Far North District Council

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Office Use Only
Application Number:

APPLICATION FOR RESOURCE CONSENT OR FAST-TRACK RESOURCE CONSENT

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA))
(If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Form 9)

Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges – both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a Council Resource Consent representative to discuss this application prior to lodgement? (Yes) / No

2. Type of Consent being applied for (more than one circle can be ticked):

- ☑ Land Use
- ○ Fast Track Land Use*
- ○ Subdivision
- ○ Discharge
- ○ Extension of time (s.125)
- ○ Change of conditions (s.127)
- ○ Change of Consent Notice (s.221(3))
- ○ Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)
- ○ Other (please specify) _____

***The fast track for simple land use consents is restricted to consents with a controlled activity status and requires you provide an electronic address for service.**

3. Would you like to opt out of the Fast Track Process?

(Yes) / No

4. Applicant Details:

Name/s: [redacted]

Electronic Address for Service (E-mail): [redacted]

Phone Numbers: Work: _____ Home: _____

Postal Address: (*or* alternative method of service under section 352 of the Act)
_____
_____
_____ Post Code: _____

5. Address for Correspondence: *Name and address for service and correspondence (if using an Agent write their details here).*

Name/s: Makarena Dalton

Electronic Address for Service (E-mail): MakarenaD@barker.co.nz

Phone Numbers: Work: 027 286 2298 Home: _____

Postal Address: (*or* alternative method of service under section 352 of the Act)
PO Box 414, Kerikeri 0230
_____
_____ Post Code: _____

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

6. Details of Property Owner/s and Occupier/s: *Name and Address of the Owner/Occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)*

Name/s: Refer to Section 1 of the AEE

Property Address/: Location: District Wide Consent - Refer to Appendix 3 for full list of addresses.

7. Application Site Details:

Location and/or Property Street Address of the proposed activity:

Site Address/ Location: District Wide Consent - Refer to Appendix 3 for full list of addresses.

Legal Description: Refer to Appedix 1 Val Number:

Certificate of Title: refer to Appendix 1

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site Visit Requirements:

Is there a locked gate or security system restricting access by Council staff? Yes / (No)

Is there a dog on the property? Yes / (No)

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

8. Description of the Proposal:

Please enter a brief description of the proposal here. Attach a detailed description of the proposed activity and drawings (to a recognized scale, e.g. 1:100) to illustrate your proposal. Please refer to Chapter 4 of the District Plan, and Guidance Notes, for further details of information requirements.

District Wide Consent

To construct and install nine tsunami sirens across the Far North District to support Northland's Civil Defence and Emergency Management (CDEM) resposne to Tsunami Risk

If this is an application for an Extension of Time (s.125); Change of Consent Conditions (s.127) or Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s) or extension being sought, with reasons for requesting them.

9. Would you like to request Public Notification

Yes/(No)

10. Other Consent required/being applied for under different legislation (more than one circle can be ticked):

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

11. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following (further information in regard to this NES is available on the Council's planning web pages):

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)

O yes Ø no O don't know

Is the proposed activity an activity covered by the NES? (If the activity is any of the activities listed below, then you need to tick the 'yes' circle).

O yes Ø no O don't know

O Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

O Removing or replacing a fuel storage system

12. Assessment of Environmental Effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as Written Approvals from adjoining property owners, or affected parties.

Please attach your AEE to this application.

13. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write all names in full) [redacted]

Email:

Postal Address:

Post Code:

Phone Numbers: Work: Home: Fax:

Fees Information: An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

Declaration concerning Payment of Fees: I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: [redacted] (please print)

Signatu (signature of bill payer – **mandatory**) Date: 19/03/2024

14. Important Information:

Note to applicant
You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.
You may apply for 2 or more resource consents that are needed for the same activity on the same form.
You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application
Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement. A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:
Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fndc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

Declaration: The information I have supplied with this application is true and complete to the best of my knowledge.

Name: [redacted] (please print)

Signature: [redacted] (signature) Date: 19/03/2024

(A signature is not required if the application is made by electronic means)

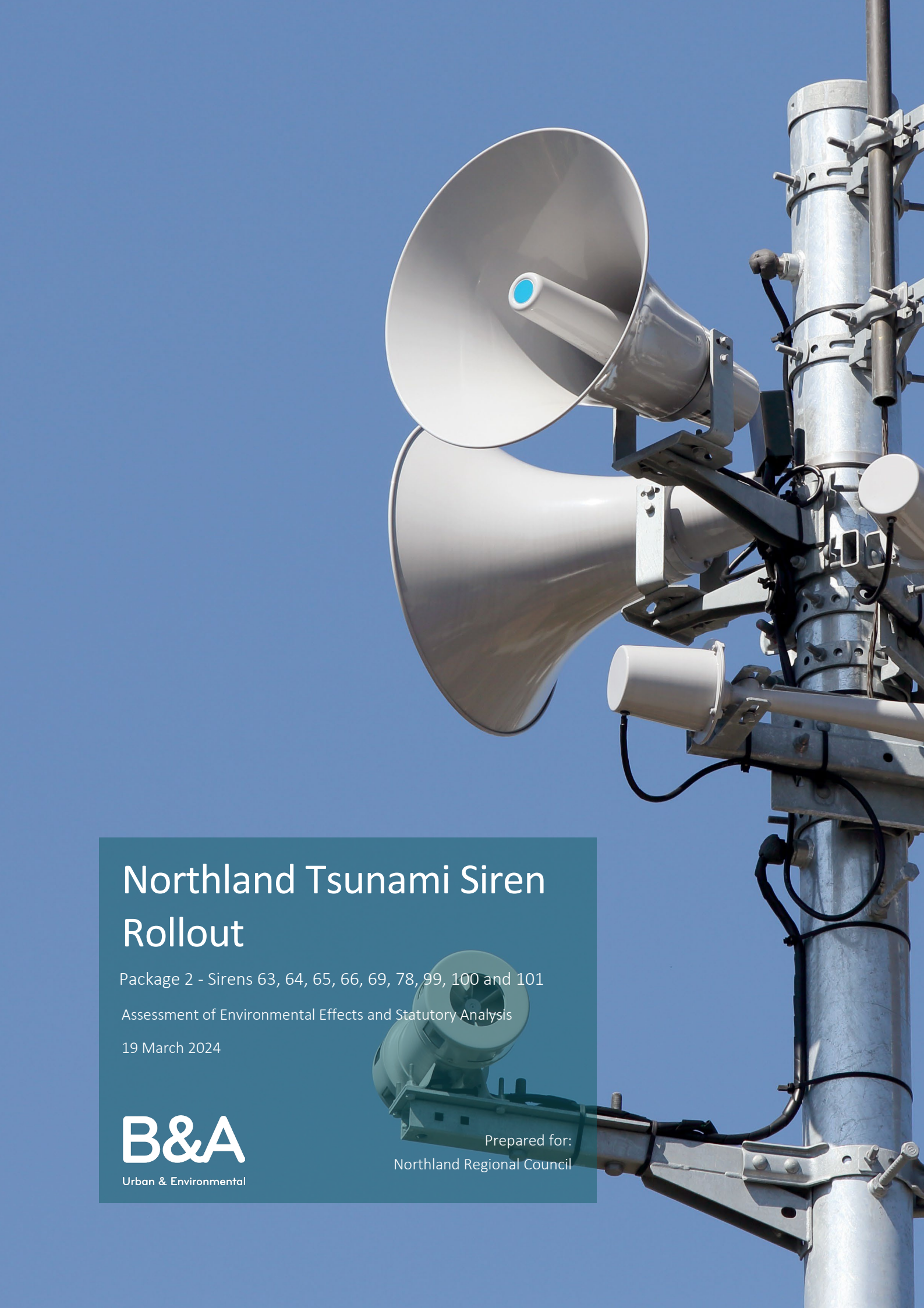
Checklist (please tick if information is provided)

- ✓ Payment (cheques payable to Far North District Council)
- ✓ A current Certificate of Title (Search Copy not more than 6 months old)
- ✓ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ✓ Applicant / Agent / Property Owner / Bill Payer details provided
- ✓ Location of property and description of proposal
- ✓ Assessment of Environmental Effects
- ✓ Written Approvals / correspondence from consulted parties
- ✓ Reports from technical experts (if required)
- ○ Copies of other relevant consents associated with this application
- ✓ Location and Site plans (land use) AND/OR
- ○ Location and Scheme Plan (subdivision)
- ✓ Elevations / Floor plans
- ○ Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.

Only one copy of an application is required, but please note for copying and scanning purposes, documentation should be:

UNBOUND **SINGLE SIDED** **NO LARGER THAN A3 in SIZE**



Northland Tsunami Siren Rollout

Package 2 - Sirens 63, 64, 65, 66, 69, 78, 99, 100 and 101

Assessment of Environmental Effects and Statutory Analysis

19 March 2024

B&A
Urban & Environmental

Prepared for:
Northland Regional Council

B&A Reference:

WNG20534

Status:

Final Revision

Date:

19 March 2024

Prepared by:

Shauna Huddart

Planner, Barker & Associates Limited

Reviewed by:

Makarena Dalton

Associate, Barker & Associates Limited

Contents

Appendices

1.0 Applicant and Property Details

To:	Far North District Council (FNDC)
Legal Description:	Refer to Records of Title as **Appendix 1** and **Appendix 2** for site details.
Applicant Name:	Northland Regional Council
Address for Service:	Barker & Associates Ltd PO Box 37, Whangārei 0140 Level 1, 136 Bank Street Whangārei 0112 Attention: Makarena Dalton
Site Area:	The proposal includes eight different sites. Site area and details are provided in **Appendix 2**.
Site Owner:	• Proposed sirens 63, 65, 66, 78, 99, 100 and 101 are located within public land or road reserve owned or administered by FNDC. • Proposed siren 64 is proposed to be on land held by Far North Holdings Limited. • Proposed siren 69 is proposed to be on Māori Freehold Land owned by the Proprietors of Tapuetahi. Refer to Records of Title as **Appendix 1.**
District Plan:	Operative Far North District Plan (**ODP**) Proposed Far North District Plan (**PDP**)
Zoning / Overlays / Designations:	The Sirens are located throughout the Far North District as summarised below and detailed in the Siren and Location Assessments included as **Appendix 2.** **Siren 63:** • ODP Zone: Russell Township; ODP Overlays: Heritage Area – Russell Township Basin and Gateway Area; and • PDP Zone: Kororāreka Russell Township; PDP Overlays: Coastal Environment, Heritage Area Part D, River Flood Hazard 100-year ARI Event and Coastal Flood Zones 1, 2, 3. **Siren 64:** • ODP Zone: Industrial; ODP Overlays: Ōpua Marina – Maritime Exemption Area.

- PDP Zone: Light Industrial; PDP Overlays: Coastal Environment, River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 1, 2, 3.

Siren 65

- ODP Zone: Conservation: ODP overlays: None
- PDP Zone: Natural Open Space; PDP Overlays: High Natural Character '449' and '451'

Siren 66:

- ODP Zone: Recreational Activities; ODP Overlays: None
- PDP Zone: Open Space; PDP Overlays: Coastal Environment, Heritage Area 'Part A', Heritage Item '90a', River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 2, 3.

Siren 69:

- ODP Zone: General Coastal; ODP Overlays: None
- PDP Zone: Māori Purpose - Rural; PDP Overlays: Coastal Environment.

Siren 78:

- ODP Zone: Recreational Activities; ODP Overlays: None
- PDP Zone: Open Space; PDP Overlays: Coastal Environment, Heritage Area 'Part A'.

Siren 99:

- ODP Zone: Coastal Living; ODP Overlays: None
- PDP Zone: Rural Lifestyle; PDP Overlays: Coastal Environment and Coastal Flood Zones 2 and 3.

Siren 100:

- ODP Zone: Rural Living; ODP Overlays: None.
- PDP Zone: Natural Open Space; PDP Overlays: Coastal Environment, Coastal Flood Zones 1, 2 and 3.

Siren 101:

- ODP Zone: Recreational Activities; ODP Overlays: NRC Flood Susceptible.
- PDP Zone: Open Space; PDP Overlays: Pedestrian Frontage, Airport Protection Surfaces, River Flood Hazard 10 and 100-year ARI Event.

Locality Diagram:

Refer to the Siren Location Maps included as **Appendix 3.**

Brief Description of Proposal:

To construct and install nine tsunami sirens, including site preparation works and connection to power and telecommunication services across the Far North District. The project seeks to build resilience and support Te Taitokerau Northland's civil defence and

	emergency management response against tsunami risk.
Summary of Reasons for Consent:	**ODP:** The sirens infringe various rules as described in Section 5 below, refer to the Siren and Location Assessments included as **Appendix 2**. The application is assessed as a **non-complying activity** overall.

2.0 Background

Northland Regional Council (**NRC**) is coordinating the rollout of new tsunami sirens across Te Taitokerau Northland. Barker & Associates (**B&A**) have been engaged to prepare and submit the resource consent application on behalf of NRC.

NRC is coordinating the siren roll out on behalf of all three-district councils within Te Taitokerau Northland. This project has been discussed in depth at Te Taitokerau's Civil Defence and Emergency Management Working Group (**CDEM**) and is fully supported by all iwi representatives, Council's CEO's and Mayors.

Currently, there are 205 sirens located throughout Te Taitokerau that do not meet the National Emergency Management Agency (**NEMA**) standards, the sirens do not meet frequency or messaging requirements of the standard and as such need replacing. 95 new sirens are proposed to replace the old sirens across Te Taitokerau which all have better coverage and will meet NEMA standards.

This proposal seeks to establish nine new tsunami sirens across the District, replacing old siren infrastructure that no longer meets the NEMA standards. The siren infrastructure is part of CDEM's toolbox for managing the risk of tsunami across Te Taitokerau Northland. Details of pre-lodgement consultation and relevant consenting history are provided below.

The proposed siren infrastructure will be owned by FNDC, and managed by the Northland Regional Council (**NRC**).

This Assessment of Environmental Effects (**AEE**) has been prepared in accordance with the requirements of Section 88 of and Schedule 4 to the Resource Management Act 1991 (**RMA**) and is intended to provide the information necessary fora full understanding of the activity for which consent is sought and any actual or potential effects the proposal may have on the environment.

2.1 Pre-Lodgement Consultation

The project involves the installation of tsunami sirens within privately owned land, road reserve and publicly owned land.

Pre-lodgement consultation has been undertaken with the following parties:

- Far North District Council; and
- Proprietors of Tapuetahi.

A record of consultation is attached as **Appendix 4** confirming landowner approval of all locations.

2.2 Consenting History

2240061-RMALUC (**Stage 1**) was lodged on 03/08/2023, and sought consent to install 27 sirens proposed throughout the Far North District. Through the section 92 process, sirens 62, 63, 71, 76, 100 and 101 were removed from Stage 1. Sirens 63, 100 and 101 are now sought as part of this application. Siren 62, 71 and 76 are sought as a separate application (RC 2240307-RMALUC), currently being processed by Council.

Stage 1 was approved on 18 December 2023 and resulted in the approval of a total of 21 sirens consented. Stage 1 is provided as **Appendix 11**.

2240307-RMALUC (**Stage 2 – Package 1**) was lodged on 19/01/2024, and sought consent to install eight sirens throughout the Far North District. This consent application is still in process with Council.

3.0 Site Context

3.1 General Description

With respect to the ten sirens, they are generally located along small coastal settlements on both the East and West Coast of the Far North. Site specific locality maps are provided as **Appendix 3** with detailed site descriptions enclosed at **Appendix 2**.

The sites and locations have been selected based on the following criteria:

(1) concentration of resident population;

(2) topography and sound propagation;

(3) availability of public land;

(4) access to a power supply and telecommunications; and

(5) serviceability.

In order for the sirens to be effective, they are generally within coastal settlements or built-up areas with resident populations. In addition to this and in order for the sirens to function they are required to be located near an electricity supply, be within cell tower coverage, and be easily accessed for ongoing maintenance.

4.0 Proposal

A summary of the key elements of the proposal is set out below. More detailed descriptions on particular aspects of the proposal are set out in the specialist reports and plans accompanying the application.

NRC are coordinating Te Taitokerau Northlands region wide roll out of new tsunami sirens to improve the regions emergency management response to the tsunami risk. This application includes the installation of nine new sirens (drawings are included as **Appendix 9**) within nine settlements throughout the Far North. Site locations are within the road corridor, reserves, along beaches, Māori land and one siren at Ōpua Marina.

It is proposed to utilise HSS Engineering Warning System Solutions; see **Appendix 5** for specification details. The sirens will either be TWS-293 or TWS-295 and be mounted on an 8m height mast. See **Figure 2** below to see example of the tsunami siren. Details of the sirens are as follows:

- **Sirens:**
    - Sirens 63, 64, 65, 66, and 69 are proposed as TWS-293 sirens and will have a maximum height of 9.1m. Refer Elevation Plans at **Appendix 6.**

- Sirens 78, 99, 100 and 101 are proposed as TWS-295 sirens and will have a maximum height of 9.8m. Refer Elevation Plans at **Appendix 6.**
- **Foundation:** The siren mast/pole will be set within a precast concrete foundation that is 2.5m x 2.5m in area.
- **Colour:** All sirens are proposed to be painted in Resene's 'Resene Abbey cc' coded as B45-009-231, this colour has a Light Reflectance Value of approximately 15. Refer to **Figure 1** below.

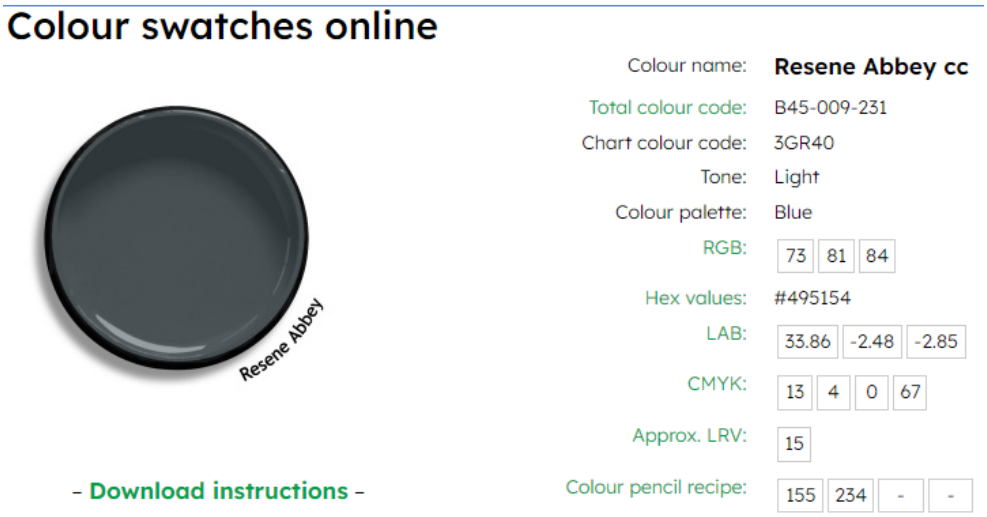


Figure 1: Proposed structure colour

- **Bi-annual Tsunami Siren Testing:** The sirens will be tested twice annually at the turn of day light savings. As per 2240061-RMALUC, the following conditions are offered to manage the effects of the bi-annual warning system testing:
  - *The tsunami siren may be tested twice a year at the turn of daylight savings. Each test shall be undertaken for a maximum duration of two minutes during the daytime. Testing of the sirens shall not occur at night.*
- **Earthworks:** Approximately 3.5m^3 of earthworks are proposed over an area of 6.5m^2 is proposed for each siren to establish a foundation pad which is 2.5m x 2.5m. No vegetation removal is required.

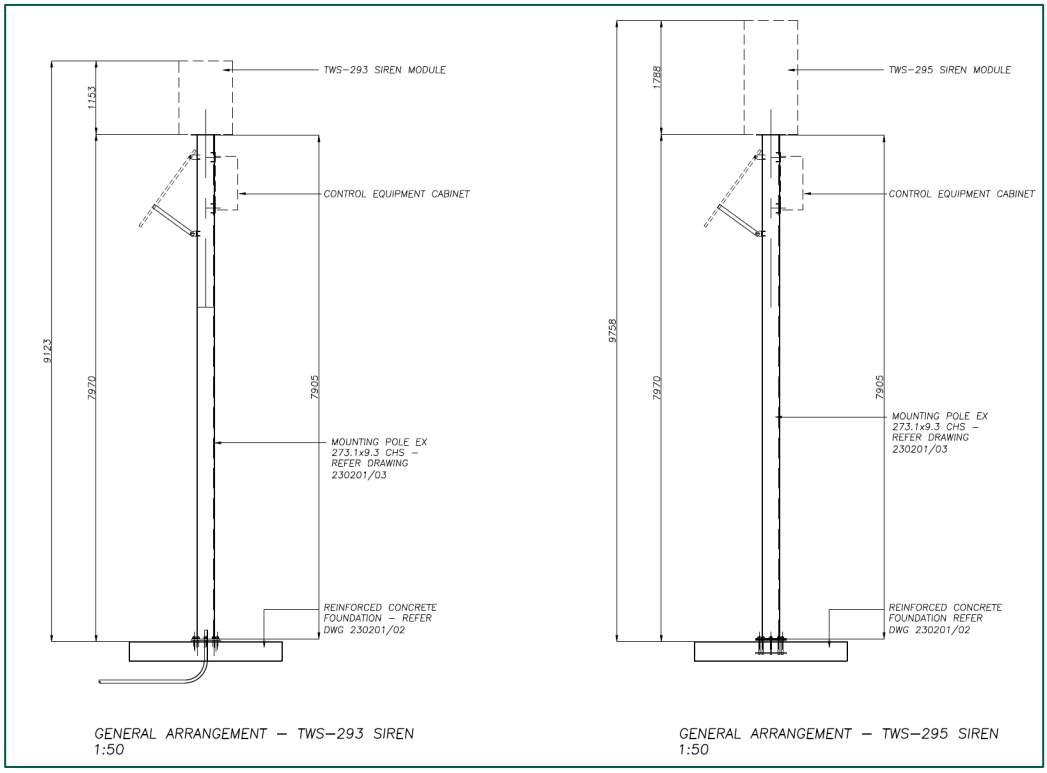


Figure 2: Elevation Plan of Proposed

Detail of each element described above is provided in the relevant reports or plans.

5.0 Reasons for Consent

A rules checklist against the provisions of the Far North District Plan (**ODP**) is attached as **Appendix 8** with a summary of consenting requirements for each siren location detailed in **Appendix 2.**

5.1 Operative Far North District Plan

Siren 63: Russell Township

- **10.9.5.1.4 Building Height:** The siren is proposed to be 9.1m high, this will infringe the permitted 7.2m height by 1.9m. As the siren is 9.1m high, this will infringe the RDA rules maximum height of 9m. This requires consent as a **discretionary activity.**
- **10.9.5.1.6 Sunlight:** The siren cannot comply with the HIRB, and is setback 2.34m from the nearest boundary. This requires consent as a **restricted discretionary activity.**
- **10.9.5.1.13 Noise:** The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity.**

Siren 64: Industrial

- 7.8.5.1.6 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.

Siren 65: Conservation

- 9.7.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal conservation activities of the site in accordance with 9.7.5.1.1. This requires consent as a non-complying activity.
- 9.7.5.1.3 Building Height: The siren is proposed to be 9.123m high, this will infringe the permitted 8m height by 1.123m. As the siren is 9.123m high, this complies with the maximum height of 10m under the RDA rule. This requires consent as a restricted discretionary activity.
- 9.7.5.1.4 Sunlight: The siren is set back approximately 3m form the nearest boundary and therefore cannot comply with this rule. This requires consent as a restricted discretionary Activity.
- 9.7.5.1.6 Screening from neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule. This requires consent as a discretionary activity.
- 9.7.5.1.8 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Siren 66: Recreational Activities

- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site and it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.
- 9.6.5.1.3 Building Height: The siren is proposed to be 9.1m high, this will infringe the permitted 8m height by 1.1m. As the siren is 9.1m high, this will comply the RDA rules maximum height of 10m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback 2.34m from the nearest boundary. This requires consent as a restricted discretionary activity.
- 9.6.5.1.6 Setback from Boundaries: The siren is 1.75 from the nearest boundary, this cannot comply with the minimum setback of 2m. Therefore, infringes the rule by 0.25m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Siren 69: General Coastal

- 10.6.5.1.4 Building Height: The siren is proposed to be 9.123m high, this will infringe the permitted 8m height by 1.123m. As the siren is 9.123m high, this will infringe the RDA rule maximum height of 9m. The Discretionary activity height rule is 10m. This requires consent as a discretionary activity.
- 10.6.5.1.10 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Siren 78: Recreational Activities

- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site, it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.

- 9.6.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a **restricted discretionary activity**.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback approximately 6m from the nearest boundary. This requires consent as a **restricted discretionary activity**.
- 9.6.5.1.9 Screening for Neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule and it cannot meet the RDA standards. This requires consent as a **discretionary activity**.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.

Siren 98: Coastal Living

- 10.7.5.1.4 Building Height: The siren is proposed to be 9.1m high, this will infringe the permitted 8m height by 1.1m. As the siren is 9.1m high, this will infringe the RDA rules maximum height of 9m. This requires consent as a **discretionary activity**.
- 10.7.5.1.8 Screening for Neighbours Non-Residential Activities: It is not proposed to provide any form of landscaping, therefore infringing this rule and it cannot meet the RDA rules. This requires consent as a **discretionary activity**.
- 10.7.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.
- 12.7.6.1.1 Setback from Lakes, Rivers and the Coastal Marine Area: The siren will be approximately 14m from the CMA, infringing the permitted setback of 30m by 16m. This requires consent as a **discretionary activity**.

Siren 99: Coastal Living

- 10.7.5.1.4 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will infringe the RDA rules maximum height of 9m. This requires consent as a **discretionary activity**.
- 10.7.5.1.7 Setback from Boundaries: The siren will be approximately 9.7m from the nearest site boundary infringing the permitted setback of 10m by 0.3m. This requires consent as a **restricted discretionary activity**.
- 10.7.5.1.8 Screening for Neighbours Non-Residential Activities: It is not proposed to provide any form of landscaping, therefore infringing this and it cannot meet the RDA rules. This requires consent as a **discretionary activity**.
- 10.7.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.
- 12.7.6.1.1 Setback from Lakes, Rivers and the Coastal Marine Area: The siren will be approximately 14m from the CMA, infringing the permitted setback of 30m by 16m. This requires consent as a **discretionary activity**.

Siren 100: Rural Living

- 8.7.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 9m height by 0.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a **restricted discretionary activity**.
- 8.7.5.1.7 Screening for Neighbours – Non-Residential Activities: It is not proposed to provide any form of landscaping, therefore infringing this rule. This requires consent as a **restricted discretionary activity**.
- 8.7.5.1.11 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.
- 12.7.6.1.1 Setback from Lakes, Rivers and the Coastal Marine Area: The siren will be approximately 17m from the CMA, infringing the permitted setback of 30m by 13m. This requires consent as a **restricted discretionary activity**.

Siren 101: Recreational Activities

- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site, it cannot meet the RDA or DA standards. **This requires consent as a non-complying activity.**
- 9.6.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a **restricted discretionary activity**.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback 6.39m from the nearest boundary. This requires consent as a **restricted discretionary activity**.
- 9.6.5.1.9 Screening for Neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule and it cannot meet the RDA standards. This requires consent as a **discretionary activity**.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a **restricted discretionary activity**.

5.2 Proposed Far North District Plan

Only rules with immediate legal effect require assessment and trigger reasons for consent in accordance with section 96F of the RMA. These are discussed below:

Siren 63: Kororāreka Russell Township

- HA-R8 New Buildings or Structures: The proposed siren will be seen from a public place and will not comply with the heritage colours, these two infringements infringe the restricted discretionary activity status. This requires consent as a **discretionary activity.**

Siren 66: Open Space

- HA-R9: New buildings or Structures: All new buildings or structures require resource consent as a **discretionary activity** within the Paihia - Part A overlay.

5.3 National Environmental Standard – Contaminated Soils

The NES Contaminated Soils were gazetted on 13th October 2011 and took effect on 1st January 2012.

The standards are applicable if the land in question is, or has been, or is more likely than not to have been used for a hazardous activity or industry and the applicant proposes to subdivide or change the use of the land, or disturb the soil, or remove or replace a fuel storage system.

All of the proposed siren sites are not mapped on Northland Regional Councils Selected Land Use register and there is no information that suggests that the sites have been used for any activities that are on the Hazardous Activities and Industry List (HAIL) or evidence of migration of hazardous substances from adjacent land use.

It is noted that proposed siren 69 is proposed within land zoned as general coastal under the ODP. An identified HAIL area (SLU.042081 – G3. Landfill sites) is located within the same site as the proposed siren (approximately 660m south of the siren). However, the subject location where the siren is proposed is not considered 'Land Covered' or 'piece of land' under the NES-CS. As such, the NES-CS is not considered relevant.

Based on the above, the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) does not apply to the proposal.

5.4 Activity Status

Overall, this application is for a **non-complying activity.**

6.0 Public Notification Assessment (Sections 95A, 95C and 95D)

6.1 Assessment of Steps 1 to 4 (Sections 95A)

Section 95A specifies the steps the council is to follow to determine whether an application is to be publicly notified. These are addressed in statutory order below.

6.1.1 Step 1: Mandatory public notification is required in certain circumstances

Step 1 requires public notification where this is requested by the applicant; or the application is made jointly with an application to exchange of recreation reserved land under section 15AA of the Reserves Act 1977.

The above does not apply to the proposal.

6.1.2 Step 2: If not required by step 1, public notification precluded in certain circumstances.

Step 2 describes that public notification is precluded where all applicable rules and national environmental standards preclude public notification; or where the application is for a controlled activity; or a restricted discretionary, discretionary or non-complying boundary activity.

In this case, the applicable rules do not preclude public notification, and the proposal is not a controlled activity or boundary activity. Therefore, public notification is not precluded.

6.1.3 Step 3: If not required by step 2, public notification required in certain circumstances.

Step 3 describes that where public notification is not precluded by step 2, it is required if the applicable rules or national environmental standards require public notification, or if the activity is likely to have adverse effects on the environment that are more than minor.

As noted under step 2 above, public notification is not precluded, and an assessment in accordance with section 95A is required, which is set out in the sections below. As described below, it is considered that any adverse effects will be less than minor.

6.1.4 Step 4: Public notification in special circumstances

If an application is not required to be publicly notified as a result of any of the previous steps, then the council is required to determine whether special circumstances exist that warrant it being publicly notified.

Special circumstances are those that are:

- Exceptional or unusual, but something less than extraordinary; or
- Outside of the common run of applications of this nature; or
- Circumstances which make notification desirable, notwithstanding the conclusion that the adverse effects will be no more than minor.

The application is to install nine new tsunami sirens across the Far North District. Resource consent is required for a various technical infringement as the Operative District Plan does not provide for or anticipate this activity. The proposal most commonly infringes bulk and location controls for maximum height, setback and height in relation to boundary generating effects that are akin to a street light or 30kV power pole.

It is considered that there is nothing noteworthy about the proposal. It is therefore considered that the application cannot be described as being out of the ordinary or giving rise to special circumstances.

6.2 Section 95D Statutory Matters

In determining whether to publicly notify an application, section 95D specifies a council must decide whether an activity will have, or is likely to have, adverse effects on the environment that are more than minor.

In determining whether adverse effects are more than minor:

- Adverse effects on persons who own or occupy the land within which the activity will occur, or any land adjacent to that land, must be disregarded.

The land to be excluded from the assessment is listed in section 6.3 below.

- Adverse effects permitted by a rule in a plan or national environmental standard (the 'permitted baseline') may be disregarded.

  In this case under the ODP, the following provisions are considered relevant in forming the permitted baseline for this proposal:
  - Buildings within the General Coastal Zone that have a GFA of 25m^2 or less.

- Trade competition must be disregarded.

  This is not considered to be a relevant matter in this case.

- The adverse effects on those persons who have provided their written approval must be disregarded.

  No persons have provided their written approval for this proposal.

The sections below set out an assessment in accordance with section 95D, including identification of adjacent properties, and an assessment of adverse effects.

6.3 Land Excluded from the Assessment

In terms of the tests for public notification (but not for the purposes of limited notification or service of notice), the adjacent properties to be excluded from the assessment are shown in Appendix 2.

6.4 Assessment of Effects on the Wider Environment

The following sections set out an assessment of wider effects of the proposal, and it is considered that effects in relation to the following matters are relevant:

- Natural Hazards;
- Noise;
- Construction Activities;
- Archaeological and Heritage Effects;
- Cultural Effects;
- Built Character and Amenity;
- Servicing; and
- Coastal Environment.

These matters are set out and discussed below.

6.4.1 Natural Hazards

Sirens 63, 64, 66, 99, and 100 are mapped by NRC as being subject to coastal flood or erosion hazard. Sirens 63, 64, 66, and 101 are mapped as being subject to Priority or Regionwide River Flood Hazard. Notably, all of these sirens and the settlements that they are proposed within are mapped by NRC as being subject to tsunami hazard areas.

These areas correspond with low lying areas near the coast and shorelines. The proposed tsunami sirens are relatively modest structures in terms of footprint and mass, are non-habitable and only involve minimal earthworks to establish the building platform (approximately 3.5m^3 over 6.5m^2). Following the preparation, a flat building platform, a pre-cast concrete foundation will be installed with the siren mast which the siren will be mounted to. While the infrastructure may at times be susceptible to coastal inundation in the future, the infrastructure itself is considered to be structurally resilient to the natural hazard risk for its 50-year life and purpose.

The siren infrastructure is not considered to exacerbate the natural hazard risk to any other persons, property or land in the wider environment. The proposed sirens are located within these areas given their proximity to the coastal environment, and are considered to have a functional and operational need to be located within these areas to alert coastal communities of potential tsunami threat and hazards, as such mitigating against this potential adverse effect.

For the reasons outlined above, adverse effects on the localised and wider environment are assessed as less than minor.

6.4.2 Noise

The siren infrastructure will be located across various zones that all have different noise thresholds that apply within them. The proposal seeks to establish nine tsunami sirens within the Far North District and remove the existing siren system that no longer meets the NEMA standards.

The proposed tsunami sirens are anticipated to infringe all permitted noise thresholds within the ODP when activated. This is not unexpected given the purpose of the sirens is to alert residents within nearby coastal settlements in the event of possible tsunami threat. Acoustic Advice has been prepared by Marshall Day Acoustic Engineers (refer to Appendix 6) which estimates the distance that the noise thresholds may be exceeded for individual sirens. This is based on the projected noise emissions for each siren when activated. Marshall Day estimated noise levels will be exceeded during siren activation as follows:

- Day time testing: 50 dB L_{Aeq} will be exceeded when emitted from Residential, Rural or Coastal Zones for a distance of 1,400m during day time testing.
- Day time emergency: 50 dB L_{Aeq} will be exceeded when emitted from Residential, Rural, and Coastal Zones for a distance of 3,300m during a day emergency.
- Night time emergency: 45 dB L_{Aeq} will be exceeded when emitted from Residential, Rural, and Coastal Zones for a distance of 5,100m during a night time emergency.

While these thresholds are not site-specific propagation lines, they provide a useful comparison for how 'noisy' the proposed tsunami sirens will be during testing and in the during an emergency tsunami event. The noise emissions generated by the sirens during an emergency event while noisy are considered necessary. The proposed sirens are considered lifesaving infrastructure, designed to improve community resilience, readiness and response to the threat of tsunami risk.

In terms of frequency of noise exceedance, tsunami siren warnings are currently tested twice a year at the turn of daylight savings and it is intended to carry on this practice with the newly installed sirens. This testing, while operationally necessary, ensures the communities are familiar with the siren alerts and prompts good emergency evacuation practices within each community. It is designed to encourage communities to familiarise themselves with tsunami emergency evacuation practices and gathering points. To support this process, CDEM and NRC notify the

public of these warning systems on their website. Given the infrequent nature of these tsunami warning and testing systems, effects on properties are considered to be temporary and experienced for a matter of minutes and overall acceptable.

Taking into account the above and the proposed restrictions to siren duration and frequency over the course of the year, the expert advice of Marshall Day Acoustic Engineers (see **Appendix 7**), adverse effects of the tsunami warning systems are managed to a level that is less than minor.

6.4.3 Construction Activities

Minimal earthworks are proposed to modify each site to enable the construction of the foundation pads for the masts to be installed, the TWS-293 or TWS-295 will then be attached to the mast. No vegetation removal is proposed. Refer to the Tsunami Specifications included as **Appendix 5** for full details. This will include excavation of a maximum volume of $3.5m^3$ over an area of $6.5m^2$ to establish suitable levels for the foundation pads.

During construction, it is proposed to install temporary sediment and erosion control measures to mitigate any potential adverse environmental effects as a result of the proposed land disturbance. Any adverse construction effects on the wider environment are considered to be less than minor as follows:

- It is anticipated that the construction works will be able to comply with the ODP construction noise and vibration standards having regard to the nature of the proposal. The duration of works and timeframes are estimated to take no more than 10 working days to install each siren. However, it is expected that a Construction Management Plan for the works will be outlined as required should a condition of consent be applied. It is considered that any adverse effects associated with construction noise and vibration would be temporary in nature, and are considered to be less than minor;
- It is anticipated that earthworks and construction will be carried out during standard construction hours, such that any adverse lighting effects on the wider environment are not anticipated; and
- There is sufficient space at all sites and within the surrounding road network to provide parking for construction vehicles. It is considered that any adverse construction traffic effects will be temporary and able to be appropriately managed. For works occurring within the road corridor, it is anticipated that a CAR and TMP will be provided prior to commencing construction.

Overall, having regard to the above, it is considered that any adverse construction effects will be less than minor.

6.4.4 Archaeological and Heritage Effects

Sirens 63, 66 and 78 are within heritage areas as identified in the ODP and PDP.

An ArchSite search has been undertaken on the nine sirens and none of the sites have any archaeology or heritage items within their site except for proposed siren 69. The parcel that proposed siren 69 is to be constructed on comprises an area of approximately 267.4863ha and contains two identified archelogy sites as identified on ArchSite. These two sites are called P04/252 Paoneone (small Pa site) and P04/253 Kainga comprising of pit/terraces. However, these historic sites are not located anywhere near the siren site with Paoneone located approximately 1.2km to the north east of the siren location and Kainga located approximately 1.4km to the south east of

the siren location. The proposed site is adjacent to Taronui Road within a paddock that is currently grazed by cattle. The selection of the siren location has been made in conjunction with the advice of the owners of the land (being Tapuetahi Incorporation as outlined in the email correspondence included in **Appendix 4**).

It is noted that proposed sirens 68 (Russell – site of the 19th C House), 64 (Ōpua Marina – shell midden), 65 (School Road – Carleton House, paths and stone outbuilding), 99 (Windsor Landing Boat Ramp - fish trap and shell midden) and 101 (Awanui – pa and flax mill) are proposed in proximity to recorded archaeological sites.

Copies of the NZAA records are provided as **Appendix 12** showing that the archaeological material is not located within the proposed development footprint of the siren infrastructure. While it is recognised that the proposed tsunami sirens are located largely within coastal environments where there is the potential for archaeology to exist, effects in this regard are considered to be less than minor for the following reasons:

- The proposal only involves approximately 3.5m^3 over an area of approximately 6.5m^2, ensuring minimal disturbance of land;
- Taking into account the Arch Site assessment and overall physical works proposed, the probability of discovering archaeology is considered low;
- No sirens are proposed over known or recorded archaeological sites; and
- Should any archaeological material be encountered, typical accidental discovery protocols will be followed as set out in the Heritage New Zealand Pouhere Taonga Act 2014.

Taking into account the above, the minimal land disturbance proposed and recognising the accidental discovery protocols required under the Heritage New Zealand Pouhere Taonga Act 2014, adverse effects are assessed as less than minor.

6.4.5 Cultural Effects

All of proposed tsunami sirens are not located within any properties or sites that are mapped as containing sites of significance to Māori in the ODP or PDP. Further, the PDP indicates that the following sirens are proposed within areas that are of interest to Māori due to Treaty Settlements:

- Siren 101 – Awanui Toilets (PDP Area of Interest).

It is important to note that none of the proposed sirens will be located within any mapped statutory acknowledgement areas or mapped sites of significance to Māori with the exception of proposed siren 88. While there are no known Māori values of importance in this area, it is acknowledged that areas in proximity to the coast can hold importance to mana whenua.

In terms of potential impacts on waterways or the coastal marine area, the physical works associated with installing the infrastructure is considered minimal with temporary erosion and sediment control measures installed during the construction period to manage any runoff. No vegetation clearance is proposed as part at any of the sites. The proposed infrastructure does not impact access to the beach ensuring the access to mahinga kai will be maintained for mana whenua.

Taking the above into account, there are no known adverse effects on scheduled cultural heritage, sites of significance to Māori, or Māori cultural values.

6.4.6 Built Form, Character and Amenity

Built character and amenity needs to be considered and assessed within the context of their respective localised and wider environments. A detailed description of each proposed siren location site is provided in Appendix 2, and should be read in conjunction with the assessments for each environment provided below.

The sirens will not change the existing use of any of the sites, instead, it will provide for the function and operation of a tsunami siren warning system that mitigates the risk of tsunami hazards in established populated communities. The predominant use and nature of the land will remain the same; for example, reserves will continue to operate as open spaces for public use and continue to be accessible and provide open space amenity for the public.

The tsunami siren locations have been carefully selected to maximise the range of the siren alert and acoustic propagation that ensures, in the event of a tsunami, the alert will reach the most people possible. The selection criteria have taken into account topography, access to power, telecommunications connections and availability of public land. Naturally, these locations are within the district's coastal settlements where the risk of tsunami is present. Further to this, the proposed tsunami siren infrastructure intends to build of the Region-wide natural hazard resilience plan, meeting an operation and functional need within their proposed locations.

