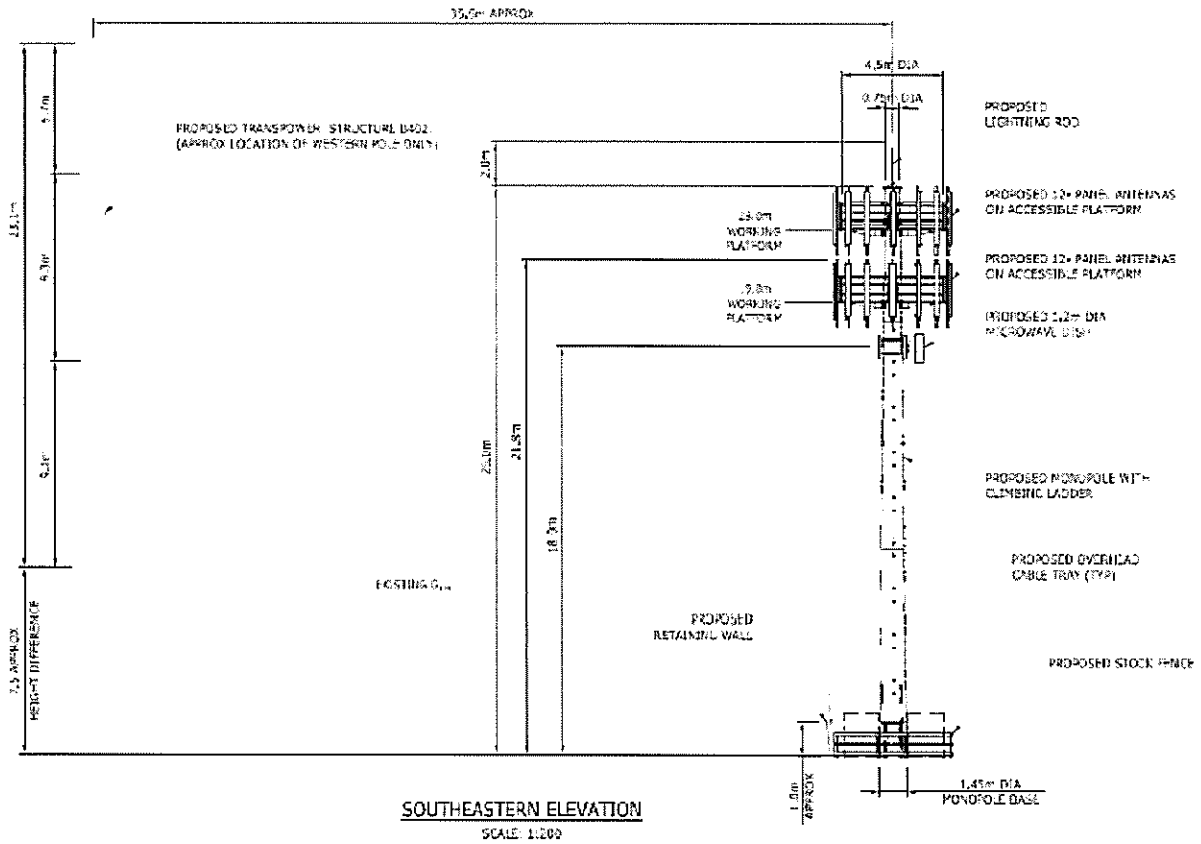
**Spark Glendhu Bay
9m monopole**



Bowen Street, Queenstown

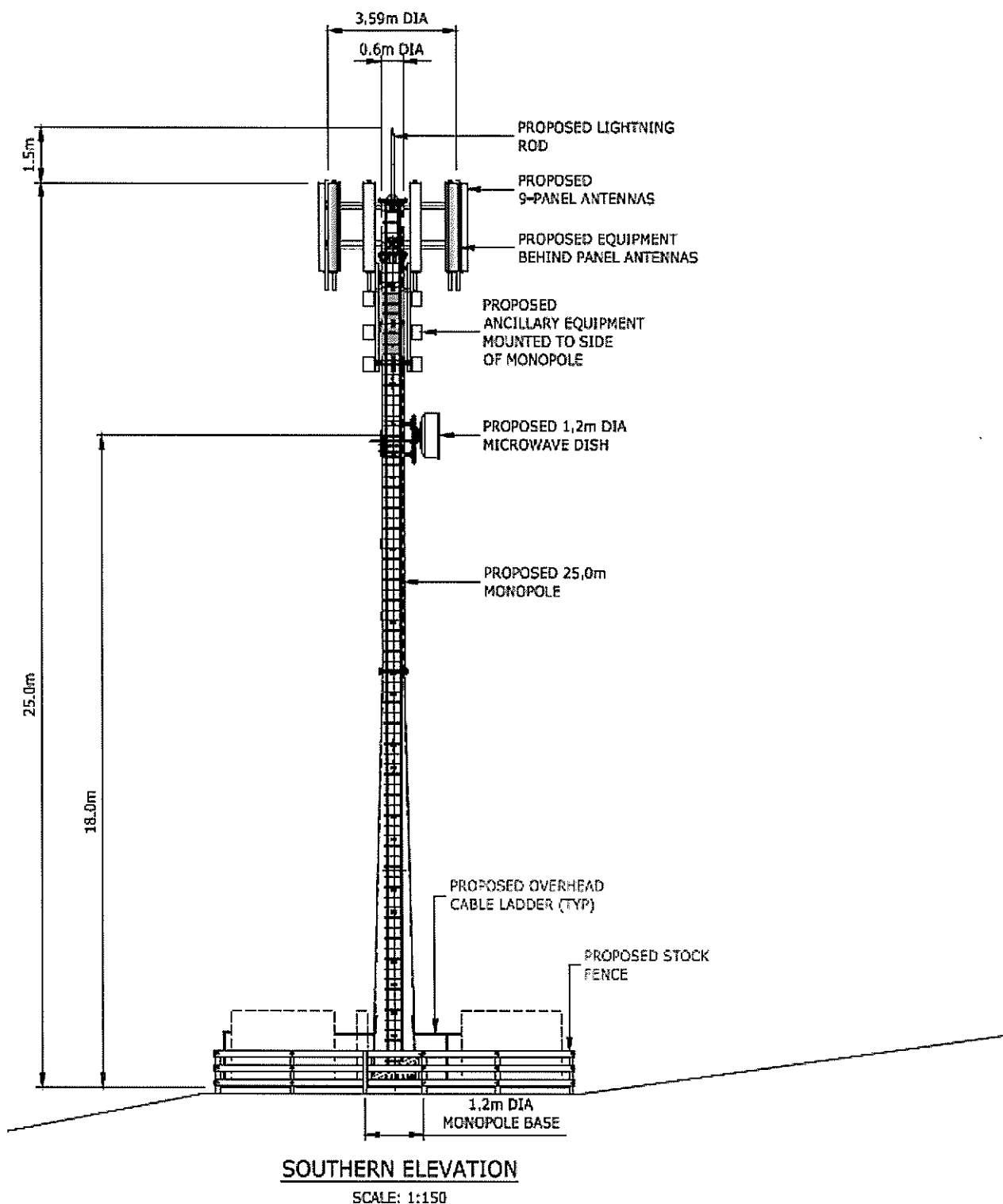


Rural example (RBI)



- A 25m monopole with two (2) working platforms attached at the respective height of 19.8m and 23m from ground level.
- Up to a maximum of twenty four (24) panel antennas approximately 2.6m in length, attached to a single antenna platform (head frame/array) with a total diameter of 4.5m
- All equipment is finished in a recessive "grey" colour.

Co-locatable RBI Monopole Mast 25m Height (9 panel antennas)



Appendix B

Recommendations for proposed amendment to the NESTF 2008 Dated September 2015



**Ministry of Business,
Innovation & Employment**

Proposed amendments to the National Environmental Standards for Telecommunication Facilities 2008

Recommendations for proposed amendments

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Ministry for the
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Manatū Mō Te Taiao

Contents

1 INTRODUCTION	35
1.1 Background	35
1.2 Purpose	35
2 OVERVIEW	37
3 GENERAL COMMENTS AND RECOMMENDATIONS ON THE PROPOSALS .	37
3.1 Visual effects	37
3.2 Effects of earthworks	38
3.3 Cultural effects	38
3.4 Protection of special areas	38
3.5 Facilitating network deployment	39
3.6 Application of the National Environmental Standards for Telecommunication Facilities	40
3.7 Reference to radiofrequency field standards	41
4 COMMENTS AND RECOMMENDATIONS BY ACTIVITY	41
4.1 Telecommunication cables	41
4.2 Earthworks	41
4.3 Antennas	42
4.4 Small cell units	42
4.5 Cabinets	43
APPENDIX A: PROPOSED NEW PERMITTED ACTIVITIES	43
APPENDIX B: PROPOSED AMENDMENTS TO TERMINOLOGY	47

1 INTRODUCTION

1.1 Background

The Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations (NESTF) came into effect in 2008. The NESTF was developed to provide a nationally consistent planning framework for a small range of telecommunications infrastructure on road reserves that have low environmental impact, as well as the radiofrequency fields of all telecommunication facilities operated by a network operator licensed under the Telecommunications Act 2001.

To ensure the NESTF continues to meet its objectives, proposals were made to widen the scope of the current NESTF to bring it up to speed with the rapid development of the telecommunications sector since 2008. The *Proposed Amendments to the National Environmental Standards for Telecommunication Facilities: Discussion Document* was released by the Ministry for the Environment and Ministry of Business, Innovation and Employment on 3 March 2015 for public consultation for a period of six weeks.

