

Before the Independent Hearing Commissioners
at Timaru

under: the Resource Management Act 1991

in the matter of: submissions and further submissions in relation to the
proposed Timaru District Plan

Hearing: Hearing B – B1 Rural Zones and B2 Urban
Zones

and: **Radio New Zealand Limited**
Submitter 152

Legal submissions on behalf of Radio New Zealand Limited

Dated: 11 July 2024

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LEGAL SUBMISSIONS ON BEHALF OF RADIO NEW ZEALAND LIMITED

- 1 These legal submissions are provided on behalf of Radio New Zealand Limited (*RNZ*) for Hearing B – B1 Rural Zones and B2 Urban Zones. *RNZ* lodged submissions (submitter 152) and further submissions (further submitter 152) on the proposed Timaru District Plan (*Proposed Plan*).
- 2 These submissions respond to the recommendation in the S42A report on *RNZ's* submission on Rural Zone rules, and also set out *RNZ's* current position after productive engagement with the S42A Officer.
- 3 To provide further context to the need for these changes, the submissions also set out summaries of:
 - 3.1 *RNZ's* facilities at Fairview, Timaru (*RNZ's Facilities*); and
 - 3.2 *RNZ's* submissions and further submissions that are relevant to Hearing B.

Section 42A report recommendations

- 4 *RNZ* operates an AM radio transmission facility at located at 123 Brockley Road (*RNZ's Facility*). *RNZ's* submission sought changes to rural zone standard GRUZ-S1 to address safety risks from electromagnetic radiation interference (*EMR*) that can arise if tall structures are constructed near *RNZ's* Facility.
- 5 The S42A report accepts the risks of *EMR* interference and recommends a new matter of discretion be included in GRUZ-S1 to provide discretion for these effects to be considered through the restricted discretionary activity consent process:¹

Matters of discretion are restricted to:

...

7. effects on radiocommunication activities conducted at the radiocommunication facilities at Fairview.

- 6 Unfortunately this recommendation focuses on protecting *RNZ's* Facility and does not give effect to *RNZ's* key concern, which is the risk of *EMR* effects on surrounding buildings. As explained below and in the body of *RNZ's* submission, there is a risk that tall structures near *RNZ's* Facility can absorb the AM radio waves and become 'charged', with safety risks for people in or near the structure.

¹ S42A Report – Rural Zones, 10.35.5-6.

- 7 RNZ supports the S42A report's recommendations on RNZ's other submissions on Rural Zone objectives and policies.

RNZ's current position

- 8 RNZ's representatives have had productive discussions with the S42A Officer on potential changes to GRUZ-S1. The Officer has suggested further amendments to the earlier recommended changes. RNZ supports these further changes which are set out and discussed below.
- 9 The amendments to the proposed matter of discretion are a very minor change to recognise the risk is *to* surrounding buildings *from* RNZ's Facilities as well as providing specific heights and distances where the risk exists, to simplify plan administration:

Matters of discretion are restricted to:

...

7. effects ~~from~~ on-radiocommunication activities conducted at the radiocommunication facilities at Fairview where the building or structure exceeds 49m in height within 1km of Radio New Zealand's Fairview facility at 123 Brockley Road.

- 10 Some form of requirement for notification to RNZ, or consultation with RNZ is the simplest mechanism for assessing risk and determining appropriate safety and mitigation measures. As stated above, RNZ has in-house expertise that makes this assessment relatively straightforward. A new advice note along the lines of the below would be appropriate:

Note: Where matter of discretion (7) is relevant, consultation with Radio New Zealand will be required to understand effects from radiocommunication activities.

- 11 The above provisions would apply only to structures higher than 49m in a rural area, which is a very small set of potential activities (if any). However, the safety risk means it is appropriate provisions in the Proposed District Plan identify and manage this risk.

Overview of RNZ's Facilities

- 12 RNZ's Facilities are located in the General Rural Zone in the Proposed Plan and are surrounded by General Rural land. RNZ's Facilities include a transmitter building which houses a standby diesel generator, a 90m guyed radio mast, antenna coupling unit, underground feeder and power cables between the transmitter building and the mast, and a copper earth radial system.
- 13 RNZ's Facilities are an integral part of RNZ's national communication network and broadcast multiple radio programmes (and carry out civil defence functions) to the Timaru District and surrounding areas. It is important that the Proposed Plan adequately recognises

and provide for RNZ's activities, and avoids the risk of conflict with incompatible activities and safety risks for nearby activities. The importance of protecting lifeline utilities such as RNZ's Facility is acknowledged by the S42A report.²

Overview of RNZ's submissions and further submissions

- 14 RNZ's primary concern is safety risks associated with elevated structures near its radiocommunication transmitters. In particular, radiation from the masts can induce electromagnetic radiation (EMR) into nearby tall metallic objects through EMR coupling. As explained in RNZ's submission, there are two types of physical effects which can arise from EMR exposure near the mast:
 - 14.1 Thermal effects are tissue heating and heat stress.
 - 14.2 Athermal effects are electro-stimulation of the nervous system, acoustical sensations, and electrical shocks and burns associated with touching passively energised metallic objects in the RF field.
- 15 RNZ manage the risk of thermal effects from very high EMR levels close to the mast, within a 'General Public Exclusion Zone' that is set by RNZ technical staff, in line with current international radiation standards. However, structures outside RNZ's immediate control, but nevertheless in close proximity to the masts, are at risk of athermal effects from EMR coupling.
- 16 The risk of EMR coupling between RNZ masts and other structures is directly related to how far the structure is from the mast and the vertical height of the structure, along with the strength of the signal. RNZ's technical staff have advised, in relation to RNZ's Facility at Timaru, that:
 - 16.1 At distances greater than 1km from the mast, the EMR risks are sufficiently small to not require active mitigation; and
 - 16.2 Structures greater than 49 metres in height within 1km of the mast may result in EMR levels exceeding public limits which again could result in shocks and/or burns from contact with large metallic objects that are part of that structure. Within this area, it is appropriate for a site-specific and construction materials specific EMR assessment to be carried out, and ideally for RNZ to provide written approval before the structure is considered.
- 17 The main issue with EMR risk is lack of awareness. RNZ is generally only alerted to health effects when people nearby working with elevated structures start to receive burns. There is a risk that

² S42A Report – Rural Zones, 10.35.5.

infrastructure providers / construction companies / landowners unknowingly design, use and build structures which do not meet New Zealand EMR regulations. This is dangerous to both construction staff and occupants of those structures.

- 18 RNZ's submission specifically sought that the Rural Zones rules require consideration of EMR risk and notification to RNZ for structures greater than 49m in height within 1km of RNZ's Facilities.
- 19 A requirement or recommendation that RNZ is notified or consulted about the construction of elevated structures near RNZ's Facilities would allow RNZ to work with infrastructure providers / construction companies / landowners to implement mitigation measures based on a site-specific EMR assessment. These assessments are a relatively straightforward exercise for RNZ technical staff. RNZ can provide further information on these assessments if it would assist the Panel.

Conclusion

- 20 The above provisions have been discussed with the S42A Officer, and RNZ supports the above provisions as an appropriate response to the safety issues set out in its submission.
- 21 RNZ supports the S42A report's recommendations on RNZ's other submissions on Rural Zone objectives and policies.
- 22 On the basis there are no outstanding issues between RNZ and the Council or any other submitter, RNZ proposes not to attend the hearing, but representatives can be available to assist the Panel if that would be useful.

11 July 2024

Hadleigh Pedler / Ben Williams (Radio New Zealand)