With respect to land disturbance, the proposed earthworks are minimal and temporary, with all exposed ground constructed over or regrassed as required. Construction and earthworks effects are assessed in section 6.4.3 above and considered temporary and will be effectively managed to a level that is less than minor on wider environment amenity. Rural amenity and noise effects are assessed in section 6.4.2 above and also considered to be appropriately managed subject to conditions of consent.

The siren infrastructure does not have any associated intensity effects on wider environment amenity given they are managed remotely.

The proposed siren infrastructure, comprises a $2.5m^2$ x $2.5m^2$ foundation 8m height pole with a siren mounted to the top.

It is proposed to install one of two siren types being TWS-293 (1.15m (H) x 0.85 (W)) and TWS-295 (1.78m (H) x 0.85m (W)), with a combined maximum height of 9.1m or 9.8m respectively. The dimensions of the siren infrastructure are such that the GFA is not an issue. Siren 64 complies with the maximum height standards for its respective zone. Sirens 65, 66, 78, 100 and 101 comply with the restricted discretionary activity height standard, while siren 63, 69, 88 and 99 complies with the discretionary standard.

Appendix 2 of the AEE provides a description of each site and surrounding context for the proposed siren location. The built form in these environments vary, but have been selected due to the resident populations that are established there. The following comments are made with respect to built form and character:

- Siren 63's (Russell), 64 (Ōpua Marina), 65 (Te Haumi Drive), 66 (Williams House), 78 (Mangōnui), 99 (Windsor Landing), and 100 (Waipapa landing) are proposed within or at the edge of established coastal settlements with built that can be characterised as coastal residential settlements. Development in these areas settlements typically comprises single and double storey residential units with ancillary buildings that are setback from the road by 3m, boundary fencing and landscaped yards. In most instances the settlements typically have

overhead powerlines with street lighting at main intersections and public reserves. All proposed siren infrastructure exceeds the height limits in all of these locations except for siren 64. Sirens 65, 66, 78 and 100 all comply with the restricted discretionary standard that provides for buildings up to 10m in height while sirens 63 and 99 infringe the restricted discretionary standard that provides for building heights of 9m. When taking into account the scale and dimensions of the infrastructure and the nature of the built form in these locations, adverse effects are considered to be minimized to a level that is no more than minor;

- Siren 69 (Tapuetahi) is proposed on Māori freehold land at Tapuetahi, Te Tii, consultation is included as Appendix 4. Development within the Tapuetahi area is concentrated in pockets in the north and to the east along Taronui Road, Te Tii School is located to the south of Taronui Bay as well. The siren is proposed centrally to the Tapuetahi area to ensure the community can be suitably alerted, as well as provide for future residents that are approved for development inland of the Bay. The siren is considered similar in nature to that of the existing overhead powerlines and street lighting along Taronui Road, maintaining the existing built form and character established in the area. While it is somewhat visible and exceeds height limits, this is not considered to result in adverse effects that are no more than minor in the wider environment; and
- Siren 101 (Awanui) is proposed adjacent at the intersection of Twin Coast Discovery Highway and (SH 1 and SH10), an existing rural residential community. Built form in this location comprises a mix of residential, commercial and community buildings. Residential units are typically one unit per site, well setback from road boundaries, with landscaping surrounding dwellings with expansive pastoral paddocks. There are also overhead powerlines and street lights at intersections in this location. The proposed siren infrastructure will visible from public roads and neighbouring properties, however, this is not considered to detract from the built form or character of the wider environment. Overall, adverse effects are assessed as less than minor.

Taking account of the above, overall, adverse effects associated with built character and amenity are considered to be no more than minor.

6.4.7 Coastal Environment, Visual Amenity and Natural Character Values

All sirens with the exception of sirens 65 and 101 are located within areas that are subject to coastal environment overlays. The combined height of the structures exceeds the maximum height, however, complies with the permitted standard GFA standards for buildings in all locations.

While the proposed siren infrastructure does not have a measurable GFA, the structures will exceed height limits within these coastal environments with the potential for generating adverse effects on the visual amenity and natural character values of the wider environment. The combined heights of the structures will be approximately 9.1m – 9.8m, however, when taking into account their dimensions of the sirens which are the largest component of the infrastructure, the effects on the wider environment are considered to be relatively modest. The structures will be visible; however, they are considered to be consistent with the overall built form of the wider environment and comparable to other critical infrastructure such as overhead powerlines or telecommunication infrastructure.

Further, the proposal is not considered to impact any access to the coastal environment.

6.4.8 Servicing

As mentioned above. The sirens have been chosen on sites that have taken into account the topography and how the locations will be able to service the new sirens in terms of having access to better cellular and satellite coverage, and have access to solar and battery power. All siren locations have been confirmed as suitable from a servicing perspective.

6.5 Summary of Effects

Overall, it is considered that any adverse effects on the environment relating to this proposal will be less than minor.

6.6 Public Notification Conclusion

Having undertaken the section 95A public notification tests, the following conclusions are reached:

- Under step 1, public notification is not mandatory;
- Under step 2, public notification is not precluded;
- Under step 3, public notification is not required as it is considered that the activity will result in less than minor adverse effects; and
- Under step 4, there are no special circumstances.

Therefore, based on the conclusions reached under steps 3 and 4, it is recommended that this application be processed without public notification.

7.0 Limited Notification Assessment (Sections 95B, 95E to 95G)

7.1 Assessment of Steps 1 to 4 (Sections 95B)

If the application is not publicly notified under section 95A, the council must follow the steps set out in section 95B to determine whether to limited notify the application. These steps are addressed in the statutory order below.

7.1.1 Step 1: Certain affected protected customary rights groups must be notified

Step 1 requires limited notification where there are any affected protected customary rights groups or customary marine title groups; or affected persons under a statutory acknowledgement affecting the land.

The above does not apply to this proposal.

7.1.2 Step 1: Certain affected protected customary rights groups must be notified

Step 2 describes that limited notification is precluded where all applicable rules and national environmental standards preclude limited notification; or the application is for a controlled activity (other than the subdivision of land).

In this case, the applicable rules do not preclude limited notification and the proposal is not a controlled activity. Therefore, limited notification is not precluded.

7.1.3 Step 3: If not precluded by step 2, certain other affected persons must be notified

Step 3 requires that, where limited notification is not precluded under step 2 above, a determination must be made as to whether any of the following persons are affected persons:

- In the case of a boundary activity, an owner of an allotment with an infringed boundary;
- In the case of any other activity, a person affected in accordance with s95E.

The application is not for a boundary activity, and therefore an assessment in accordance with section 95E is required and is set out below.

Overall, it is considered that any adverse effects in relation to adjacent properties will be less than minor, and accordingly, that no persons are adversely affected.

7.1.4 Step 4: Further notification in special circumstances

In addition to the findings of the previous steps, the council is also required to determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined as eligible for limited notification.

In this instance, having regard to the assessment in section 6.1.4 above, it is considered that special circumstances do not apply.

7.2 Section 95E Statutory Matters

If the application is not publicly notified, a council must decide if there are any affected persons and give limited notification to those persons. A person is affected if the effects of the activity on that person are minor or more than minor (but not less than minor).

In deciding who is an affected person under section 95E:

- Adverse effects permitted by a rule in a plan or national environmental standard (the 'permitted baseline') may be disregarded;
- Only those effects that relate to a matter of control or discretion can be considered (in the case of controlled or restricted discretionary activities); and
- The adverse effects on those persons who have provided their written approval must be disregarded.

These matters were addressed in section 6.2 above, and Pre-lodgement communications were discussed in Section 2.2, refer to **Appendix 4** for full list of engagement and landowner approval.

Having regard to the above provisions, an assessment is provided below.

7.3 Assessment of Effects on Adjacent Properties

Wider effects, such as hazards, noise, construction activities, archaeological and cultural effects, built character and amenity, servicing and landscape values were considered in section 6.4 above, and considered to be no more than minor.

The following assessment and comments regarding visual dominance, access to sunlight, and character and amenity are considered to apply generally to all eight sirens. A full assessment on the adjacent land is included in the site-specific consenting summary provided as **Appendix 2**.

7.3.1 Visual Dominance and Access to Sunlight

The proposed sirens will be established to fit within the landscape and as mentioned previously, when compared to light poles and power poles, the sirens are of a similar nature and height, as well as the function of them, in that they provide an operational and functional need within these environments in. As summarised within **Appendix 2**, siren locations are not considered to generate domination, loss of privacy or overshading effects for the following reasons:

- Sirens are generally located within public or road reserves that ensure suitable separation of existing residential units. Properties are typically separated by road reserve providing separation distances of 20 – 30m, ensuring adjacent land does not experience domination effects.
- The siren infrastructure itself is comparable to a light pole and will have a siren (TWS-93 with dimensions of 1.15m (H) x 0.85m (W), ensuring the shadow cast by the lifesaving infrastructure will be minimal so as not to unduly impact on adjacent land.
- The proposed tsunami infrastructure is not considered to result in a loss of privacy to adjacent land, as the sirens are not occupied. The construction timeframes for each siren are expected to last no more than 10 working days, as such, effects are temporary.

Taking the above into account, adverse visual domination, privacy and overshadowing effects are considered to be less than minor on neighbouring properties.

7.3.2 Noise

The sirens will be located across various zones that all have different noise thresholds, the sirens will only infringe those standards twice a year during bi-annual tsunami siren testing. As noted above, this testing regime will encourage and promote tsunami siren evacuation practice and familiarise communities with the warning signals associated with this activity. While it is recognised that these warning systems will be noisy, effects will be temporary and considered necessary to promote good CDEM practices.

Taking into account the temporary nature of the noise exceedance, adverse effects on the properties and persons that experience the exceeded noise levels are considered less than minor.

7.3.3 Character and Amenity

The ODP limits the establishment of emergency services such as fire, police and ambulance services. Typical effects associated with emergency services include traffic generation, hours of operation and noise that have the potential to affect the character and amenity of the surrounding environment. In this instance, effects associated with traffic generation and hours of operation will not be experienced given the targeted nature of the proposed activity. Noise effects are assessed

above, and again are considered to be acceptable in this instance given the emergency nature of the sirens and the general infrequency of the sirens.

Further, as part of this proposal, NRC in conjunction with Northland Civil Defence and Emergency Services department have developed a targeted community engagement programme to support the roll out of this project. This includes a mail drop to communities where sirens will be installed prior to commencing the project. NRC will include a brochure and will establish a dedicated web page to inform the community of the project. A copy of the brochure is included as Appendix 10

7.3.4 Summary of Effects

Taking the above into account, it is considered that any adverse effects on persons at the aforementioned properties will be less than minor in relation to visual dominance and noise effects. Wider effects, including hazards, noise, construction activities, archaeological and cultural effects, built character and amenity, servicing and landscape values were assessed in section 6.4 above and are considered to be less than minor.

It is considered, therefore, that there are no adversely affected persons in relation to this proposal.

7.4 Limited Notification Conclusion

Having undertaken the section 95B limited notification tests, the following conclusions are reached:

- Under step 1, limited notification is not mandatory;
- Under step 2, limited notification is not precluded;
- Under step 3, limited notification is not required as it is considered that the activity will not result in any adversely affected persons; and
- Under step 4, there are no special circumstances.

Therefore, it is recommended that this application be processed without limited notification.

8.0 Consideration of Applications (Section 104)

8.1 Statutory Matters

Subject to Part 2 of the Act, when considering an application for resource consent and any submissions received, a council must, in accordance with section 104(1) of the Act have regard to:

- Any actual and potential effects on the environment of allowing the activity;
- Any relevant provisions of a national environmental standard, other regulations, national policy statement, a New Zealand coastal policy statement, a regional policy statement or proposed regional policy statement; a plan or proposed plan; and
- Any other matter a council considers relevant and reasonably necessary to determine the application.

As a non-complying activity, section 104D of the Act states that a council may only grant the application if:

(a) adverse effects will be no more than minor; or

(b) the activity is not contrary to the objectives and policies of the relevant plans.

8.2 Weighting of Proposed Plan Changes: Proposed Far North District Plan

On the 27th July Far North District Council (FNDC) notified their Proposed District Plan (PDP). At the time of preparing this AEE, only rules identified as having immediate legal effect have been considered. This will remain the case until FNDC releases a decision on the PDP (this will occur once hearings have been completed).

Under the Proposed Far North District Plan, the sirens are subject to the following:

- Siren 63: zoned Kororāreka Russell Township and subject to the Coastal Environment, Heritage Area Part D, River Flood Hazard 100-year ARI Event and Coastal Flood Zones 1, 2, 3 overlays.
- Siren 64: zoned as Light Industrial and subject to the Coastal Environment, River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 1, 2, 3 overlays.
- Siren 65: zoned as Natural Open Space and subject to the High Natural Character '449' and '451' (siren is not within High Natural Character Overlays).
- Siren 66: zoned as Open Space and subject to the Coastal Environment, Heritage Area 'Part A', Heritage Item '90a', River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 2, 3 overlays.
- Siren 69: zoned as Māori Purpose – Rural and subject to the Coastal Environment overlay.
- Siren 78: zoned as Open Space and subject to the Coastal Environment and Heritage Area Part B overlays.
- Siren 99: zoned as Rural Lifestyle and is subject to the Coastal Environment and Coastal Flood Zones 2 and 3 overlays.
- Siren 100: zoned as Natural Open Space and is subject to the Coastal Environment, Coastal Flood Zones 1, 2 and 3 overlays.
- Siren 101: zoned as Open Space and is subject to the Pedestrian Frontage, Airport Protection Surfaces, River Flood Hazard 10 and 100-year ARI Event overlays.

At the time of preparing this AEE, only rules identified as having immediate legal effect have been considered. This will remain the case until FNDC releases a decision on the Proposed Far North District Plan (this will occur once hearings have been completed).

9.0 Effects on the Environment (Section 104(1)(A))

Having regard to the actual and potential effects on the environment of the activity resulting from the proposal, it was concluded in the assessment above that any adverse effects relating to the proposal will be less than minor and that no persons would be adversely affected by the proposal.

Further, it is considered that the proposal will also result in positive effects including:

- The improved health and safety measures to support the wellbeing of Far Norths coastal communities ; and

- Improved civil defence and emergency management practices within the District, designed to contribute to the regions civil defence and resilience to natural hazards within Te Taitokerau Northland; and
- Currently, the sirens do not achieve the minimum National Emergency Management Agency (NEMA) standards for tsunami sirens and alerts. The proposal will ensure Te Taitokerau Northland is in line with NEMA standards and best practice.

Overall, it is considered that when taking into account the positive effects, any actual and potential adverse effects on the environment of allowing the activity are less than minor.

10.0 District Plan and Statutory Documents (Section 104(1)(B))

10.1 Objectives and Policies of the Operative Far North District Plan

10.1.1 Chapter 7.8 Industrial Zone

The Industrial Zone includes the existing areas of industrial activity in the District and provides for the expansion of industry in these areas. By identifying a separate Industrial Zone, the Council is indicating that the effects of industrial activities are able to be managed most effectively if the activities that give rise to the effects are grouped together.

The proposed siren infrastructure complies with all bulk and location controls of this zone with the exception of noise.

10.1.2 Chapter 8.7 Rural Living Zone

The Rural Living Zone is an area of transition between town and country. The transition is expressed in terms mainly of residential intensity and lot sizes. The potential for the adverse effects of farming to be of concern for residential zones and vice versa, is reduced by the presence of the Rural Living Zone, where both rural and residential activities co-exist and form an area with a distinctive and separate character.

The objectives and policies of the zone seek to provide for a wide range of activities, while managing the effects of activities that are incompatible with the rural living zone. The proposed siren infrastructure is not considered to be incompatible, as it does not restrict existing activities or generate reverse sensitivity effects that may limit the purpose of the zone.

In conclusion, the proposed siren infrastructure activity is considered to be consistent with the outcomes of the zone.

10.1.3 Chapter 9.6 Recreation Environment

Sirens 65 and 101 are located within the Recreational Activities Zones which applies primarily to public land administered by FNDC, the Crown and in some instances is jointly managed with iwi as a result of Treaty Settlement legislation. No sirens are proposed within land jointly managed by iwi.

The purpose of the zones is to protect and preserve these resources for recreation purposes. The proposed siren infrastructure is not specifically provided for by the ODP, as it does not meet the definition of any defined terms including those related to telecommunications or utility services.

The objectives and policies of Chapter 9 seek to protect recreational purposes of the zone, preserving high conservation values by managing the effects of activities so as not to compromise the recreation and conversation values of the zone.

While the infrastructure is not directly provided for, thus, not directly ancillary to the purpose of the zone the sirens are not considered to compromise the purpose of the zones. No vegetation clearance is proposed and only minimal land disturbance will be associated with the activity. The siren infrastructure is proposed as mitigation against the risks of tsunami hazards for the district's coastal communities.

In summary, the proposed sirens do not compromise public access or use of public reserves zone for the purpose of recreation activities and is overall considered consistent with the intent of the zone.

10.1.4 Chapter 10 Coastal Environment

The Coastal Environment comprises of the General Coastal, Coastal Living Zone and Russell Township Zone, the Coastal Living Zone applies to those areas of the coastal environment which have already been developed but which still maintain a high level of amenity associated with the coast. These areas have been identified as having an ability to absorb further low density, mainly rural residential development, without detriment to their overall coastal character. The Russell Township Zone provides for resource management methods that maintain and enhance the historic characteristics of the natural and physical resources in Russell which contribute to its unique character, its heritage and amenity values

Siren 69 is proposed within the General Coastal zone, sirens 98 and 99 are proposed within the Coastal Living Zone while Siren 63 is proposed to be in the Russell Township Zone.

The proposed siren infrastructure is considered to be relatively modest in scale and size when compared with a typical building that could otherwise be constructed within both of these environments. The proposal involves minor land disturbance that will be appropriately managed and temporary. In terms of landscape and visual amenity, the proposed siren is considered to be acceptable within this location, as the infrastructure will be clustered with existing public facilities so as to contain the visual impacts of the activity within an already modified environment.

Overall, the siren infrastructure is considered to be consistent with intent of the two zones.

10.1.5 Chapter 12.4 Natural Hazards

The objectives and policies of the natural hazards chapter are contained within Chapter 12.4 of the ODP and seek to reduce the threat of natural hazards to life, property and the environment.

The proposed siren infrastructure does not introduce new vulnerable activities and is proposed to protect the community from tsunami hazard risk.

The proposal is considered consistent with the intent of the natural hazards chapter.

10.2 Objectives and Policies of the Proposed Far North Plan

The proposal results in tsunami siren infrastructure being located within the Rural Production, Natural open space, Rural Lifestyle, Sport and Active Recreation, Settlement, Open Space, General Residential, and Rural Residential Zones. The proposal also interreacts with overlays that include the Coastal Environment, High Natural Character Areas, Coastal Flood Zone 1, 2 and 3, Notable

Tree, River Flood Hazard 10- and 100-year ARI Event, Treaty Settlement Area of Interest, and Statutory Acknowledgement Area.

For the purposes of this application, the proposal has been categorised as a Temporary Activity, which is defined as follows:

*"means an activity that is temporary and limited in duration. It may include carnivals; concerts; fairs; festivals and events; markets and exhibitions; public meetings; parades; special events; sporting events; filming activities; temporary military training activities; temporary motorsport activities; and emergency response training by ambulances, **Civil Defence**, **Coast Guard New Zealand,** Fire and Emergency New Zealand, New Zealand Police, Land Search and Rescue, or Surf Life Saving New Zealand. **It also includes buildings or structures accessory to temporary activities**, temporary car parking areas, and the ancillary activities associated with the temporary activities."*

The proposal has been categorised as an Emergency Service, which is defined as follows:

*"Emergency Service, means ambulances, **Civil Defence, Coastguard New Zealand,** Fire and Emergency New Zealand, New Zealand Police, Land Search and Rescue, and Surf Life Saving New Zealand."*

While the above activity definition is the most appropriate, the PDP does not specifically provide for CDEM structures like tsunami sirens. However, it does provide for noise exemptions relating to emergency services. In the Noise Chapter, the noise rules and effects standards do not apply to:

"7. any warning device or siren used by emergency services for emergency purposes (and routine testing and maintenance)"

Overall, it is considered that there is a gap within the PDP with respect to CDEM service activities, which are considered fairly unique and uncommon in this context but are nonetheless important and required support the Regions civil defence and emergency management response. The proposed tsunami siren infrastructure is pivotal to the Region's resilience plan for managing and addressing the risk of tsunami hazards within Te Taitokerau. Further, the proposal is considered to support the overall health, safety and wellbeing of the Region's communities.

On this basis, the proposal is not considered to be contrary to, but is not entirely consistent with the anticipated outcomes of the PDP.

10.3 Regional Policy Statement for Northland (RPS)

The operative Regional Policy Statement (RPS) for Northland contains high level policy guidance for development within the region and is the vehicle for identifying and dealing with significant resource management issues in Te Taitokerau Northland. With respect to the coastal environment, it contains objectives and policies which seek to protect and preserve the natural character of the coastal environment, whilst safeguarding the integrity, form, function and resilience of the coastal environment from natural hazards and protect significant indigenous biodiversity and habitats from inappropriate subdivision, use and development. Of particular relevance to this proposal are as follows:

- Objective 3.7 and 3.8 seek to provide for significant infrastructure that will protect health and safety of the community and recognise the importance of the long-term infrastructure.
- Objective 3.13 recognises the risk and impacts of natural hazard events. 3.13(b), (e) and (g) are of particular relevance to this proposal as they enable appropriate hazard mitigation

measures to be constructed and recognise that critical infrastructure may have to be located within hazard prone areas.

- Policy 4.8 recognises that structures that have a functional need can be located within the coastal marine area and structures that will make a significant positive contribution to the local area or region.

In regards to above objectives and policies, the following is noted:

- The proposal is considered appropriate and a functional need for the reasons discussed throughout the assessment provided as part of this application.
- The tsunami sirens are a method that will mitigate coastal hazards such as tsunami by alerting the community and to ensure their safety.

On this basis, the proposal is considered to be consistent with outcomes of the RPS.

10.4 National Policy Statement on Highly Productive Soils

The NPS-HPL is also considered relevant to this proposal as proposed siren 101 is mapped as Land Use Capability (LUC) Class 2 as mapped by Our Environment as shown Figure 3 below.

Figure 3: Highly Productive Land on Siren 101 (red dot). Source: Our Environment

Clause 1.3 of the NPS-HPL defines 'Highly Productive Land' as meaning:

"Land that has been mapped in accordance with clause 3.4 and is included in an operative regional policy statement as required by clause 3.5 (but see clause 3.5(7) for what is treated as highly productive land before the maps are included in an operative regional policy statement and clause 3.5(6) for when land is rezoned and therefore ceases to be highly productive land)".

The Northland Regional Council is yet to map highly productive land within Northland, as such reference to clause 3.5(7) is required to determine whether the NPS-HPL is relevant. Clause 3.5(7) is copied below:

(7) Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement as if references to highly productive land were references to land that, at the commencement date:

(a) is:

(i) zoned general rural or rural production; and

(ii) LUC 1, 2, or 3 land; but

(b) is not:

(i) identified for future urban development; or

(ii) subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.

The NPS-HPL sets out clear policy direction in Clause 3.9 to protect highly productive land from inappropriate use and development. The proposed siren will retain the overall productive capacity of the subject land. In considering exemptions to this the following must be satisfied;

(2) A use or development of highly productive land is inappropriate except where at least one of the following applies to the use or development, and the measures in subclause (3) are applied:

(a) it provides for supporting activities on the land:

(b) it addresses a high risk to public health and safety:

(c) it is, or is for a purpose associated with, a matter of national importance under section 6 of the Act:

(d) it is on specified Māori land:

(e) it is for the purpose of protecting, maintaining, restoring, or enhancing indigenous biodiversity: (f) it provides for the retirement of land from land-based primary production for the purpose of improving water quality:

(g) it is a small-scale or temporary land-use activity that has no impact on the productive capacity of the land:

(h) it is for an activity by a requiring authority in relation to a designation or notice of requirement under the Act:

(i) it provides for public access:

(j) it is associated with one of the following, and there is a functional or operational need for the use or development to be on the highly productive land:

(i) the maintenance, operation, upgrade, or expansion of specified infrastructure:

(ii) the maintenance, operation, upgrade, or expansion of defence facilities operated by the New Zealand Defence Force to meet its obligations under the Defence Act 1990:

(iii) mineral extraction that provides significant national public benefit that could not otherwise be achieved using resources within New Zealand:

(iv) aggregate extraction that provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand.

Where it is relevant, an assessment of clause 3.9 is required and is detailed below. In summary, the NPS-HPL is considered to be not relevant to this siren as the land is zoned as Recreational Activities under the ODP.

While the site contains land that is classified as Highly Productive Land, the siren is considered to be appropriate in accordance with clause 3.9 and achieves the purpose of the NPS-HPL for the following reasons:

- The proposed siren is considered to be lifesaving infrastructure for the purposes of mitigating natural hazards to protect public health and safety in accordance with subclauses 3.9(b) and (c); and
- Given the 5m^2 footprint of the siren, they are considered small-scale and not considered to compromise the productive capacity of the land in accordance with subclause 3.9(g).

10.5 Objectives and Policies of the New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement (**NZCPS**), prepared by the Minister of Conservation, sets out objectives and policies in order to achieve the purpose of the RMA in regards to the coastal environment of New Zealand. It contains objectives and policies which include those aimed at safeguarding the integrity, form, functioning and resilience of the coastal environment and sustaining its ecosystems, and preserving the natural character of the coastal environment.

Of particular relevance to this proposal are objectives 2, 4, 6 and policies 6, 13, 18, 19, 24 and 25 as follows:

- Objective 2 and policy 13 seek to preserve the natural character, features, and landscape values of the coastal environment.
- Objective 4 and policies 18 and 19 seek to maintain and enhance public open space within the coastal environment by ensuring public access to the coast is retained and provided for.
- Objective 6 recognises that the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms within appropriate limits, and that functionally some uses and development can only be located on the coast or in the marine area. Policy 6(2)(c) further acknowledges that there are activities with a functional need to be located in the coastal marine area.
- Policies 24 and 25 seek to identify areas that are potentially to be affected by coastal hazards such as tsunami and how to avoid or mitigate them.

In regards to above objectives and policies, the following is noted:

- The sirens are predominately not identified as an outstanding feature or landscape, and it has been established that and adverse effects on natural character will be less than minor.
- The proposed activity does not restrict public access in any way.
- The proposal is considered appropriate and have a functional and operational need to be located within the coastal environment for the reasons discussed throughout the assessment provided as part of this application.

The tsunami sirens are a method that will mitigate coastal hazards such as tsunami by alerting the community and to ensure their safety. For the reasons noted above, it is considered that the proposal is aligned with the outcomes sought by the NZCPS.

10.6 Summary

It is considered that the proposed development is generally in accordance with the objectives and policies of the ODP, NZCPS and RPS.

11.0 Part 2 Matters

Section 5 of Part 2 identifies the purpose of the RMA as being the sustainable management of natural and physical resources. This means managing the use, development and protection of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being and health and safety while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Section 6 of the Act sets out a number of matters of national importance including (but not limited to) the protection of outstanding natural features and landscapes and historic heritage from inappropriate subdivision, use and development.

Section 7 identifies a number of "other matters" to be given particular regard by Council and includes (but is not limited to) Kaitiakitanga, the efficient use of natural and physical resources, the maintenance and enhancement of amenity values, and maintenance and enhancement of the quality of the environment.

Section 8 requires Council to take into account the principles of the Treaty of Waitangi.

Overall, as the effects of the proposal are considered to be less than minor, and the proposal accords with the relevant ODP objectives and policies, it is considered that the proposal will not offend against the general resource management principles set out in Part 2 of the Act.

12.0 Other Matters (Section 104(1)(C))

12.1 Record of Title Interests

The Record of Title for the sites is included as **Appendix 1**. No interests are anticipated to affect the resource consent application.

12.2 Section 104D Non-complying Activities

To be able to grant consent to a non-complying activity, a council must be satisfied that either the adverse effects of the activity on the environment will be minor (s104D(1)(a)), or the proposed activity will not be contrary to the objectives and policies of a proposed plan or plan (s104D(1)(b)). This consideration is commonly known as the 'threshold test' or the 'gateway test'. If either of the limbs of the test can be passed, then the application is eligible for approval, but the proposed activity must still be considered under section 104. There is no primacy given to either of the two limbs, so if one limb can be passed then the 'test' can be considered to be passed.

As identified in the assessment above, the adverse effects of the activity on the environment will be less than minor and the proposed activity will not be contrary to the objectives and policies of

the plan. As such the application can be considered under section 104 and a determination made on the application as provided by section 104B.

13.0 Conclusion

The proposal involves the construction of nine sirens throughout the Far North District.

Based on the above report it is considered that:

- Public notification is not required as adverse effects in relation to hazards, noise, construction activities, archaeological and cultural effects, built character and amenity, servicing and landscape values are considered to be less than minor.
- There are also positive effects including improving the resilience, health and safety of coastal communities in the Far North District against tsunami siren risks;
- Limited notification is not required as no persons at adjacent properties are considered to be adversely affected;
- The proposal accords with the relevant ODP objectives and policies; and
- The proposal is considered to be consistent with Part 2 of the Act.

It is therefore concluded that the proposal satisfies all matters the consent authority is required to assess, and that it can be granted on a non-notified basis.

Siren 63 - Russell

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

[redacted]
R. W. Muir
Registrar-General
of Land

Identifier **161222**

Land Registration District **North Auckland**

Date Issued 27 January 2005

Prior References

NA1024/172 NA67C/644

Estate Fee Simple

Area 574 square metres more or less

Legal Description Lot 2 Deposited Plan 339185

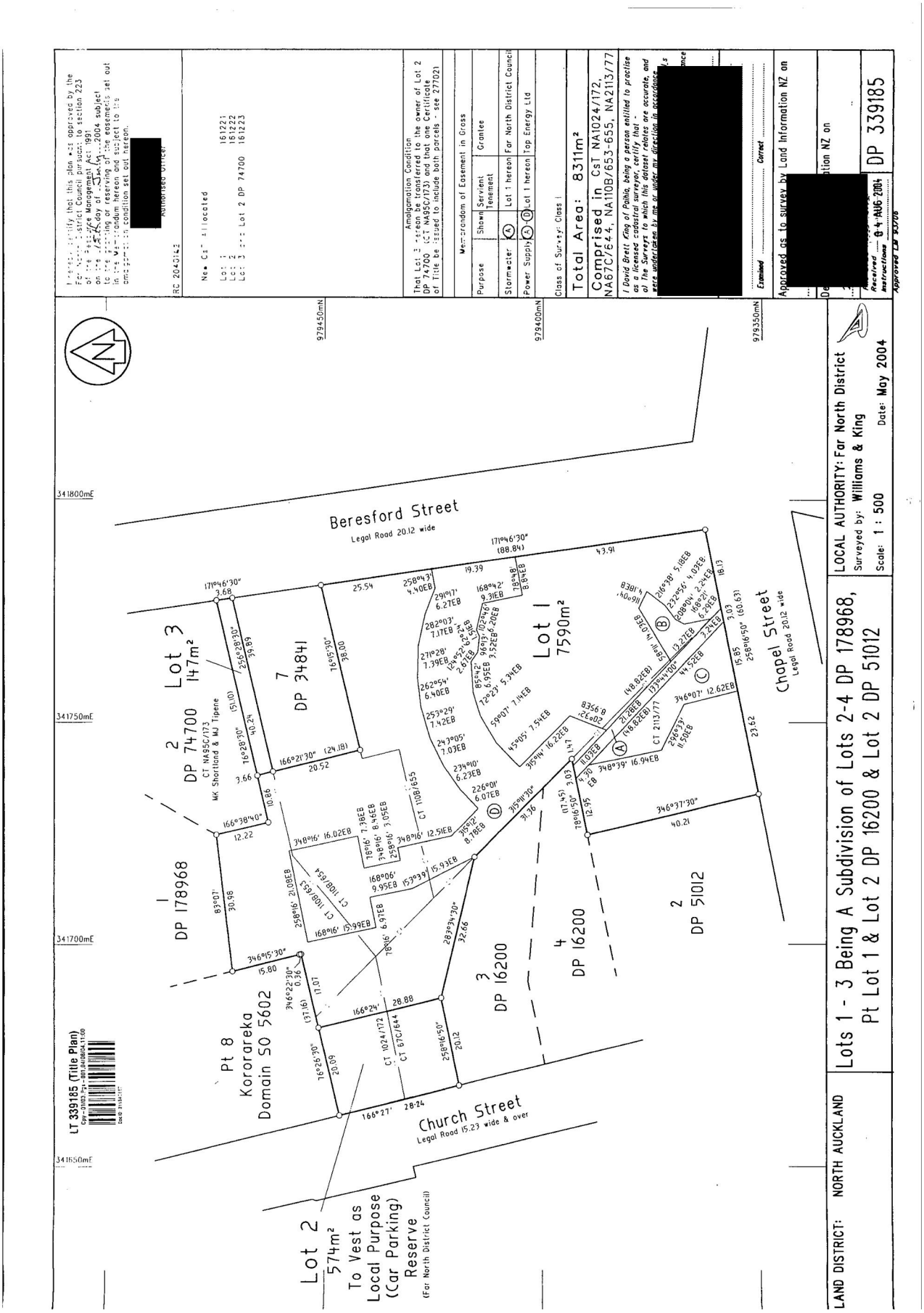
Purpose Local Purpose (Car Parking) Reserve

Registered Owners

Far North District Council

Interests

Subject to the Reserves Act 1977


Beresford Street
Legal Road 20.12 wide
Chapel Street
Legal Road 20.12 wide
Church Street
Legal Road 15.23 wide & over
Lot 1
7590m²
Lot 2
574m²
To Vest as
Local Purpose
(Car Parking)
Reserve
(Far North District Council)
Lot 3
147m²
2
DP 74700
CT NA95C/173
MK Shortland & MJ Tipene
7
DP 34841
1
DP 178968
Pt 8
Kororareka
Domain SO 5602
CT 1024/172
CT 67C/644
3
DP 16200
4
DP 16200
2
DP 51012
CT 110B/655
CT 2113/77
341800mE
341750mE
341700mE
341650mE
979450mN
979400mN
979350mN
LT 339185 (Tile Plan)
LAND DISTRICT: NORTH AUCKLAND
Lots 1 - 3 Being A Subdivision of Lots 2-4 DP 178968,
Pt Lot 1 & Lot 2 DP 16200 & Lot 2 DP 51012
LOCAL AUTHORITY: Far North District
Surveyed by: Williams & King
Scale: 1 : 500
Date: May 2004
DP 339185
Approved as to survey by Land Information NZ on
Examined
Correct
Total Area: 8311m²
Comprised in CsT NA1024/172, NA67C/644, NA110B/653-655, NA2113/77
Amalgamation Condition
That Lot 3 hereon be transferred to the owner of Lot 2 DP 74700 (CT NA95C/173) and that one Certificate of Title be issued to include both parcels - see 277021
Memorandum of Easement in Gross
Purpose | Shown | Servient Tenement | Grantee
Stormwater | A | Lot 1 hereon | Far North District Council
Power Supply | A, D | Lot 1 hereon | Top Energy Ltd
Class of Survey: Class I
New Certificates of Title will be issued for Lots 1 to 3 inclusive
Lot 1 161221
Lot 2 161222
Lot 3 161223
ARC 2043142
Authorised Officer
I hereby certify that this plan was approved by the Far North District Council pursuant to section 223 of the Resource Management Act 1991 on the 16th day of July 2004 subject to the granting or reserving of the easements set out in the Memorandum hereon and subject to the compliance with the condition set out thereon.
Authorised Officer
I David Brett King of Paihia, being a person entitled to practise as a licensed cadastral surveyor, certify that -
a) The Survey to which this dataset relates is accurate, and was undertaken by me or under my direction in accordance
Received 04 AUG 2004
Approved LA 33/210
DP 339185

View Statutory Action

Parcel Lot 8 Deposited Plan 540333
Current Purpose Vesting on Deposit for Road

Parcel ID 8009670
Parcel Status Current

Statutory Action	Type	Recorded	Action	Status
DP 540333	Vesting on Deposit	04/12/2019	Referenced	Current

Statute
Purpose Vesting on Deposit for Road
Name
Comments

***** End of Report *****

Title Plan - DP 540333

Survey Number	DP 540333
Surveyor Reference	21020.02 FNHL OPUA STAGE 2 (RC 2180141)
Surveyor	Kurt Eric Watson
Survey Firm	Survey & Planning Solutions (2010) Limited
Surveyor Declaration	I Kurt Eric Watson, being a licensed cadastral surveyor, certify that: (a) this dataset provided by me and its related survey are accurate, correct and in accordance with the Cadastral Survey Act 2002 and the Rules for Cadastral Survey 2010, and (b)the survey was undertaken by me or under my personal direction. Declared on 04 Sep 2019 03:24 PM

Survey Details

Dataset Description	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995		
Status	Deposited		
Land District	North Auckland	**Survey Class**	Class A
Submitted Date	04/09/2019	**Survey Approval Date**	05/09/2019
		Deposit Date	26/11/2019

Territorial Authorities

Far North District

Comprised In

RT NA103C/976
RT 799388
RT 762290
RT 361128

Created Parcels

Parcels	Parcel Intent	Area	RT Reference
Lot 1 Deposited Plan 540333	Fee Simple Title	0.1922 Ha	906411
Lot 2 Deposited Plan 540333	Fee Simple Title	0.4183 Ha	906412
Lot 3 Deposited Plan 540333	Fee Simple Title	1.8550 Ha	906413
Lot 4 Deposited Plan 540333	Fee Simple Title	0.2056 Ha	906414
Lot 5 Deposited Plan 540333	Fee Simple Title	1.1220 Ha	906415
Lot 6 Deposited Plan 540333	Common Marine and Coastal Area (Sec 237A(1)(b) RM Act)	0.0003 Ha	
Lot 7 Deposited Plan 540333	Vesting on Deposit for Local Purpose Reserve	0.0309 Ha	906416
	Road	0.9850 Ha	
Area A Deposited Plan 540333	Easement		
Area B Deposited Plan 540333	Easement		
Area C Deposited Plan 540333	Easement		
Area D Deposited Plan 540333	Easement		
Area E Deposited Plan 540333	Easement		
Area F Deposited Plan 540333	Easement		

Title Plan - DP 540333

Created Parcels

Parcels	Parcel Intent	Area	RT Reference
Area G Deposited Plan 540333	Easement		
Area H Deposited Plan 540333	Easement		
Area M Deposited Plan 540333	Easement		
Area N Deposited Plan 540333	Easement		
Area O Deposited Plan 540333	Easement		
Area P Deposited Plan 540333	Easement		
Area Q Deposited Plan 540333	Easement		
Area R Deposited Plan 540333	Easement		
Area S Deposited Plan 540333	Easement		
Area U Deposited Plan 540333	Easement		
Area W Deposited Plan 540333	Easement		
Area X Deposited Plan 540333	Easement		
Area Y Deposited Plan 540333	Easement		
Area Z Deposited Plan 540333	Easement		
Area AA Deposited Plan 540333	Easement		
Area AC Deposited Plan 540333	Easement		
Area AD Deposited Plan 540333	Easement		
Area AF Deposited Plan 540333	Easement		
Area AG Deposited Plan 540333	Easement		
Area AH Deposited Plan 540333	Easement		
Area AI Deposited Plan 540333	Easement		
Area AJ Deposited Plan 540333	Easement		
Area AK Deposited Plan 540333	Easement		
Area AL Deposited Plan 540333	Easement		
Area AM Deposited Plan 540333	Easement		
Area AN Deposited Plan 540333	Easement		
Area AO Deposited Plan 540333	Easement		
Area AP Deposited Plan 540333	Easement		
Esplanade Strip XX Deposited Plan 540333	Esplanade Strip		
Esplanade Strip YY Deposited Plan 540333	Esplanade Strip		
Total Area		4.8093 Ha	

Schedule / Memorandum

Land Registration District: **North Auckland**

Survey Number: **LT 540333**

Territorial Authority (the Council): **Far North District**

Memorandum of Easements

Last Edited: 30 Oct 2018 11:51:52

Purpose	Shown	Servient Tenement (Burdened Land)	Dominant Tenement (Benefited Land)
Right of Way	A, C	Lot 5 DP 367224	Lot 2
	B, D	Lot 4	Lot 2
	E	Lot 3	Lot 1, Lot 2
	H	Lot 2	Lot 1
	F, G	Lot 1	Lot 2
Right to drain storm water	H, M, N, O	Lot 2	Lot 1
	F, G, P, U, X, Y, Z	Lot 1	Lot 2
Right to convey water, electricity, telecommunications, computer media	H, M, N, O	Lot 2	Lot 1
	F, G, P, U, X, Y, Z	Lot 1	Lot 2
	U, F, P	Lot 1	Lot 3
	N	Lot 2	Lot 3

Memorandum of Easements In Gross

Last Edited: 08 Nov 2017 14:47:34

Purpose	Shown	Servient Tenement (Burdened Land)	Grantee
Pedestrian Right of Way	Q	Lot 3	Far North District Council
Right of Way	E, R	Lot 3	Far North District Council
Right to Parking	Q, S	Lot 3	Far North District Council
Right to drain sewage	AA	Lot 1	Far North District Council
	AC, AF, AH, AI	Lot 4	Far North District Council
	AN	Lot 1 DP 169995	Far North District Council
Right to convey water	AN	Lot 1 DP 169995	Far North District Council
Right to convey telecommunications, computer media	AD, AH, AG, AL	Lot 4	Chorus NZ Ltd
Right to convey electricity	AO	Lot 3	Top Energy Ltd
	AL, AM	Lot 4	Top Energy Ltd
Right to convey water	AP	Lot 5	Far North District Council
Right to drain sewage	AP	Lot 5	Far North District Council