The proposed amendments, as notified for consultation, address multiple issues in relation to both widening the scope of the NESTF and making minor amendments to the NESTF mainly for clarification. The issues and subsequent proposed amendments were set out in the discussion document.

Along with the discussion document, the Ministry for the Environment and the Ministry of Business, Innovation and Employment also released the:

- *Report of the outcome evaluation of the National Environmental Standards for Telecommunication Facilities*
- *Proposed amendments to the National Environmental Standards for Telecommunication Facilities: Preliminary evaluation under section 32 of the Resource Management Act 1991*
- *Report on Environmental effects of implementing ultra-fast broadband and mobile infrastructure.*

Officials also sought technical advice from a Technical Advisory Group (TAG), consisting of local government, telecommunications network operators, and an iwi organisation representative, who provided technical advice to inform the proposals.⁴ The TAG's advice was provided through a workshop with all members, as well as through informal consultation. The TAG did not always provide a group recommendation to the Ministry for the Environment and the Ministry of Business, Innovation and Employment as its members' perspectives were diverse.

Advice from TAG members was incorporated into the final proposal decisions outlined below.

1.2 Purpose

This report presents an overview of the submissions received on the proposed amendments, and the resulting recommendations on the proposed amendments to the NESTF. The recommendations in this report are informed by submissions on the discussion document, as well as TAG advice. It also fulfils the statutory requirement as a report and recommendation to the Minister for the Environment on the comments received during

⁴ Members were Local Government New Zealand, Wellington City Council, NZ 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 Ngāti Porou, Crown Fibre Holdings, Ngā Pū Waea and Auckland Council.

consultation and provides an analysis of views contained in submissions. The appendices' set out in full the list of recommendations to the Minister for the Environment for amending the NESTF.

A Report on Submissions, which provides a more detailed summary of the views expressed in submissions but does not provide comment or analysis, is published separately.

2 OVERVIEW

There were 145 responses received from submissions to the public consultation process.

The majority of local government, iwi organisations, industry and professional associations, and government agency submissions that commented on the proposals in the discussion document stated support for the general purpose and direction of the proposed amendments. However, many of the submissions in scope also stated the importance of striking a balance between national consistency and recognising local conditions. Key areas of comment from submissions are summarised below.

Two thirds of the submissions received were not on the proposals in the discussion document, but from individuals or community groups concerned about the perceived health effects of radiofrequency exposure who requested that the maximum radiofrequency field exposure limit incorporated by reference in the NESTF be reviewed. The vast majority of these were proforma submissions.

The current exposure limit in the maximum radiofrequency field exposure limit is based on international guidelines that have used analysis of scientific literature, and safeguard against all identified hazards of radiofrequency field exposure levels. The standard was confirmed as still being relevant in the 2013 review of the NESTF. The discussion document stated that reviewing this standard is not within the scope of the proposed amendments to the NESTF. As such, submissions which commented only on this standard were therefore considered to be out of scope.

3 GENERAL COMMENTS AND RECOMMENDATIONS ON THE PROPOSALS

This section outlines some of the key changes recommended as a result of the submissions process.

3.1 Visual effects

The most frequent concern raised about each of the proposals was the potential adverse visual effects that the infrastructure would have. This was a concern raised by local government, iwi organisations, community groups, and individuals. In particular, submitters were concerned with the increases in size from existing infrastructure, and the potential for cumulative size increases at each site.

We recommend amending the proposals to avoid cumulative size increases of infrastructure in sites. In addition to this, a maximum size envelope for ancillary equipment has been introduced for aerial cabling and small cell units, which was a key concern for a number of councils.

The discussion document proposed the use of setbacks in rural areas to mitigate visual impacts of masts and antennas. The setback requirements proposed were: a setback of 50 m from areas zoned residential in the relevant district plan, and a setback of 50 m from dwellings and sensitive buildings such as childcare and educational facilities.

Most district plans manage the change in character from rural and residential zones by classifying land on the edges of these zones as 'rural-residential', with corresponding changes in rules and requirements to match the character of the area.

We recommend clarifying that rural-residential zones are not included in the proposal for new masts and antennas in rural areas. This will provide better protection for more visually sensitive areas than a simple setback rule from residential zones. Therefore, we recommend

to retain only the 50 m setback from dwellings and sensitive buildings alongside this clarification.

3.2 Effects of earthworks

Telecommunications industry submitters wanted to ensure that earthworks for the installation of all proposed permitted infrastructure would be permitted. However, permitting earthworks in all areas caused concern for local government and iwi submitters, particularly for underground cabling and in rural areas. Half of local government submissions suggested the need for further control around earthworks.

In light of this, we recommend that earthworks be permitted provided that environmental effects are managed through conditions relating to limits on erosion, drainage, dust, and debris control. Any trees that might be disturbed in this process must also not be scheduled in the relevant district plan. For new masts and antennas in rural areas, we also recommend to require the reinstatement or replacement of vegetation to the extent possible.

