



CASE STUDY:

TIMARU DISTRICT COUNCIL

TSUNAMI-FLOOD OUTDOOR WARNING SYSTEM

August 2020

Overview

The Timaru District Council operates tsunami and flood warning sirens to alert the public of impending disasters. In 2019 Scott Technical Instruments provided installation services to the Timaru District Council to upgrade the old tsunami warning system to *a new generation Whelen's Mass Notification WPS-2900 series* at three locations (Rangitata Huts, Waipopo-Opihi Huts and Washdyke), and *an E1000 controller* at central station (Council offices). These are omni-directional voice warning systems with larger radii and remote operation (siren activation and status data collection) transmitting signals via cell phone or radio from the control station to a desired siren. The system successfully passed all tests, sending pre-programmed voice alarms to the communities.



Whelen WPS2900 system installation

Equipment

Rangitata Huts – Whelen Engineering WPS2901 system complete with Tait Radio and antenna equipment, Mains Power connection to power the internal battery charger.

Waipopo-Opihi Huts – Whelen Engineering WPS2903 system complete with Tait Radio and antenna equipment, Mains Power connection to power the internal battery charger.

Washdyke – Whelen Engineering WPS2905 system complete with Tait Radio and antenna equipment, Mains Power connection to power the internal battery charger.

Council offices – Whelen E1000 controller with Tait radio and antenna equipment.

Outcome and Benefits

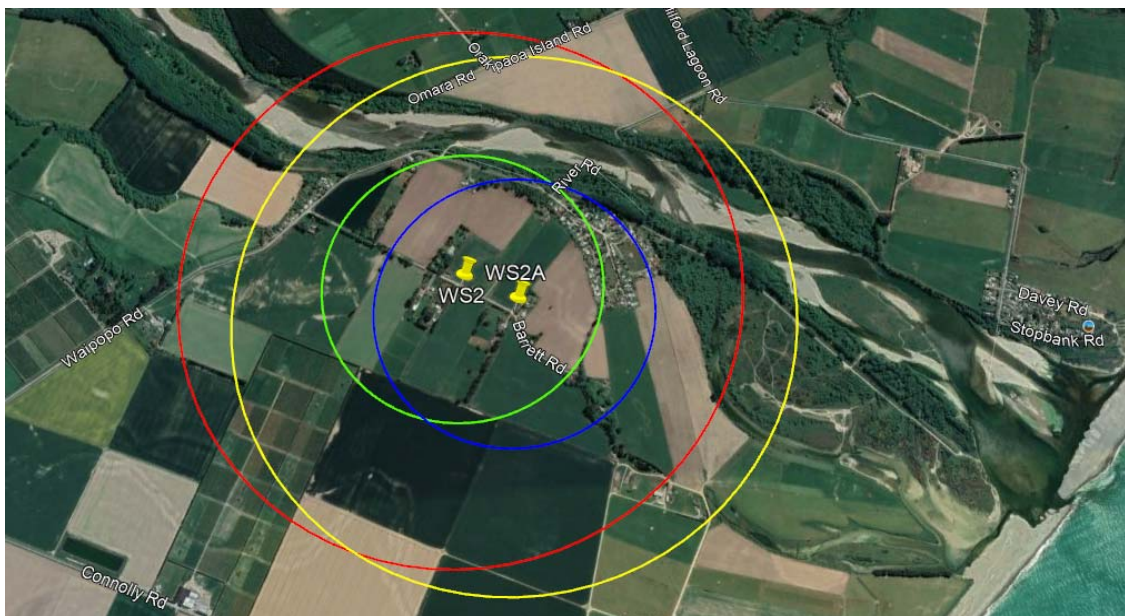
The new system provides the ability to broadcast siren warning tones, pre-recorded messages, and make live PA announcements over UHF radio.

A simple command console enables for one touch button activation installed at the Council offices.

The system also allows for remote activation via SMS.

Important features include:

- Enclosures made of 5052 Aluminium-Magnesium alloy for maximum longevity in harsh coastal conditions, with separate compartments for electronics and batteries;
- Local and remote control;
- DC powered amplifiers and communications system with the ability to operate without AC power for up to 7 days (the system can also provide battery charging using solar panels);
- Certified sound output (genuine dB rating at 30m);
- Certified acoustic performance (Speech Intelligibility Index is rated at 0.99 out of 1.00!);
- System engineered to UL Certification requirements;
- Low ongoing cost of ownership;
- Life expectancy greater than 20 years;
- System can be easily expanded;
- Local support is provided by Scott Technical (Christchurch and Hamilton) with the full backing of the Original Equipment Manufacturers located in Australia and the USA;
- Radio communications and electrical support from local contractors.



Map: Waipopo-Opihi Huts – Whelen WPS2903 70dB sounding radius (Yellow), 80dB (Blue) – original location shown for comparison re effective sounding radii

The Whelen WPS2900 series equipment selected by the Timaru District Council is used worldwide in community and industrial applications for outdoor warning in response to man-made or natural disasters. More than 25,000 systems are in use today.

Keeping system architecture simple is the key to a reliable, robust and low cost of ownership system.



Speakers with visual alert LED lights

The Whelen WPS2900 series is simplicity itself. The complete installation at Washdyke took less than 4 hours from start to finish, including pole mount, grounding system, electrical wiring, radio communications installation, and mounting to the pole.

As soon as the system was powered up it began to communicate with the base station, and testing could be undertaken.

The system has a choice of 16 warning tones, up to 25 recorded messages, and Public Address announcement may be made from the site or remotely. The Timaru system has successfully passed all tests sending pre-programmed voice alarms "Attention! Attention! We are about to test our public alert siren system. This is only a test. I repeat. This is only a test. Do not be alarmed" (20 sec.), followed by "Attention! Attention! This is an emergency warning announcement. You are in danger! Evacuate immediately! I repeat. You are in danger! Evacuate immediately!" (22 sec.). The following YouTube link (please copy and paste into your browser is from a test conducted in Washdyke in 2019. Please note it was recorded using a mobile phone!):

<https://www.youtube.com/watch?v=7U3KHmvnUQ4> or search for *YouTube Tsunami Warning System Testing with Voice – Washdyke New Zealand*. The Timaru District Council stated that: "Site acceptance testing confirmed the performance of the system with voice announcement clear and intelligible".

The silent test functionality provides system status updates at a frequency deemed most appropriate by the system owners.

The Whelen WPS2900 series are compliant with the New Zealand Emergency Management Agency requirements and importantly are UL Certified (UCST.E160477 – Audible Signal Appliances).

Scottech has support staff in Christchurch and Hamilton with field teams regularly travelling most parts of both Islands on a regular basis, with qualified technicians able to provide annual system checks and servicing. Please contact Scottech to discuss your requirements with a specialised engineer.

For more information please contact Scott Technical Instruments:

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