Schedule of Existing Easements in Gross

Last Edited: 29 Oct 2018 12:05:41

Purpose	Shown	Servient Tenement (Burdened Land)	Creating Document Reference
Right to drain storm water	W	Lot 3	EI 11262658.3
Electricity Right	AL, AM	Lot 4	TE D646127.2

Schedule of Existing Easements

Right of Way	AJ	Lot 5	D573534.2
Car Parking, Right of Way	AK	Lot 5	D573534.2

Schedule of Easements

Last Edited: 30 Oct 2018 11:54:33

Purpose	Shown	Servient Tenement (Burdened Land)	Dominant Tenement (Benefited Land)
Right to convey water, electricity, telecommunications, computer media	U, F, P	Lot 1	Part Lot 3 DP 172115
	N	Lot 2	Part Lot 3 DP 172115

Schedule / Memorandum

Land Registration District	Survey Number
North Auckland	**LT 540333**

Territorial Authority (the Council)

Far North District

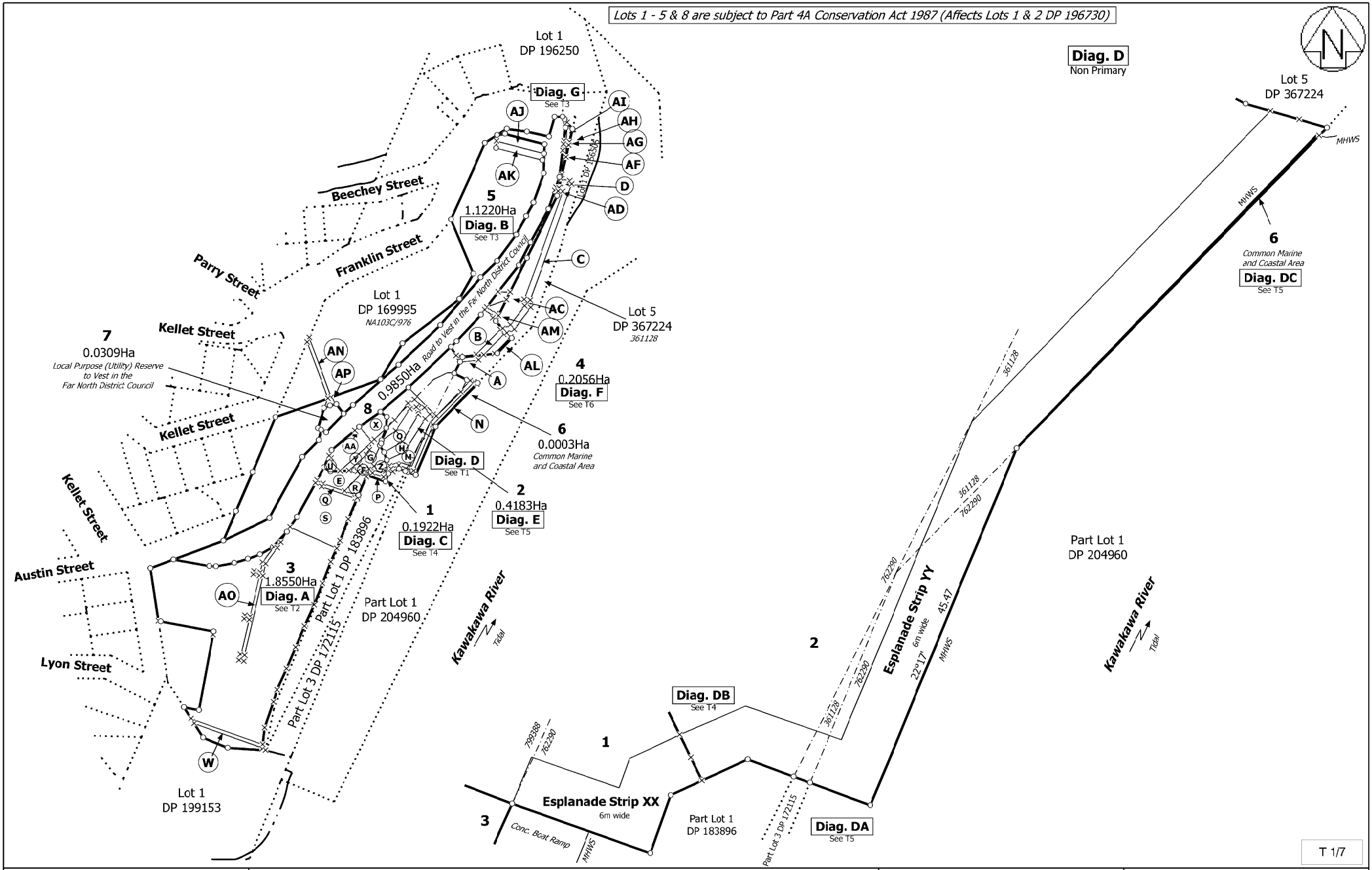
Notes

Last Edited: 21 Aug 2019 08:49:05

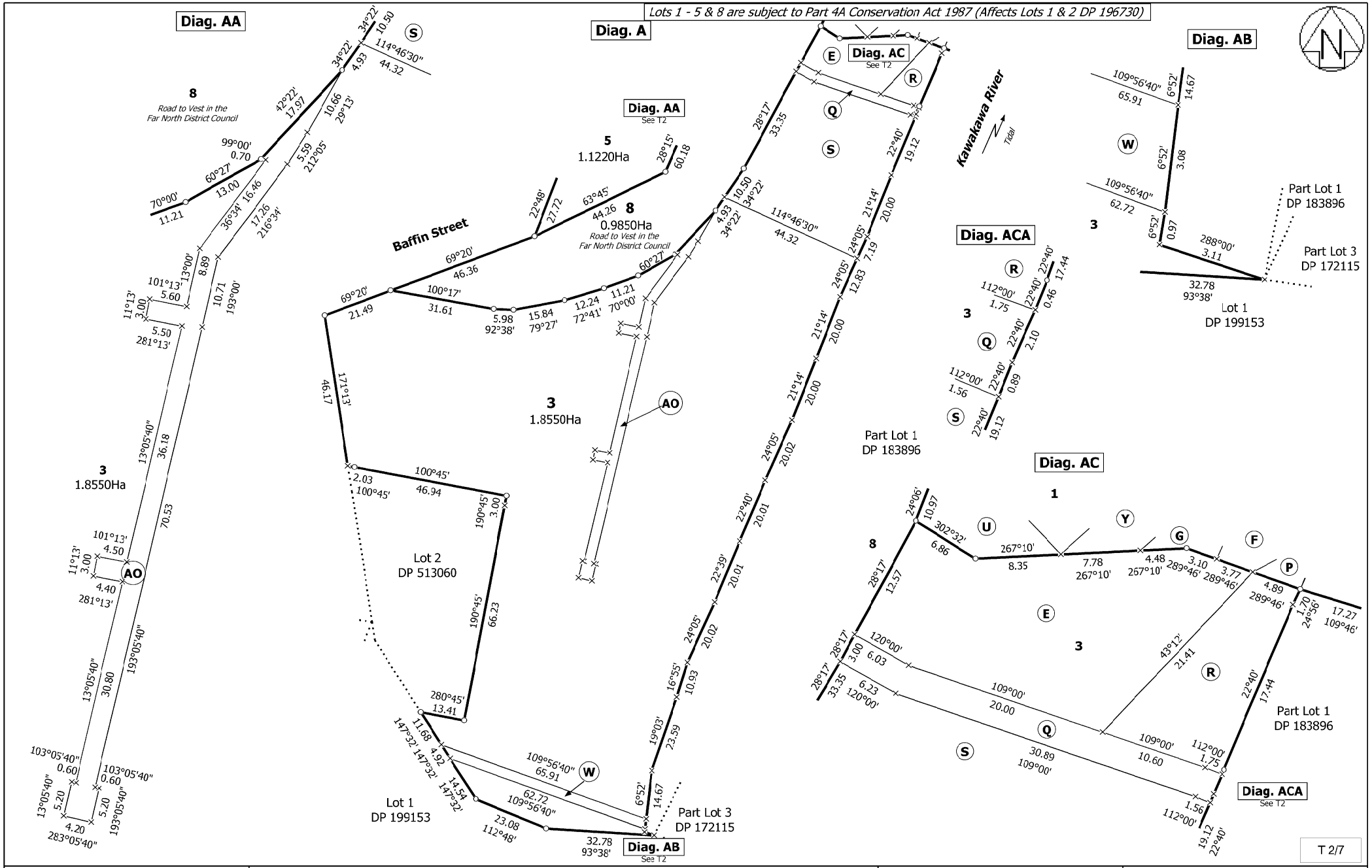
Lot 3 is to remain subject to various covenants (11262658.4)

Lots 1 - 5 & 8 are subject to Part 4A Conservation Act 1987 (Affects Lots 1 & 2 DP 196730)

Lots 1 & 2 are subject to an existing Esplanade Strip (7958488.2)

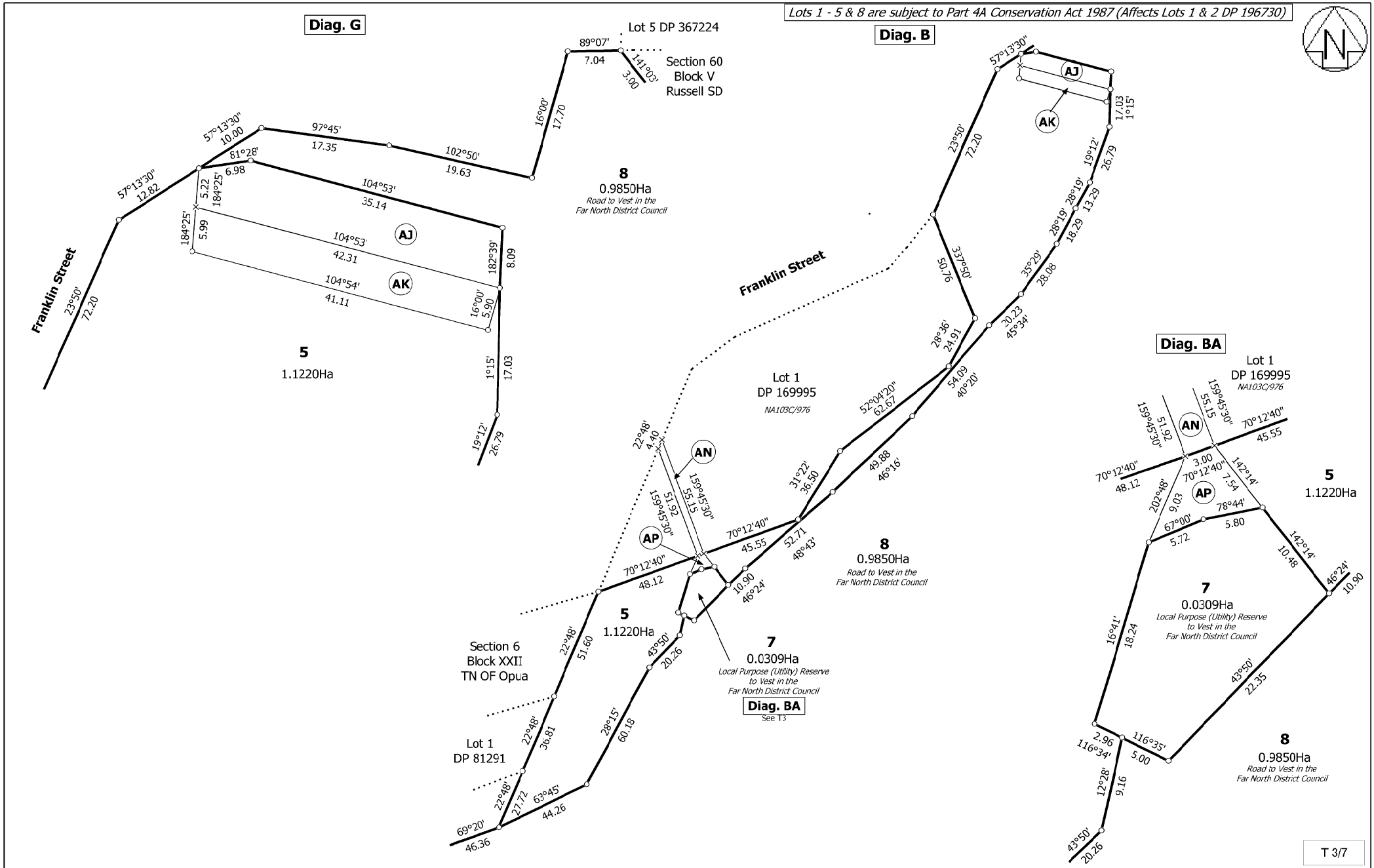


Land District: North Auckland Dataset Type: Parcels without Survey Information Digitally Generated Plan Generated on: 04/12/2019 11:10am Page 5 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019

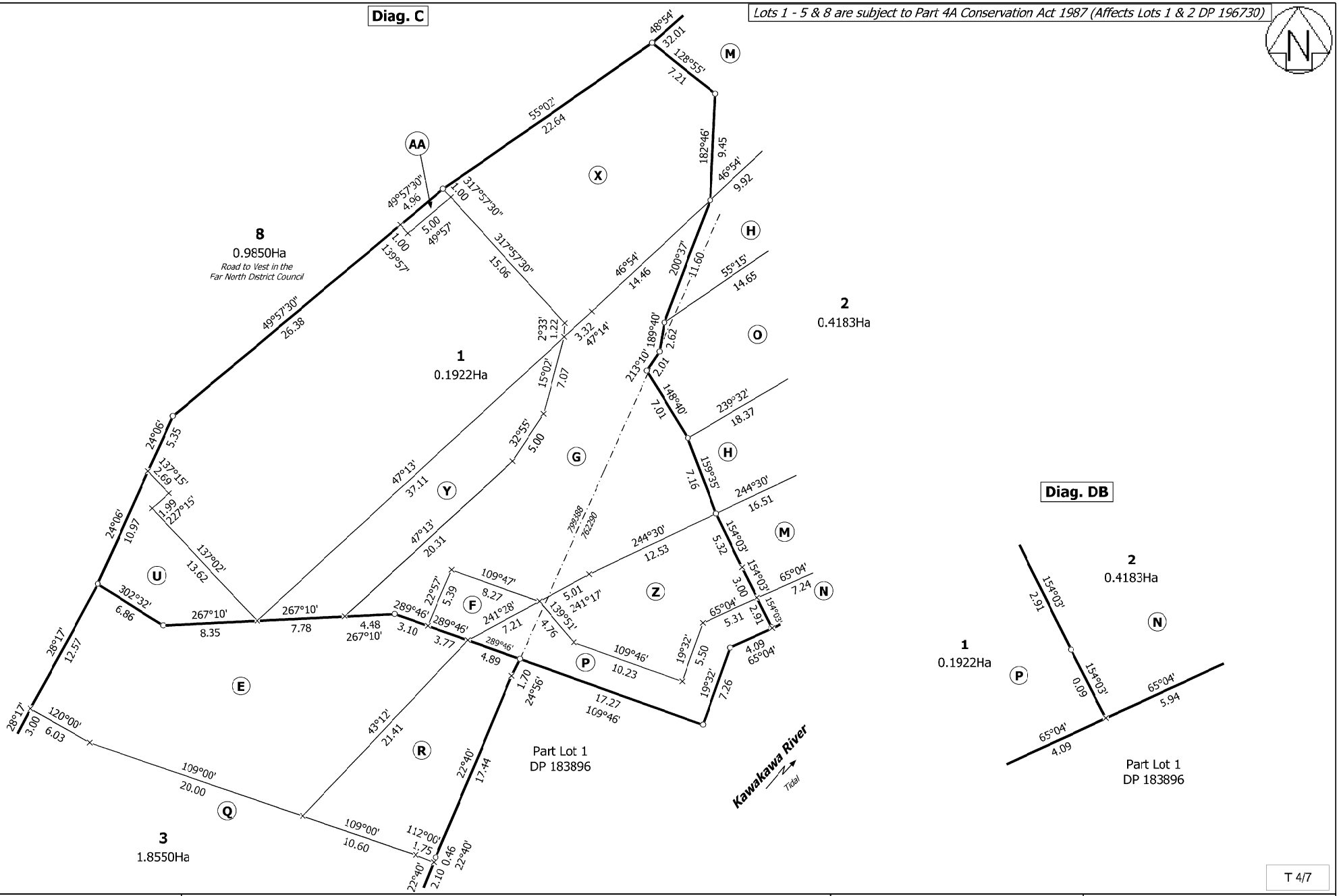


T 2/7

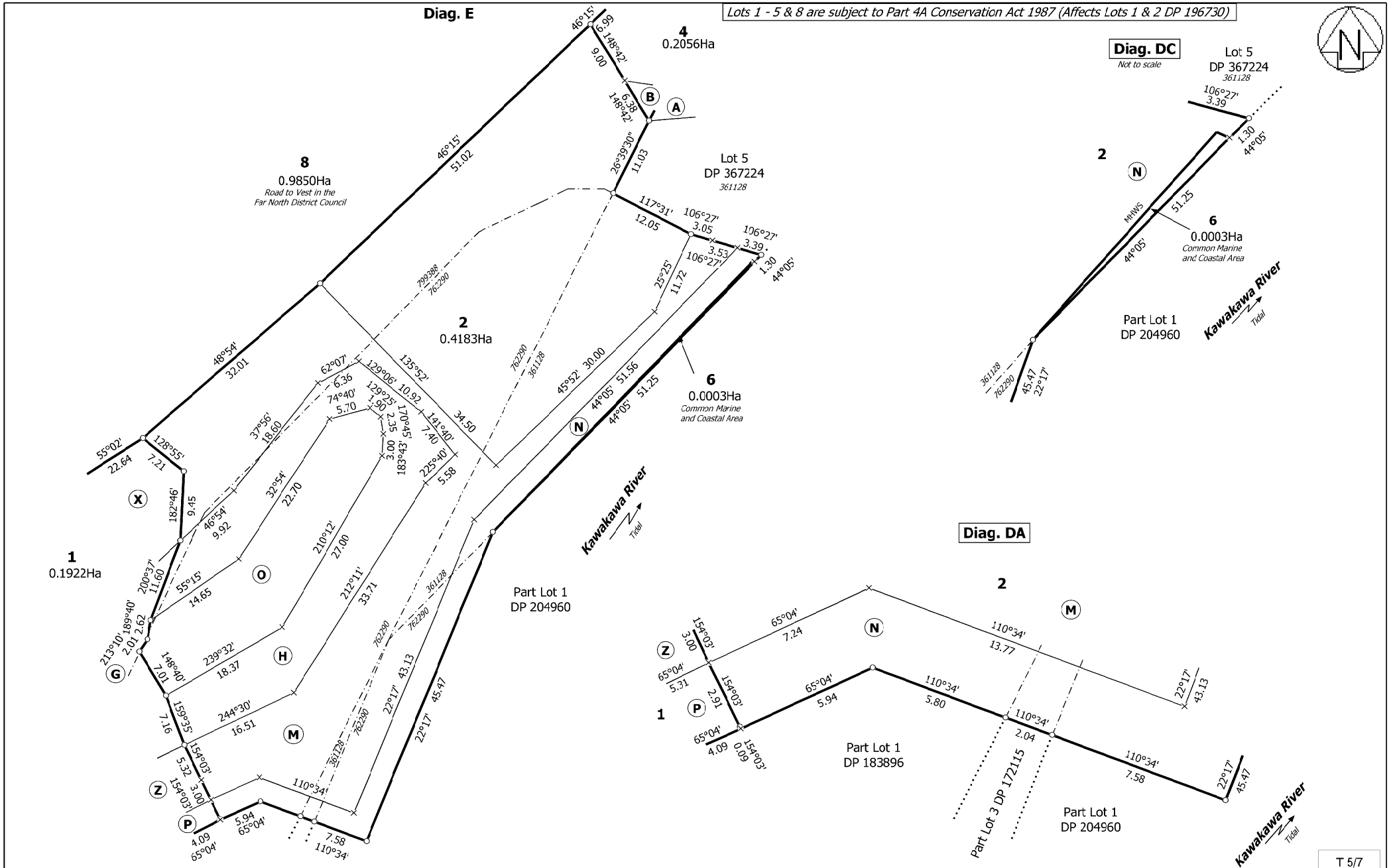
Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 6 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019



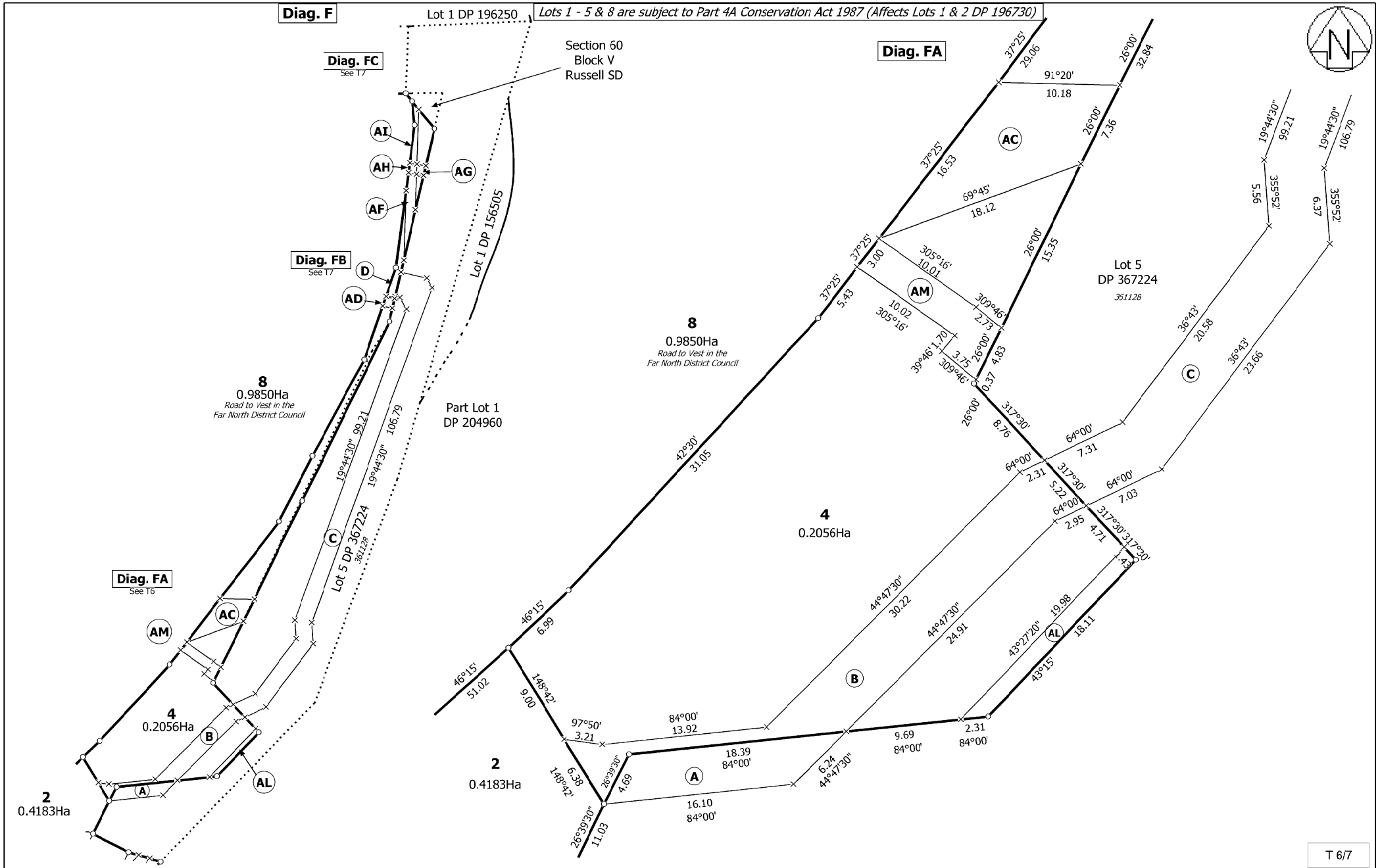
Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 7 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019



Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 8 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019

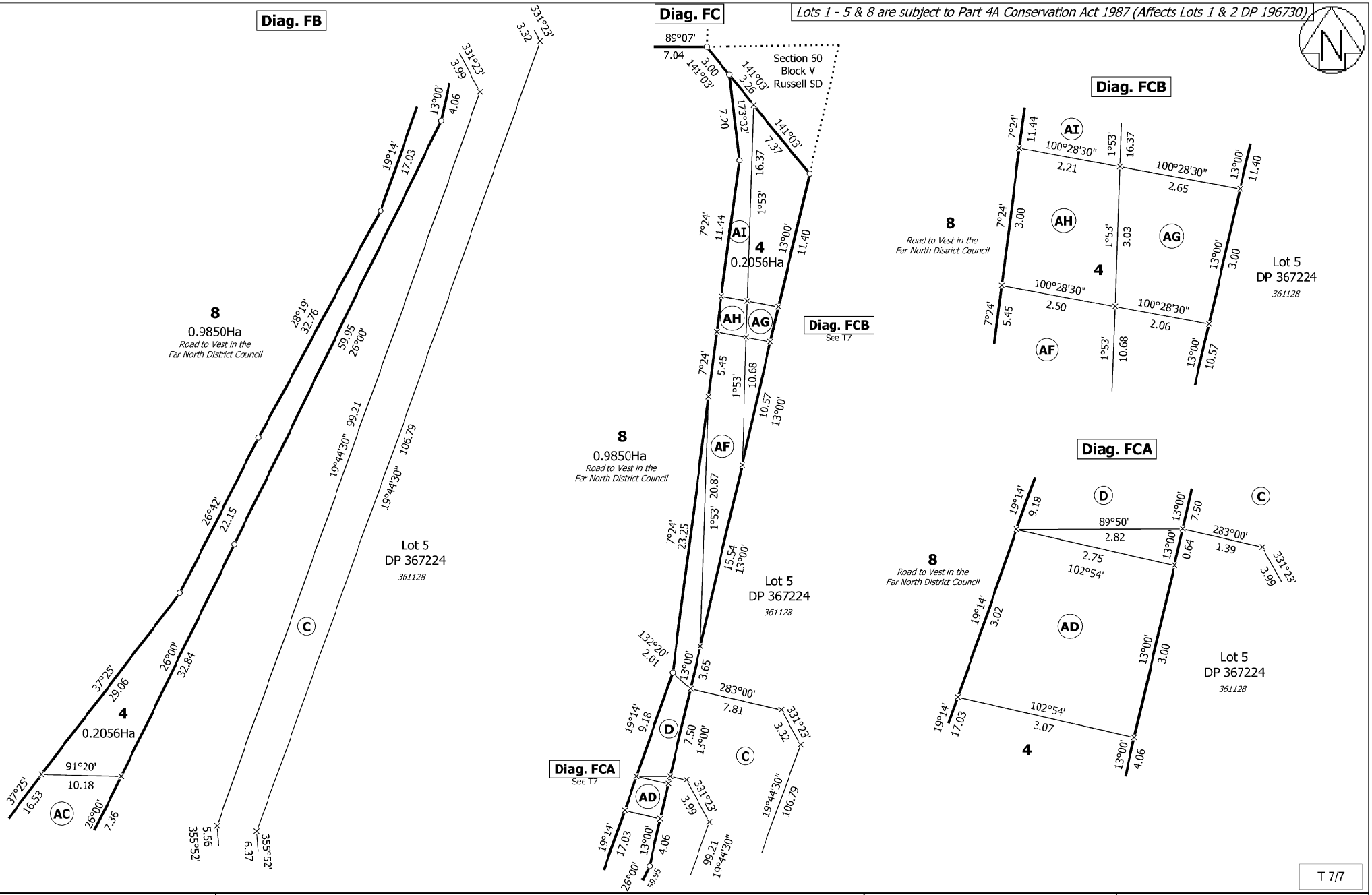


Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 9 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019



T 6/7

Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 10 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019



T 7/7

Land District: North Auckland Dataset Type: Parcels without Survey Information **Digitally Generated Plan** Generated on: 04/12/2019 11:10am Page 11 of 11	LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1 DP 513060, LOTS 1 - 4 DP 367224, LOTS 1 & 2 DP 196730 AND EASEMENTS OVER LOT 5 DP 367224 AND LOT 1 DP 169995	Surveyor: Kurt Eric Watson Firm: Survey & Planning Solutions (2010) L	Title Plan DP 540333 Deposited on: 26/11/2019

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **554546**

Land Registration District **North Auckland**

Date Issued 24 May 2011

Prior References

NA26C/943 NA28A/2

Estate Fee Simple

Area 1.6440 hectares more or less

Legal Description Lot 224 Deposited Plan 79931

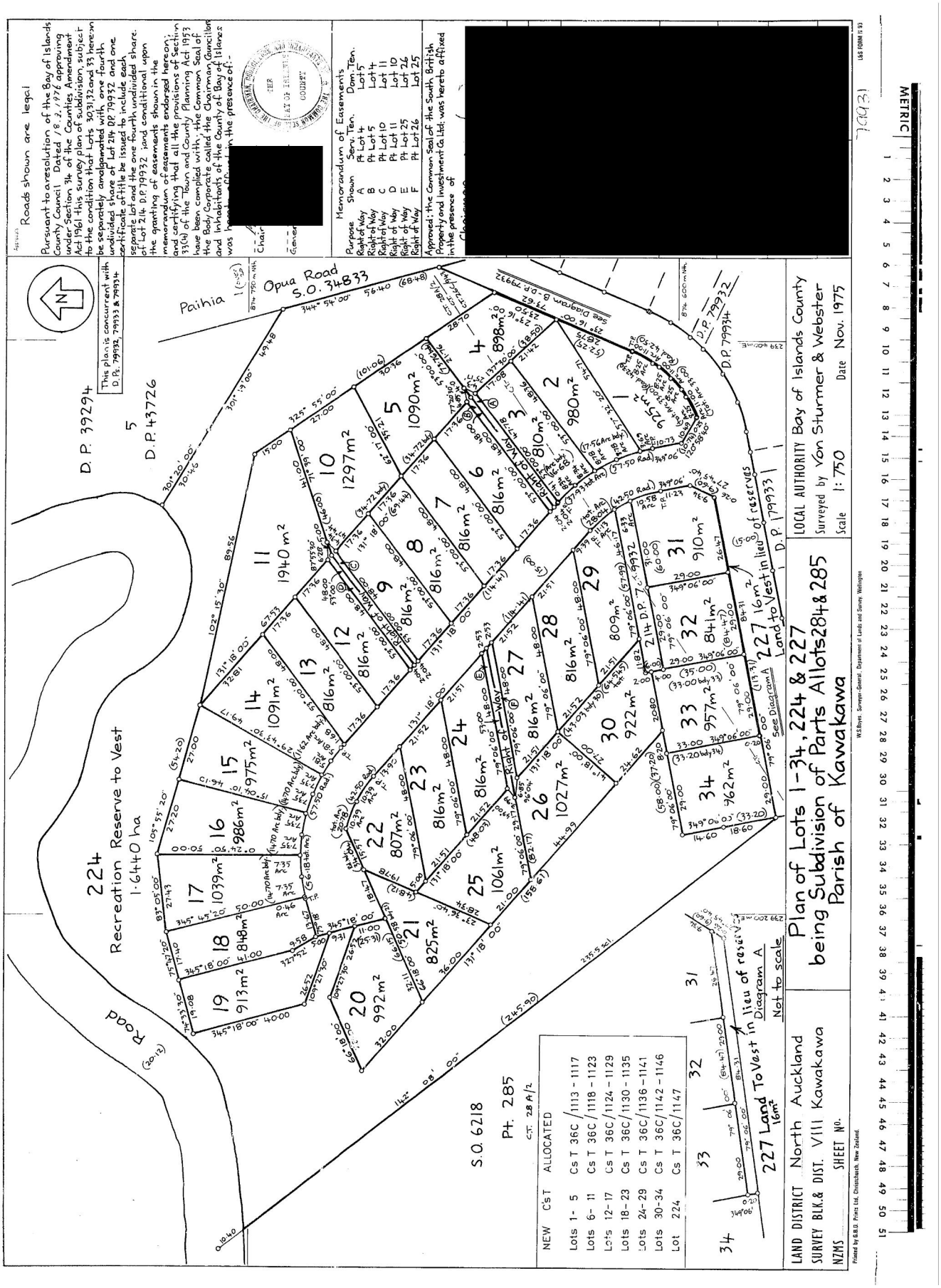
Purpose Recreation Reserve

Registered Owners

Far North District Council

Interests

Subject to the Reserves Act 1977


Roads shown are legal
Pursuant to a resolution of the Bay of Islands County Council Dated 18.2.1976 approving under Section 34 of the Counties Amendment Act 1961 this survey plan of subdivision, subject to the condition that Lots 30,31,32 and 33 hereon be separately amalgamated with one fourth undivided share of Lot 214 DP 79932 and one certificate of title be issued to include each separate Lot and the one fourth undivided share of Lot 214 D.P. 79932 and conditional upon the granting of easements shown in the memorandum of easements endorsed hereon; and certifying that all the provisions of Section 33(a) of the Town and County Planning Act 1953 have been complied with, the Common Seal of the Body Corporate called the Chairman Councillors and Inhabitants of the County of Bay of Islands was hereto affixed on the 6th day of April 1976 in the presence of:-
Memorandum of Easements
Purpose Shown Servt. Ten.
Right of Way A Pt. Lot 4 Lot 5
Right of Way B Pt. Lot 5 Lot 4
Right of Way C Pt. Lot 10 Lot 11
Right of Way D Pt. Lot 11 Lot 10
Right of Way E Pt. Lot 25 Lot 26
Right of Way F Pt. Lot 26 Lot 25
Approved: the Common Seal of the South British Property and Investment Co. Ltd: was hereto affixed in the presence of
This plan is concurrent with D.P. 79932, 79933 & 79934
Paihia
Opua Road
S.O. 34833
D.P. 39294
D.P. 43726
D.P. 79932
D.P. 79934
224
Recreation Reserve to Vest
1.6440 ha
Road
S.O. 6218
Pt. 285
C.T. 28 A/2
227 Land To Vest in lieu of reserves
16m²
Diagram A
Not to scale
Plan of Lots 1-34, 224 & 227
being Subdivision of Parts Allots 284 & 285
Parish of Kawakawa
LOCAL AUTHORITY Bay of Islands County
Surveyed by Von Sturmer & Webster
Scale 1:750 Date Nov. 1975
LAND DISTRICT North Auckland
SURVEY BLK. & DIST. VIII Kawakawa
NZMS SHEET No.
NEW C/S/T ALLOCATED
Lots 1-5 Cs T 36C/1113-1117
Lots 6-11 Cs T 36C/1118-1123
Lots 12-17 Cs T 36C/1124-1129
Lots 18-23 Cs T 36C/1130-1135
Lots 24-29 Cs T 36C/1136-1141
Lots 30-34 Cs T 36C/1142-1146
Lot 224 Cs T 36C/1147
W.S. Boyd, Surveyor-General, Department of Lands and Survey, Wellington
Printed by G.B.D. Prints Ltd, Christchurch, New Zealand.
LGS FORM 1193
METRIC

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

[redacted]
R.W. Muir
Registrar-General
of Land

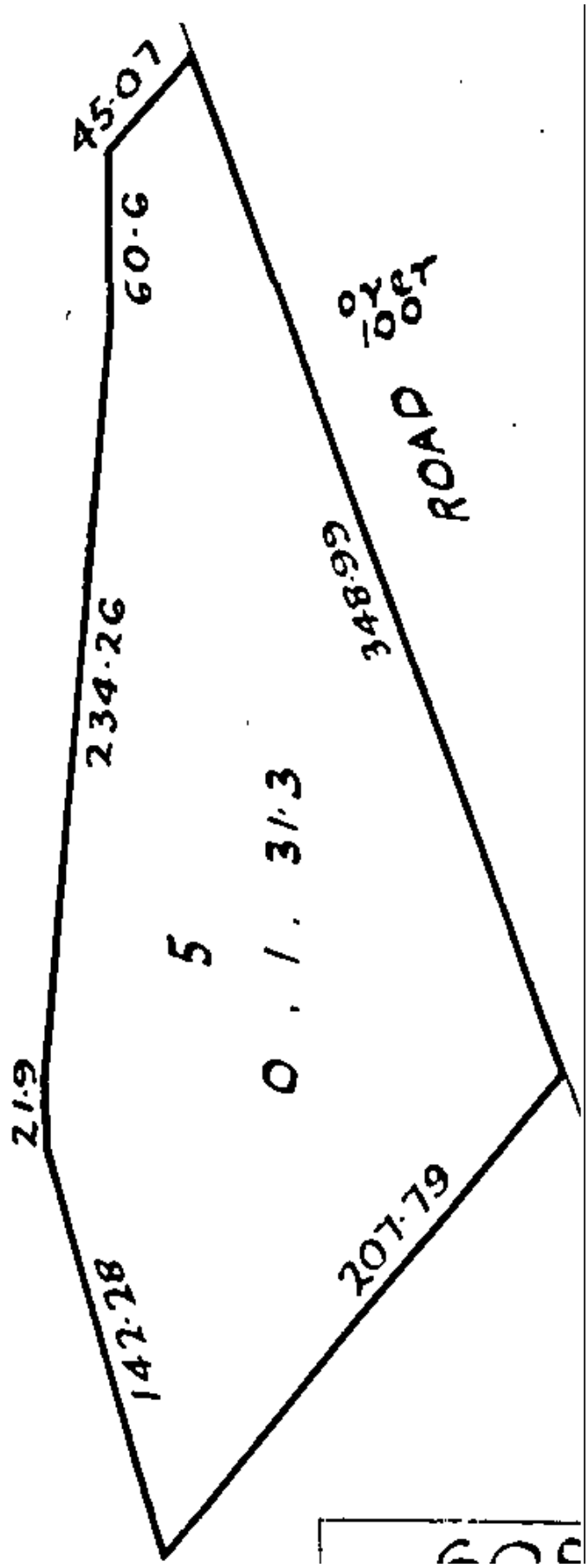
Identifier	**NA12C/309**
Land Registration District	**North Auckland**
Date Issued	31 March 1967

Prior References
NA349/11

Estate	Fee Simple
Area	1803 square metres more or less
Legal Description	Lot 5 Deposited Plan 57340
Registered Owners	

Far North District Council

Interests


45.07
60-6
ROAD
348.99
234.26
5
21.9
142.28
207.79

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

[redacted]
R.W. Muir
Registrar-General
of Land

Identifier **NA112A/909**

Land Registration District **North Auckland**

Date Issued 19 September 1997

Prior References
NA105B/497

Estate Fee Simple

Area 329.6124 hectares more or less

Legal Description Lot 2-3 Deposited Plan 176907, Lot 5 Deposited Plan 177923 and Lot 1 Deposited Plan 184896

Registered Owners
The Proprietors of Tapuetahi

Interests

Subject to a drainage right (in gross) over part marked A on SO 61880 in favour of Her Majesty the Queen for a State Primary School created by Gazette Notice B868621.1 - 29.7.1988 at 1.42 pm

C425585.1 STATUS ORDER DETERMINING THE STATUS OF THE WITHIN LAND TO BE MAORI FREEHOLD LAND - 28.10.1992 AT 9.00 AM

Appurtenant hereto is a right of way specified in Easement Certificate D110562.1 - 20.2.1997 at 2.10 pm

Subject to a right of way over part marked B on DP 142825 specified in Easement Certificate D110562.1 - 20.2.1997 at 2.10 pm (affects Lot 1 DP 184896)

The easements specified in Easement Certificate D110562.1 are subject to Section 243 (a) Resource Management Act 1991

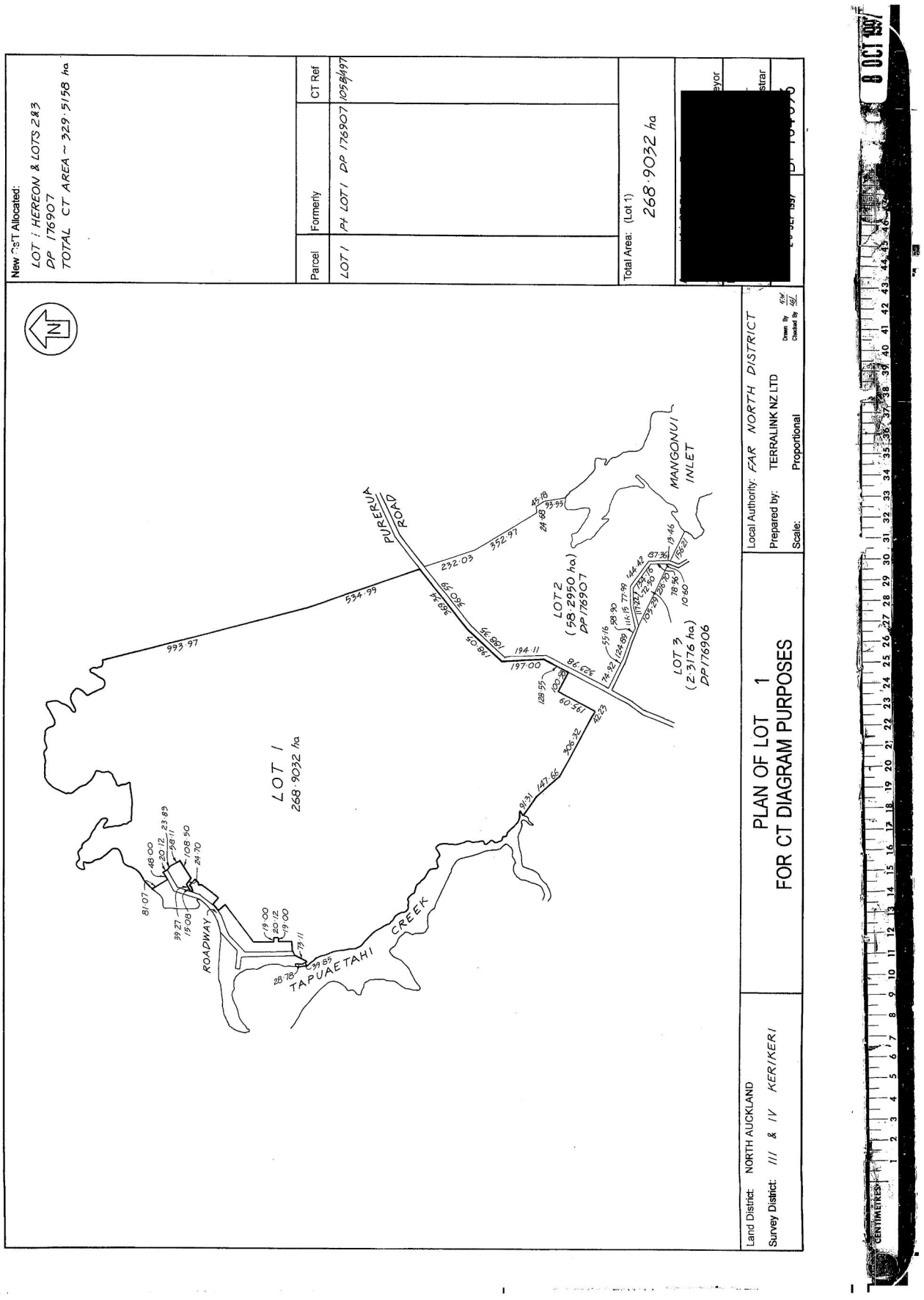
Subject to a right of way over part marked C on DP 177923 created by Court Order D178367.1 - produced 4.8.1997 at 9.00 am and entered 19.9.1997 at 9.00 am