3.3 Cultural effects

Protecting culturally significant sites was an issue raised by both local government and iwi organisations across many of the proposals. The NESTF allows district plans to provide more stringent rules than the NESTF to manage areas of historic heritage significance, which includes areas of cultural significance. However, iwi and councils have submitted that there are a number of sites of significance to Māori not listed in district plans. This could mean the amended regulations are perceived as not sufficiently protective of wāhi tapu, as the scope of the activities in the NESTF is expanded outside the road reserve.

We commissioned an independent report on the anticipated cultural effects of these changes, which has found that overall the proposals would not have a significant adverse cultural effect, but rather the potential for this would vary from area to area. However, the adequacy of district plans to provide protection is not an issue that can be solved by an NES.

We propose to update the Users' Guide that accompanies the NESTF in conjunction with industry, councils and iwi to provide advice and direction on this issue.

Some iwi submitters suggested the consultation process ought to involve discussions with individual iwi to take into account the regionally-specific needs of their rohe. However it was considered that the process was designed to create nationally consistent rules and to determine which situations should be managed through district plans where this is appropriate.

3.4 Protection of special areas

Under section 43A(3) of the Resource Management Act 1991 (RMA), a national environmental standard (NES) must not state that an activity is a permitted activity if the activity has significant adverse effects on the environment. Based on advice in the Report on Environmental Effects and from submissions, we consider the proposed amendments to the NESTF under some circumstances, depending on the receiving environment, the new activities proposed to be classified as 'permitted activities' may have significant adverse effects.

The existing NESTF complies with the section 43A(3) requirement by setting conditions protecting trees and vegetation, historic heritage values, visual amenity values, and coastal

marine area, in regulation 6. If the area is identified in the relevant district plan as having historic heritage values or visual amenity values, the district plan rules prevail. District plan rules also prevail if the facility is located in the road reserve on the same side of the road as and next to a coastal marine area, and if the facility is to be located in the drip line of a tree and the activity would require a resource consent if not for the NESTF.

In expanding the scope of the NESTF outside the road reserve, while adding additional permitted activities, there is a risk that the proposed amendments to the NESTF would not comply with section 43A(3) as the existing protections apply to too limited a range of sensitive environments to mitigate the potential significant adverse effects of this expanded scope. We recommend expanding the protections for historic heritage areas, visual amenity value and the coastal marine area in regulation 6 of the NESTF to activities both inside and outside the road reserve. Where a tree is listed in a schedule in a district plan for its significance, we recommend that it is protected through new conditions controlling earthworks (outlined in the following section), rather than by expanding the part of regulation 6 protecting trees and vegetation to apply outside the road reserve.

The majority of submitter comments on the areas where district plan rules should prevail over the NESTF related to the proposal to add natural hazard areas into the list of areas in the NESTF which are managed by district plans. While there was support for this proposal, we have found little specific evidence of the benefit from managing natural hazard zones in this way.

We consider that the processes already in place under legislation such as the Building Act 2004 and industry practices that already require the appropriate placement of facilities in zones where there may be natural hazard risks are adequate for managing this risk.

Telecommunications operators generally avoid placing infrastructure in these areas where possible, due to the costs associated with additional strengthening and hazard avoidance. However, if placement in these areas is needed to meet customer demand, industry works with information from councils to engineer a solution.

As requested in the discussion document, some submitters also suggested other areas which may be more suited to management by the district plan than the NESTF. It was noted that some areas are listed in district plans for the purposes of protecting indigenous plant life or native bird habitats, but are not covered under the existing NESTF visual and historic heritage protections. These areas may be particularly sensitive to the installation of telecommunications infrastructure.

We therefore recommend expanding the protections to include additional types of environments with specific protections in the relevant district plan. We recommend that the additional protections be aligned with the matters of national importance in section 6 of the RMA, as district plans frequently use these in their zoning. We recommend regulation 6 be expanded so that district plan rules prevail if the relevant district plan specifically identifies an area for protection in relation to one of the following matters:

- the protection of outstanding natural features and landscapes
- the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

Allowing district plan rules to manage telecommunications infrastructure in these areas should not affect the appropriate placement of facilities and rollout of key infrastructure, and would ensure an appropriate balance between national consistency and community participation in areas protected for their ecological significance.

3.5 Facilitating network deployment

In their submissions, the telecommunications industry made suggestions for areas where network deployment could be further facilitated, without resulting in adverse visual effects. A

suggestion we recommend adopting is the removal of the 15 m height requirement for antennas on buildings in commercial, industrial and rural areas, where there is less visual sensitivity from taller surrounding buildings, and effects are more easily absorbed.