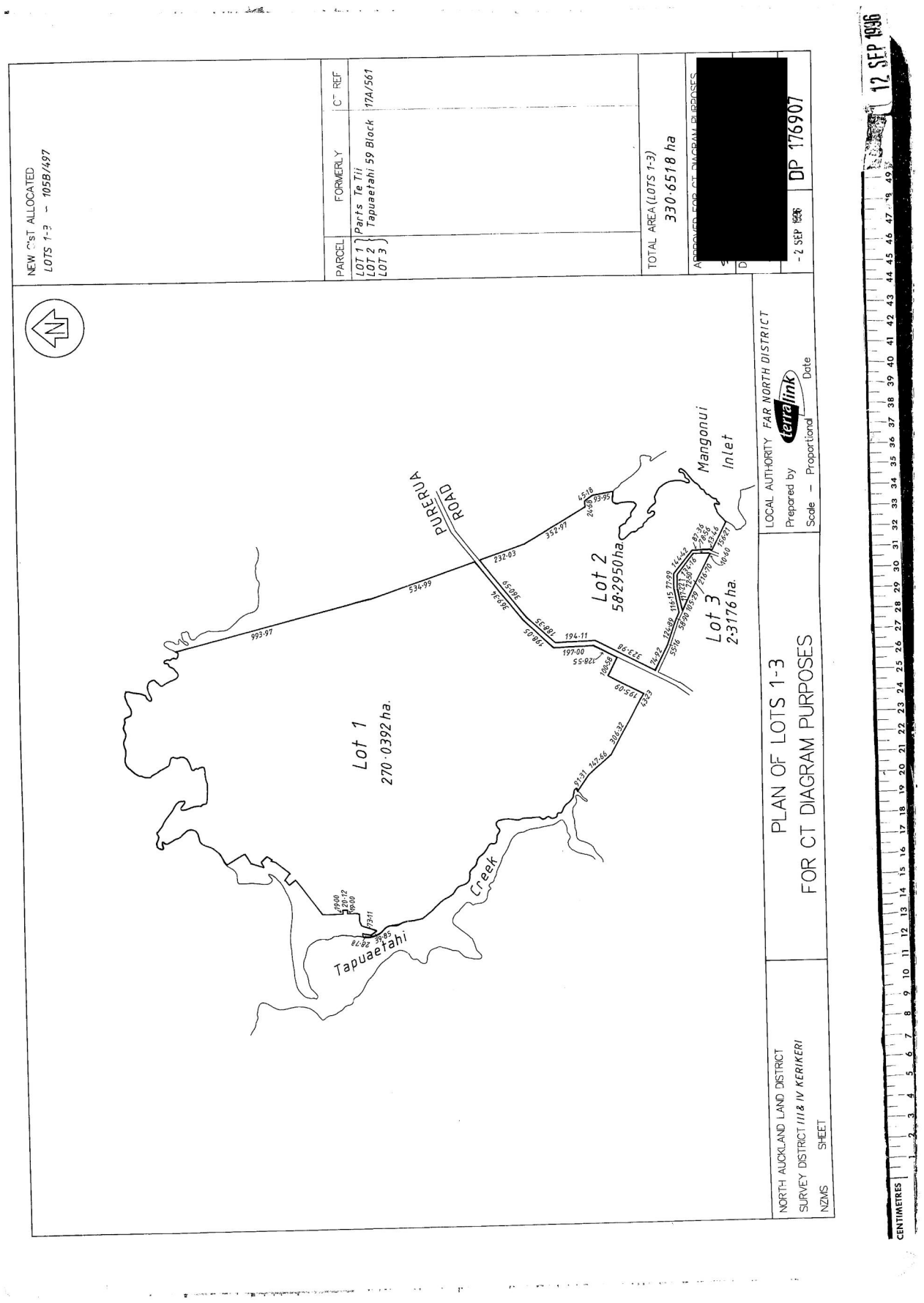
Subject to laying out a roadway over part created by Maori Land Court Order D178368.1 - produced 4.8.1997 at 9.00 am and entered 19.9.1997 at 9.00 am (affects Lot 5 DP 177923)

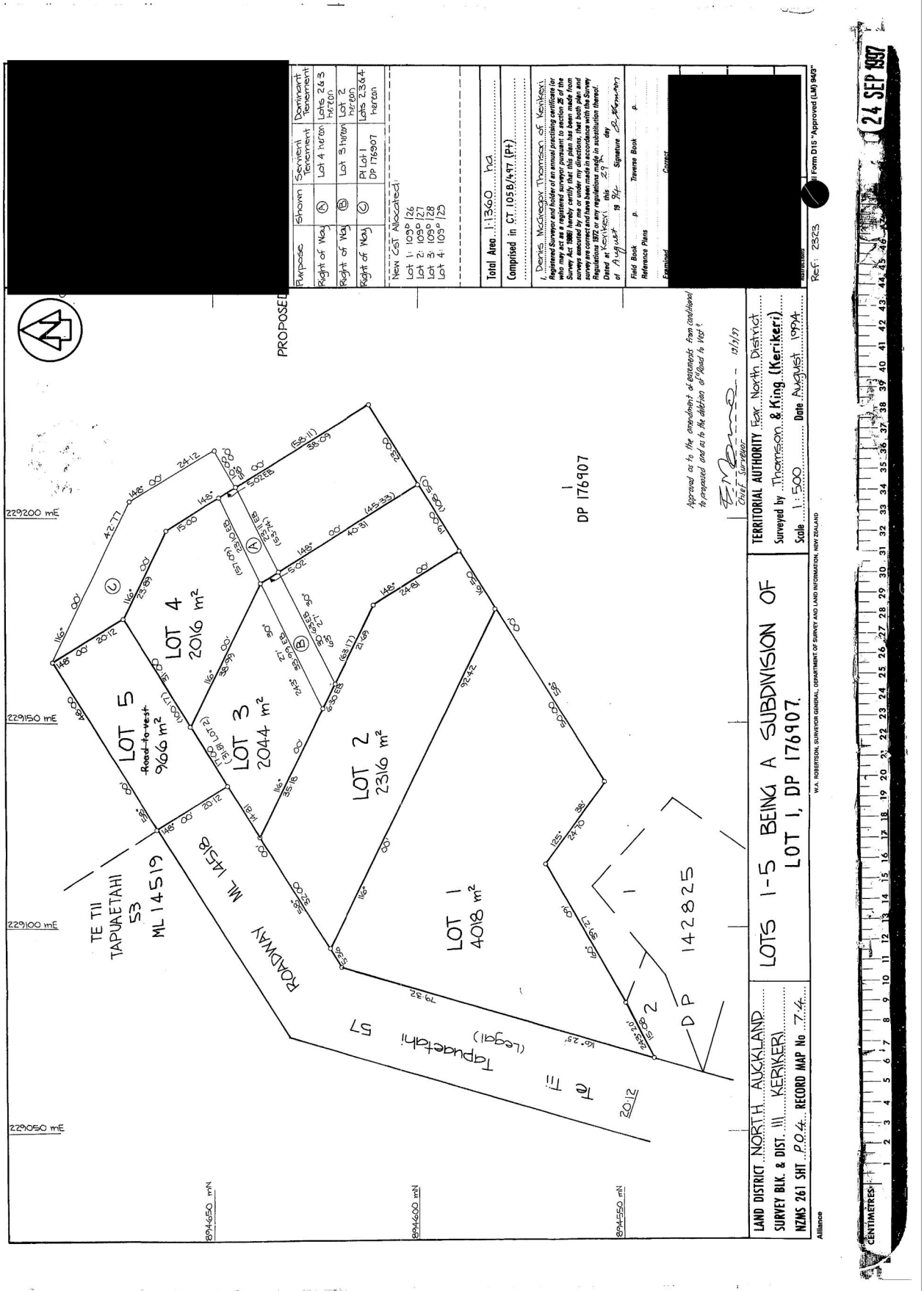
5456215.1 Gazette Notice pursuant to Section 338 (1) Te Ture Whenua Maori Act 1993 hereby sets apart (2.4000h) part Lot 2 DP 176907, as a Maori reservation for the purpose of a sports and recreation complex, to be known as Nga Mahi a Rehia Sports & Recreation Complex for the common use and benefit of the members of the Ngatirehia hapu - 13.1.2003 at 9:00 am

5456215.2 Gazette Notice pursuant to Section 338 (1) Te Ture Whenua Maori Act 1993 hereby sets apart (2.3176h) Lot 3 DP 176907, as a Maori reservation for the purpose of wahitapu, to be known as Te Ahirau Wahitapu for the common use and benefit of the members of the Ngatirehia hapu - 13.1.2003 at 9:00 am

5456215.3 Court Order vesting Lot 3 DP 176907 in Horomoana Herewini, Erehi Herewini, Ngawati Heihei, Pam Enoka, Heemi Epiha, Puawai Silich, Wiremu Papa Heihei, Leo Brown and Maia Edwards as trustees to hold and administer the same for the benefit of the beneficiaries named in the notice - 13.1.2003 at 9:00 am


New CT Allocated:
LOT 1 HEREON & LOTS 283
DP 176907
TOTAL CT AREA ~ 329·5158 ha
Parcel
Formerly
CT Ref
LOT 1
Pt LOT 1 DP 176907
1098/497
Total Area: (Lot 1)
268·9032 ha
PLAN OF LOT 1
FOR CT DIAGRAM PURPOSES
Land District: NORTH AUCKLAND
Survey District: III & IV KERIKERI
Local Authority: FAR NORTH DISTRICT
Prepared by: TERRALINK NZ LTD
Scale: Proportional
LOT 1
268·9032 ha
LOT 2
(58·2950 ha)
DP 176907
LOT 3
(2·3176 ha)
DP 176906
PUREWA ROAD
MANGONUI INLET
TAPUAETAHI CREEK
ROADWAY
8 OCT 1997


NEW C'ST ALLOCATED
LOTS 1-3 - 105B/497
PARCEL
FORMERLY
C" REF
LOT 1
LOT 2
LOT 3
Parts Te Tii
Tapuaetahi 59 Block
17A/561
TOTAL AREA (LOTS 1-3)
330·6518 ha
- 2 SEP
DP 176907
PUREUA ROAD
Mangonui Inlet
Tapuaetahi Creek
Lot 1
270·0392 ha.
Lot 2
58·2950ha
Lot 3
2·3176 ha.
PLAN OF LOTS 1-3
FOR CT DIAGRAM PURPOSES
LOCAL AUTHORITY FAR NORTH DISTRICT
Prepared by terralink
Scale - Proportional
Date
NORTH AUCKLAND LAND DISTRICT
SURVEY DISTRICT III & IV KERIKERI
NZMS SHEET
12 SEP 1996
CENTIMETRES


PROPOSED
Purpose | Shown | Servient Tenement | Dominant Tenement
Right of Way | A | Lot 4 hereon | Lots 2&3 hereon
Right of Way | B | Lot 3 hereon | Lot 2 hereon
Right of Way | C | Pt Lot 1 DP 176907 | Lots 2,3&4 hereon
New CST Allocated:
Lot 1: 1098/26
Lot 2: 1098/27
Lot 3: 1098/28
Lot 4: 1098/25
Total Area 1.1360 hd
Comprised in CT 1058/447 (Pt)
I, Denis McGregor Thomson of Kerikeri,
Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Amendment Act 1980) certify that this survey, and the survey executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.
Dated at Kerikeri this 29th day of August 19 87 Signature
Field Book p. Traverse Book p.
Reference Plans
Examined Correct
Approved as to the amendment of easements from conditional to proposed and as to the division of Road to Vest
Chief Surveyor 13/9/89
TERRITORIAL AUTHORITY Far North District
Surveyed by Thomson & King (Kerikeri)
Scale 1:500 Date August 1989
LOTS 1-5 BEING A SUBDIVISION OF LOT 1, DP 176907.
LAND DISTRICT NORTH AUCKLAND
SURVEY BLK. & DIST. III KERIKERI
NZMS 261 SHT P04 RECORD MAP No 7.4
W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND
Alliance
Ref: 2323
Form D15 "Approved (LM) 9419"
24 SEP 1987
LOT 1 DP 176907
LOT 5 Road to vest 966 m²
LOT 4 2016 m²
LOT 3 2044 m²
LOT 2 2316 m²
LOT 1 4018 m²
DP 142825
TE TII TAPUAETAHI 53 ML 14519
ROADWAY ML 14518
Te Tii Tapuaetahi 57 (Legal)
2012
229200 mE
229150 mE
229100 mE
229050 mE
894650 mN
894600 mN
894550 mN
CENTIMETRES

Report on Maori Land details for the following Record(s) of Title

Record(s) of Title

NA112A/909	Identified as potentially Maori Freehold Land

***** End of Report *****

View Statutory Action

Parcel Allotment 294 Town of Mangonui
Current Purpose Recreation Reserve

Parcel ID 4691257
Parcel Status Current

Statutory Action	Type	Recorded	Action	Status
New Zealand Gazette 1979 p 3078	Gazette Notice	04/04/2002	Create	Current

Statute
Purpose Recreation Reserve
Name Mangonui Domain
Comments

***** End of Report *****

View Parcel

Appellation			
New Appellation Date		**Parcel ID**	5206214
Parcel Status	Current	**Parcel Area**	
Intent	Road	**Total Area**	
Associated Feature			
Land District	North Auckland		
Non Surveyed Definition			

***** End of Report *****

Spatial Map Print

Scale 1 : 6700

0 250 500 750 1000 1250 1500 m

This data has been compiled from official records. Location of boundaries requires an analysis of all relevant information in compliance with the Survey Regulations. Attribute data requires an analysis of the appropriate legal record.

Landonline Map Printed as at 15-04-2023 14:55:24

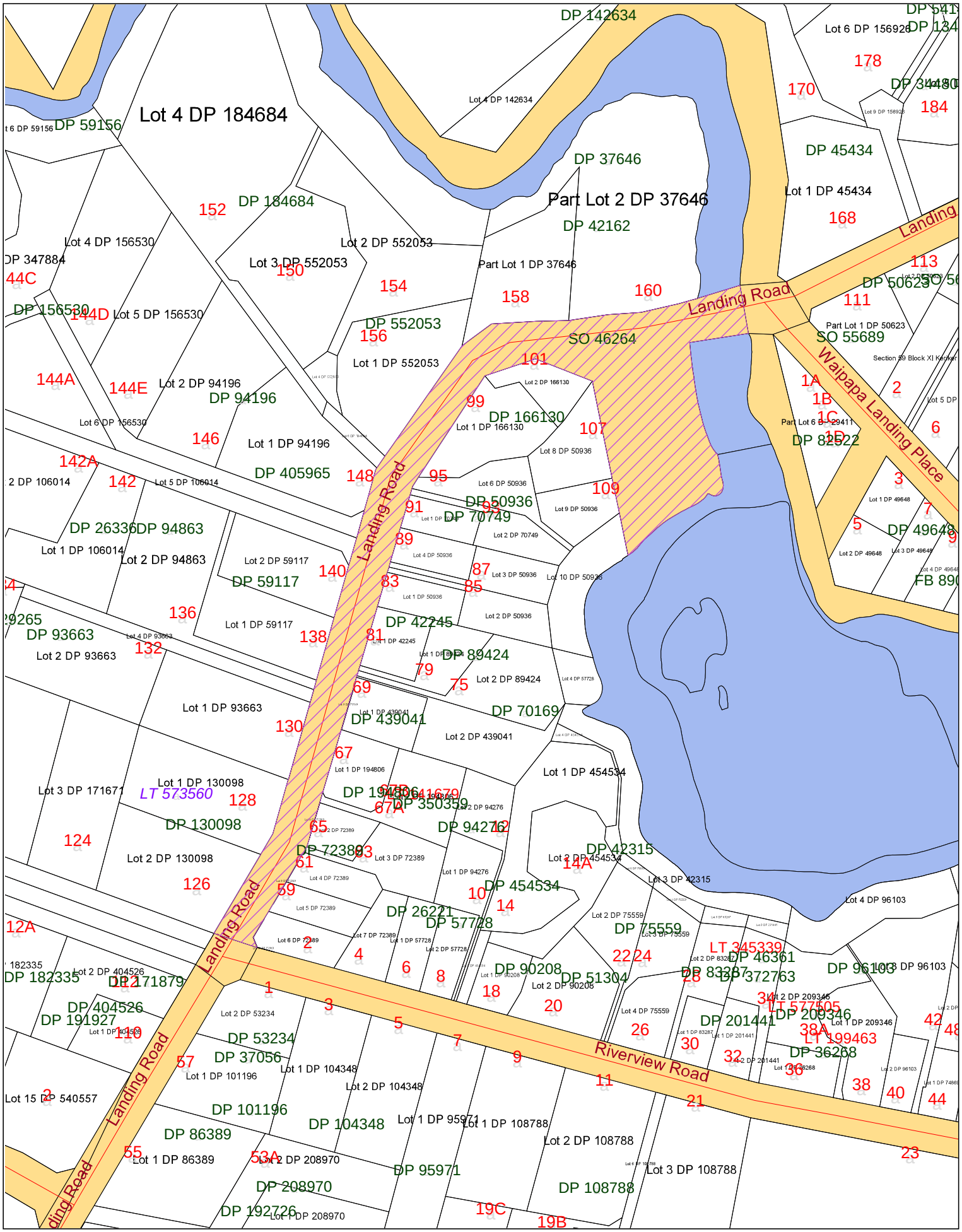
mkempster001

Siren 100 - Waipapa Landing

View Parcel

Appellation			
New Appellation Date		**Parcel ID**	5225070
Parcel Status	Current	**Parcel Area**	
Intent	Road	**Total Area**	
Associated Feature			
Land District	North Auckland		
Non Surveyed Definition			

***** End of Report *****



Spatial Map Print

Scale 1 : 2700

0 50 100 150 200 250 300 m

Landonline Map Printed as at 15-04-2023 15:07:23

mkempster001

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

[redacted]
R.W. Muir
Registrar-General
of Land

Identifier **NA121C/71**

Land Registration District **North Auckland**

Date Issued 29 July 1998

Prior References
NA107B/244

Estate Fee Simple

Area 6894 square metres more or less

Legal Description Allotment 53 Parish of Awanui and Lot 1 Deposited Plan 178617

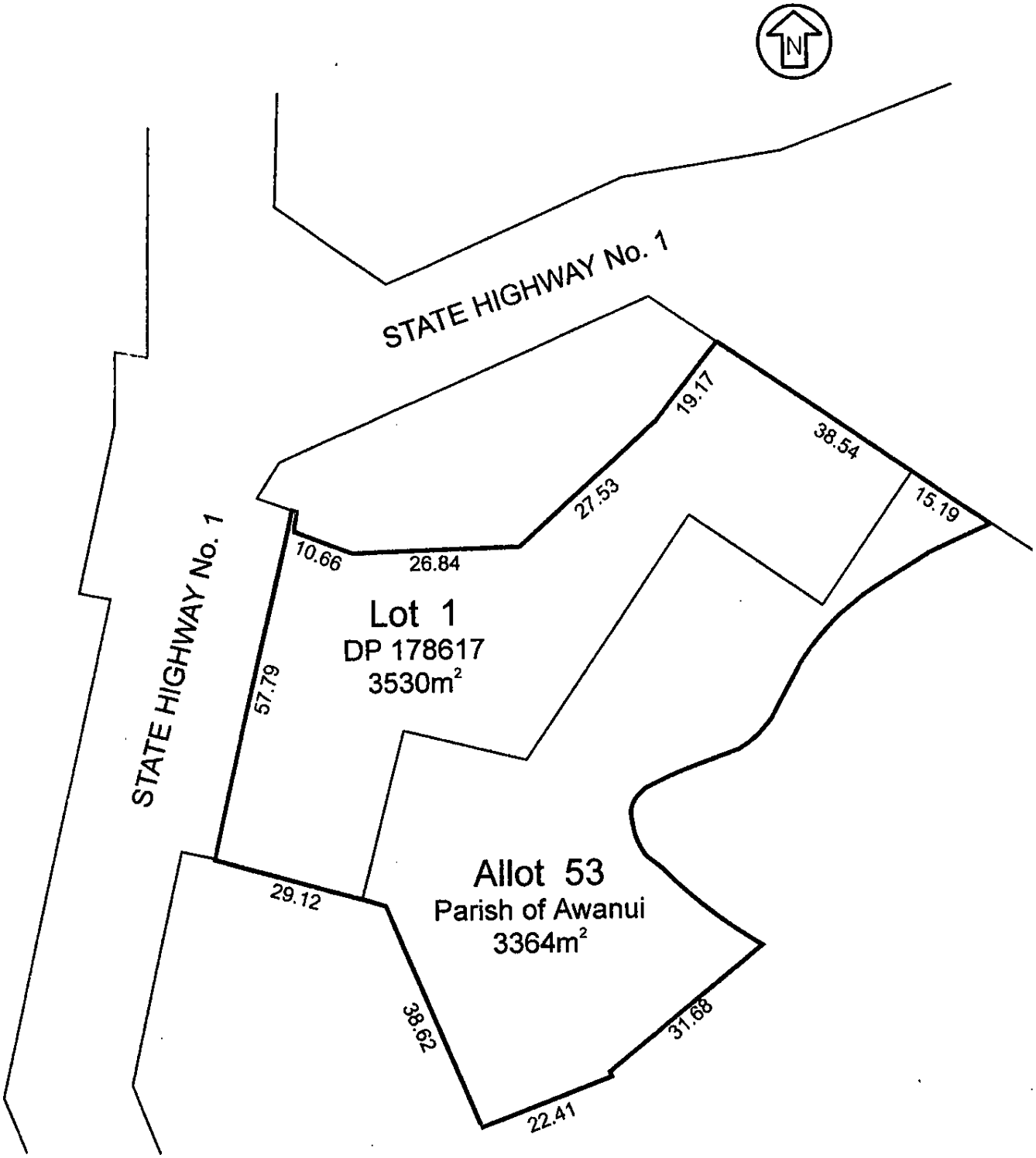
Purpose Recreation reserve

Registered Owners
Far North District Council

Interests

SUBJECT TO THE RESERVES ACT 1977

Subject to Section 59 Land Act 1948

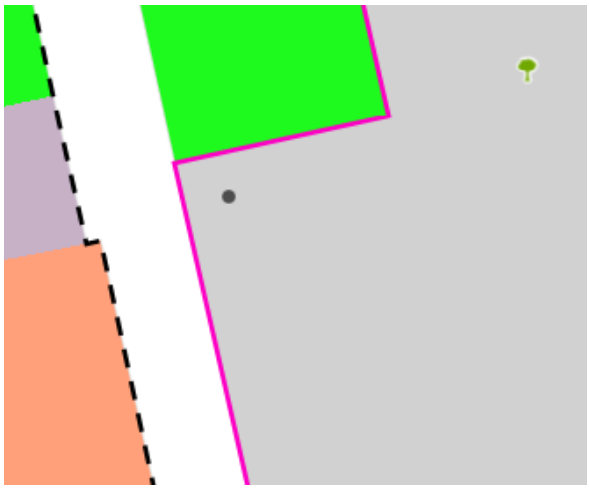


TOTAL CT AREA: 6894 m²

22799
NK AC

Appendix 2 – Siren & Location Assessments

The table below provides site specific analysis and assessments of each proposed siren location. The purpose of the tables is to provide Council sufficient detail to understand the context of each site, summarise the reasons for consent and provide an assessment of adjacent land.

Siren 63 – 13 Church Street, Russell	
Siren Type	TWS-293 have a maximum structure height of 9.1m. The siren component itself has a dimension of 1.15m (H) x 0.85 (W).
Legal Description	Lot 2 Deposited Plan 339185
Area	574m^2
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Russell Township ODP Overlays: Heritage Area – Russell Township Basin and Gateway Area PDP Zone: Kororāreka Russell Township PDP Overlays: Coastal Environment, Heritage Area Part D, River Flood Hazard 100-year ARI Event and Coastal Flood Zones 1, 2, 3.	
Locality Diagram	

Barker & Associates
+64 375 0900 | admin@barker.co.nz | barker.co.nz
Kerikeri | Whangārei | Warkworth | Auckland | Tauranga | Hamilton | Cambridge | Napier | Wellington | Christchurch | Wānaka | Queenstown

Site Plan

Site Description and Surrounding Context

This site is located on the eastern side of Church Street, and has an approximate area of 574m^2. The site is flat, and does not contain any trees or bush with development comprising a surfaced metalled car parking area and a wooden fence around the entire north, east and southern boundary. Aside from a small vegetated strip along the southern boundary, the site is covered with a metalled car park.

It is zoned as Russell Township and is subject to the Heritage Area – Russell Township Basin and Gateway Area Overlay under the ODP.

The site is bounded by the conservation, recreational activities and commercial zones under the ODP. To the north, west and south of the proposed siren are small lots that are a mix of commercial and residential activity. To the west of the siren is Kororāreka Bay, medical centre, Russell Playcentre, various bars and restaurants and the Russell Wharf which runs passenger ferries to Paihia to the west. To the north, east, and south of the siren is Russell bowling club, residential units, hotels, Russell School and Four Square.

Reasons for Consent

ODP

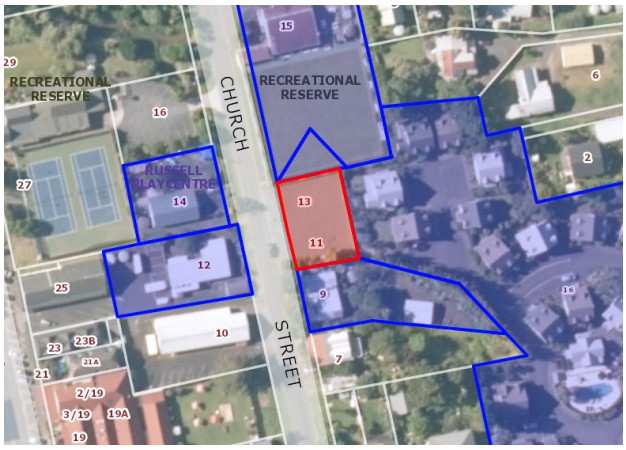
- 10.9.5.1.4 Building Height: The siren is proposed to be 9.1m high, this will infringe the permitted 7.2m height by 1.9m. As the siren is 9.1m high, this will infringe the RDA rules maximum height of 9m. This requires consent as a discretionary activity.
- 10.9.5.1.6 Sunlight: The siren cannot comply with the HIRB, and is setback 2.34m from the nearest boundary. This requires consent as a restricted discretionary activity.
- 10.9.5.1.13 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

PDP

- HA-R8 New Buildings or Structures: The proposed siren will be seen from a public place and will not comply with the heritage colours; these two infringements infringe the restricted discretionary activity status. This requires consent as a discretionary activity.

Adjacent Properties

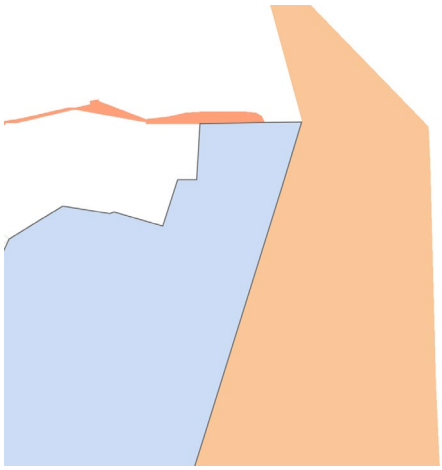
- 9, 12, 14 and 15 Chruch Street
- 16 Chapel Road



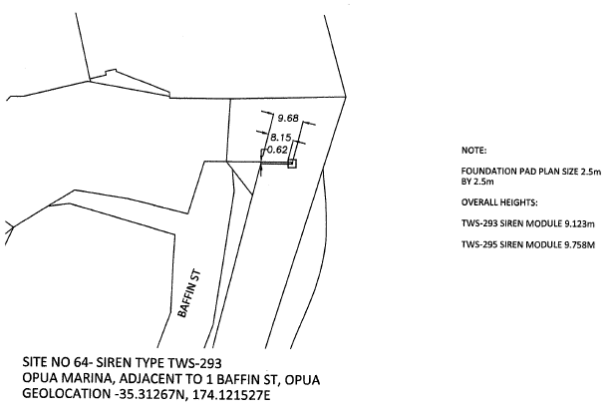
Adjacent Land Assessment

Any effects on 9, 12, 14 and 15 Church Street and 16 Chapel Road are considered to be negligible and less than minor for the following reasons:

- The proposed siren complies with setback to boundary standards to 31 and 41; and
- The sirens will be tested twice a year at the turn of daylight savings for a duration of 2 minutes, during day time hours only. Otherwise, they will only be activated in the event of an emergency. Effects in this regard are considered acceptable given the public health and civil emergency nature of the infrastructure. Testing effects are considered to be managed appropriately by limiting the duration and time in which the infrastructure can be tested.

Siren 64 – 1/3 Baffin Street, Ōpua	
Siren Type	TWS-293 have a maximum structure height of 9.1m. The siren component itself has a dimension of 1.15m (H) x 0.85 (W).
Legal Description	Lot 5 DP 367224 (Parcel ID: 6984049)
Area	7,826m^2
Site Owner	Far North Holdings Limited
Zone/Overlays/Designations ODP Zone: Industrial ODP Overlays: Ōpua Marina – Maritime Exemption Area PDP Zone: Light Industrial PDP Overlays: Coastal Environment, River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 1, 2, 3.	
Locality Diagram	

Site Plan



Site Description and Surrounding Context

The siren is proposed to be located within a grassed recreation area at Ōpua Marina. The parcel has an approximate area of 7,826m^2 and is owned by Far North Holdings Limited. The parcel is bounded by both the industrial to the east, south and west and the commercial zone to the north under the ODP. The site is zoned as Industrial with a Marine Exemption overlay applying to it.

The siren is proposed on a concreted area adjacent to the Kawakawa / Ōpua River and will be constructed adjacent to (on the northern side), the Ōpua General Store. This is within a flat and open grassed area which is in part enclosed by an existing pōhutukawa tree and other various trees and plants, directly to the east is a wharf. No vegetation removal will be required. To the north west, is the Paihia township.

Reasons for Consent

ODP

- 7.8.5.1.6 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Adjacent Properties

- 1 Baffin Street
- 1 Beechy Street

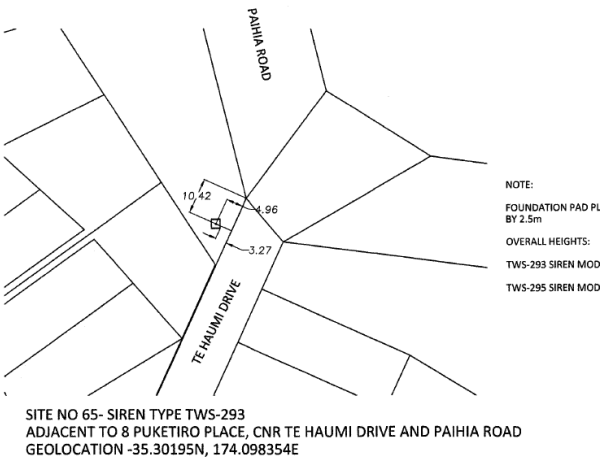
Adjacent Land Assessment

1 Baffin Street and 1 Beechy Street both contain commercial buildings with their outlook towards the Kawakawa / Ōpua River. Adverse effects of the proposed siren on these properties are considered assessed as less than minor for the following reasons:

- The siren complies with all bulk and location controls; and
- Aside from noise, which is considered acceptable in this instance given the health and safety nature of the activity and conditions offered as part of this proposal. There are no other infringements that result from the proposal on adjacent land.

Siren 65 – Corner Te Haumi Drive and Paihia Road	
Siren Type	TWS-293 have a maximum structure height of 9.1m. The siren component itself has a dimension of 1.15m (H) x 0.85 (W).
Legal Description	Lot 224 Deposited Plan 79931
Area	1.644ha
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Conservation ODP Overlays: None PDP Zone: Natural Open Space PDP Overlays: High Natural Character '449' and '451' (siren is not within High Natural Character Overlays)	
Locality Diagram	

Site Plan



Site Description & Surrounding Context

This siren is located within conseravtion land wihtin loctaed of Te Haumi Road, Te Haumi. Te Haumi is a small coastal settlement south-east of Paihia and north-west of ōpua in the Bay of Islands.

The parcel has an approximate area of 1.644ha and contains various veegtation, the location of the siren is on flat grass. Te Haumi Drive connects to State Highway 11 which leads to the Paihia that is developed with a range of activities, including public toilets, carparking, bars, restaurants, and retail.

Topography of the site is varied, with the development site located at the crest of the Te Haumi hill. The site is primarily vegetated with a mix of indigenous vegetation, with some weedy exotics on the road frontage and outer extent of the bush. The siren will be constructed within an existing clearing at the edge of the vegetation and adjacent to Te Haumi Drive. It is proposed to cluster the siren with existing FNDC infrastructure, including a street light at the intersection of Te Haumi Drive and State Highway 11.

The siren is in proximity to the Paihia Village that comprises of a Foursquare, Countdown, hotels, backpackers, retail outlets, takeaway outlets, restaurants and bars and is in proximity to coastal residential properties.

Reasons for Consent

ODP

- 9.7.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal conservation activities of the site in accordance with 9.7.5.1.1, it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.
- 9.7.5.1.3 Building Height: The siren is proposed to be 9.123m high, this will infringe the permitted 8m height by 1.123m. As the siren is 9.123m high, this complies with the maximum height of 10m under the RDA rule. This requires consent as a restricted discretionary activity.
- 9.7.5.1.4 Sunlight: The siren is set back approximately 3m from the nearest boundary and therefore cannot comply with this rule. This requires consent as a restricted discretionary Activity.
- 9.7.5.1.6 Screening from neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule, the siren cannot meet the RDA standards. This requires consent as a discretionary Activity.

- 9.7.5.1.8 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary Activity.

Adjacent Properties

- 1, 1A, 3, and 3A Te Haumi Drive
- 8, 10, 20, 20A and 22 Puketiro Place

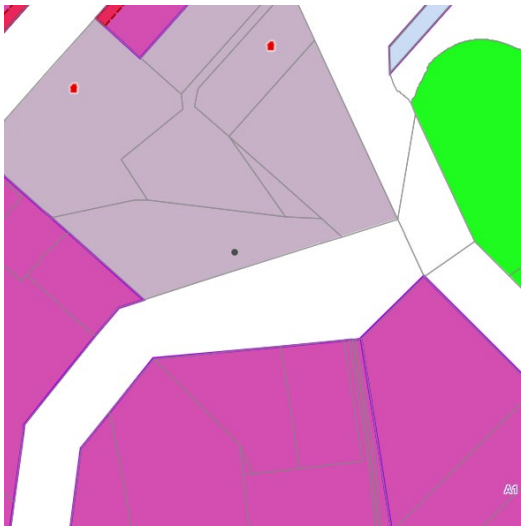
Adjacent Land Assessment

Any effects on the properties are considered to be negligible and less than minor for the following reasons:

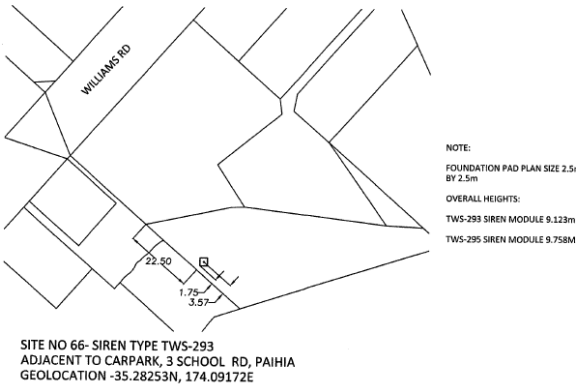
- The proposed siren complies with setback to boundary standards to all residential properties;

  With respect to number 8 and 10 Te Haumi Drive, the siren will likely be visible from those properties due to the topography of the site. However, the proposed infrastructure is not considered to result in domination, loss of privacy or overshadowing on those properties. The existing vegetation will assist in screening the pole; this in combination with the separation distances ensure the bulk of the structures will not be dominating on the properties. With respect to sunlight access, the siren is unlikely to generate a noticeable shadow on properties 8 and 10, given it is located on the southern boundary; and

- The sirens will be tested twice a year at the turn of daylight savings for a duration of 2 minutes, during day time hours only. Otherwise, they will only be activated in the event of an emergency. Effects in this regard are considered acceptable given the public health and civil emergency nature of the infrastructure. Testing effects are considered to be managed appropriately by limiting the duration and time in which the infrastructure can be tested.

Siren 66 – 3 School Road, Paihia	
Siren Type	TWS-293 have a maximum structure height of 9.1m. The siren component itself has a dimension of 1.15m (H) x 0.85 (W).
Legal Description	Lot 5 Deposited Plan 57340
Area	1802m^2
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Recreational Activities ODP Overlays: None PDP Zone: Open Space PDP Overlays: Coastal Environment, Heritage Area 'Part A', Heritage Item '90a', River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 2, 3.	
Locality Diagram	

Site Plan



Site Description and Surrounding Context

The siren is located within recreational reserve off of School Road, Paihia. The parcel has an approximate area of 1802m^2 and contains flat patched grass areas with a stand of mature pōhutukawa trees clustered along the open stormwater drain. School Road connects to State Highway 11 which leads to the Paihia Wharf that is developed with a range of activities, including public toilets, carparking, bars, restaurants, retail and ferry terminal which operates dial passenger service to Waitangi and Russell.

Directly adjoining the site to the north is the Paihia Library, to the south west is Williams Road public carpark, Paihia School and residential properties. Topography of the site is varied with numerous vegetation on site, no vegetation removal will be required.

The siren is in proximity to the Paihia Village that comprises of a Foursquare, Countdown, hotels, backpackers, retail outlets, takeaway outlets, restaurants and bars and is in proximity to coastal residential properties.

Reasons for Consent

ODP

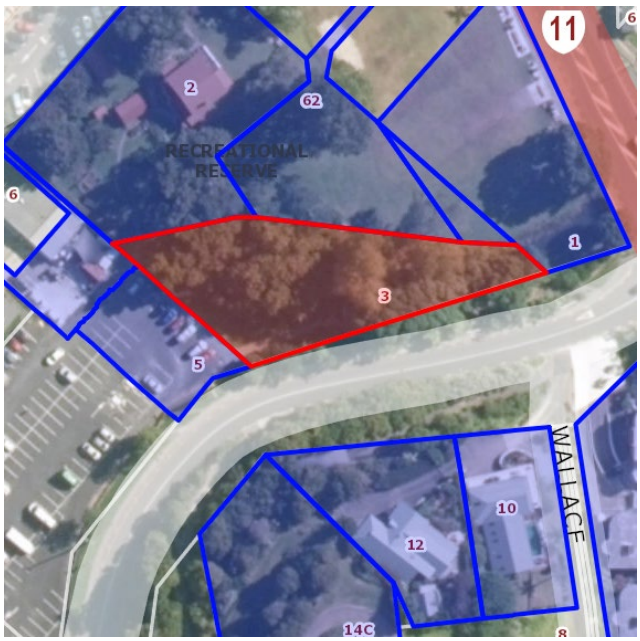
- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site, it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.
- 9.6.5.1.3 Building Height: The siren is proposed to be 9.1m high, this will infringe the permitted 8m height by 1.1m. As the siren is 9.1m high, this will comply the RDA rules maximum height of 10m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback 2.34m from the nearest boundary. This requires consent as a restricted discretionary activity.
- 9.6.5.1.6 Setback from Boundaries: The siren is 1.75 from the nearest boundary, this cannot comply with the minimum setback of 2m. Therefore, infringes the rule by 0.25m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

PDP

- **HA-R9: New buildings or Structures**: All new buildings or structures require resource consent as a **discretionary activity** within the Paihia - Part A overlay.

Adjacent Properties

- 1 School Road
- 54-56 and 62 Marsden Road
- 10, 12, 14C Wallace Lane
- 2 and 5 Williams Road



Adjacent Land Assessment

1 School Road, 2 Williams Road and 62 Marsden Road are zoned as recreational activities zone under the ODP. There are no bulk and location infringements over these properties.