The NESTF currently permits dish antennas up to a maximum diameter of 0.38 m. The telecommunications industry submitted that dish antennas up to a maximum diameter of 1.2 m be permitted on buildings, as well as the panel antennas currently proposed. A review of district plans has found that most district plans classify the installation of dish antennas of 1.2 m diameter as a permitted activity. Increasing the size of the dish antennas permitted through the NESTF would therefore not result in a more lenient regime in most areas than the *status quo*, but would help the NESTF achieve its objectives to assist in network and equipment design and equipment sourcing for roll outs and reduce compliance costs and timeframes for service providers.

The telecommunications industry noted that the timeframe for removing replacement cabinets suggested in the discussion document would not provide for replacements where the cabinet is being installed to transition onto a new network, such as moving from a copper-based to a fibre-based service. This is because the transfer cannot be completed until end users of the original network choose to move to the new service. In addition, many submitters considered the 12 month window proposed for cabinet replacements was too long and unnecessary.

To account for these issues we recommend:

- shortening the timeframe for straight replacements from 6 months to 3 months
- removing the suggested 12-month requirement for removal of new network cabinets.

As the majority of new cabinets installed for fibre networks are located underground, this is not expected to have a significant visual impact.

3.6 Application of the National Environmental Standards for Telecommunication Facilities

The discussion document also proposed that the provisions in the NESTF apply to the infrastructure of telecommunications network operators, the Crown, and Crown agents – an extension of the current NESTF's application to only network operators. This is to ensure government organisations that operate, or may operate in future, their own telecommunications networks, such as those for emergency services, are subject to these same provisions.

In their submission on the discussion document, the New Zealand Police noted that, by proposing to expand the NESTF beyond the road reserve, their utility buildings could be inadvertently captured by the definition of 'cabinet'. Since these buildings are larger than the size allowance for cabinets, they would therefore be subject to resource consenting requirements where they are not currently.

For clarity, we therefore recommend excluding utility buildings able to be entered by a person from the definition of cabinets.

A number of submitters in the electricity industry raised the question of whether the NESTF should apply to operators in this sector. This is detailed in the summary of submissions. Some suggested that the NESTF should apply to more parties than telecommunications network operators, citing an increased crossover between telecommunication facilities and electricity network facilities (such as smart meters). Others stated that the current scope for NESTF application is too wide and creates a cost in the form of radiofrequency reporting

requirements for electricity sector companies who have sought network operator status under the Telecommunications Act 2001, without adding any benefit to them.

The interaction of telecommunications facilities with electricity infrastructure trends will be monitored on an ongoing basis, and can be further addressed when the NESTF is next reviewed in approximately five years' time. At this point, we do not consider the crossover or convergence is sufficient to be incorporated into this round of amendments of the NESTF.

3.7 Reference to radiofrequency field standards

The New Zealand Standard referenced in the NESTF that specifies calculation and measurement methods for radiofrequency fields has been replaced with an updated Australia/New Zealand exposure assessment standard. As the new standard supersedes the old standard, we recommend updating this reference in the NESTF. This standard will not affect the maximum exposure limits.

The current exposure limit is based on international guidelines that have used careful analysis of scientific literature, and offer protection against all identified hazards of radiofrequency field exposure levels. The Ministry for the Environment received advice in the 2013 review of the NESTF that this standard remains relevant. As such, a review of the exposure standard is not within the scope of the proposed amendments.

4 COMMENTS AND RECOMMENDATIONS BY ACTIVITY

This section outlines key changes as they apply specifically to proposed new permitted activities. Note that the conditions are detailed in full Appendix A.

4.1 Telecommunication cables

The current NESTF does not provide for telecommunications cables.

We recommend that deploying telecommunications cables aerially be permitted in areas where aerial cabling already exists, provided that the restrictions on diameter specified in Appendix A are met. It is also proposed that installation of associated ancillary equipment be permitted, subject to volume limits. The size limits on cabling and ancillary equipment will mitigate the visual impact while allowing for the equipment necessary for the operation of the facility.

We recommend that telecommunications cables deployed underground in the road reserve, as well as any ancillary equipment required be permitted. The visual effects of underground infrastructure are minor and most district plans are choosing to incentivise this method of cabling.

4.2 Earthworks

The current NESTF has no provision for earthworks.

We recommend that all earthworks necessary for placement of the infrastructure permitted by the NESTF be permitted, provided they manage any environmental effects (sediment control, erosion, and dust) and subject to scheduled trees in planning instruments. The conditions proposed are based on those in the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009, with alterations which take into account feedback on the effectiveness of these standards.

4.3 Antennas

The current NESTF permits placement of antennas within a size envelope of 2m by 0.5m only on existing utility structures.

We recommend increasing this permitted size envelope to 3.5 m high and 0.7 m wide to allow for recent technological trends (such as the move for mobile networks to 4G-LTE²). We recommend that this also apply to the replacement of existing antenna with the larger sized antenna. A second antenna on an existing structure is also proposed to be permitted within these size limits, except in residential zones and on the road reserve, to mitigate the visual effects.

We recommend that antennas may be placed on the roof or side of a building, provided that certain size limits are met, and that the building is no less than 15m tall in residential zones. All cabinets necessary for the operation of rooftop antennas would be permitted.

The current NESTF does not provide for new masts supporting antennas to be built.

We recommend permitting new masts to support antennas in the road reserve, provided that they are in proportion to existing structures in the area. In addition, existing utility structures which an antenna will be placed on may be relocated by up to 5m for better positioning.

We recommend permitting a height increase of up to 5m on existing structures to allow for colocation of antennas. This activity is proposed to be permitted only once on each site, and not in residential areas or on the road reserve to mitigate the visual effects.

We recommend that new masts and antennas up to 25m high may be placed in areas zoned rural in the district plan, provided that they are located at least 50m away from dwellings, residential and educational facilities. This provides a buffer to those areas most sensitive to the visual impact of this infrastructure. The ability for co-location is already provided for in rural masts under the Rural Broadband Initiative, so it is not recommended that the NESTF allow a further height increase for co-location on 25m high masts. To mitigate environmental effects, it is also recommended that vegetation be reinstated where possible.

4.4 Small cell units³

Small cell units are not currently covered by the NESTF.

We recommend that installing small cell units and associated ancillary equipment be permitted on existing structures (eg, bus stops, cabinets, light poles, buildings), provided they fit within a maximum volume envelope.

² 4G Long-Term Evolution is a mobile broadband service capable of speeds up to 10 times faster than 3G technology.

³ Small cell units (such as microcells, picoells, femtocells, and Wi-Fi) can service smaller areas and fill in gaps in the coverage of larger antennas.

4.5 Cabinets

The current NESTF permits telecommunications cabinets, with limits on size according to placement location. Location relates to both the district plan zone, and the cabinet’s proximity to other cabinets.

The definition of ‘site’ will be clarified so it encourages clusters of cabinets within a specified footprint. Sites must be located at least 30m from another site. This mitigates the visual impact of multiple cabinets in an area, while ensuring that ‘site’ is not interpreted as a property title.

Cabinets servicing rooftop antennas will be excluded from requirements per ‘site’, as including them would create an artificially restrictive limit that is not required. A natural limit exists already due to the number of antennas which may be located on any one building. Cabinets must be located within the property boundary, and must be no higher than 2m, excluding the plinth.

We recommend increasing the size of the cabinets permitted under the current NESTF in residential areas, in order to support the placement of larger antennas. The new conditions will limit cabinets to a maximum height of 1.8m, with a maximum 2 m² footprint per site. The requirement for some cabinets to be smaller than others at each site has been removed. Cabinets are predominantly standard in size and form, so can be treated more consistently across the NESTF. Conditions for cabinets in non-residential areas remain the same as in the current NESTF.

When a cabinet is being replaced by another cabinet, we recommend that the cabinets may contravene the size and distance rules in the NESTF for a maximum of three months to allow for smooth transition with minimal disruption to service. However, when a cabinet is being replaced by another cabinet in order to transition to a new network, we recommend that the cabinets may contravene the size and distance rules in the NESTF until the network transfer is complete.

APPENDIX A: PROPOSED NEW PERMITTED ACTIVITIES

Note that the following wording is illustrative of policy intention only, and will change as a result of the drafting process.

Area	Final draft proposal – permitted activity
1.	<p>Aerial telecommunications cables alongside existing cabling</p> <p>Aerial placement of telecommunications cables by a telecommunications operator is permitted, including any necessary ancillary equipment, subject to the following conditions:</p> <ul style="list-style-type: none"> • no additional poles are installed • the total diameter of the new cabling does not exceed 30 mm • ancillary equipment does not exceed a total volumetric dimension of 0.4m³, excluding auxiliary cables, if there are any. <p>Relocation and/or replacement poles where necessary for structural or safety reasons may be up to 3 m from the original location.</p>

2.	Aerial telecommunications cables for customer connections	Aerial placement of telecommunications cables by a telecommunications operator, including any necessary ancillary equipment, is permitted for customer connections (lead-ins) from existing poles to a building.
3.	Underground telecommunications cables	Underground placement of telecommunications cables and any necessary underground ancillary equipment by a telecommunications operator is permitted.
4.	Earthworks required for installing telecommunication facilities in the NESTF	<p>Earthworks are a permitted activity, subject to the following conditions:</p> <ul style="list-style-type: none"> • erosion sediment control must be applied and maintained, during and after the earthworks, to avoid the adverse effects of sediment on water bodies and the coastal marine area • all areas of soil exposed by the earthworks must be stabilised against erosion as soon as practicable after the earthworks end to avoid the adverse effects of sediment on water bodies and the coastal marine area • the earthworks must not create or contribute to— <ul style="list-style-type: none"> a. instability or subsidence of a slope or another land surface; or b. erosion of the bed or bank of a water body or the coastal marine area; or c. drainage problems or flooding of overland flow paths • soil or debris from the earthworks must not be placed where it can enter a water body or the coastal marine area • the earthworks avoid creating a dust nuisance on adjoining properties • earthworks must not be carried out if it disturbs a tree or trees described in a Schedule to a district plan, including disturbing the roots