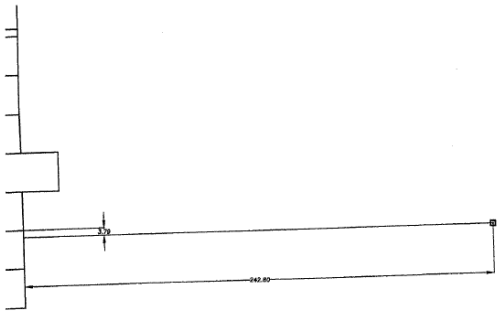
54-56 Marsden Road and 12, 12, 14C Wallace Lane are well separated from the proposed siren location, and the siren does not have any infringements over these properties. All these properties contain a dwelling with their outlook towards Paihia Beach not in the direct line of sight of the siren.

5 Williams Road is used as a parking facility. The proposed siren infringes the setback, height and height in relation to boundary over this property. The effects associated with the height and HIRB infringements will not generate adverse effects as the shadow created by the pole will not produce dominant shading effects and the height of the pole is comparable to a light or power pole that are currently in place within this car parking area. 5 Williams Road is utilised as a public carp park and owned by Far North Holdings Ltd; given its use as a public car park in conjunction with the central location being with Paihia's town centre, the proposal is considered to have less than minor adverse effects.

Overall, taking the above into account, adverse effects of the proposal are considered to be **less than minor**.

Siren 69 – 1009 Purerua Road, Te Tii	
Siren Type	TWS-293 have a maximum structure height of 9.1m. The siren component itself has a dimension of 1.15m (H) x 0.85 (W).
Legal Description	Lot 2-3 DP 176907, Lot 5 DP 177923 and Lot 1 DP 184896
Area	267.4863 ha
Site Owner	The Proprietors of Tapuetahi
Zone/Overlays ODP Zone: General Coastal ODP Overlays: None PDP Zone: Māori Purpose - Rural PDP Overlays: Coastal Environment	
Locality Diagram	

Site Plan



SITE NO 69- SIREN TYPE TWS-293
APPROX 300m EAST OF 18 TARONUI ROAD, TI TII
GEOLOCATION -35.125883N, 173.986548E

Site Description & Surrounding Context

This site is located within Māori Freehold Land approximately 300m east of 18 Taronui Road, Te Tii and measures approximately 267.4863 ha. The siren site is flat and does not contain any trees or bush, the site as a whole comprises of vast pasture, vegetation and development consists of a dwelling and associated shed located approximately 1.3km south east of the siren site.

The site is zoned as general coastal and is bounded by both the general coastal, coastal living and coastal residential zones under the ODP. To the north, east and south of the proposed siren are large lots, to the west are small coastal residential lots. To the north west of the siren is Taronui Bay. Land immediately east and south is largely vacant of all development, while there are coastal residential dwellings constructed on land north of Taronui Road. Te Tii School adjoins the site to the south.

The siren location has been discussed with The Proprietors of Tapuetahi and the result of consultation are enclosed in Appendix 4.

Reasons for Consent

ODP

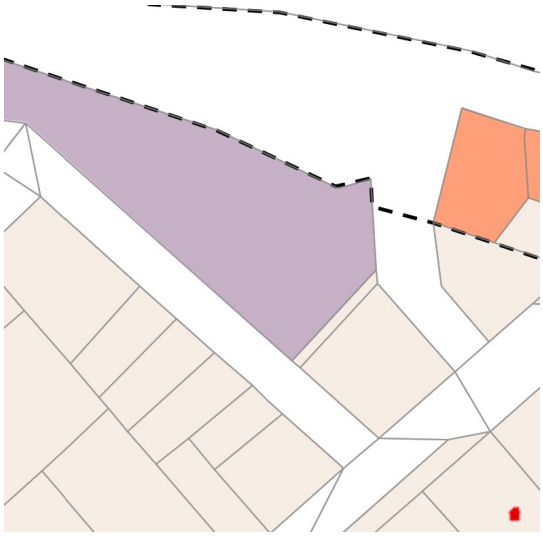
- 10.6.5.1.4 Building Height: The siren is proposed to be 9.123m high, this will infringe the permitted 8m height by 1.123m. As the siren is 9.123m high, this will infringe the RDA rule maximum height of 9m. The Discretionary activity height rule is 10m. This requires consent as a discretionary activity.
- 10.6.5.1.10 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Adjacent Properties

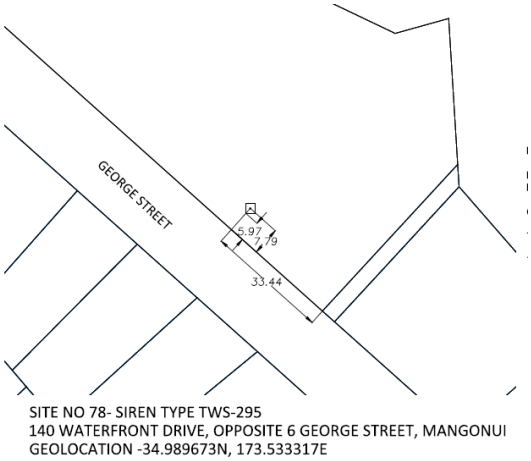
- 18-68 Taronui Road
- Lot 1 DP 72572
- 935 Purerua Road
- Parcel ID: 5266070

Adjacent Land Assessment

It is deemed that any effects on adjacent land are **negligible** given there are no infringements on any adjacent land and all properties to the north and west have their outlook orientated towards Taronui Bay and will be able to view the siren. Further, the siren is setback approximately 300m to the nearest property to the west, 450m to the nearest property to the north, 1.3km to the nearest property to the east and 630m to the south.

Siren 78 – 140 Waterfront Drive, Mangōnui	
Siren Type	TWS-295 have a maximum structure height of 9.8m. The siren component itself has a dimension of 1.78m (H) x 0.85 (W).
Legal Description	Parcel ID: 4691257 - Allot 294 TN OF Mangonui
Area	9535m^2
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Recreational Activities ODP Overlays: None PDP Zone: Open Space PDP Overlays: Coastal Environment, Heritage Area 'Mangonui and Rangitoto Peninsula Heritage Area - Part B'	
Locality Diagram	

Site Plan



Site Description and Surrounding Context

The siren is located within recreational reserve off of George Street, Mangōnui. The parcel has an approximate area of 9535m^2 and contains flat patched grass areas with numerous trees and no development. George Street connects to Colonel Mould Drive which then connects to State Highway 11.

Directly adjoining the site to the north is Waterfront Drive, to the south, east and west is residential properties. Topography of the site is varied with numerous vegetation on site, no vegetation removal will be required. The siren is in proximity to the Mangōnui Village that comprises of a Foursquare, hotels, backpackers, retail outlets, takeaway outlets, Mangōnui School, restaurants and bars and is in proximity to coastal residential properties.

Reasons for Consent

ODP

- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site, it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.
- 9.6.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback approximately 6m from the nearest boundary. This requires consent as a restricted discretionary activity.
- 9.6.5.1.9 Screening for Neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule and it cannot meet the RDA standards. This requires consent as a discretionary activity.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

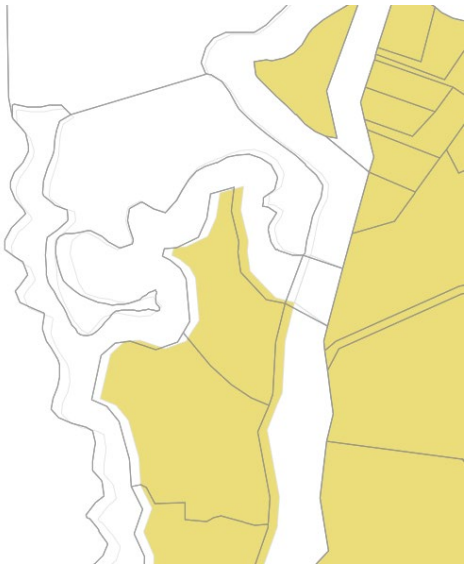
Adjacent Properties

- 2A, 3, 4, 6, 8, 10 and 22 George Street
- 115 Waterfront Drive

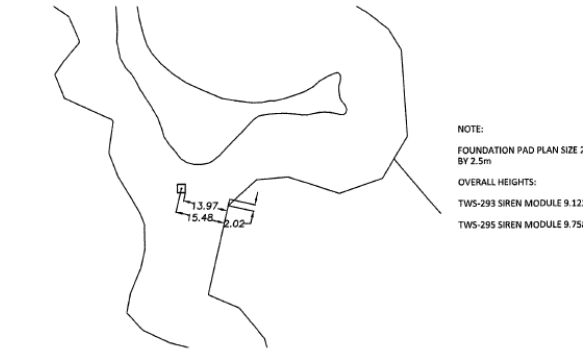
Adjacent Land Assessment

George Street comprises of single to double-storey residential units with their outlook towards he south, not towards the siren location as the topography of George Street starts to fall away to the south. There are no bulk and location infringements over properties along George Street.

115 Waterfront Drive consists of Waterfront Drive and A large area of mature vegetation, users of Waterfront Drive will not be able to see the siren given the topography and mature dense vegetation on this site. Overall, taking the above into account, adverse effects of the proposal are considered to be less than minor.

Siren 99 – Road Reserve (Windsor Landing Boat Ramp and Jetty Carpark, Kerikeri Inlet Road)	
Siren Type	TWS-295 have a maximum structure height of 9.8m. The siren component itself has a dimension of 1.78m (H) x 0.85 (W).
Legal Description	Parcel ID: 5206214
Area	10.8527ha
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Coastal Living ODP Overlays: None PDP Zone: Rural Lifestyle PDP Overlays: Coastal Environment and Coastal Flood Zones 2 and 3.	
Locality Diagram	

Site Plan



SITE NO 99 - SIREN TYPE TWS-295
WINDSOR LANDING BOAT RAMP, ADJACENT TO 943 & 949 KERIKERI INLET RD, KERIKERI
GEOLOCATION -35.209643N, 174.026474E

Site Description and Surrounding Context

This site is located at Windsor Landing Boat Ramp and Jetty Carpark off of Kerikeri Inlet Road and measures approximately 10.8527ha. The site is flat and contains numerous bush and vegetation with development comprising a surfaced internal road layout and sealed car parking areas. No vegetation removal is required. The site is well setback from the foreshore, separated by mangroves and bush that buffer the car park from the coastal margin.

The site is bounded by both the coastal living zone under the ODP. To the north, east and south of the proposed siren are large lots and small coastal residential lots. To the west of the siren is Kerikeri Inlet and the Windsor Jetty.

Reasons for Consent

ODP

- 10.7.5.1.4 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will infringe the RDA rules maximum height of 9m. This requires consent as a discretionary activity.
- 10.7.5.1.7 Setback from Boundaries: The siren will be approximately 9.7m from the nearest site boundary infringing the permitted setback of 10m by 0.3m. This requires consent as a restricted discretionary activity.
- 10.7.5.1.8 Screening for Neighbours Non-Residential Activities: It is not proposed to provide any form of landscaping, therefore infringing this rule and cannot meet the RDA rules. This requires consent as a discretionary activity.
- 10.7.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.
- 12.7.6.1.1 Setback from Lakes, Rivers and the Coastal Marine Area: The siren will be approximately 14m from the CMA, infringing the permitted setback of 30m by 16m. This requires consent as a discretionary activity.

Adjacent Properties

- 943 and 949 Kerikeri Inlet Road.
- Kerikeri Inlet – Parcel ID: 5267469 and 8196476.

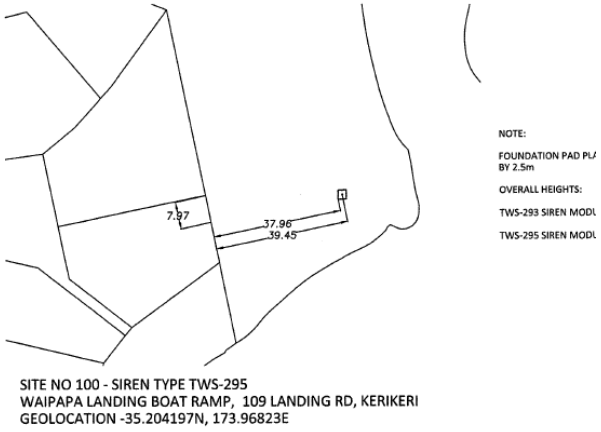
Adjacent Land Assessment

943 and 949 Kerikeri Inlet Road both contain a residential dwelling and various vegetation. Any effects on these two properties are considered to be negligible and less than minor as there is no bulk and location infringements to these properties. The proposed siren will not hinder any of their outlook towards Kerikeri inlet either.

Parcel ID: 5267469 and 8196476 are zoned as coastal living, and do not comprise of any residential activity. These parcels contain dense vegetation and staggered topography as they adjoin the coastline. The proposed siren infringes height and setback requirements overe these parcels, however, any effects are considered to be less than minor as the siren is comparabe to a light pole that already exists within the parking area in this environment.

Siren 100 – Road Reserve (Waipapa Landing Jetty, Landing Road)	
Siren Type	TWS-295 have a maximum structure height of 9.8m. The siren component itself has a dimension of 1.78m (H) x 0.85 (W).
Legal Description	Parcel ID: 5225070
Area	1.7121ha
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Rural Living ODP Overlays: None PDP Zone: Natural Open Space PDP Overlays: Coastal Environment, Coastal Flood Zones 1, 2 and 3.	
Locality Diagram	

Site Plan



Site Description and Surrounding Context

This site is located at Waipapa Landing Jetty Carpark off of Landing Road, Kerikeri and measures approximately 1.7121ha. The site is flat and contains various vegetation with development comprising a surfaced internal road layout and sealed car parking areas. Public ablutions are also located centrally within the car park including a public toilet, parts of the parking area are demarcated by bollards with a street light located in front of the toilet and jetty.

Adopting the zoning adjoining the site, it is zoned rural living under the ODP. The site is bounded by both the rural living and conservation zones under the ODP. To the north, east and west of the proposed siren are small coastal residential and larger rural lots. To the south of the siren is Kerikeri Inlet. Land immediately west, south and east is predominantly coastal residential dwellings. Waipapa township is approximately 5km west and Kerikeri township is approximately 3.5km to the south.

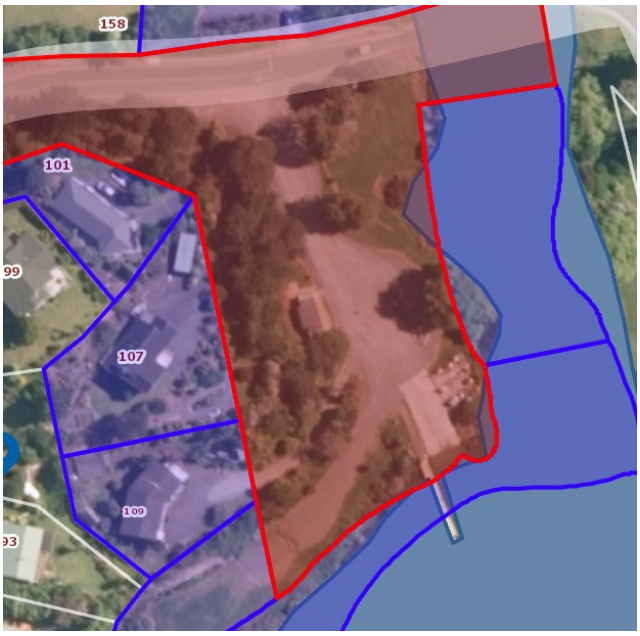
Reasons for Consent

ODP

- 8.7.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 9m height by 0.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a restricted discretionary activity.
- 8.7.5.1.7 Screening for Neighbours – Non-Residential Activities: It is not proposed to provide any form of landscaping, therefore infringing this rule. This requires consent as a restricted discretionary activity.
- 8.7.5.1.11 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.
- 12.7.6.1.1 Setback from Lakes, Rivers and the Coastal Marine Area: The siren will be approximately 17m from the CMA, infringing the permitted setback of 30m by 13m. This requires consent as a restricted discretionary activity.

Adjacent Properties

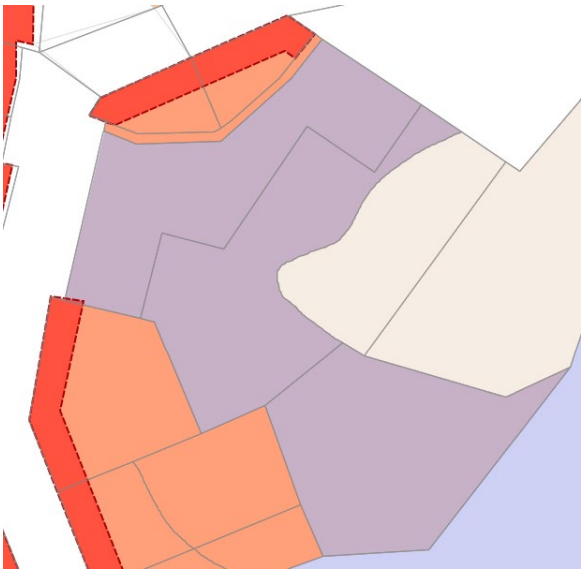
- 101, 107, 109 and 160 Landing Road
- Waipapa Stream (Parcel ID: 5266169 and 5132757)



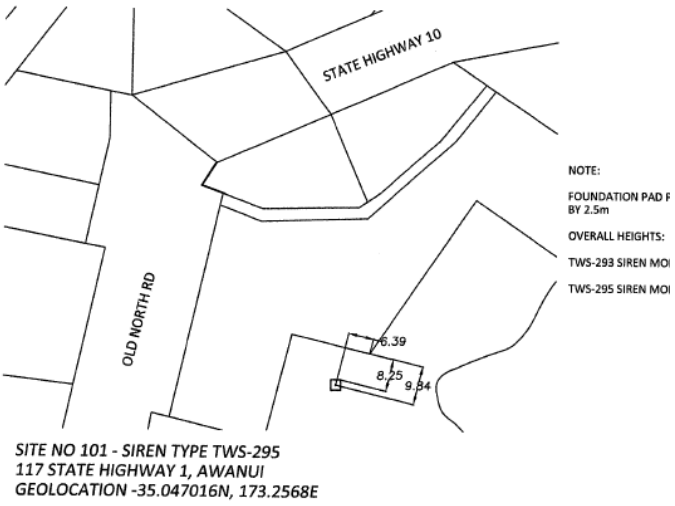
Adjacent Land Assessment

101, 107, 109 and 160 Landing Road each contain a residneital dwelling with their outlook orientated towards Kerikeri Inlet, however, the proposed siren is not within their direct line of sight. Any effects on these properties are considered to be less than minor for the following reasons:

- The proposed siren complies with setback and height in relation to boundary standards to all properties; and
- The sirens will be tested twice a year at the turn of daylight savings for a duration of 2 minutes, during day time hours only. Otherwise, they will only be activated in the event of an emergency. Effects in this regard are considered acceptable given the public health and civil emergency nature of the infrastructure. Testing effects are considered to be managed appropriately by limiting the duration and time in which the infrastructure can be tested.

Siren 101 – 117 State Highway 1, Awanui	
Siren Type	TWS-295 have a maximum structure height of 9.8m. The siren component itself has a dimension of 1.78m (H) x 0.85 (W).
Legal Description	Allotment 53 Parish of Awanui and Lot 1 DP 178617
Area	6894m^2
Site Owner	FNDC
Zone/Overlays/Designations ODP Zone: Recreational Activities ODP Overlays: NRC Flood Susceptible PDP Zone: Open Space PDP Overlays: Pedestrian Frontage, Airport Protection Surfaces, River Flood Hazard 10 and 100-year ARI Event.	
Locality Diagram	

Site Plan



Site Description and Surrounding Context

This site is used for community and recreational purposes, it is legally described as Allotment 53 Parish of Awanui and Lot 1 DP 178617, and has an approximate area of 6894m^2. The site is relatively flat and currently contains a playground, parking area and toilet facilities. The site is bounded by the commercial, rural living and residential zones under the ODP. State Highway 1 and 11 adjoin the site and Awanui River is located to the north. Awanui township is adjacent to the site and comprises takeaway outlets, dairy, a pub, motel and residential properties.

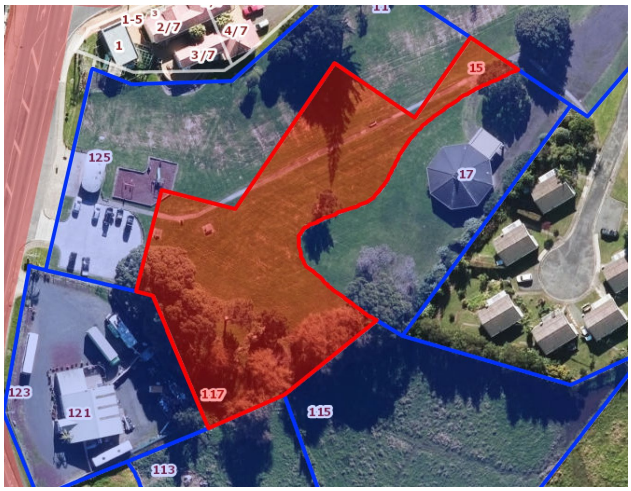
Reasons for Consent

ODP

- 9.6.5.1.1 Purpose of Buildings: The proposed siren is not directly for, or ancillary to, the principal recreational activities of the site, it cannot meet the RDA or DA standards. This requires consent as a non-complying activity.
- 9.6.5.1.3 Building Height: The siren is proposed to be 9.8m high, this will infringe the permitted 8m height by 1.8m. As the siren is 9.8m high, this will comply the RDA rules maximum height of 10m. This requires consent as a restricted discretionary activity.
- 9.6.5.1.4 Sunlight: The siren cannot comply with the HIRB, and is setback 6.39m from the nearest boundary. This requires consent as a restricted discretionary activity.
- 9.6.5.1.9 Screening for Neighbours: It is not proposed to provide any form of landscaping, therefore infringing this rule and it cannot meet the RDA standards. This requires consent as a discretionary activity.
- 9.6.5.1.12 Noise: The siren will infringe the permitted noise threshold. This requires consent as a restricted discretionary activity.

Adjacent Properties

- 11, 17, 113, 115, 121, 125 SH1



Adjacent Land Assessment

All adjacent properties are used for recreational or commercial purposes.

There is no height in relation to boundary or setback infringements on 17, 115, 113, or 121 State Highway 1. As such, it is considered that with respect to shading and visual domination effects, effects are considered to be less than minor given there are no infringements to these properties and the proposed siren will not be within direct line of site with any buildings on these properties.

There is a sunlight infringement over 11/125 State Highway 1. However, effects are considered to be less than minor as there is no residential activity occurring on this adjacent property and the shadow created by the pole will not produce dominant shading effects and the height of the pole is comparable to a light or power pole which provides a functional need to this small community.

Tsunami Siren # 63
Siren Type: 293

Location: 13 Church Street, Russell

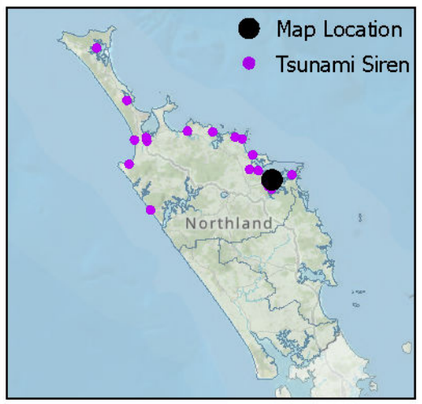
GPS: -35.26065, 174.12319

Property Owner: Far North District Council

Parcel ID: 6713275

Legal Desc: Lot 2 DP 339185

Title: 161222



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 63 - Russell

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Tsunami Siren # 64
Siren Type: 293

Location: Adjacent to 1 Baffin Street, Opua

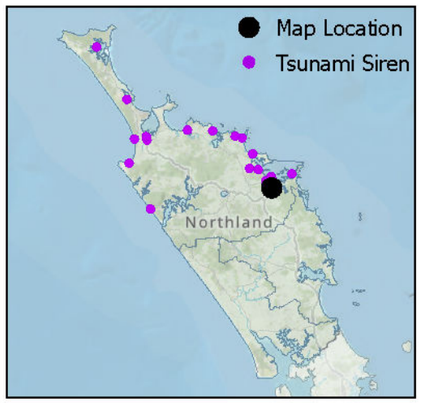
GPS: -35.31267, 174.121527

Property Owner: Far North Holdings Ltd

Parcel ID: 6984049

Legal Desc: Lot 5 DP 367224

Title: 906414



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 64 - Opua Marina

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Tsunami Siren # 65
Siren Type: 293

Location: Adjacent to 8 Puketiro Place, Cnr Te Haumi Dve and Paihia Rd

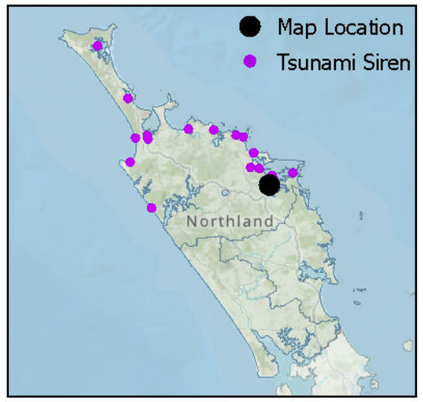
GPS: -35.30195, 174.098354

Property Owner: Far North District Council

Parcel ID: 5074183

Legal Desc: Lot 224 DP 79931

Title: 554546



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 65 - Cnr Te Haumi Dve and Paihia Rd

A3 Scale: 1:1,000

0 12.5 25 50 m

Tsunami Siren # 66
Siren Type: 293

Location: Adjacent to carpark, 3 School Road, Paihia

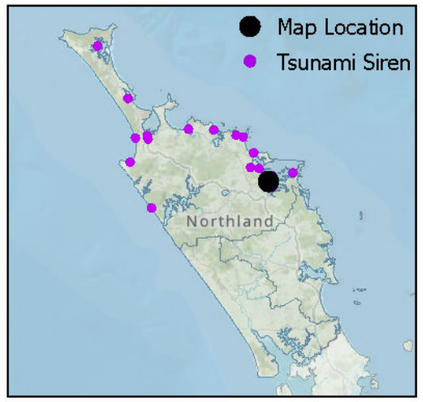
GPS: -35.28253, 174.09172

Property Owner: Far North District Council

Parcel ID: 4855977

Legal Desc: Lot 5 DP 57340

Title: NA12C/309



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 66 - Williams House Paihia

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Tsunami Siren # 69
Siren Type: 293

Location: Approx 300m east of 18 Taronui Road, Te Tii

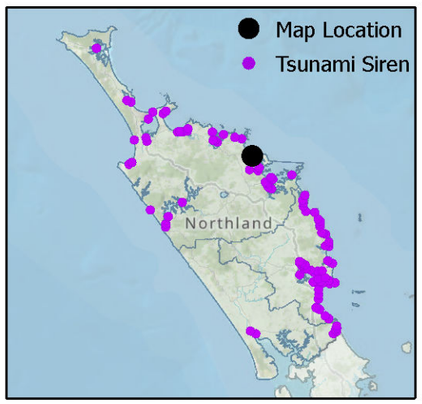
GPS: -35.125883, 173.986548

Property Owner: Privately owned land - trust owned

Parcel ID: 4835690

Legal Desc: Lot 1 DP 184896

Title: NA112A/909



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 69 - Taronui Road berm

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 23/02/2024

Tsunami Siren # 78
Siren Type: 295

Location: 140 Waterfront Drive, Mangōnui. Opposite 6 George Street.

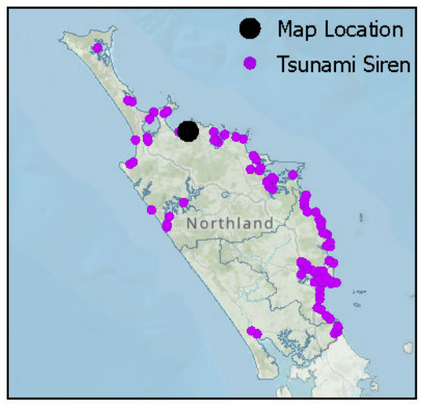
GPS: -34.989673, 173.533317

Property Owner: Far North District Council

Parcel ID: 4691257

Legal Desc: Allot 294 TN OF Mangonui

Title:



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 78 - Mangonui Wharf

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 5/03/2024

Tsunami Siren # 99
Siren Type: 295

Location: Adjacent to 949 Kerikeri Inlet Road, Kerikeri

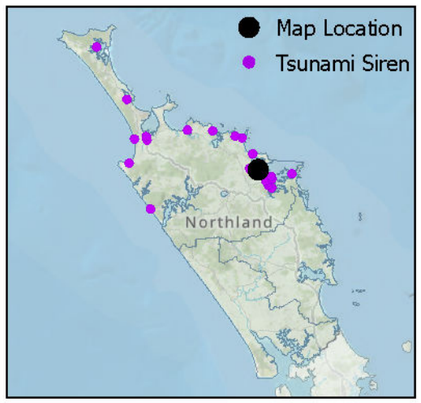
GPS: -35.209643, 174.026474

Property Owner: Far North District Council

Parcel ID: 5206214

Legal Desc:

Title:



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 99 - Windsor Landing Boat Ramp

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Tsunami Siren # 100
Siren Type: 295

Location: Opposite 109 Landing Road, Kerikeri

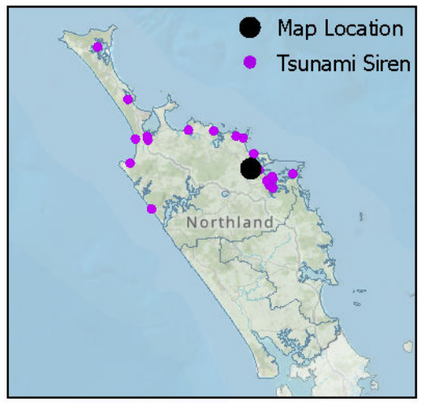
GPS: -35.204197, 173.96823

Property Owner: Far North District Council

Parcel ID: 5225070

Legal Desc:

Title:



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 100 - Waipapa landing Boat ramp

A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Tsunami Siren # 101
Siren Type: 295

Location: 117 State Highway 1, Awanui

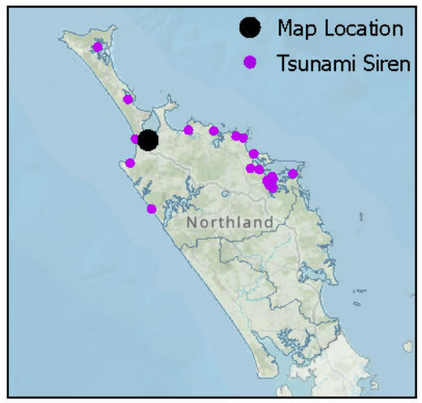
GPS: -35.047016, 173.2568

Property Owner: Far North District Council

Parcel ID: 4841579

Legal Desc: Allot 53 PSH OF Awanui

Title: NA121C/71



Data sources: Eagle Technology, Land Information New Zealand and Northland Regional Council

Tsunami Siren # 101 - Awanui Public Toilets

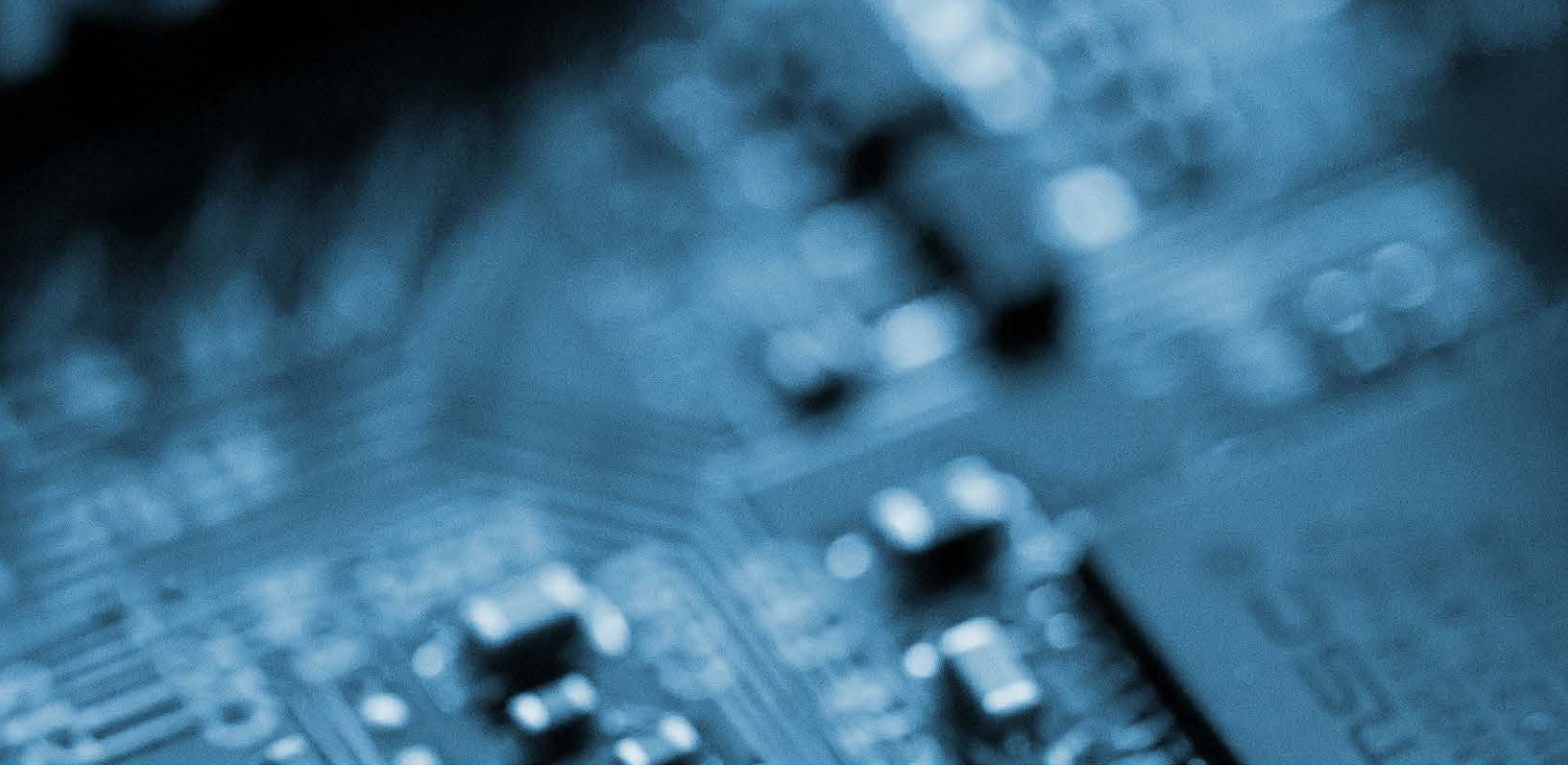
A3 Scale: 1:1,000

0 12.5 25 50 m

Updated by spatialize.co.nz on 15/12/2023

Appendix 4

Siren Number	Name	Email	Comment
Siren 63	Russell	FW_ Tsunami siren locations - suitabilit	Included in this email (in table at bottom and FNDC approval)
Siren 64	Ōpua Marina	RE_ Tsunami Siren Replacement Project	Siren location has been changed to be on the concreted area as per email comms. Refer to **Appendix 3** for new aerial location.
Siren 65	Paihia / Te Haumi	FW_ Paihia Causeway.msg	Council Approval
Siren 66	Paihia / Williams House	FW_ Tsunami siren locations - suitabilit	Included in conversation with several sirens. FNDC approval
Siren 69	Taronui Rd, Tapuetahi	Tapuaetahi Siren Approval.msg	Proprietors of Tapuetahi Approval
Siren 78	Mangonui	FW Two siren locations we'd like a	Council Approval
Siren 99	Windsor Landing Boat Ramp	Waipapa Landing and Windsor landin	Council Approval
Siren 100	Waipapa Landing	Waipapa Landing and Windsor landin	Council Approval
Siren 101	Awanui Toilets	FW_ Tsunami Siren Replacement Project	Council Approval



Project:

Northland Regional Council

May 31, 2021

DATASHEETS

Gabinete electrónico de dos compartimentos

HSS

ENGINEERING®

WARNING SYSTEM SOLUTIONS

Las sirenas de la serie TWS-290 son las más confiables en el mercado para tonos de alerta y comunicación por voz

SIRENAS ELECTRÓNICA DE ALTO POTENCIA

TWS-295

La combinación de potentes tonos de alarma de alta eficiencia y una transmisión de voz clara e inteligible garantiza una excelente advertencia durante cualquier emergencia. Esto permite al operador notificar y dirigir una advertencia a la población afectada. Con un diseño superior del grupo de altavoces TWS proporciona una verdadera salida de sonido de 360 ° en todo el rango de frecuencias. La serie TWS-290, con sus amplificadores de alta eficiencia y Los controladores de altavoz duraderos EZ-PULL™ pueden proporcionar advertencia continua durante un mínimo de 30 minutos a plena potencia de salida, únicamente con la energía de la batería. Todos los componentes electrónicos están integrados en un gabinete de aluminio resistente a la corrosión de alta calidad.

CARACTERÍSTICAS

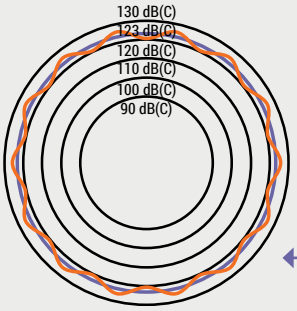
- 5 Modulos omnidireccionales de altavoces ensamblados en una columna vertical
- Gabinete de aluminio con clasificación IP66 con compartimiento de batería separado
- SPL 123 dB(C) @ 100' / 30 m
- El altavoz TWS-295 incluye 5 speakers drivers EZ-PULL™ de alta eficiencia
- Amplificador y transductores de sonido de calidad superior
- Cable de altavoz de 15 metros incluido
- Alimentado por batería, un mínimo de 30 minutos de potencia total con baterías de nuestra recomendación
- Cargador baterias, conmutación por 3 etapas compensada por temperatura
- Controles locales o controles remotos
- 5 Amplificadores de potencia de alta eficiencia
- Controlador de sirena electrónico con SI TEST® - Autocomprobación / diagnóstico silencioso
- Generador de tonos de alarma, transmisión de voz automática y en vivo
- Monitoreo de estado completo que incluye alarma de batería baja, estado del amplificador / altavoz
- Pararrayos de CA incluido (pararrayos de antena incluido con opción TWS-RADIO)
- Seis tonos de advertencia estándar – Wail, Whoop, Attack, Hi-Lo, Alert, Airhorn
- Tonos de advertencia personalizados opcionales
- Tipo de amplificadores Clase D
- Fabricado en polímero de carbono reforzado con fibra no corrosivo. Material no metálico
- Índice de inteligibilidad de STI 0,99. Capacidad de voz clara con respuesta de frecuencia de alta calidad

RENDIMIENTO ACÚSTICO

SPL @ 1 metro:	153 dB(C)
SPL @ 30 metros:	123 dB(C)
70dB rango ISO 13475-1*:	14,320 m
70dB rango estándar FEMA:**	1,280 m

* ISO: Reducción de la presión acústica de 6 dB pr. duplicación de la distancia (según ISO 13475-1)

** FEMA: Reducción de presión sonora de 10 dB pr. duplicación de la distancia (según las pautas de FEMA)



El diseño superior del grupo de altavoces proporciona una verdadera salida de sonido de 360 ° en todo el rango de frecuencias. SPL +/- 1 dB de disminución en 360º

CONDICIONES DEL ENTORNO

Temperatura de operación	-35° C a + 70° C
Temperatura de almacenamiento	-65° C a + 125° C
Humedad no condensada	0 to 95 %

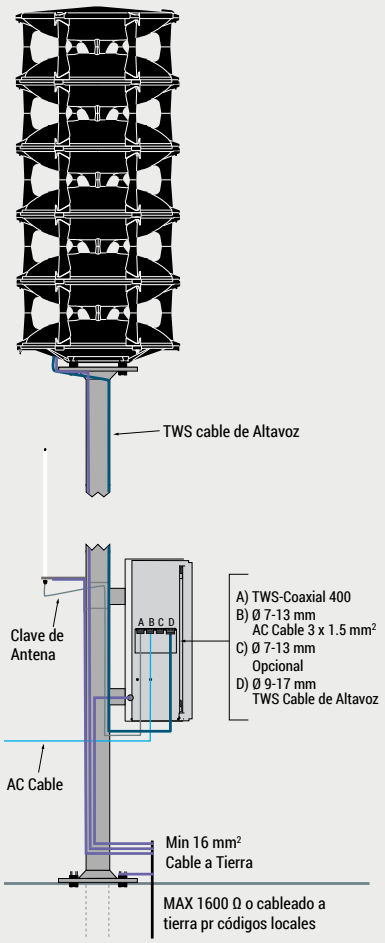
ELECTRÓNICA DEL SISTEMA

Alimentacion de entrada a cargador de batería	120/240 VCA o 50/60 Hz
Salida de cargador de batería	28 VDC, 10A #
Baterías	2 unidades, cada una con 12 V, AGM sellada. 100 AH. consumo en funcionamiento
Consumo en Standy	82 mA, 24 VDC
Corriente de Funcionamiento	111 A, 24 VDC
Potencia de salida por transductor	(típica / máxima) 400 Watts / 600 Watts
Potencia de salida total	(típica / máxima) 2000 Watts / 3000 Watts

U.L. Componente Reconocido

Componentes	**Altura** cm (pulgadas)	**Ancho** cm (pulgadas)	**Fondo** cm (pulgadas)	**Peso** kg(lbs)
TWS-295 Speaker	178,8 (70,4)	84,8 (33,4)		137,5 (303)
Gabinete Electrónico	84,5 (33,3)	58,0 (22,8)	35,0 (13,8)	43,0 (94,9)*

* Menos baterías. Dos baterías: 12 V, selladas. Calcio – Plomo, 24 kg adicionales por batería. No kit de radio. Si se selecciona esta opción adicionar 2.5 kg.



INFORMACIÓN PARA LA ORDEN

Descripción del producto	**Orden No.**
Conjunto de altavoces y gabinete de electrónica	TWS-295
Opciones	
Placa de control de estado / activación auxiliar para contacto Activación y estado de cierre	AUXCS
Placa de activación auxiliar para cierre de contacto	AUXIN
Unidad de fuente de alimentación directa de AC de alta eficiencia	TWS -AC-PCU
Módulo GSM	GV-GSM-RTU
Ethernet control / status interface	GV-IP
Control de estado / control de línea bidireccional de Giant Voice®	GV-LLM
Radios con opciones analógicas o digitales con amplio rango de frecuencia dentro de VHF y UHF	TWS-RADIO
Alerta visual omnidireccional	TWS-VISUALERT
Luz estroboscópica montada en celda superior	TWS-TL31R
Interfaz de Giant Voice® a interfaz Whelen Tonos con Sistema PAGA existente	GV-PGINT
Alarma de Intrusión	TWS INTRU
Alimentacion fotovoltaica/Solar	TWS-SBC200
Par de baterías (2 pcs)	TWSBATT
Escudo Solar para Gabinete Electrónico	TWS SUN SHIELD
Tonos de alerta personalizados	GV-TONES

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HSS Engineering A/S
Laegaardsvej 12 · 8520 Lystrup · Denmark
Phone + 45 7022 8844
www.hss.dk · info@hss.dk

HSS
ENGINEERING®
WARNING SYSTEM SOLUTIONS

Two compartment electronics cabinet

HSS ENGINEERING®
WARNING SYSTEM SOLUTIONS

The TWS-290 siren series is the most reliable warning siren system on the market for both warning tones and voice communication

ALL HAZARD HIGH-POWER SIREN SYSTEM

TWS-293

The combination of powerful high efficiency alarm tones and clear, intelligible voice broadcast ensures an excellent warning during any emergency. This enables the operator to notify and direct a warning to the affected population. The superior design of the TWS speaker cluster provides a true 360° sound output throughout the entire frequency range. The TWS-290 series, with its high-efficiency amplifiers and durable EZ-PULL™ speaker drivers, can provide continuous warning for a minimum of 30 minutes at full output power, solely from battery power. All electronics are built into a high-quality corrosion resistant aluminum cabinet.
This makes the TWS-290 siren series the preferred Mass Notification Solution by our customers worldwide.

FEATURES

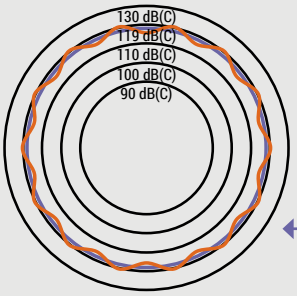
- 3 omni-directional speaker cells assembled in a vertical column
- IP 66 rated aluminum cabinet with separate battery compartment
- 119 dB(C) @ 100' / 30 m
- TWS-293 speaker includes 3 pcs high efficiency EZ-PULL™ speaker drivers
- 600 Watts per speaker driver rated max. output power for superior durability
- 15 m speaker cable included
- Battery powered, minimum of 30 minutes of full power output with batteries of our recommendation
- Temperature compensated 3-stage switch mode battery charger
- Local or remote control / status
- 3 pcs high efficiency power amplifiers
- Electronic siren controller featuring SI TEST® - Silent self-test / diagnostics
- Alarm tone generator, automatic and live voice broadcast
- Full status monitoring including low battery alarm, amplifier / speaker status
- AC lightning arrestor included (antenna lightning arrestor included with TWS-RADIO option)
- Six standard warning tones – Wail, Whoop, Attack, Hi-Lo, Alert, Airhorn
- Optional customized warning tones

ACOUSTIC PERFORMANCE

SPL @ 1 m:	149 dB(C)
SPL @ 30 m:	119 dB(C)
70dB range ISO 13475-1*:	9,110 m
70dB range FEMA standard:**	914 m

* ISO: 6 dB sound pressure reduction pr. doubling of distance (as per ISO 13475-1)

** FEMA: 10 dB sound pressure reduction pr. doubling of distance (as per FEMA guidelines)



The superior design of the speaker cluster provides a true 360° high sound output throughout the entire frequency range.

ENVIRONMENTAL

Operating temperature	-35° C to + 70° C
Storage temperature	-65° C to + 125° C
Humidity, non-condensing	0 to 95 %

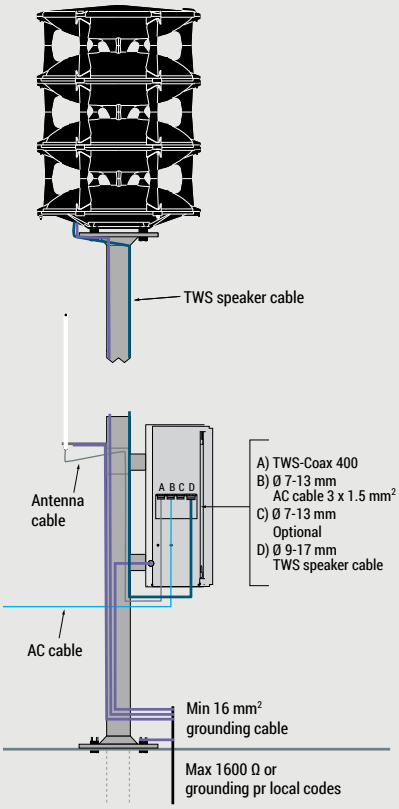
ELECTRICAL

Battery charger input	Option of 120/240 VAC or 50/60 Hz
Battery charger output	28 VDC, 10A#
Batteries	2 pcs 12 V, AGM sealed. 100 AH. Sold separately
Standby current	82 mA, 24 VDC
Operating current	23 A, 24 VDC
Normal amplifier output power	400 Watts during tone / 500 Watts during voice
Rated total max. output power	1800 Watts

U.L. recognized component

Component	**Height** cm (inches)	**Width** cm (inches)	**Depth** cm (inches)	**Weight** kg (lbs.)
TWS-293 speaker	115.3 (45.4)	84.8 (33.4)		93 (205)
Electronics cabinet	84.5 (33.3)	58.0 (22.8)	35.0 (13.8)	36.4 (80.1)*

* Less batteries. Two batteries: 12 V, sealed, lead-calcium, add 24 kg pr. battery.
Less optional radio kit. Add 2.5 kg, if this option is selected.



ORDERING INFORMATION

Product Description	**Order No.**
Speaker assembly and electronics cabinet	TWS-293
Options	
Auxiliary activation / status control board for contact closure activation and status	AUXCS
Auxiliary activation board for contact closure	AUXIN
High efficient AC direct power supply unit	TWS-AC-PSU
GSM module	GV-GSM-RTU
Ethernet control / status interface	GV-IP
Giant Voice® Two way landline control / status monitoring	GV-LLM
High standard radios in both analogue and digital versions with wide frequency range within both VHF and UHF	TWS-RADIO
Omni-directional visual lighting	TWS-VISUALERT
Top mounted strobe light	TWS-TL31R
Giant Voice® Paging interface to interface TWS warning with existing paging systems	GV-PGINT
Intrusion alarm	TWS-INTRU
Solar power	TWS-SBC100
Two pairs of batteries	TWSBATT
Sun shield for electronic cabinet	TWS SUN SHIELD
Customized warning tones	GV-TONES

REV. H

HSS Engineering A/S
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www.hss.dk · info@hss.dk

HSS ENGINEERING®
WARNING SYSTEM SOLUTIONS

Three things you need to know in order to save lives

ALERT INFORM DIRECT

HSS

ENGINEERING®

WARNING SYSTEM SOLUTIONS

Standard tones

IT'S IMPORTANT THAT THE PRODUCT YOU CHOOSE SOUNDS RIGHT

Comes with six standard warning tones

Tone	Tone symbol	Frequency	Period of time
Wail		410-675 Hz	4 sec / 1 sec
Alert		560 Hz	Steady
Hi/Lo		465/650 Hz	8 sec / 8 sec
Attack		410-490 Hz	1 sec / 1 sec
Air Horn		465-650 Hz	Modulated / 1.6 sec
Whoop		300-465 Hz	3

THIS IS WHAT YOU GET

- **Minimized cost of services and maintenance during the systems life span.**
- **Less power consumption (therefore greater energy autonomy and less accumulation of heat in the electronic components of the system).**
- **Working 24 / 7 / 365 (No need for thermal auto shutdown during vital emergencies).**
- **Lower weight and height give less wind load, smaller mast and lower installation costs.**
- **Comes with the most powerful speaker drivers in the market.**
- **Greater reliability thanks to important components such as amplifiers, drivers and batteries.**

Weights and measures

TWS-291 TWS-292 TWS-293 TWS-294 TWS-295 TWS-296 TWS-297 TWS-298 TWS-299 TWS-2910

Modelo	SPL @ 1 m	SPL @ 30 m	System wattage Audio tone	Voice audio	Hight cm (inches)	Width cm (inches)	Weight kg (lbs.)
TWS-291	139 dB(C)	109 dB(C)	400	500	51.8 (20.4)	84.8 (33.4)	48.6 (107)
TWS-292	145 dB(C)	115 dB(C)	800	1000	83.6 (32.9)	84.8 (33.4)	70.8 (156)
TWS-293	149 dB(C)	119 dB(C)	1200	1500	115.3 (45.4)	84.8 (33.4)	93 (205)
TWS-294	151 dB(C)	121 dB(C)	1600	2000	147.1 (57.9)	84.8 (33.4)	115.3 (254)
TWS-295	153 dB(C)	123 dB(C)	2000	2500	178.8 (70.4)	84.8 (33.4)	137.5 (303)
TWS-296	155 dB(C)	125 dB(C)	2400	3000	210.6 (82.9)	84.8 (33.4)	164.2 (362)
TWS-297	156 dB(C)	126 dB(C)	2800	3500	242.3 (95.4)	84.8 (33.4)	186.5 (411)
TWS-298	157 dB(C)	127 dB(C)	3200	4000	274.1 (107.9)	84.8 (33.4)	208.7 (460)
TWS-299	158 dB(C)	128 dB(C)	3600	4500	305.8 (120.4)	84.8 (33.4)	230.9 (509)
TWS-2910	159 dB(C)	129 dB(C)	4000	5000	337.6 (132.9)	82.5 (32.5)	253.1 (558)

Cabinets	Hight cm (inches)	Width cm (inches)	Depth cm (inches)	Weight kg (lbs.)
Electronics cabinet** (TWS-291-295)	84.5 (33.3)	58.0 (22.8)	35.0 (13.8)	_*
Electronics cabinet** (TWS-296-2910)	169.0 (66.6)	58.0 (22.8)	35.0 (13.8)	_*

* Less batteries. Two batteries: 12 V, sealed, lead-calcium, add 24 kg pr. battery. Less optional radio kit. Add 2.5 kg, if this option is selected. Weight depends on model siren, verify weight in the technical data sheet of the specific equipment.

** Equipment is configured for 120 Vac input power. Other input Voltages supplied upon request.

DESIGN – TOWER AND MAST

In accordance with local regulations and standards

SIMPLE DESIGN

EASY TO INSTALL

ACCESSORIES FOR THE TWS-SERIES

SOLAR POWER SYSTEM - DESIGNED FOR HARSH ENVIRONMENTS

The TWS-SBC200 is an all-inclusive solar power supply solution engineered to meet the power requirement of a TWS-Siren or Giant Voice® PA/GA system. High quality components and UV resistant cabling ensure years of performance even in harsh environments. Solar panels with tempered glass and excellent low light power output combined with 3-Stage intelligent PWM charging ensure high efficiency charging performance. Simple yet flexible aluminium mounting bracket for easy panel angling and installation.

HIGH INTENSITY VISUAL ALERT SUPER-LED VISUALERT

VISUAL LED WARNING

Enhance your Voice and Siren Mass Notification System with an optional visual component: The omni-directional visual lighting for TWS-290 & OA Series.

- VisuAlert Super-LED® mounts under a TWS-290 or omni-alert system
- Complete 360° highly effective LED warning
- VisuAlert illuminates with a designed flash pattern when siren is activated
- Cluster of six LED Whelen M6 Series warning lightheads, 24 VDC
- Bracket supports are 300 Series aluminium alloy in a high strength
- All connections are waterproof

TWS-290 Series. Mass notification solution

TWS-SERIES HAS THE BEST PERFORMANCE IN THE MARKET

SPECIALISTS IN CUSTOMIZED WARNING SYSTEM SOLUTIONS

PERFORMANCE

- Maximum acoustic and energy performance
- Highest SPL sound output compared to power consumption
- True 360° omnidirectional sound propagation without any acoustic shadows
- Proven MTBF of more than 30,000 hours
- Lowest maintenance and service requirements
- Modular design made of robust fiber-reinforced polycarbonate
- High efficiency EZ-PULL™ speaker drivers
- Normal amplifier output power 400 Watts during tone / 500 Watts during voice
- Rated total max. output power 600 Watts total capacity per amplifier
- Intelligible pre-recorded or live voice messages in a wide area
- STI intelligibility index 0.98
- A single amplifier for each high efficiency speaker driver
- Tested for decades in all types of climate and environments with success

COMMUNICATIONS

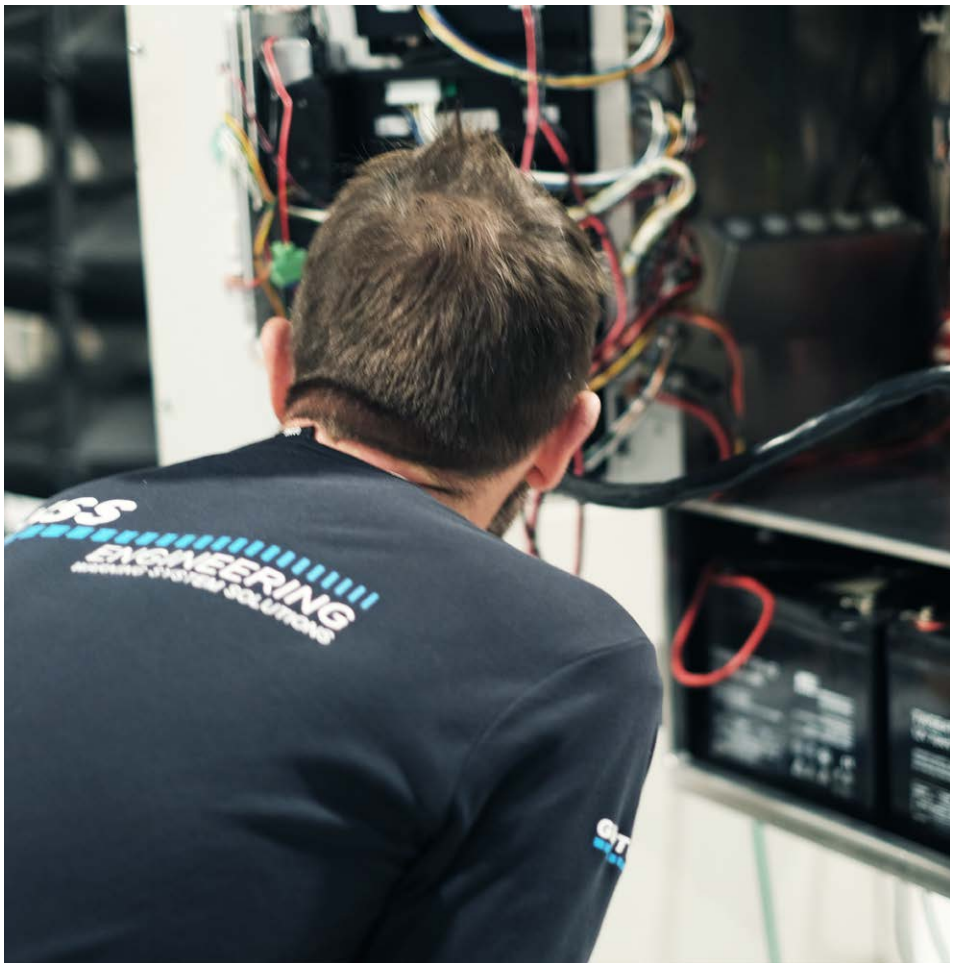
- Multiple technologies
- Simple or redundant
- VHF UHF digital radio
- Radio trunking
- GPRS 3G 4G
- Satellite BGAN M2M
- Broadband Networks
- IP Ethernet / Fiber Optic

POWER

- Operation with AC, DC or solar energy
- Less power consumption = greater autonomy in emergencies
- Less excess heat in the electronics cabinet
- Minimum autonomy 30 minutes of continuous activation
- No need for thermal auto shutdown during vital emergency alerts
- Separate ventilated battery compartment

TWS-290 Series cabinet

A RELIABLE, LOW COST WARNING AND INFORMATION SYSTEM



PERFORMANCE

- Maximum acoustic performance
- Six standard public warning tones - Wail, Whoop, Attack, Hi-Lo, Alert, Airhorn
- SI TEST®
- Lightning arrestor / Intrusion alarm
- Tone generator / Timer function
- Public address capability
- Local controls and/or remote controls

DESIGN

- Two compartment natural finish aluminum cabinet with battery tray
- Battery switch
- Electronic siren controller
- Robust and light weight
- Lower weight and height
- Less wind load
- Easy to install
- High quality IP66 electronics cabinet

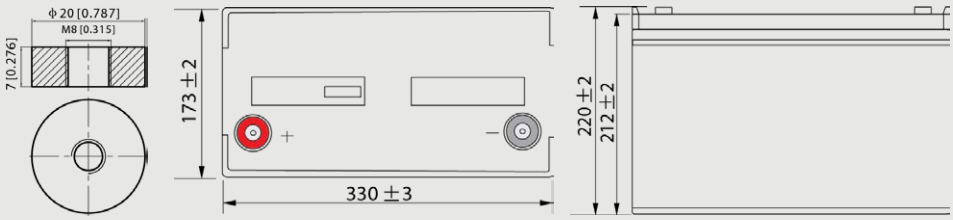
A 12 V valve-regulated lead-acid (VRLA) battery for the TWS-290 Public Warning System

TWS BATTERY 100-12

TWSBATT 100-12

TECHNICAL DATA

Nominal voltage	12 V	
Nominal capacity (10HR)	100 AH	
Dimensions	Length: Width: Container height: Total height:	330 mm (12.99") 173 mm (6.81") 212 mm (8.35") 220 mm (8.66")
Weight	Approx. 28.5 kg (62.8 lbs.)	
Terminal size	Ø 8 mm	



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WARNING SYSTEM SOLUTIONS

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DISASTERS HAPPEN, BE PREPARED

TRANSPORT INFORMATION

UN No: 2800

Package group: III

IATA: Not restricted for air transport-complies Special Revision A67

IMO: Not classified as of 1922

Required Label NON-SPILLABLE

Unrestricted U.S.A. shipment. Complies with IATA/ICAO Special Provision A67 for air transport. Recognized by DOT as "Dry Charge" 49 CFR 171-189 for surface transport. Classified per MG Amendment 27 as a non-hazardous material for water transport.

TECHNICAL DATA

Terminal	M8
Container material	ABS
Rated capacity	100.0 AH / 10.0 hr (10 hr, 1.80 V/cell, 25° C / 77°F)
Max. discharge current	1200 A (5s)
Internal resistance	Approx. 4.8 mΩ
Temp. range	Standard operating: -15–50° C (5–122°F) When paired with our temp. compensating charger TWS-BATTCH: Extended Operating: -35–60° C (-31–140°F)
Cycle use	Initial Charging Current less than 30.0 A. Voltage 14.4 V–15.0 V at 25° C (77°F) Temp. Coefficient -30 m V/° C
Standby use	No limit on Initial Charging Current Voltage 13.5 V–13.8 V at 25° C (77°F) Temp. Coefficient -20 mV/° C
Capacity affected by temperature	40° C (104°F) 25° C (77°F) 0° C (32°F) 103% 100% 86%
Self-discharge	TWSBATT 100-12 batterys may be stored for up to 6 months at 25° C (77°F) before a recharge is required. For higher temperatures the time interval will be shorter.

ORDERING INFORMATION

Product Description
TWS Battery AGM 12 V 100 Ah
Order No.
TWSBATT 100-12

REV. F

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Solar power system designed for harsh environments

SOLAR POWER SYSTEM

TWS-SBC200

The TWS-SBC200 is an all-inclusive solar power supply solution engineered to meet the power requirement of a TWS-Siren or Giant Voice® PA/GA system. High quality components and UV resistant cabling ensure years of performance even in harsh environments. Solar panels with tempered glass and excellent low light power output combined with 3-Stage intelligent PWM charging ensure high efficiency charging performance. Simple yet flexible aluminium mounting bracket for easy panel angling and installation.

FEATURES

- Panel performance guarantee, 90% for 10 years & 80% for 25 years
- Panels with tempered glass and class A cells with + 3% plus tolerance
- Panels feature bypass diodes for shadow optimization at serial connection
- 3-Stage intelligent PWM charging, bulk, boost/equalize, float
- Battery status LED indicator
- Extensive electronic protection – over voltage, over discharge, reverse polarity etc.
- Mounting bracket made of EN AW-5754 aluminium ensures extremely high corrosion resistance
- Solar feed cable featuring MC4 connectors is Weather/UV-resistant acc. to HD 605/A1, halogen-free and flame-retardant

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ORDERING INFORMATION

Product Description
Solar power system 2 x 12V
100 Watt panels
Order No.
TWS-SBC200

REV. E

TECHNICAL DATA PER SOLAR PANEL

Power	100 Watt*
Panel voltage	12 Volt
Number of bypass diodes	2 pcs.
Max. power current (Imp)	5.68 A
Open circuit voltage (Voc)	21.6 V
Short circuit current (Isc)	6.14 A
Max power tolerance	-/+ 3%
Dimensions (pr. panel)	Width: 1200 mm (47,24") Height: 540 mm (21,26") Depth: 35 mm (1,37")
Panel weight (pr. panel)	8.2 kg

INCLUDES

- 2 x 100 Watt* solar panels
- PWM solar charge controller
- TWS/GV power supply interface
- Mounting bracket for solar panels (weight 9.1 kg)
- Siren controller interface cable
- 15 meter solar feed cable

* Solar panels can be with higher power output for customer requirements.

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GIANT VOICE®

EMERGENCY SYSTEMS

Basic unit incl. GV-EMS software

CORE UNIT

GV-CORE-RM3

The Giant Voice® Core Unit serves as the integration platform for Giant Voice® products as well as auxillary components. It connects directly to the Giant Voice® Distributed Communication Network (GV-DCN). All components are chosen to ensure the highest reliability reducing maintenance to a minimum.

The Giant Voice® Core Unit features a multi I/O communications interface, which enables easy connection and control of classic analogue DTMF systems as well as digital radios, PA-microphone, LAN and fibre etc. Moreover, it has a built-in audio distribution interface, which provides connection to devices such as CD-Players, PA systems etc. and from here distributed throughout the control interface.

The built-in dual voltage 115/230 VAC power supply combined with the multi I/O communications interface ensures a high level of flexibility for installation.

FEATURES

- Highly Versatile Communications Interface
- Advanced siren system fault monitoring and control features via GV-EMS software
- Backwards compatible TWS, Giant Voice and Whelen DTMF Control Interface
- Dual Voltage 115/230 VAC
- 19" 3U cabinet design
- CD-Players, PA systems etc distributed throughout the control interface
- Components chosen to ensure the highest reliability

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EMERGENCY SYSTEMS

ALERTS PEOPLE TO POSSIBLE DANGER

ORDERING INFORMATION

Product Description
Core Unit
Order No.
GV-CORE-RM3

Product Description
Giant Voice® EMS
Order No.
GV-EMS

Option

Product Description
Telecom System Interface
Order No.
GV-PABX-A (Analogue)
GV-PABX-D (Digital)

REV. C

TECHNICAL DATA

DTMF Port	1	
Digital Communications Port	1	
Optional/Audio Port	1	
LAN Ports	2	
Display Port	1	
DVI-I	1	
COM Ports	2	
USB Ports	7	
PABX Expansion Slots	1	
Operating temperature	-10° C – +60° C	
Dimensions	Width: Height: Depth:	19" (48,26 cm) 3U 32,25 cm (12.69")
Weight	5,35 kg	
Dual Voltage	115/230 VAC	
Max power consumption	100 Watt	

OPTIONS

GV-PABX-A	Telephone Branch Exchange Interface-Analogue
GV-PABX-D	Telephone Branch Exchange Interface-Digital

Please contact us for more details.

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GIANT VOICE®

EMERGENCY SYSTEMS

A comprehensive and flexible emergency system

EMERGENCY MANAGEMENT SYSTEM

GV-EMS

The system is scalable i.e., the user can access all data and information, or activate components on the system from any GV-CORE unit connected to the system.

The software can be operated from one or more screens displaying different menus simultaneously. Menus are predesigned for touch screen operation. The system can be configured to meet your specific needs, such as predefined warning tones, pre-recorded messages and sequences, as well as customer-selected maps of the area.

The GV-EMS is a comprehensive and flexible Emergency System providing easy and understandable information that enables the user to make the right decisions and to react within seconds.

The GV-EMS has been developed to meet the customers' need for precise and accurate information at hand, when vital decisions must be made.

The software is delivered preinstalled on the GV-CORE unit that serves as the platform for the Giant Voice® Distributed Communication Network (GV-DCN).

The system is easy to use with its straightforward logic - simply select the system components on the map and then choose your action from one of the on-screen menus.

You can also add predefined sequences to the system by assigning sequences to the programmable activation keys. A sequence is defined by any specific warning priority, such as an alert by tones and inform by a public announcement.

You will not encounter any language barriers and the user interface can be modified with easily recognizable icons and colors.

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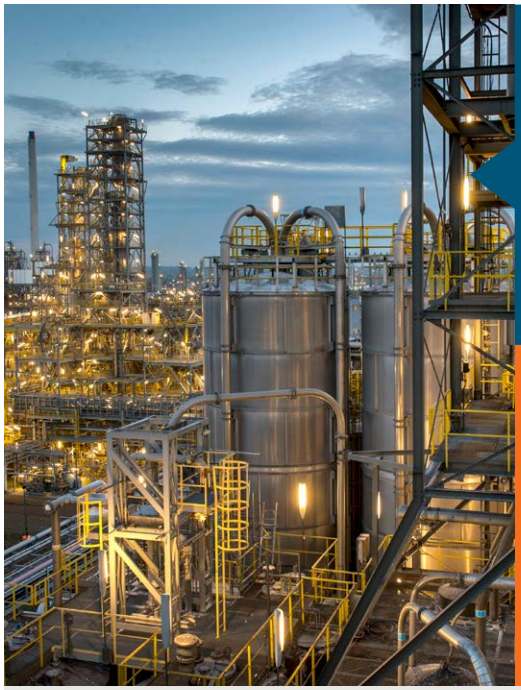

GIANT VOICE®

EMERGENCY SYSTEMS

ALERTS PEOPLE TO POSSIBLE DANGER

INTEGRATION TO

- SCADA
- CCTV
- Fire System
- Warning Systems and more

MAP FEATURES

- Zoom and pan capability
- Orientation map
- Predefined group selection
- Printable maps

ACTIVATION FEATURES

- Activation of selected system components
- Activation status display
- Activation accept allows to preview the command before transmission

SERVICE FEATURES

- Status data request from selected system components (for example: battery status, speaker driver or amplifier failure, AC Power, cabinet temperature)
- Real-time status monitoring

ANALYSIS FEATURES

- User defined analysis criteria (Period, Selected Sirens, Command Type etc.)
- Data base of status logs with capability of storing information
- Export data function enabling export of selected data to e.g. Microsoft Excel

FEATURES

- IP-Broadcast
- Unlimited amount of programmable predefined sequences
- Supports colour coded system components icon
- Configuration, monitoring and control capability of all system components in real-time
- Integration platform for a variety of components such as public address, general alarm sirens, PABX, sensors, strobe lights, text displays, SMS text message and more
- Individual Log-On ID supporting differentiation between operators, service personnel and administrators
- Supports GV-DCN network structure

OPTIONS

- PABX Integration Additional screens
- 10 digit DTMF protocol
- Email Warning
- Giant Voice® Radio Base Station (UHF/VHF)
- Rack cabinet enclosure as pr. customer requirements
- SMS Warning

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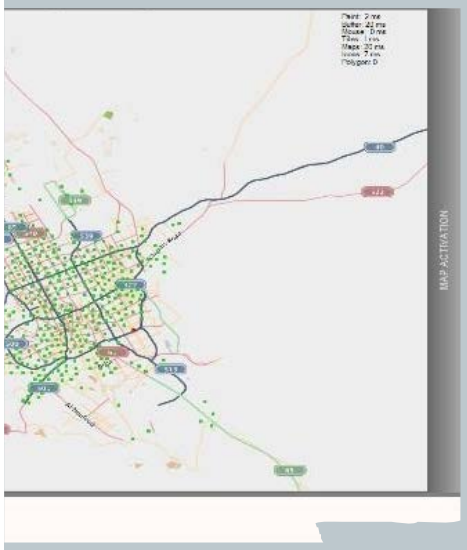

GIANT VOICE®

EMERGENCY SYSTEMS

A 19" touch screen for the Giant Voice® emergency management system

TOUCH SCREEN

GV-TS19

The GV-TS19 Touch Screen is based on projected capacitive technology that, thanks to a glass overlay covering the screen, guarantees high durability, scratch-resistance and perfect picture performance. The touch function remains unaffected even if the glass is scratched.

A solid and steady base supports the Touch Screen with an adjustable stand offering full 90 degree positioning angles. Menu Buttons are located on the side of the screen, that can be locked to prevent tampering and includes a handy function to deactivate the Touch Screen for cleaning.

In addition, the edge-to-edge glass design creates an eye-catching finish, with high light transmission guaranteeing perfect picture clarity and brilliant colours. Analogue and Digital inputs are available for flexible connectivity along with a USB port for the Touch Interface.

SPECIFICATIONS

Power supply	AC 100 - 240 V, 50 / 60 Hz
Power supply unit	Internal
Power consumption	25 W typical; max. 2 W in power management mode
Power management	VESA DPMS
Analog input connector	VGA
Digital input connector	HDMI Display Port
Inputs	USB (for touch connectivity)
Dimensions	Width: 432 mm Height: 391 mm Depth: 219 mm Weight: 6,9 kg

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ORDERING INFORMATION

Product Description
Giant Voice® 19" Touch Screen
Order No.
GV-TS19

Options

Product Description
Rackmount Bracket
for 19" Touch Screen
Order No.
GV-TSRMB

REV. F

DISPLAY CHARACTERISTICS

Panel	IPS LED
Glass hardness	7H minimum
Display area	Height: 302.0 mm (11.89") Width: 377.5 mm (14.86") Response time 5 ms / 14 ms
Contrast	1000: 1 with touch panel
Brightness	225 cd/m² with touch panel
Viewing zone	Horizontal/vertical: 178°/ 178° Right/left: 89°/ 89°; up/down: 89°/ 89°
Display colour	16.7 million
Pixel pitch	0.2928 mm
Native resolution	1280 x 1024 (1.3 megapixel)
Horizontal sync	31 - 80 KHz
Vertical sync	50 - 75 Hz
Synchronization	Separate Sync
Aspect ratio	5 : 4
Light transmittance	90%

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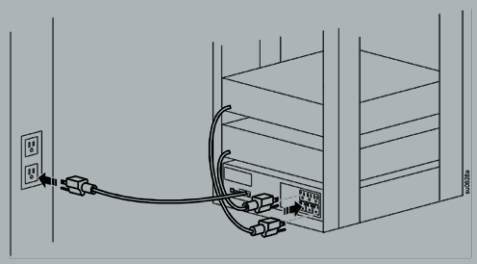
Protect your Giant Voice® System from power outages

GIANT VOICE®

EMERGENCY SYSTEMS



UPS

GV-UPS1500

The GV-UPS contains a battery pack that ensures operation of critical components in your PA/GA system in case of a power outage. The module is designed specifically for use together with the Giant Voice® PA/GA product range and is easily installed in racks along with these components.

The GV-UPS is equipped with 4 x IEC 230 VAC outlets and support loads 900 Watt. For extended battery capacity, more units can be added.

FEATURES

- 2U rack case with rack rails
- 4 x IEC 230 VAC outlets
- Supports 900 Watt / 1500 VA
- True Sinewave output (THD<3%)
- High efficiency up to 92%
- Thermostatically controlled fan

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EMERGENCY SYSTEMS

DISASTERS HAPPEN, BE PREPARED

ORDERING INFORMATION

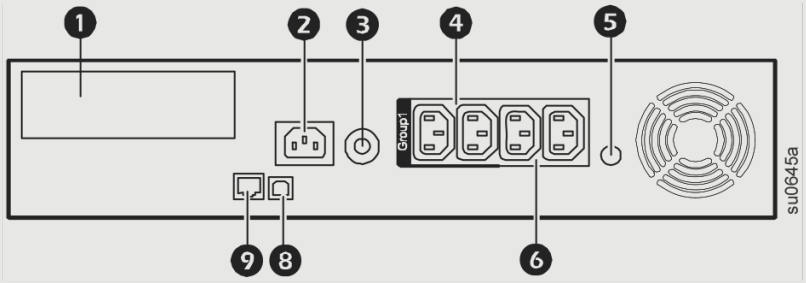
Product Description
1500 VA UPS
Order No.
GV-UPS1500

REV. E

SPECIFICATIONS

Rated AC power output	900 Watt
Number of 230VAC outlets	4
Transfer time	10 ms
Power supply	230 VAC, 50/60 Hz
Battery Volt-Amp-Hour capacity	336
Dimensions	Width: 43.2 cm (17.0") Height: 2U (8.6 cm) Dept: 47.7 cm (18.8") Weight: 28.6 kg
Operating temperature	0 - 40° C

1500 VA 230 VAC



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WARNING SYSTEM SOLUTIONS

GIANT VOICE®

EMERGENCY SYSTEMS

The rack is a solution for your emergency warning system

RACK
GV-RACK

The GV-RACK incorporates common features, such as adjustable 19-inch mounting angles and jacking feet, the GV-RACK range offers a configurable top panel system that provides an open base design to promote trouble free service and maintenance.

The GV-RACK is designed to provide the flexibility needed to suit all requirements of your Giant Voice® Emergency Management System. The rack can be fitted with options such as a top active fan and SMART UPS.

The GV-RACK is built to high quality standards.

FEATURES

- Environmental protection rating IP20
- Adjustable 19-inch mounting rails
- Upgradable plain top panels
- Open base design
- Glazed front door and plain steel rear door
- Lockable lift off side panels
- Jacking feet fitted as standard
- Cable inlet apertures in both top and bottom
- Key lock on sides and rear. Key and handle lock on front

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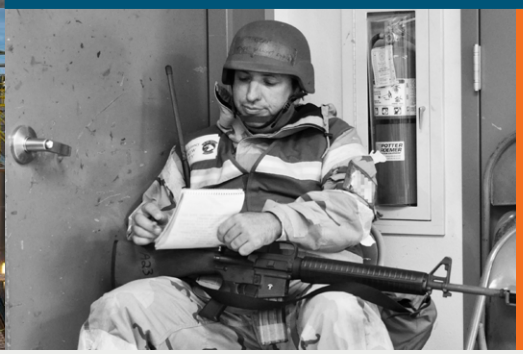
EMERGENCY SYSTEMS



HSS ADVANCED WARNING SYSTEMS

ORDERING INFORMATION

Product Description
RACK
Order No.
GV-RACK-15U
GV-RACK-22U
GV-RACK-36U
GV-RACK-42U

Product Description
Top active fan
Order No.
GV-RACK-FAN

Product Description
SMART UPS
Order No.
UPS 1500VA
UPS 3000VA*

* Requires a rack depth of 1000 mm
REV. F

TECHNICAL DATA

Air Flow	95 -115 CFM			
Fan Speed	2700 - 3100 rpm			
Noise level	44-49 db/A			
Operating Voltage	220-240V, 50-60 Hz			
Complies with	IEC 297-1			
Dimensions	**15 U**	**22 U**	**36 U**	**42 U**
Width	600 mm	600 mm	600 mm	800 mm
Height	815 mm	1120mm	1728 mm	2400 mm
Depth	680 mm	800 mm	800 mm	800 mm
Color	Light Grey NCS 1502-Y			

OPTIONS

- Smart UPS 1500 VA, 3000 VA*
- Other dimensions and colors are available on request

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Satellite & Cellular Communication Solutions

GIANT VOICE®
EMERGENCY SYSTEMS

DUAL MODE BGAN M2M

This terminal is the only Inmarsat BGAN M2M terminal to offer dual mode operation, which provides unique flexibility and M2M data communication cost-control, as it ensures the most cost effective communication service that can be chosen, depending on location.

Securing continuity of M2M IP data transfer, often originating in hard to reach, remote locations, dual-mode operation delivers significant fail-over capabilities with automatic switching between BGAN and cellular networks.

For organizations transferring critical real time data within their M2M networks, the dual mode can provide unmatched service availability. The terminal is well suited for bespoke M2M solutions such as IP SCADA for data backhaul, asset tracking, real time surveillance and remote telemetry.

SATELITE SOLUTION

Dual Mode BGAN M2M & Cellular terminal

GV-SAT

HSS Engineering has designed a satellite & cellular communication solution ideal for monitoring, activation and interaction with the TWS Siren and GV-EMS systems. These systems function in areas with a lack of communication due to geographical conditions, using BGAN M2M technology terminal designed to operate on both Inmarsat BGAN (Broadband Global Area Network) and cellular 2G/3G/LtE networks. GV-SAT delivers continuous and reliable connectivity for critical monitoring and control applications.

BGAN M2M services use Inmarsat BGAN to provide a reliable, global, two-way IP data service. It is designed to connect monitoring and control applications in remote, unmanned locations, providing asset visibility and management control. By combining BGAN M2M with cellular connectivity in the same terminal, GV-SAT gives users the opportunity to choose the best carrier for any location.

GV-CORE

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EMERGENCY SYSTEMS

FEATURES

- GV-SAT is BGAN M2M certified and BGAN Class 2 Type Approved for services such as BGAN Link
- Lightweight and rugged IP66 design ensures durability for outside mounting - no enclosure needed
- Polemount included in the package
- Simple to set up and operate
- Versatile power options with both Power over Ethernet (PoE) and 10-32 VDC input
- Two cable glands for easy installation of standard power and Ethernet cables into the back housing
- Remote management of the terminal via SMS including configuration, debugging, and access to the web interface
- The optional cellular 2G/3G/LTE Modem is an integrated part of the design
- Automatic failover between BGAN and the cellular network ensures continuous connectivity
- Connectivity in North, Central & South America, Europe, Asia, Africa and more

TECHNICAL DATA

Dimensions (H x W x D)	Mainn Unit: 202 x 202 x 51.8 mm
Weight	Total: 1.4 kg
Standard IP	Up to 464 kbps
Streaming IP	32, 64, 128 kbps (not in M2M mode)
Connectivity	1 x Micro USB interface (for EXPLORER 3G modem) 1 x RJ45 Ethernet interface with PoE 1 x 8 pin Ethernet interface 1 x 3 pin for I/O 1 x 2 pin for DC power input
Operating Temperature	-40 °C – +75° C Storage
Temperature	-55 °C – +80° C Ingress Protection IP66
DC Input range	10.5-32 VDC Languages: ENG, FR, DE, ES, RU, JP and CN
DC input range	10.5-32 VDC Pin Connector
PoE input	Poe+ IEEE 802.3 at Type 2 Class 4 via RJ45 Connector

ORDERING INFORMATION

Product Description
Giant Voice® Satelite Solution
Order No.
TWS-SAT

NOTE: The TWS-SAT Solution Frequency to be determined at order.
Please contact HSS Engineering for further information

REV. D

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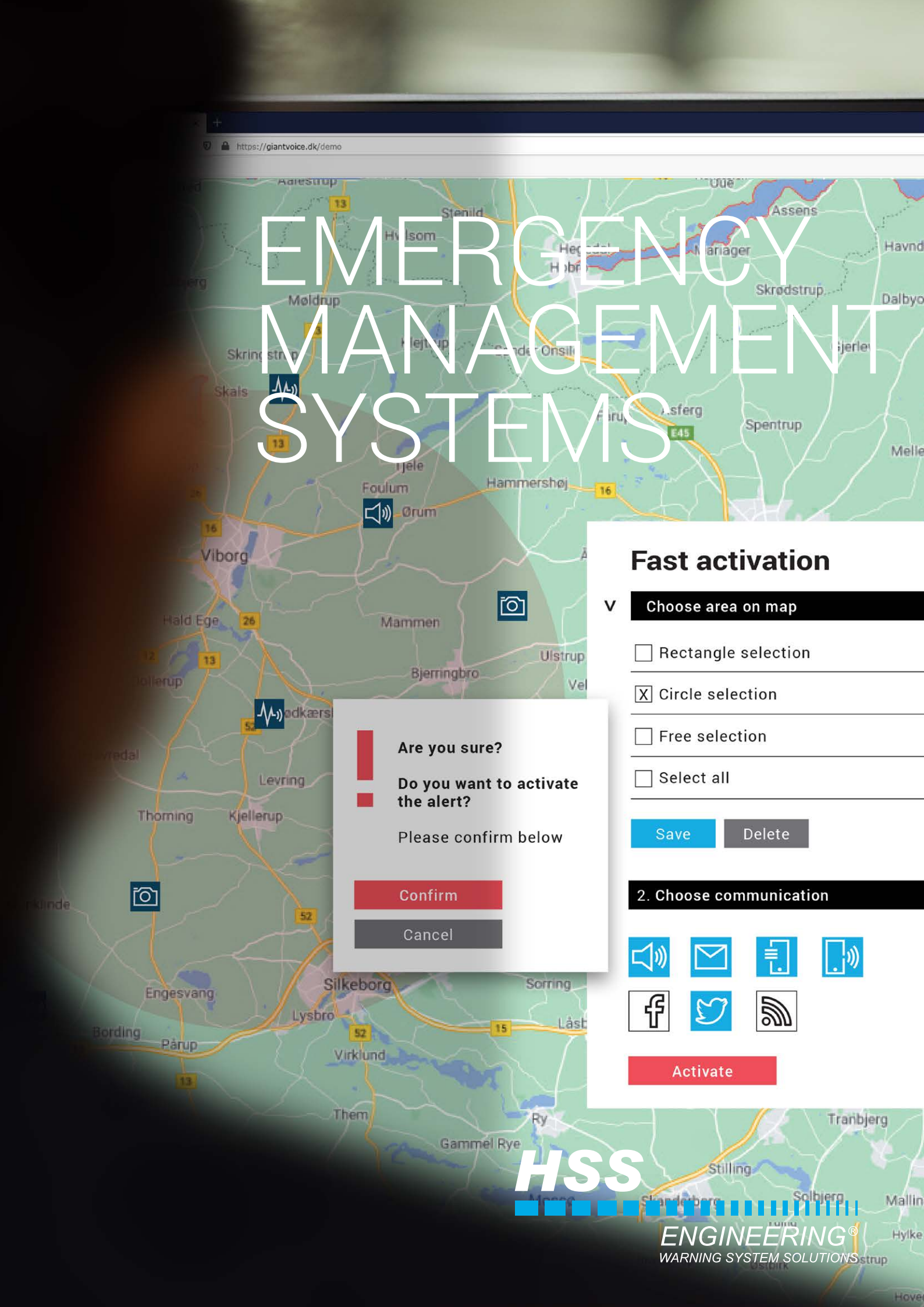
https://giantvoice.dk/demo
EMERGENCY MANAGEMENT SYSTEMS
Fast activation
Choose area on map
Rectangle selection
Circle selection
Free selection
Select all
Save
Delete
2. Choose communication
Activate
Are you sure?
Do you want to activate the alert?
Please confirm below
Confirm
Cancel
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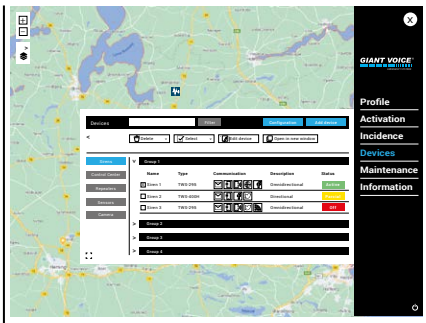
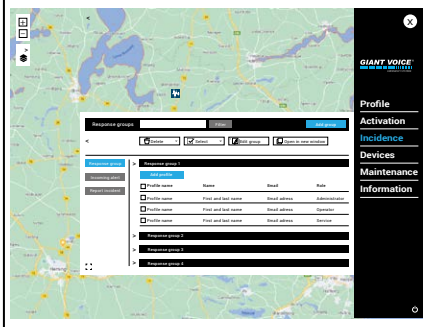
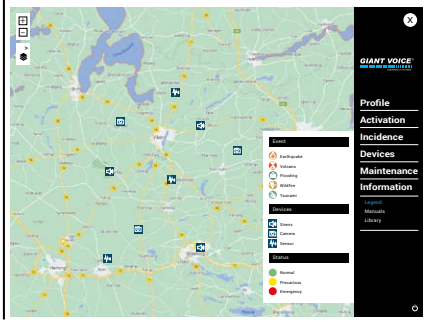
WE CUSTOMIZE COMPREHENSIVE AND FLEXIBLE EMERGENCY SYSTEMS







The GV-EMS is a comprehensive and flexible Emergency System providing easy and understandable information that enables the user to make the right decisions and to react within seconds.