Area		Final draft proposal – permitted activity
		<input type="checkbox"/> wherever possible, the ground must be reinstated following installation.
5.	New masts to carry antennas in the road reserve	The installation of a new mast in the road reserve is permitted, provided that the total height and width of the mast and antenna is no larger than it would have been if installed in accordance with Regulation 7 (of the existing NESTF) on an original utility structure within 100 m of the installation site. If there are multiple poles in the 100 m radius, operators must take the average of the poles.
6.	Relocation of replacement utility structures	A replacement utility structure may be moved to within a 5 m radius of the location of the original utility structure, provided the structure is still located on the road reserve.

7.	New antennas in the road reserve	<p>A new antenna placed on an existing utility structure in the road reserve, including any necessary ancillary equipment, is a permitted activity, subject to the following conditions:</p> <ul style="list-style-type: none"> the total height of the structure including the antenna must be no more than 3.5 m higher than the height of the existing utility structure antennas must fit within the dimensions of a cylindrical shape that, when measured along the centre line of the utility structure, is not more than 0.7 m in diameter, including the shroud replacement utility structures must not have a diameter that is more than 100 per cent wider than the original utility structure's diameter at its widest point.
8.	Replacement of existing antennas	<p>Replacing an antenna with another antenna, including any necessary ancillary equipment is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> the total height of the mast and antenna is increased by no more than 3.5 m over the height of the existing mast the diameter of any panel antenna is no more than 0.7 m the diameter of any replacement mast is no more than 30 per cent greater than the diameter of the existing mast the existing replacement utility structure was lawfully established (ie, authorised by a regulation, plan or consent under the RMA). <p>Lightning rods may extend beyond the height of the antenna.</p>
9.	Additional antennas at existing sites	<p>Installation of additional antennas on an existing mast or replacement utility structure, including any necessary ancillary equipment, is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> the total height of the mast and antenna is increased by no more than 3.5 m over the height of the existing structure the total diameter of the head frame, if there is one, or of the structure(mast, antenna and headframe), at its widest point is no more than the diameter of the existing structure plus 100 per cent the diameter of a replacement mast at its widest point is no more than 30 per cent greater than the diameter of the existing mast the area is not zoned residential in the relevant district plan or located on the road reserve

Area	Final draft proposal – permitted activity
	<ul style="list-style-type: none"> the existing replacement utility structure was lawfully established (ie, authorised by a regulation, plan or consent under the RMA). <p>Lightning rods may extend beyond the height of the antenna.</p>

10	New masts and antennas up to 25 m high and 6 m diameter in rural areas	<p>The placement of a mast and antenna in an area zoned rural in the relevant district plan is permitted, including any necessary ancillary equipment, subject to the following conditions:</p> <ul style="list-style-type: none"> • the total height (of the mast and antenna) does not exceed 25 m • the diameter of the mast and antenna at its widest point (excluding the concrete plinth) does not exceed 6 m • the antenna is not located closer than 50 m from the closest external wall of a dwelling, residential home, educational facility, or church • if any vegetation disturbance (including trimming or removal) is required to prepare the site: <ul style="list-style-type: none"> - the tree(s) must not be scheduled - any vegetation disturbed must be reinstated where possible. <p>Lightning rods may extend beyond the height of the antenna.</p>
11	Co-location of multiple operators' antennas at existing sites	<p>Increasing the total height of a mast and antenna by up to 5 m over the height of the existing structure for the purposes of co-location, including any necessary ancillary equipment, is permitted up to a maximum of 25 m, subject to the following conditions:</p> <ul style="list-style-type: none"> • the area is not zoned residential in the relevant district plan or in the road reserve • the diameter of a replacement mast at its widest point is no more than 30 per cent greater than the diameter of the existing mast • the existing replacement utility structure was lawfully established (ie, authorised by a regulation, plan or consent under the RMA). <p>Lightning rods may extend beyond the height of the antenna.</p>
12	Antennas on buildings	<p>The placement and replacement of antennas and necessary ancillary equipment on the roof or side of a building in is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> • in a residential area, the part of the building to which the antenna is attached is no less than 15 m high • antennas do not extend 5 m above the part of the building to which they are attached • the maximum face area of a panel antenna is 1.5m² • the maximum diameter of a dish antenna is 1.2 m □ associated cabinets are permitted. <p>Lightning rods may extend beyond the height of the antennas.</p>