The GV-EMS has been developed to meet the customer's need for precise and accurate information at hand, when vital decisions must be made. GV-EMS network structure is designed in a flat hierarchical structure. Working independently or in groups.

The software is delivered preinstalled on the GV-CORE unit that serves as the platform for the Giant Voice® Distributed Communication Network (GV-DCN).

The system is easy to use with its straightforward logic - simply select the system components on the map and then choose your action from one of the on-screen menus.

You can also add predefined sequences to the system by assigning sequences to the programmable activation keys. A sequence is defined by any specific warning priority, such as an alarm (tones) or a public information.

You will not encounter any language barriers and the user interface can be modified with easily recognizable icons and colors.

GV-EMS. Emergency Management System

GV-EMS MEETS INTERNATIONAL STANDARDS AND IT IS COMPATIBLE TO ANY COMMON ALERT PROTOCOL

INTEGRATION TO ANY DEVICE

- Sensoring systems
- CCTV systems
- Fire detection Systems
- Weather Station and more
- Unlimited amount of devices can be integrated

MAP FEATURES

- Predefined static map
- Zoom capability
- Rectangle, circle, groups and free selection of devices
- Map formats: JPEG, PNG, SHP, DBF, JSON, GEOjson and SHX format

ACTIVATION FEATURES

- Activation of selected system components
- Activation status display
- Activation accept allows to preview the command before transmission

SERVICE FEATURES

- Status data request from selected system components (for example: status, speaker driver or amplifier failure, AC Power, cabinet temperature)
- Real-time status monitoring for any type of RTU device or repeater station

ANALYSIS FEATURES

- User defined analysis criteria (Period, Selected Sirens, Command Type etc.)
- Data base of status logs with capability of storing information in any format
- Export data function enabling export of selected data to e.g. Microsoft Excel

FEATURES

- Live voice message through IP-Broadcasting, radio VHF/UHF, etc.
- Unlimited number of programmable predefined sequences
- Predesigned menus for touch screen operation
- Interactive icons and symbols
- Configuration, monitoring and control capability of all system components in real-time
- Integration platform for a variety of components such as public address, general alarm sirens, PABX, sensors, strobe lights, text displays, SMS text message and more
- Individual Log-In ID supporting differentiation between operators, service personnel and administrators in order to secure the system
- Supports GV-DCN network structure
- GV-EMS can manage and monitor devices by any type of communication such as (VHF/UHF) Radio, IP Ethernet, BGAN/Vsat Satellite, GPRS 3G/4G mobile network, EWBS, Digital terrestrial television
- Predefined communication channel management

OPTIONS

- PABX Integration Additional screens
- 10 digit DTMF protocol
- Mobile App
- Repeater station management
- Rack cabinet enclosure as pr. customer requirements
- Mass notification through SMS, Email and IOS / Android compatible mobile App

Step by step.

THIS
IS HOW WE MAKE IT WORK!

HSS
ENGINEERING®
WARNING SYSTEM SOLUTIONS

A full range of high-quality products!

WE SUPPORT
YOU ALL THE WAY

A warning system from HSS Engineering® provides a complete alerting and notification system solution that utilizes a variety of technologies, software and hardware that enable municipalities, defense installations and industrial facilities to maintain the safety and security of their personnel and the general public and industrial facilities to maintain the safety and security of their personnel and the general public.

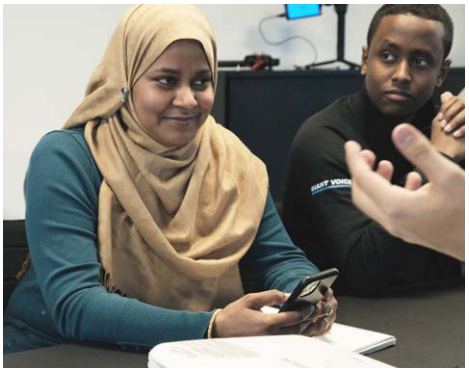
MANUFACTURER OF CUSTOMIZED WARNING SYSTEM SOLUTIONS

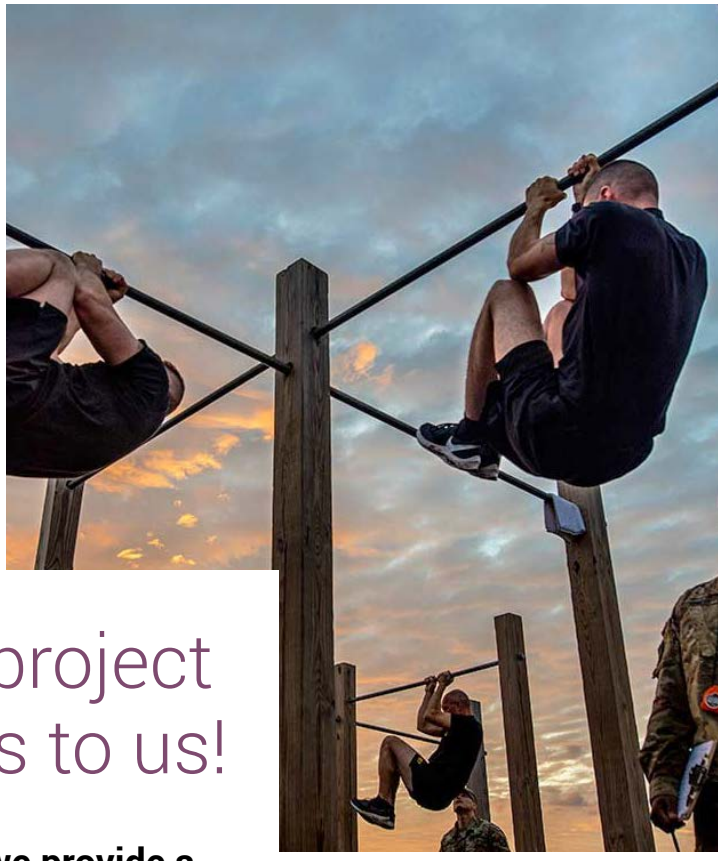
At HSS Engineering® we develop, manufacture, deliver, maintain, customize and assemble Giant Voice® and TWS warning system solutions for tailored warning solutions. Our extensive product range and consultancy services ensure that the customer receives a warning solution that addresses their specific safety requirements in a costeffective and timely manner.

We have challenged our engineers to develop the best technical solutions for a variety of systems. This is why HSS Engineering® currently has an unmatched reputation of providing the best warning system solutions to customers in a global context and with a local perspective.

We have worked successfully with a wide range of customers across North America, Central America, South America, the Middle East, Asia, Europe, and Oceania to provide cost effective, innovative and customized warning solutions. Throughout our 40 years in business, HSS Engineering® has successfully delivered a variety of projects featuring diverse process technologies to clients around the world.

We are specialists with an exclusive dedication in developing, customizing, manufacturing, delivering and maintaining Public Warning Systems (PWS), Emergency Management Systems (EMS), Public Address & General Alarm systems (PA/GA), defense warning systems as well as turnkey systems.

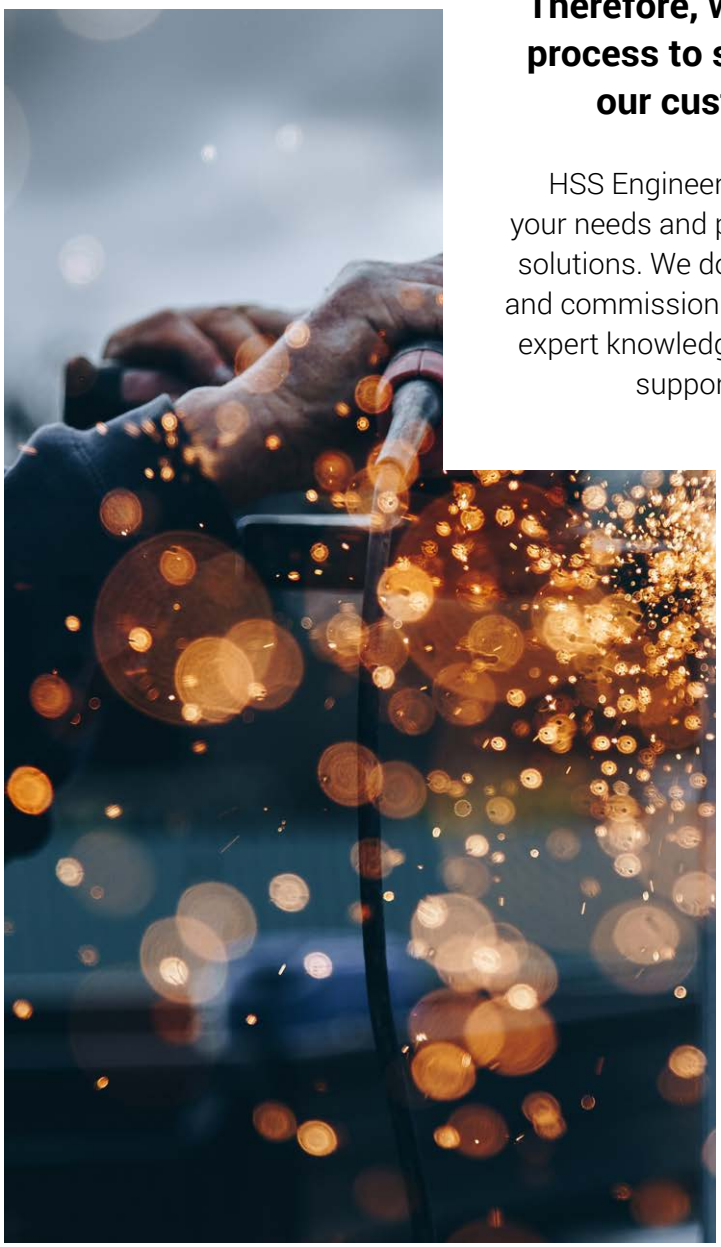


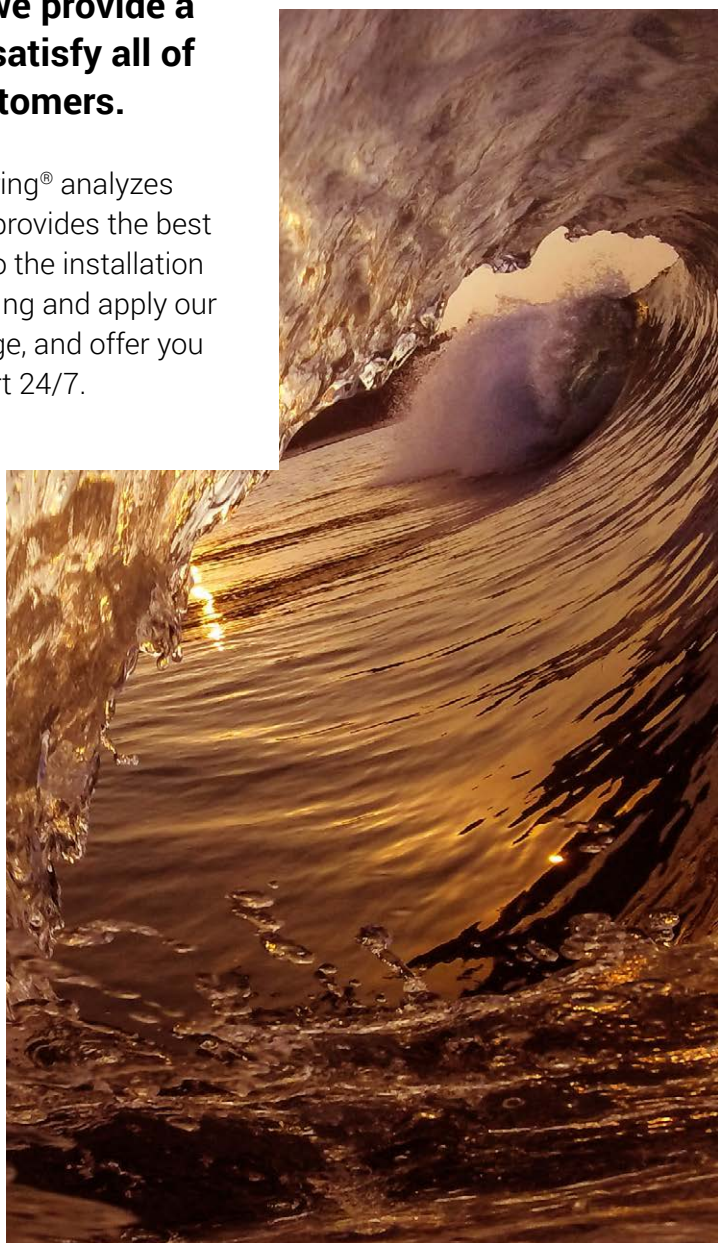


Every project matters to us!

Therefore, we provide a process to satisfy all of our customers.

HSS Engineering® analyzes your needs and provides the best solutions. We do the installation and commissioning and apply our expert knowledge, and offer you support 24/7.





Alerting and notification solutions step by step.

WE ANALYSE
YOUR NEEDS

A warning system from HSS Engineering® provides a complete alerting and notification system solution that utilizes a variety of technologies, software and hardware that enable municipalities, defense installations and industrial facilities to maintain the safety and security of their personnel and the general public and industrial facilities to maintain the safety and security of their personnel and the general public.

During the consultancy and system design service our engineers help the customer to design or improve the system performance and give advice on individually tailored configurations. We further help our customers to identify system bottlenecks and weaknesses, and suggest courses of action to improve the system's overall responsiveness.

Finally, we are focused on system reliability allowing our customers to take proactive measures to avoid problems, now and into the future.

As part of our comprehensive service, our engineers can be a collaborator in any, or all, of the steps that lead to the design of a new customized warning solution.

SITE SURVEY

Our system concept design often starts with a detailed site survey during which we assess the customer's requirements for the warning system solution such as

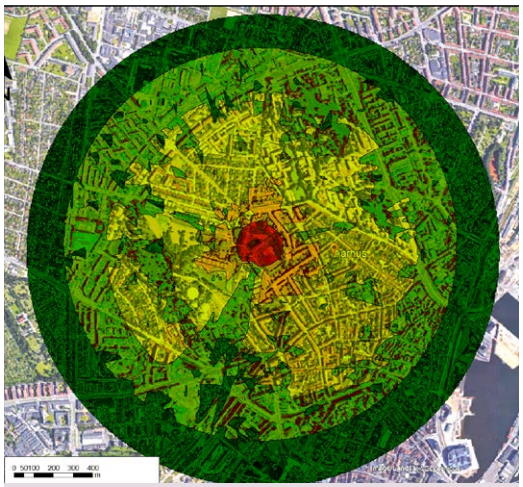
- Integration to other systems such as fire and gas, public address, PABX, etc
- Types of warning required
- Desired system functionality
- Inspection of site conditions such as hazardous areas, type of dangers, etc
- Background noise level, noise mapping and acoustic analysis

Based on the results of our site survey, the feedback from our engineers provides a range of options to consider in planning and designing the warning system solution. The gathered survey information is collected into a site survey report.

Alerting and notification solutions step by step.

THE DEVELOPMENT OF A RELIABLE SOLUTION

Several tools and processes are taken into consideration when the HSS Engineering® team is in the process of advising on and designing a system that can resolve all of our customers' warning needs.



INPUT

Topography, background noise level, information on buildings and structures, siren type, siren output, siren location and siren cluster elevation

SOUNDPLAN

Analysis and calculation

OUTPUT

Graphical presentation, showing siren sound propagation

Action Matrix

The action matrix is a tool that helps identify the types of warning required, their initiation procedure and the area that should be covered by the system. The action matrix procedure requires careful planning and is developed in close corporation with the customers.

Acoustics Simulations and Measurements

To ensure that the warning sound propagation will actually cover the relevant areas, HSS Engineering® offers the services of performing field test measurements. The noise measurements serve as the basis for a noise mapping and acoustical analysis. Creating a noise map gives a comprehensive overview, that in a graphical manner, helps identify weak spots in the sound coverage provided by the warning system.

The sound propagation coverage is compared to the sound levels and coverage areas to ensure that these requirements correspond to the International and local standards and regulations given for the area.The HSS Engineering® team can carry out acoustics simulations and measurements for indoor and outdoor environments.

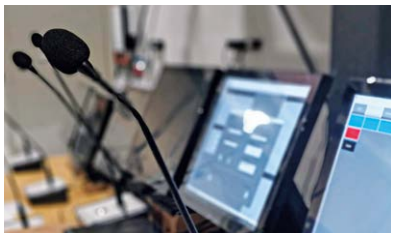
System Concept Design

Acoustics simulations and measurements can along with the action matrix and other inputs gathered during the site survey be used to make decisions on where and how to install the system. Further more they help designing the interfaces to other external systems.

The system concept design is often kept at a modular level to ensure that the comprehensive overview of the suggested design concept is clear prior to manufacturing and further documentation.

Technical Solution

At HSS Engineering® we go through a thorough process to ensure that we create, the most optimized solutions that are required to meet our customers' needs. We provide a detailed technical and economical explanation of the customers' solutions that can be adjusted according to the customers' feedback.



Alerting and notification solutions step by step.

WE PROVIDE
THE BEST SOLUTIONS

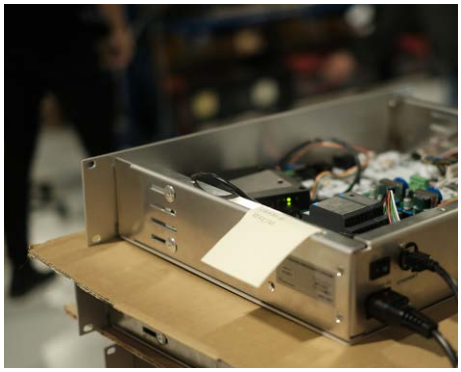
**We develop and provide the most reliable warning solutions.
We are able to customize the solution to meet our customers' requirements.
We handle documentation ranging from simple manufacturing
test sheets to construction drawings and wiring diagrams.**

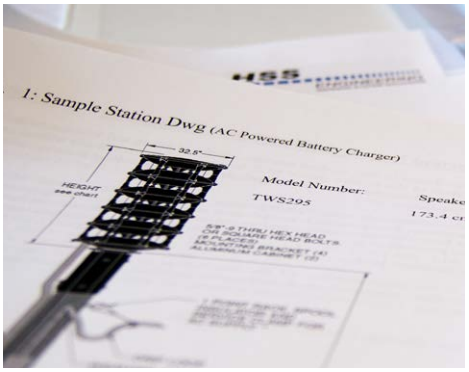
FACTORY ACCEPTANCE TEST

Factory Acceptance Test (FAT) is conducted to determine and document, that the system hardware and software operate according to the customers' specifications.

At HSS Engineering® we consider the factory acceptance test (FAT) to be a very important milestone to;

- Determine and document that hardware / software work according to specifications
- Compare the configuration of the system according to the drawings and documentation
- Test and review the customers' entire operation so that it meets your requirements
- Changes can be identified and incorporated more easily at this stage
- The customer gets the guarantee that each component has been thoroughly tested and verified





Alerting and notification solutions step by step.

WE DO
THE INSTALLATION AND COMMISSIONING

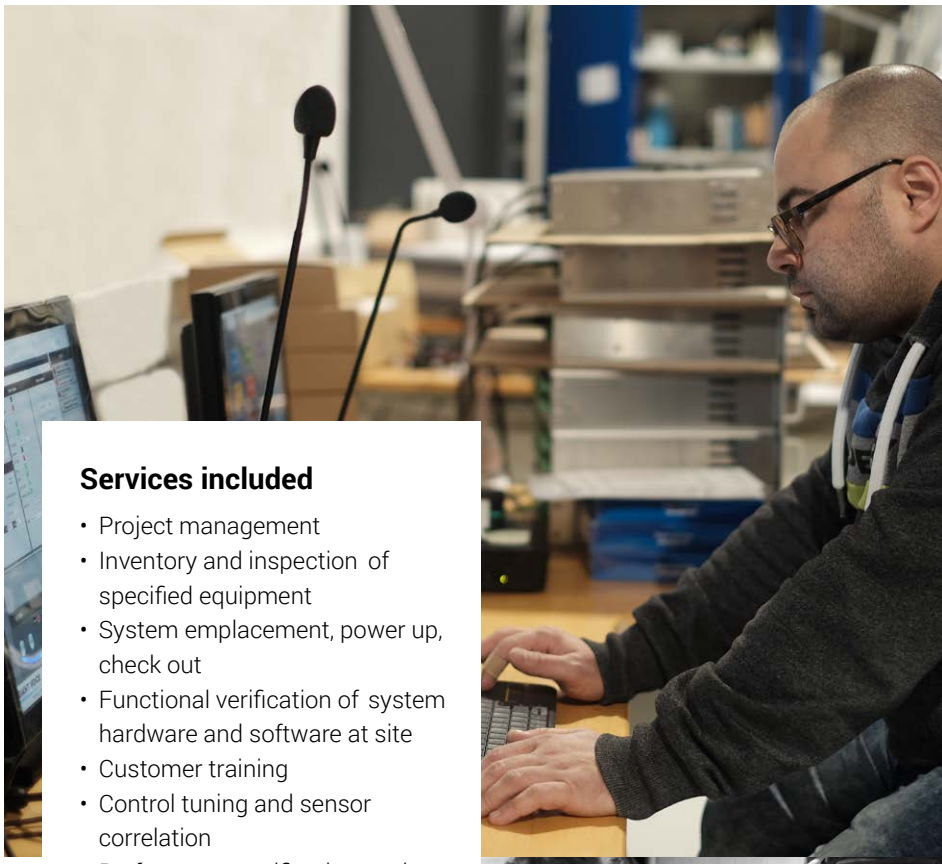
Our project managers, engineers and technicians are all seasoned professionals familiar with local and international industry standards pertaining to emergency system installations.

One of the things that sets HSS Engineering® apart from our competitors is that we deploy our own engineers on-site all over the world - including war zones. Our project managers, engineers and technicians are all seasoned professionals familiar with local and International industry standards pertaining to emergency system installation practices for the military, industry and public sectors around the globe. This ensures that we have direct control over the installation process and the ability to fully install, align, test, troubleshoot and commission the system.

Our field engineers receive training in all products each supplementing their specialized competences. This ensures that all field engineers share a common understanding of the system functionality while still maintaining the specialist skills within the deployed crew.

To ensure that all aspects are taken into consideration prior to installation a commissioning plan is laid out between the project manager and the customer to exactly define the system expectations, set a schedule and engage and commit all team members. The effort will be supported by providing the test equipment and knowledge necessary to leave the customer with the assurance that each component has been thoroughly tested and verified.

All of these factors give HSS Engineering® the ability to deliver a full turnkey project in the same high standard every time - anywhere in the world. Nevertheless, we also cooperate with local expert companies to deliver the best solutions.



Services included

- Project management
- Inventory and inspection of specified equipment
- System emplacement, power up, check out
- Functional verification of system hardware and software at site
- Customer training
- Control tuning and sensor correlation
- Performance verification and documentation

Benefits

- Streamlined process
- Smoother installations
- Improved quality
- Faster start up at lower cost
- Improved efficiency
- Optimized system performance
- Significantly better end result

Alerting and notification solutions step by step.

WE TRANSFER
OUR KNOWLEDGE

HSS Engineering® offers private courses for customers and business representatives all around the globe, who are looking for a detailed explanation of our delivered system, technological solutions and services.

We educate our staff thoroughly.

At HSS Engineering® we are passionate learning facilitators and we target our training courses at the level of the participants.

Some of the course topics include:

- Company overview
- System concept overview
- Communication
- Giant Voice® – Emergency management system training
- Discussing different system scenarios
- SPL standards
- System maintenance
- System troubleshooting

We have custom courses for all customers based on their focus areas. Our training courses are held at our headquarters in Denmark as well as on site, depending of our customers' needs.

Within the HSS Engineering® training, we use exercises and activities in which our participants can get practically involved. As a result, the participants gain knowledge of how the system operates.

We have divided our training classes into 4 levels

- Operators training
- Basic service and maintenance
- Advanced service and maintenance
- System administrator/ administration

All classes are complemented with an official HSS Engineering® training class certificate stating the level and time of training.

WE OFFER
SUPPORT 24-7

Our support and maintenance program can provide both reactive (emergency support) services and proactive (preventative maintenance) services. We currently run service programs ranging from on-call service for hardware repair to full-time deployed engineers in war zones.

Warning systems supplied by HSS Engineering® have a two-year warranty period and require very low maintenance. However, even after the warranty period has expired, ongoing support and technical assistance is available. HSS Engineering®'s support and maintenance program can provide both reactive (emergency support) services and proactive (planned preventative maintenance) services.

With an on-site support and maintenance program you get the combination of experience, technical knowledge and on-site support that ensures that your system can perform at any time. This program features a single point of contact for quick and reliable assistance, and HSS Engineering®'s dedicated personnel offers a professional service to its valued customers all over the world. All terms for our support and maintenance program can be set according to the specific customer needs. As such we currently run service programs ranging from on-call service over hardware repair to full-time deployed engineers in war zone.

Alerting and notification solutions step by step.

KEEP YOUR
SYSTEM RUNNING

Planned preventative maintenance

A preventative maintenance contract with HSS Engineering® provides periodic checks and alignment to keep the system operating at published specification levels and helps prevent failures.

During our preventative maintenance, in addition to the standard maintenance, we also examine all con-sumable and possible failure parts of the system and report on their condition. Rectification can then be made avoiding a potentially costly and disruptive system failure.

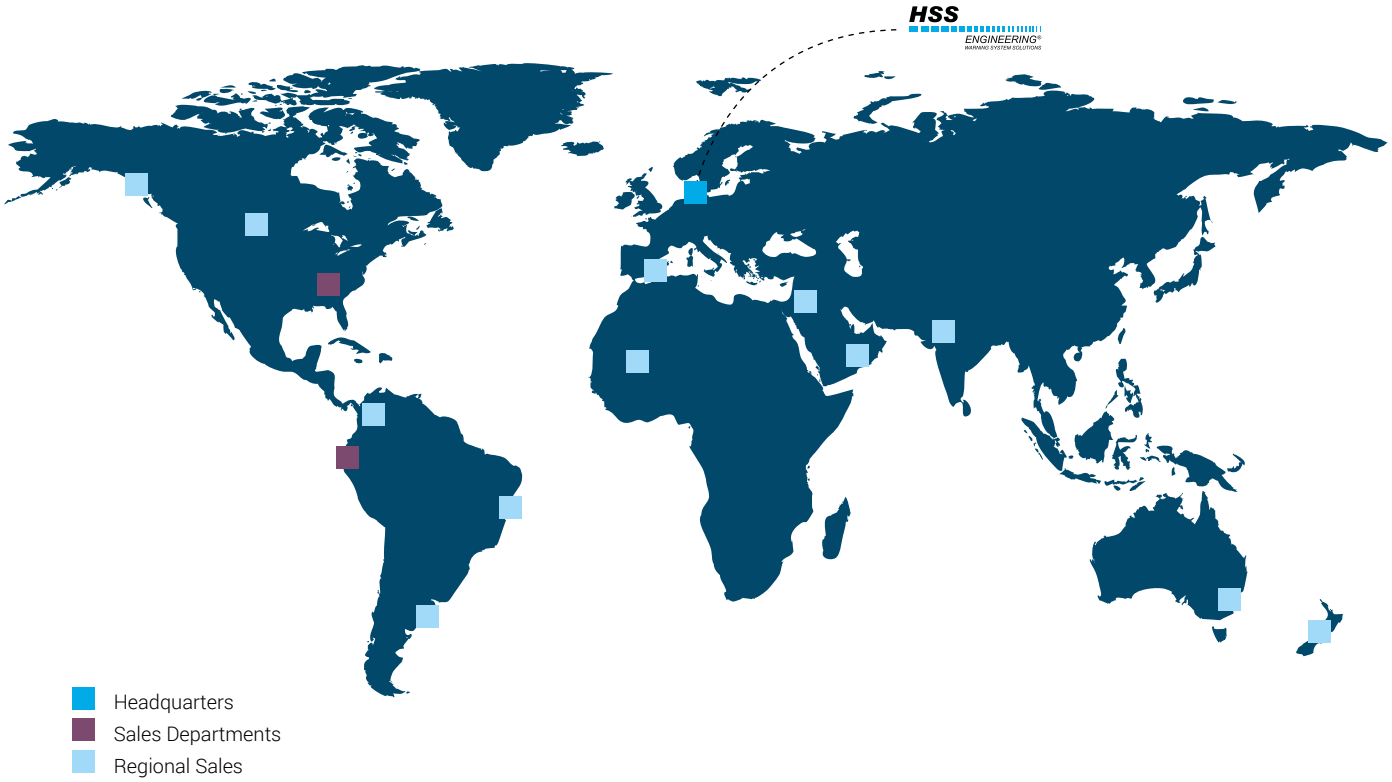
Reactive service

With a reactive service contract with HSS Engineering®, we take responsibility for the full repair by authorized HSS Engineering® personnel if a piece of equipment should fail.
In a standard reactive service contract, you send the failed equipment to us for repair or replacement and we will return it to you within the agreed maximum time scale. The reactive service contract can also contain a 24-hour-hotline e-mail and telephone service for quick and reliable assistance.

On-site service and maintenance

When the preventative and reactive maintenance services are not sufficient for your warning system solution, we also provide an on-site support and maintenance contract.

The on-site service and maintenance contract is tailored specifically to your needs and requirements. We offer every level of service from an on-call service to a full time deployed engineer 24 hours a day, 7 days a week and 365 days a year.



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ISO 9001:2015 certified company

ORBCOMM®

CONNECTING THE WORLD'S ASSETS

ST 9100
Hardware Guide

T413, Version 03
Apr 2021

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PREFACE

Purpose

This document is as an overview of the hardware characteristics and specifications for the ST 9100.

Notation

A terminal consists of a transceiver unit plus antennas.

Hardware components and hardware labels in this document might not be exactly as shown and are subject to change without notice.

CAUTION: This safety symbol warns of possible hazards to personnel, equipment, or both. It includes hazards that will or can cause personal injury, property damage, or death if the hazard is not avoided.

Note: A note indicates information with no potential hazard. A note indicates points of interest or provides supplementary information about a feature or task.

Numbered lists indicate a series of steps required to complete a task or function.

Bulleted lists highlight information where order or sequence is not crucial.

Reference

The content of the following documents might be useful in conjunction with this guide. These documents are available from the downloads section of the partner support website or from the ORBCOMM Developer Toolkit (ODT), which is also available from the website.

Document names and numbers are subject to change, or be discontinued, without notice. Always check the partner support website for the most current version of these documents.

[N210]	IsatData Pro Gateway Web Service 2 User Guide
[N206]	MTWS Cellular Protocol
[T404]	LSF Developer Guide (FW v4.x)
[T405]	IsatData Pro Service API Ref (FW v4.x)
[T414]	ST 9100 Installation Guide

Battery Safety Warnings

CAUTION: Do not short circuit or expose the battery to temperatures above the maximum rated temperature.

CAUTION: Always follow local disposal guidelines to properly dispose of the Lithium-ion battery and the device.

CAUTION: Store in a cool, well ventilated area. Elevated temperatures will result in shortened battery life.

CAUTION: DO NOT replace the battery. Changing the battery without ORBCOMM's permission could violate regulatory conformity.

CAUTION: DO NOT throw the internal battery or the device into fire.

1 PRODUCT OVERVIEW

The ST 9100 is a flexible, robust, and programmable dual mode satellite-cellular terminal. It is ideal for remotely monitoring and controlling fixed and portable assets in industries as diverse as transportation, oil and gas, utilities, maritime and more. The versatile, environmentally sealed ST 9100 is ideal for rugged environments in the world's most remote areas.

The ST 9100 (Figure 1) is a satellite-cellular terminal. Features include the following:

- An IsatData Pro satellite-cellular transceiver for communicating with the network
  - Part number ST9100-D01 for use in the Americas
  - Part number ST9100-C01 for use outside of the Americas
- An integral multi-GNSS subsystem
- Four (4) general purpose I/Os
- Two (2) dedicated open drain outputs
- Four (4) inputs (digital or 0-5 V analog of which the first two can be configured as 4-20 mA)
- Two (2) RS-232 ports
- One (1) RS-485 port
- Two (2) CAN Bus ports
- One (1) 1-Wire interface
- 3-Axis 16-bit accelerometer
- Multiple SIM support
- Cellular module
- Bluetooth connectivity
- Internal backup battery
- Satellite antenna (p/n ST901065-APA standard antenna, ST901066-APA low elevation antenna)
- Cellular antenna - LTE/3G/2G fallback (p/n ST101066-001)
- Terminal shroud (optional- p/n ST101014-001)

Figure 1: ST 9100 Satellite-Cellular Transceiver

The transceiver's built-in programmability allows it to work as a standalone data-messaging transceiver, with built-in I/O data collection and processing capabilities. Feature-rich software tools make programming easy and shorten the design and testing time. The transceiver can also be configured with terminal apps. Terminal apps are configurable device-level applications that include specific feature sets that are implemented by ORBCOMM. Contact Customer Support or your Account Manager for further details.

1.1 Overview of the Messaging System

The IsatData Pro satellite messaging system is designed to support the management of mobile or fixed assets located around the world. An asset fitted with one of ORBCOMM's satellite based mobile terminals can have their status and locations monitored and send large messages.

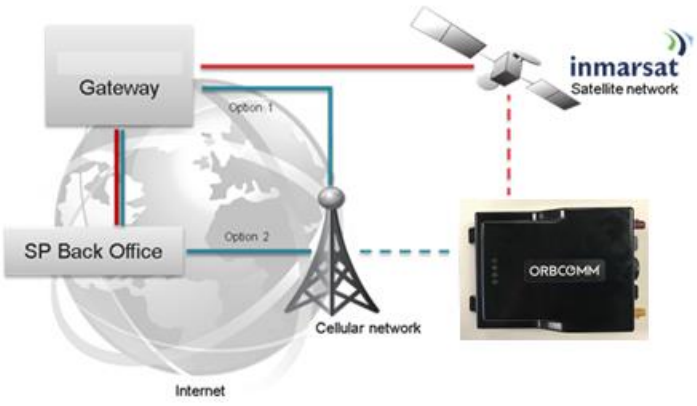
The network provides the following key features and benefits:

- Polling of terminal status and location
- Scheduled reporting of terminal status and location
- Transmission of text messages to and from a serial port on the transceiver
- Two-way communication for messaging to and from the asset for near real-time control
- Up to 6,399 bytes from-mobile messages
- Up to 10,000 bytes to-mobile messages
- Default acknowledged messages
- Global service

Service is provided to end users by Solution Providers (SPs) who use the IsatData Pro network to offer particular applications and/or services to their clients. The SPs link their application services to the satellite terminals by connecting to the IsatData Pro gateway. This acts as the communications hub of the system, routing traffic to and from the terminals and the various service providers.

The terminal can be configured to route cellular messages through the same IsatData Pro Gateway that supplies satellite messages. This is shown as Option 1 in the System Diagram. Option 2 represents a terminal configured to route cellular messages directly to a customer or Solution Provider proprietary cell server. In this case the connection to ORBCOMM's IsatData Pro Gateway supplies satellite messages. Refer to [T404, N206, and N210] for more information about configuring the terminal's cellular messaging transport.

Figure 2: System Architecture



The satellite-cellular terminal is based on Lua software and is supported by a suite of IsatData Pro tools, enabling SPs a programmable platform they can tailor to their specific applications.

1.2 Terminal

Note: Hardware components may not be exactly as shown in this document. A terminal consists of a transceiver unit plus antennas.

Transceivers with a standard antenna operate on the IsatData Pro network at an elevation angle of 20° to 90° and -5° to 90° for transceivers with low elevation antennas. The transceivers are self-contained, compact, and provide low power consumption.

A cellular module is available to operate over the cellular network

The transceiver's built-in programmability allows it to work as a stand-alone with built-in I/O data collection and processing capabilities. Terminals are suitable for the AVL market.

Feature-rich software tools make application design easy and shorten the design and testing time. ORBCOMM also provides consulting services to SPs to help program the transceiver and get customer applications running quickly.

1.3 Transceiver Components

CAUTION: Do not rely solely on the terminal for emergency (SOS) calls.

In addition to the features mentioned earlier, the transceiver has the following benefits:

- Designed to be used as a standalone or incorporated into an SP solution
- Built-in dual-GNSS receiver to calculate position, speed, and heading
- Quick and easy installation reduces labor time and costs
- Installed firmware
- Flexible custom application design (Lua Services Framework)
- Wide operational temperature range
- Satellite plus cellular modem integration
- Discrete I/O ports to interface with a wide range of after-market accessories
- Rugged construction

1.3.1 Transceiver Unit

Each transceiver is a self-contained unit, including a satellite/cellular modem, a multi-GNSS module, programmable microcontroller, and multiple discrete and analog I/Os (input/output) capable of monitoring and controlling external sensors and devices. Ideal for mobile applications, it is also suitable for fixed installations.

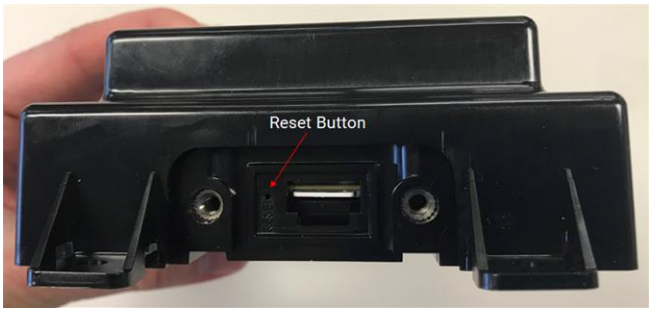
Arranging the transceiver unit's connectors (Figure 3) at one end of the unit simplifies installation. Sturdy flanges on the side make mounting quick and easy.

Figure 3: Connector Position

An anti-tamper SIM door on the back side of the transceiver (Figure 4) provides easy access to the SIM card holder and reset button.

Figure 4: SIM Access Door

Figure 5: Reset Button



1.3.2 Satellite Antenna

CAUTION: Use only color-matching antennas.

The satellite-cellular transceiver's satellite antenna is waterproof and designed to operate in extreme environments. It has four mounting flanges for installation.

The satellite antenna connects to the transceiver using a 5 m (16 ft.) cable terminated with a curry yellow colored FAKRA RF connector.