Area Final draft proposal – permitted activity

13.	Cabinets servicing antennas on buildings	<p>The placement of telecommunications cabinets servicing antennas on buildings is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> • each associated cabinet must not have a footprint of more than 2 m² • the cabinets must be no higher than the height of the concrete foundation plinths, if there are any, plus 2 m • in a residential area, associated cabinets must be located within the property boundary.
14.	Small-cell units on existing structures	<p>The installation of a small-cell unit on a structure including any necessary ancillary equipment is permitted, provided that each small-cell unit and the ancillary equipment do not exceed a total volumetric dimension of 0.11 m³, excluding auxiliary cables.</p>
15.	New telecommunication cabinets	<p>The placement of telecommunications cabinets is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> • in a residential area, each cabinet's footprint must be no more than 1.4 m² and the total footprint per site no more than 2 m² • in a residential areas, cabinets must be no higher than the height of the concrete foundation plinths, if there are any, plus 1.8 m • in areas not zoned residential under the relevant district plan rules, the dimensions in the current NESTF apply.
16.	Replacement telecommunication cabinets	<p>The placement of cabinets which exceed the maximum footprint per site is permitted, subject to the following conditions:</p> <ul style="list-style-type: none"> • where a cabinet is being installed to replace a cabinet, one cabinet is removed no later than 3 months following installation of the other cabinet • where a cabinet is being installed for a different type of service to replace a current service, one cabinet is removed as soon as practicable.

APPENDIX B: PROPOSED AMENDMENTS TO TERMINOLOGY

Terminology	Interpretation
Telecommunications cables	<p>As defined by "line" in Section 5 of the Telecommunication Act 2001:</p> <p>(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 (b) includes—</p> <ul style="list-style-type: none"> (i) any pole, insulator, casing, fixture, tunnel, or other equipment or material used or intended to be used for supporting, enclosing, surrounding, or protecting any of those wires or conductors; and (ii) any part of a line

Telecommunications operator	As defined by “network operator” in Section 5 of the Telecommunications Act 2001, and the Crown or Crown agents network operator means any person declared under— (a) section 105 of the Telecommunications Act 2001 to be a network operator for the purposes of this Act or any provision of this Act; or (b) section 2A of the 1987 Telecommunications Act (as it read immediately before the commencement of this Act) to be a network operator for the purposes of that Act or any provision of that Act
Telecommunication facility	Telecommunication facility means— (a) an antenna (b) a cabinet and, if there is one, the concrete foundation plinth for the cabinet (c) a small cell unit (d) aerial or underground cables.
Ancillary equipment	Equipment required to support the technology and frequencies deployed. Ancillary equipment may include for example, but is not limited to: power distribution unit, microwave unit, DC and surge arrester/units, cables, remote radio unit, fibre access terminals, fibre coils, protection guards, ducting, aerial to underground connections, and feeder breakout points.
Auxiliary cables	(a) means any cabling leading to the antenna, small cell unit or ancillary equipment which is necessary to ensure the operation of the facility; and (b) does not include telecommunications cables or coils.
Rural	A zone/s which provides predominantly for rural type activity/businesses.
Terminology	Interpretation
Rural residential	A zone/s in a rural area for the purpose of a very low density residence with opportunity for a small rural productive activity.
Residential	A zone/s which provides for predominantly forms/types of residential housing/accommodation and does not include land zoned for rural residential or countryside living purposes.
Commercial	A zone/s which provides for predominantly retail, commercial and business type activities.
Industrial	A zone/s which provides predominantly for businesses and industry both light and heavy

Antenna	<p>As defined in the current NESTF (including the mount) but excluding small cell units</p> <p>(a) means a device that –</p> <p style="padding-left: 40px;">(i) received or transmits radiocommunication or telecommunication signals; and</p> <p style="padding-left: 40px;">(ii) is operated by a network operator; and</p> <p>(b) includes the mount, if there is one, for the device; and</p> <p>(c) includes the shroud, if there is one, for the device; and</p> <p>(d) is not a small cell unit</p>
Mast	<p>As in the discussion document:</p> <p>any pole, tower or similar structure designed to support antennas to facilitate telecommunications, radio communications and/or broadcasting - and does not include an antenna.</p>
Small cell unit	<p>A low-powered radio access node that provides improved cellular coverage or capacity and is operated by a telecommunications operator.</p>
Natural area	<p>An area that is protected by a district plan rule because it has outstanding natural features or landscapes, significant indigenous vegetation, or significant habitats of indigenous fauna</p>
'Existing'	<p>The state existing at the date the amended regulations came into force.</p>
Site	<p>'Site' is an area where there is a complying cabinet or sets of cabinets and where there is no more than 500mm between any two adjacent cabinets (at the closest point). Sites must be at least 30 m apart (measured from the 2 closest points of the cabinets nearest to each other).</p> <p>For the avoidance of doubt, a rooftop is not a site.</p>