The satellite-cellular transceiver is available with either the standard satellite antenna (Figure 6) or the low elevation satellite antenna (Figure 7).

Figure 6: Standard Satellite Antenna

Figure 7: Low Elevation Satellite Antenna

1.3.3 Cellular Antenna

CAUTION: Use only color-matching antennas.

The ST 9100 cellular antenna is an LTE antenna with a burgundy colored FAKRA connector.

Figure 8: Cellular Antenna

1.3.4 Terminal Shroud

Use the optional terminal shroud if mounting the transceiver outdoors.

Figure 9: Terminal Shroud

1.3.5 ST 9100 Cables and Connectors

The following are available for the ST 9100:

- A 5-meter blunt cut cable (p/n ST101062-002). Refer to [T414] for details.
- An IP67 Field Installable Connector (p/n ST101096). Refer to [T414] for details.
- A development cable (p/n ST101084-001). Refer to APPENDIX A for details.

CAUTION: An external 5 A slow blow fuse must be added in series with the external voltage wire (Table 3).

2 SPECIFICATIONS

2.1 Temperature

Parameter	Value
Operating Temperature Range	-20°C to +80°C (-4°F to +176°F)
Storage Temperature Range	-20°C to +35°C (-4°F to +95°F)

2.1.1 Internal Backup Battery Temperature

Table 1 defines the internal backup battery's temperature specifications.

Table 1: Transceiver with Internal Backup Battery Temperature Specifications

Parameter	Value
Charge Temperature Range	0°C to +45°C (32°F to +113°F)
Discharge Temperature Range	-20°C to +75°C (-4°F to +167°F)
Storage Range	
≤ 1 month	-20°C to +45°C (-4°F to +113°F)
≤ 3 months	-20°C to +35°C (-4°F to +95°F)
≤ 1 year	0°C to +30°C (32°F to +86°F)
Ideal for long-term storage	10°C to +25°C (60±25% R.H.), (50°F to +77°F)

2.2 Electrical

2.2.1 Input Range

CAUTION: An external 5 A slow blow fuse must be added in series with the external voltage wire (Table 3).

Parameter	Value
Power Supply Voltage	9 to 32 V DC

2.2.2 Power Consumption

Typical values with a transceiver input voltage of 12 VDC.

Table 2: Transceiver Input Currents

Mode of Operation	Condition	25°C (77°F)	-40°C (-40°F)	85°C (185°F)	Unit
Sleep	Externally powered	511	322	750	µA
Charger	ON	400	N/A	N/A	mA
SatCom Tx	Burst current	733.87	720.77	728.13	mA

Mode of Operation	Condition	25°C (77°F)	-40°C (-40°F)	85°C (185°F)	Unit
SatCom Rx	Burst current for Rx frequency. 1540045000 1000 2 (C/No=42dBHz)	76.70	25.77	80.13	mA
GPS	Cold fix current during uBlox on command	32.60	38.37	36.59	mA
TOBY Rx (Idle)	measure Rx level in 129 channels for 1000 ms intervals	91.52	101.36	102.3	mA
	measure Rx level in LTE FDD5 for 1000 ms	88.97	92.31	104	mA
	measure Rx level in LTE FDD 12 for 1000 ms	89.17	91.10	156.92	mA
TOBY Tx max	2G-850 TX in channel=189, PCL=0 (max power), Seq=5, Mod=1(GMSK), Interval=5000 ms	403.99	375.03	473.8	mA
	2G-900 TX in channel=37, PCL=0 (max power), Seq=5, Mod=1(GMSK), Interval=5000 ms	777.52	614.95	900	mA
	2G-1900 TX in channel=698, PCL=0 (max power), Seq=5, Mod=1(GMSK), Interval=5000 ms	504.42	510.73	525.17	mA
	4G FDD band 5, 850MHz, TX in channel=120525, power=24 dBm, Internal=5000 ms	224.88	202.20	236.68	mA
	4G FDD band 2, 1900MHz, TX in channel=118900, power=24 dBm, Internal=5000 ms	270.94	288.16	282.63	mA

2.2.3 Load Dump Protection

Active load dump protection is provided on the power pins. The cut-off is >34 V and automatic reset of the load dump occurs when the input voltage is <34 V.

2.2.4 Inrush Currents

Typical inrush currents: 12 volts and 25°C (77°F).

Quantity	Value
Peak in-rush current	4.12 A
In-rush pulse duration	138 µS

2.2.5 Reverse Voltage Input

Parameter	Voltage
Reverse Polarity Protection	-40 V DC (maximum)

2.2.6 SIM Cards

The transceiver offers two embedded (not field replaceable) and one removable 3FF (micro SIM) SIM card. The specifications for the SIM cards are the same.

Parameter	Value
SIM Voltage	1.8 V or 3 V standard SIM cards
Card Detection	Switch connected to cellular module

2.3 Connectors

Transceiver 24 position mating connector	Chogori Technology Company
Satellite Antenna	IMS Connector Systems 3400.SMBA.2K10.089 (RG58/LMR-195 sized cable) FAKRA - K-curry yellow
Cellular Antenna	IMS Connector Systems 3400.SMBA.2D10.029 9RG174 sized cable) FAKRA - D-bordeaux

2.3.1 Connector Pin Assignment

Table 3 maps to the layout shown in Figure 10.

Figure 10: Transceiver View of Connector

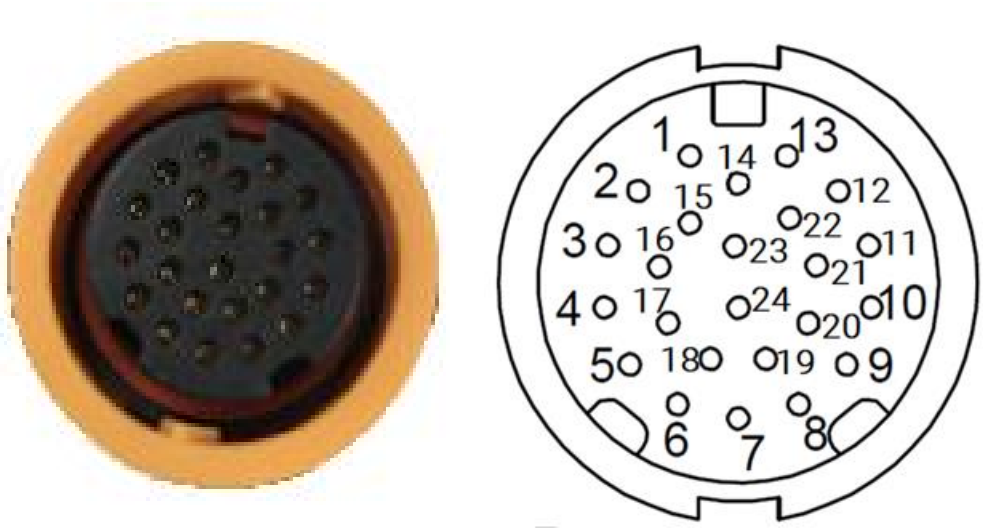


Table 3: Electrical Pin Assignment

PIN	Function	Type	Description
1	RS485_A	I/O	Half duplex RS485 driver output or receiver input (complementary to RS485_B)
2	Digital_IN4 / 0-5 V_IN4	I	Digital input or 0-5 V analog input
3	Digital_IN3 / 0-5 V_IN3	I	Digital input or 0-5 V analog input
4	I/O_4	I/O	Multifunction GPIO, push-pull, analog input, current limited current sink or ignition load
5	I/O_2	I/O	Multifunction GPIO, push-pull, analog input or current sink
6	Ground	PWR	External supply ground return
7	External Voltage	PWR	External 9-32 VDC supply
8	Output_6	O	Open drain output

Parameter	Min.	Max.	Units
Current Loop			
Operating current range	4	20	mA
Load voltage at 4 mA	0.396	0.404	V
Load voltage at 20 mA	1.98	2.02	V
Load resistance	99	101	Ω
Loop voltage (supplied by users externally)	10	32	V
Maximum input high voltage	-	32	-
ESD			
TVS breakdown voltage	40	44.2	V
TVS clamp voltage	-	58.1	V

2.5 Serial Interfaces

Transceivers have the following interfaces:

- 2 x CAN Bus
- 1 x RS-485/J1708
- 2 x RS-232
- 1 x 1-Wire

2.5.1 CAN Bus

The transceiver provides two CAN Bus interfaces for sending and receiving frames.

The transceiver incorporates a controller area network interface with signaling rates up to 1 Mbps.

Note: You must provide a termination resistor externally to the transceiver.

Parameter	Min.	Typical	Max.	Units
Input Common Mode Voltage	-7	-	12	V
Differential Input Threshold	-6	-	6	V
Peak to Peak Output Common Mode Voltage	-	1	-	V
Differential Output Voltage (dominant)	1.2	-	3	V
Differential Output Voltage (recessive) No Load	-0.5	-	0.05	V
CANH or CANL	-36	-	36	V
ESD Protection				
Human Body Model[1]	-	±16	-	kV
Contact Discharge Model	-	±30	-	kV

[1]All electrical interfaces operate normally after being subjected to 8 kV ESD contact discharge per IEC 60945 and IEC 61000-4-2 human body model, level 3.

PIN	Function	Type	Description
9	1Wire Com	PWR	1-WIRE return path
10	Console_RS232_TX	O	±15 kV ESD protected, RS-232 level (nominally ±5.5 V) transmitter outputs
11	AUX_RS232_RX	I	TTL/CMOS level receiver outputs
12	CAN1_H	I/O	High level CAN BUS line
13	CAN1_L	I/O	Low level CAN BUS line
14	CAN0_L	I/O	Low level CAN BUS line
15	RS485_B	I/O	Half duplex RS485 driver output or receiver input (complementary to RS485_A)
16	Digital/Analog_IN1 / 0-5 V_IN1 / P1_4-20 mA+	I	Digital input or 0-5 V analog input or 4-20 mA input
17	I/O_3	I/O	Multifunction GPIO, push-pull, analog input or current sink
18	I/O_1	I/O	Multifunction GPIO, push-pull, analog input or current sink
19	Output_5	O	Open drain output
20	1Wire_DATA	I/O	Input/output driver for 1-Wire Line
21	Console_RS232_RX	I	TTL/CMOS level receiver outputs
22	AUX_RS232_TX	O	±15 kV ESD protected, RS-232 level (nominally ±5.5 V) transmitter outputs
23	CAN0_H	I/O	High level CAN BUS line
24	Digital_IN2 / 0-5 V_IN2 / P2_4-20 mA+	I	Digital input or 0-5 V analog input or 4-20 mA input

2.4 I/O Interface

2.4.1 Standard General Purpose I/Os

The transceiver supports four (4) configurable general purpose I/Os (GPIO I/O_1 to I/O_4):

- Digital input with weak (1 MΩ) pull-down
- Digital input with 20-50 K pull-down
- Digital input with 20-50 K pull-up
- Analog input
- Digital output – push-pull
- Digital output – open drain
- Disabled

On certain vehicles, I/O_1 can be used to monitor ignition. The voltage on the I/O pin may not drop low enough to present a logic zero to the host processor when the ignition is turned off. In such a case I/O_1 can be configured to switch in a 4 kOhm load to draw the voltage below the logic zero threshold level of the host processor ensuring a logic zero. The other I/O ports should not be used for ignition monitoring. Refer to section 2.4.1.1

I/O_4 provides dedicated overcurrent/short circuit protection circuitry when operated in the open drain mode. The other I/Os do not have this circuitry therefore I/O_4 is recommended for applications requiring overcurrent/short circuit protection.

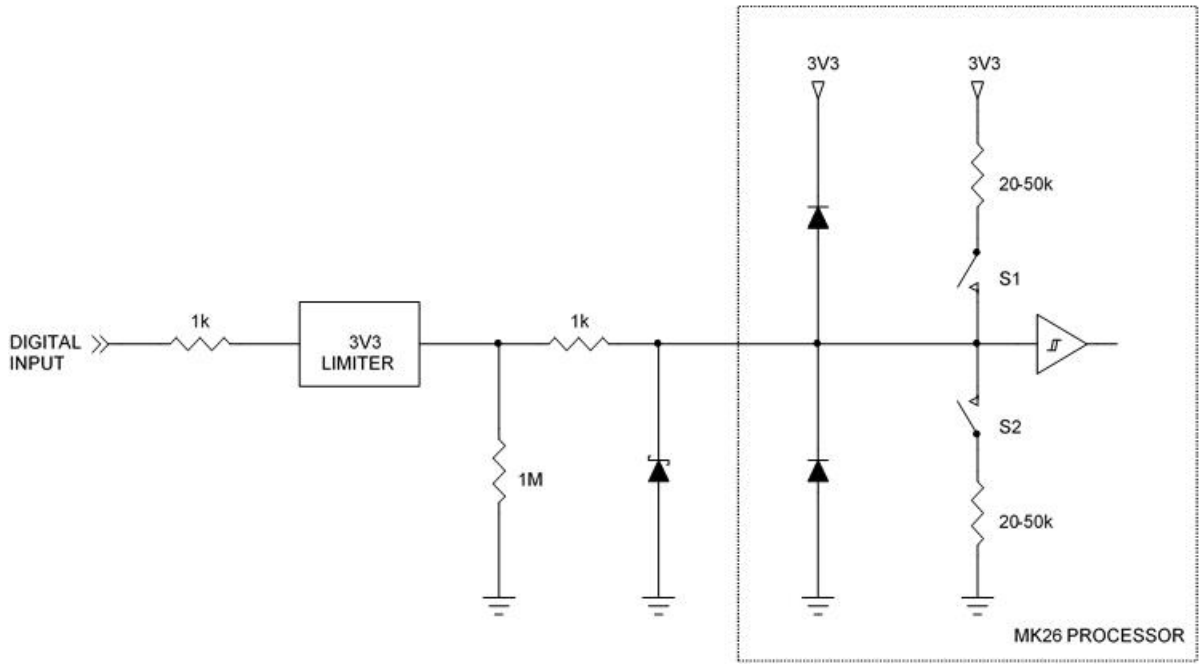
Simplified block diagrams of the I/O when configured as digital inputs, digital outputs, and analog inputs are shown in the figures below (Figure 11, Figure 12, and Figure 13).

The transceiver also supports two dedicated outputs (Output_5 and Output_6). More information on these outputs can be found in section 2.3.1.

2.4.1.1 Digital Input

Figure 11 shows a schematic of the I/O when configured as a digital input.

Figure 11: Digital Input



Input Type	S1	S2
With weak pull-down	Open	Open
With pull-down	Open	Closed
With pull-up	Closed	Open

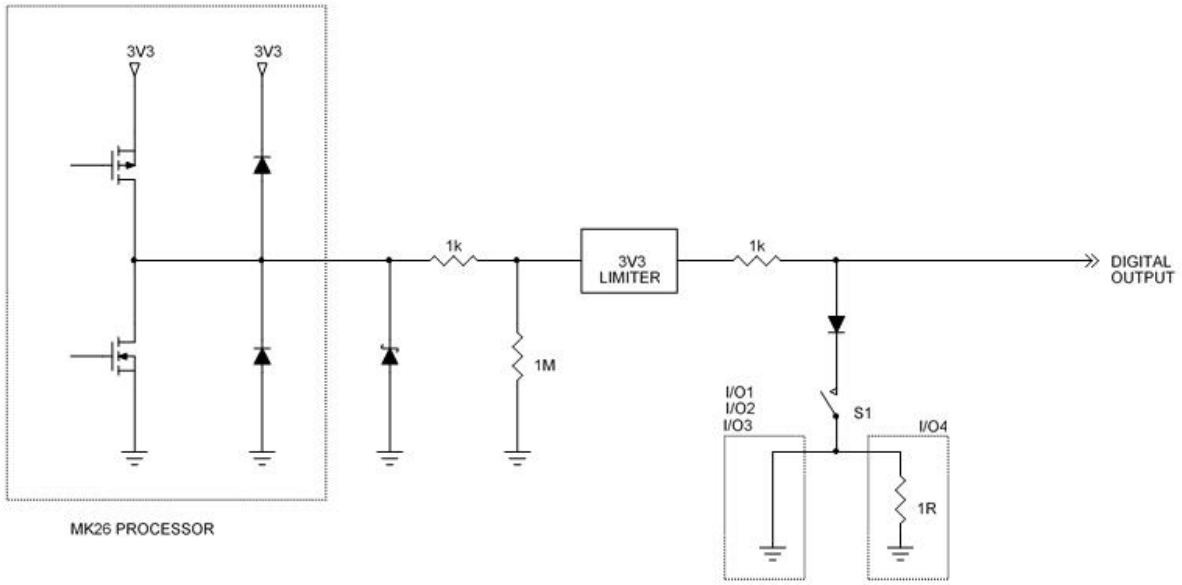
The input specifications are provided in the table below.

Parameter	Min.	Typical	Max.	Units
Input low range	-10	-	1.16	V
Input high range	2.31	-	150	V
Input current with weak pull-down (weak 1 MΩ pull-down still in place); V_{in} = 3.3 V	-	4.5	-	µA
Input source current with 50 k pull-up (V_{in} = 0.0 V)	-	75	-	µA
Input sink current with 50 k pull-down (V_{in} = 3.3 to 150 V)	-	81	-	µA
Input bandwidth	1	-	-	kHz

2.4.1.2 Digital Output

Figure 12 shows a schematic of the I/O when configured as a digital output.

Figure 12: Digital Output



Push-pull	S1 = Open
Open drain	S1 = Closed (Low Impedance) S1 = Open (High Impedance)

2.4.1.2.1 Push-pull

In the push-pull configuration the output is driven directly from the microprocessor.

Parameter	Min.	Typical	Max.	Units
Output high voltage - open circuit	3.23	3.3	3.37	V
Output high voltage (sourcing 10 mA)	2.8	-	-	V
Output low voltage (sinking 10 mA)	-	-	0.5	V
Output bandwidth	100	-	-	Hz

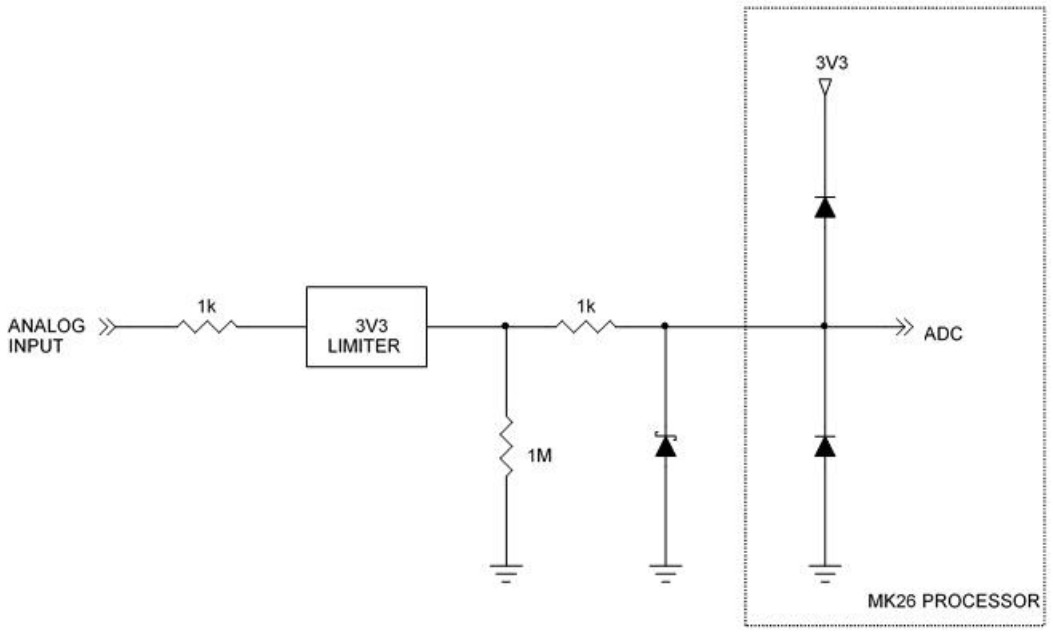
2.4.1.2.2 Open Drain

Parameter	Min.	Typical	Max.	Units
Sink current (do not exceed)	-	-	250	mA
Output voltage (sinking 250 mA) I/O_1 to I/O_3 I/O_4	 - -	 1.15 1.40	 1.35 1.60	 V V
Absolute limits (high impedance)	-10	-	150	V
Output bandwidth	100	-	-	Hz

2.4.1.3 Analog Input

Figure 13 shows a schematic of the I/O when configured as an analog input.

Figure 13: Analog Input

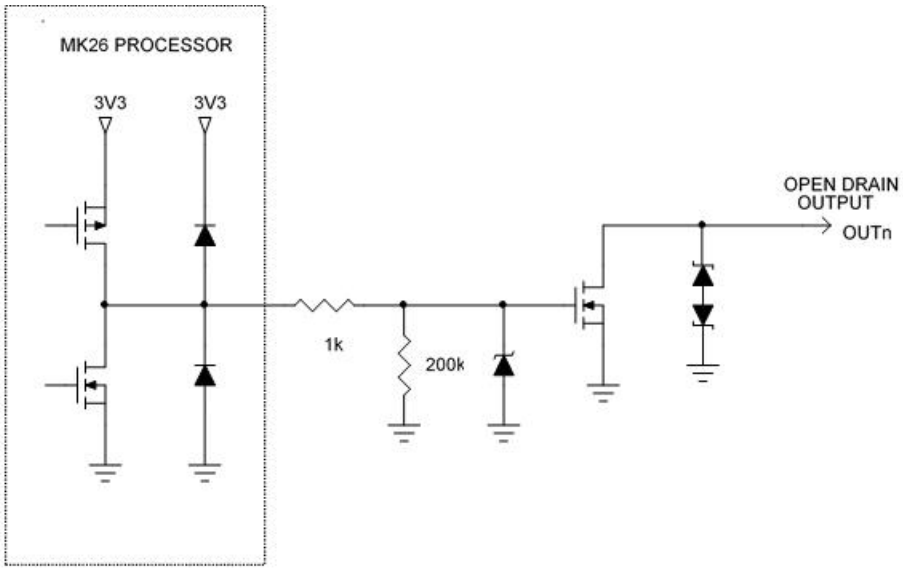


Parameter	Min.	Typical	Max.	Units
Input impedance	-	1	-	MΩ
Normal input measurement range	0	-	3.3	V
Resolution (12 bits)	-	0.8	-	mV
Proportional measurement error	-	-	3	%
INL error	-	-	2	LSB
Absolute limits	-10	-	150	V

2.4.2 Dedicated Outputs

The transceiver provides two open drain outputs (output_5 and output_6) that can be used to turn on various devices such as relays, lights or audible alarms. These outputs are capable of sinking current only. Both outputs are controlled from the host processor. The outputs are not protected against over current conditions and you must ensure that the maximum current capability of the internal switch is not exceeded. Both outputs include ESD protection. You must also ensure that the voltage applied to the output pin does not exceed the maximum value as shown in the table below.

Figure 14: Open Drain Outputs



Parameter	Max.	Units
Sink Current	250	mA
Applied Voltage	40	V
Internal switch power dissipation	691	mW
Voltage output (sink current = 250 mA)	2.76 (minimum 48 mV)	V

2.4.3 Multi-purpose Ports

In addition to the standard I/Os, the transceiver provides the following multi-function ports.

- Four (4) digital input only ports.
- Four (4) 0-5 V analog input only ports.
- Two (2) 4-20 mA inputs.

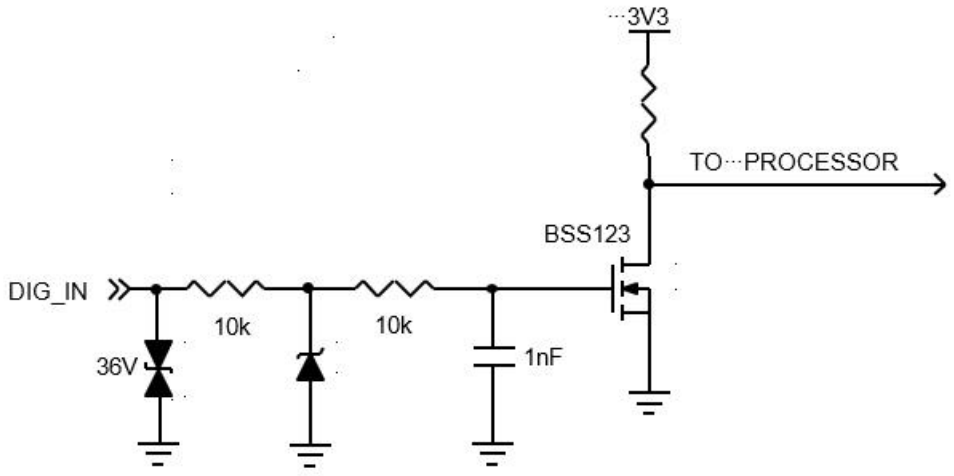
Four pins on the interface connector are independently configured to provide the following combinations:

- Four (4) digital inputs or,
- Four (4) 0-5 V analog inputs or,
- Two (2) 4-20 mA inputs or,
- Two (2) digital inputs and two 0-5 V analog inputs or,
- Two (2) digital inputs and one 4-20 mA input or,
- Two (2) 0-5 V analog inputs and one 4-20mA input.

2.4.3.1 Input Only Ports

Four ports (PINs 2, 3, 16, and 24) can be configured as dedicated inputs. Each input is ESD protected by a 36 V transient voltage suppressor that clamps the input transient at 58 V. A 15 V Zener ensures the FET maximum gate voltage of 20 V is not exceeded.

Figure 15: Dedicated Inputs



Parameter	Min.	Max.	Processor	Units
Digital Input				
Typical Input high voltage (Zener starts conducting at ±14.49 V)	1.6	14	0	V
Maximum input high voltage	-	32	0	V
Input low voltage	0	1.4	3.3	V
Input frequency	1	10	-	Hz
ESD				
TVS breakdown voltage	40	44.2	-	V
TVS clamp voltage	-	58.1	-	V

2.4.3.2 Analog Inputs (0-5 V)

Four ports (PINs 2, 3, 16, and 24) can be configured as dedicated 0-5 V analog inputs. 0-5 V applied to the ports is converted to 0-3.3 V to be compatible with the ADC voltage range of the host processor.

Parameter	Min.	Max.	Units
Analog Input			
Input voltage range	0	5	V
Maximum input high voltage	-	32	V
ESD			
TVS breakdown voltage	40	44.2	V
TVS clamp voltage	-	58.1	V

2.4.3.3 Inputs 4-20 mA

The ST9100 can monitor two 4-20 mA sensors. Two ports (PINs 16 and 24) can be configured as two dedicated 4-20 mA receivers.

2.5.2 RS-485/J1708

The transceiver provides a half-duplex RS-485 or J1708 interface as an accessory bus and for SCADA interfacing with signaling rates up to 250 kbps.

Note: You must provide a termination resistor externally to the transceiver when required.

The electrical characteristics of the interface are:

Parameter	Min.	Typical	Max.	Units
Input Common Mode Voltage	-8	-	12.5	V
Differential Input Threshold	-200	-	200	mV
Output Common Mode Voltage	-	1.8	3	V
Differential Drive Output, 54 Ω load	1.5	2.3	-	V
ESD Protection				
Human Body Model	-	±16	-	kV
Contact Discharge Model	-	±30	-	kV

2.5.3 RS-232 (Console and Auxiliary)

The two RS-232 interfaces default to the following settings: 9600 bit/s, 1 start, 8 data, 1 stop bit, and no parity. The baud rate is configurable up to 115,200 bps.

The electrical characteristics of the interface are:

Parameter	Min.	Typical	Max.	Units
Rx Input Low Threshold for DTE Connected	-	-	-2.7	V
Rx Input High Threshold for DTE Connected	2.7	-	-	V
Rx Threshold for DTE Disconnected	-0.3	-	0.3	V
Serial Rx Input Low Threshold	0.6	-	-	V
Serial Rx Input High Threshold	-	-	2.4	V
Rx Input Voltage Range	-25	-	25	V
Serial Tx Low Output (3 kΩ load)	-	-	-3.7	V
Serial Tx High Output (3 kΩ load)	3.7	-	-	V
ESD Protection				
Human Body Model	-	±15	-	kV
Contact Discharge Model	-	±8	-	kV

2.5.4 1-Wire

The 1-Wire interface allows connection to downstream 1-Wire devices connected on a bus, or to a single button reader. Relative to any attached 1-Wire device, the transceiver behaves as the master. The 1-Wire driver supports 3 or 5 V devices on the bus.

At standard speed, the 1-Wire supports up to 39 devices over a 61-meter (200 feet) CAT5 cable. In overdrive, the usable expected distance is reduced to ≤ 15 meters (≤ 50 feet) with a maximum node count of 9.

The electrical characteristics of the interface are:

Parameter	Min.	Typical	Max.	Units
1-Wire Input High Voltage	3	-	-	V
1-Wire Input Low Voltage	-	-	1	V
1-Wire Output Low Voltage (IOL - 8 mA sink current)	-	-	0.2	V
1-Wire ESD Protection Diode and Resistors				
Avalanche Voltage	7.4	-	11.05	V
Trigger Voltage	-	10	11	V
Holding Voltage (IOL - 8 mA sink current)	5.5	-	-	V
Holding Current	11	-	-	mA
Continuous Diode Current	-	-	80	mA

2.6 RF Specifications

2.6.1 Satellite (Standard) Antenna

Parameter	Value
Maximum EIRP	7 dBW
Elevation Angle	20° to 90° degrees
Maximum transmit antenna gain	4.5 dBic
Rx Operating Frequency	1518-1559 MHz
Tx Operating Frequency	1626.5-1660.5 MHz, 1668-1675 MHz

2.6.2 Satellite (Low Elevation) Antenna

Parameter	Value
Maximum EIRP	5 dBW
Elevation Angle	-5° to 90° degrees
Maximum transmit antenna gain	2.5 dBic
Rx Operating Frequency	1518-1559 MHz
Tx Operating Frequency	1626.5-1660.5 MHz, 1668-1675 MHz

2.6.3 Cellular Antenna

Parameter	Value
Network Coverage	Global: Cat 4 LTE (B1, B3, B5, B7, B8, B28), UMTS (850, 900, 1900, 2100), Quad-band GSM Americas: Cat 1 LTE (B2, B4, B5, B12), UMTS (850, 900, 1900, 2100), Quad-band GSM
Frequency	700/824/960/1710/1880/2170/2600/2700 MHz
Impedance	50 Ω
VSWR	2.0:1
Gain	2.5 dB
Maximum EIRP	700-2700 MHz

2.6.3.1 Cellular Antenna Electrical

Frequency (MHz)	Return Loss (dB)	VSWR	Efficiency (%)	GAIN (dB)
700	-10.62	1.85	46.03	1.45
824	-22.27	1.16	36.48	0.6
960	-14.25	1.48	56.75	1.25
1710	-19.03	1.25	44.98	2.18
1880	-21.14	1.21	66.68	4.74
2170	-10.93	1.78	34.04	1.06
2600	-22.79	1.16	49.32	3.89
2700	-26.19	1.10	60.12	4.45

2.7 Satellite Transmitting Power

The maximum transmitting power (EIRP) for the IsatData Pro satellite is 7 dBW.

2.8 GNSS Module

The transceiver allows concurrent reception of up to three (3) GNSS channels.

The manufacturer's specifications are given in the table below.

Table 4: Multi-GNSS Specifications

Parameter	GPS	GLONASS	BeiDou	Galileo
Time to First Fix				
Cold Start	29 s	30 s	34 s	45 s
Warn Start	2s	2 s	3 s	7 s
Hot Start	1 s	1 s	1 s	1 s
Sensitivity				
Tracking	-162 dBm	-166 dBm	-160 dBm	-159 dBm
Hot Start	-157 dBm	-156 dBm	-155 dBm	-151 dBm
Cold Start	-148 dBm	-145 dBm	-143 dBm	-138 dBm
Accuracy				
Horizontal Position	2.5 m	4.0 m	3.0 m	4.0 m
Velocity	0.05 m/s			
Heading	0.3 degrees			

2.9 Internal Backup Battery

The internal backup battery provides autonomous battery charging to the transceiver and operates directly from the external supply over the 9-32 VDC input range. The internal backup battery contains a protection card to ensure that the pack does not get damaged due to a short circuit, over discharge or an over-charge condition.

If the battery voltage is below the minimum set voltage, the charger turns off.

Table 5: Internal Backup Battery

Parameter	Value
Battery Chemistry	Lithium Ion
Back-up Period	48 hours
Rated Capacity	2000 mAh
Charge (capacity) Retention	90% (after 28 days at 25 ±5°C (77 ±9°F)
Battery Cut-off	7 V
Nominal Pack Voltage	7.2 V (2 x cells in series)
Minimum Discharge Voltage	5 V
Charging Voltage	8.4 V
Peak Output Current	6 A

Refer to section 1.0.1 for internal backup battery temperature ranges.

2.10 Memory

Parameter	Value
PSRAM	8 MB
Flash	16 MB

2.11 Environmental

Parameter	Description
Vibration	The terminal meets all its specifications during exposure to random vehicular vibration levels per SAE J1455, section 4.10.4.2 figures 6, 7, and 8, and MIL-STD-810H, section 514.8, figure 514.8C-1.
Mechanical Shock	The terminal meets all its specifications after exposure to positive and negative saw tooth shock pulses with peaks of 20 G and durations of 11 ms as specified in MIL-STD-810H, section 516.8, Procedure I, section 2.3.2c.
Thermal Shock	The terminal meets all of its specifications after a thermal shock test as detailed in SAE J1455, section 4.1.3.2
Drop Test	The terminal meets all its specifications after a handling drop test as specified in SAE J1455, section 4.11.3.1.
ESD (Enclosure)	All electrical interfaces operate normally after being subjected to 6 kV ESD contact discharge per IEC 60945 and IEC 61000-4-2 human body model, level 3.
Altitude	The terminal meets all specifications after a nonoperating 12.2 km (7.5 miles) altitude test as detailed in SAE J1455, section 4.9.3, except with an ambient temperature of -40°C (-40°F).
Humidity	The terminal meets all its specifications during exposure to 90% relative humidity at +85°C (185°F), per the test methodology of SAE J1455, section 4.2.3 (3 x 8-hour humidity cycle per figure 4a)
Ingress Protection	IP67 – The terminal meets all of its specifications after immersion and dust tests as detailed in IEC 60529, sections 13.1, 13.4, 14.1, 14.2.7 and 14.3 (with and without optional terminal shroud)

2.12 Sensors

2.12.1 Temperature Sensor

Parameter	Value
Range	-40 to +85°C (-40 to +185°F)
Accuracy (typical)	±4°C (±7.2°F)

2.12.2 Accelerometer

The transceiver has a 3D 16-bit accelerometer to detect motion in any axis.

In low power applications, frequent GPS fixes can dominate the power budget. To reduce the power budget effects of GPS fixes, the accelerometer can be used to detect if motion has occurred.

The accelerometer thresholds to detect advanced features such as driver behavior monitoring vary depending on the environment. To avoid false detects, extensive testing is required to ensure that adequate acceleration magnitude thresholds and time durations are used.

Refer to T405 for additional details.

Parameter	Condition	Min.	Typ.	Max.	Units
Resolution	-	-	16	-	bit
Acceleration Range	software selectable	-	+2	-	g
		-	+4	-	g
		-	+8	-	g
		-	+16	-	g
Output Data Rate (ODR)	selectable via digital interface	12.5	-	1600 [1]	Hz
Sensitivity	2 g	-	16384	-	LSB/g
	4 g	-	8192	-	LSB/g
	8 g	-	4096	-	LSB/g
	16 g	-	2048	-	LSB/g
Sensitivity Temperature Drift	3 V supply	-	±0.02	-	%/K
Zero-g Offset	Ta = 25°C (77°F)	-	±40	-	mg
Zero-g Offset Temperature Drift	3 V supply	-	±1	-	mg/K
Wake up Time	from low power or suspended modes	-	0.8	-	ms
Start up Time	power on reset	-	3.2	3.8	ms

2.13 Cellular Module - LTE

2.13.1 Transceivers Operating in the Americas

Transceivers (p/n ST9100-D01), operating in North or South America, have the following characteristics.

[1] The software supports a maximum ODR of 400 Hz.

Type	u-blox Toby R200 series
LTE Module	LTE bands: 2, 4, 5, 12 UMTS bands: 850, 900, 1900, 2100 MHz GSM 850/900/1800/1900 MHz
Output Power	LTE power Class 3 (23dBm) UMTS/HSDPA/HSUPA power Class 3 (24dBm) GSM/GPRS Power Class: *Class 4 (33 dBm) for GSM/E-GSM band *Class 1 (30 dBm) for DCSPCS band EDGE(8-PSK) Power Class: *Class E2 (27 dBm) for GSM/E-GSM band *Class E2 (26 dBm) for DCS/PCS band
Input Power	Peak currents of 1.5 A typical, 1.9 A maximum. Module supply peak current consumption: peak of current consumption through the VCC pins during a GSM 1-slot Tx burst at maximum Tx power, with a matched antenna
Data Transfer	LTE Category 1: up to 10.3Mb/s DL, 5.2 Mb/s UL HSDPA category 8: up to 7.2 Mb/s DL, HSUPA category 6: up to 5.76 Mb/s UL GPRS multi-slot class 33, CS1-CS4, up to 107 kb/s DL, up to 85.6 kb/s UL EDGE multi-slot class 33, MCS1-MCS9, up to 296 kb/s DL, up to 236.8 kb/s UL
Antenna Detect	Output DC current pulse: 9 µA typical Output DC current pulse time length: typical 330 µs

2.13.2 Transceivers Operating Outside of the Americas

Transceivers (p/n ST9100-C01), operating outside of North or South America, have the following characteristics.

Type	u-blox Toby L280 series
LTE Module	LTE bands: 1, 3, 5, 7, 8, 28 UMTS bands: 850, 900, 1900, 2100 MHz GSM 850/900/1800/1900 MHz
Output Power	LTE power Class 3 (23dBm) UMTS/HSDPA/HSUPA power Class 3 (24dBm) GSM/GPRS Power Class: *Class 4 (33 dBm) for GSM/E-GSM band *Class 1 (30 dBm) for DCSPCS band EDGE(8-PSK) Power Class: *Class E2 (27 dBm) for GSM/E-GSM band *Class E2 (26 dBm) for DCS/PCS band
Input Power	Peak currents of 1.9 A typical, 2.5 A maximum. Module supply peak current consumption: peak of current consumption through the VCC pins during a GSM 1-slot Tx burst at maximum Tx power, with a matched antenna
Data Transfer	LTE Category 4: up to 150Mb/s DL, 50 Mb/s UL HSDPA category 24: up to 42 Mb/s DL, HSUPA category 6: up to 5.6 Mb/s UL GPRS multi-slot class 12, CS1-CS4, up to 85.6 kb/s DL/UL EDGE multi-slot class 12, MCS1-MCS9, up to 236.8 kb/s DL/UL

Antenna Detect	Output DC current pulse: 21 µA typical Output DC current pulse time length: typical 3.6 ms

2.14 LED

The transceiver has four visible LEDs (2.14) to indicate status. For more detailed LED information, refer to [T404].

Figure 16: LED Location

Table 6: LED Operation

Icon	Function	Description	Color	LED ON	LED OFF
	Sensor	Indicates whether a central device (Bluetooth) is connected to the terminal or if the terminal is in fast advertising mode.	BLUE	Bluetooth Central Connected	Bluetooth Central Disconnected
	Cellular	Indicates cellular communications status. Note: This LED only functions if the cellular module is powered on. The operation of this LED is dependent on the type of cellular module being used in the device.	GREEN	Data 2G/3G /Registered LTE	No Service (no network or not registered)
	Satellite / Satcom	Indicates satellite communications status.	YELLOW	-Power ON /External Reset	-
	Power	Indicates that the transceiver has external power.	RED	External Power Present	External Power Absent

2.15 Mechanical

2.15.1 ST 9100

Parameter	Value
Mass	465 g (16 oz)
Enclosure Material	Lexan plastic

Figure 17: ST 9100 Top View Dimensions

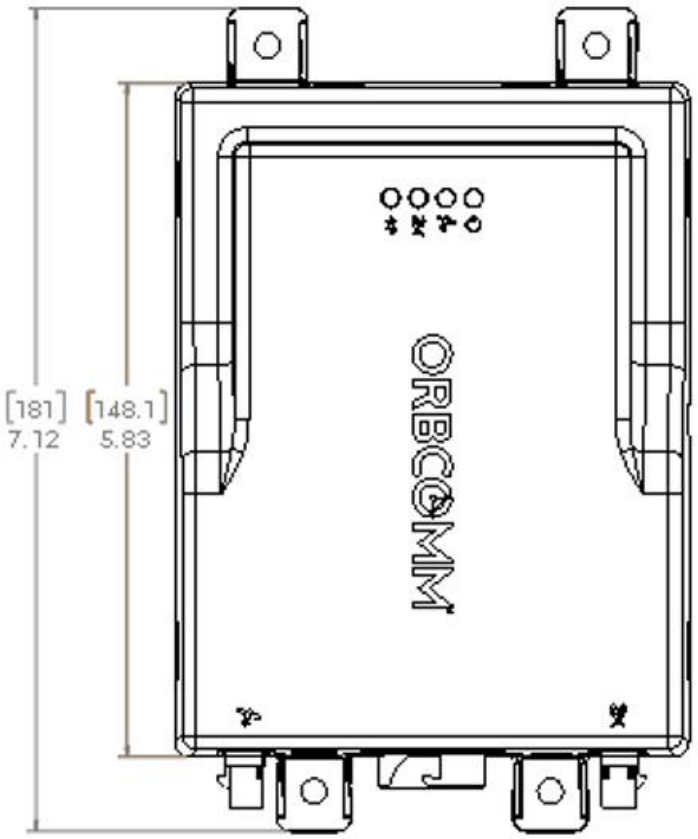
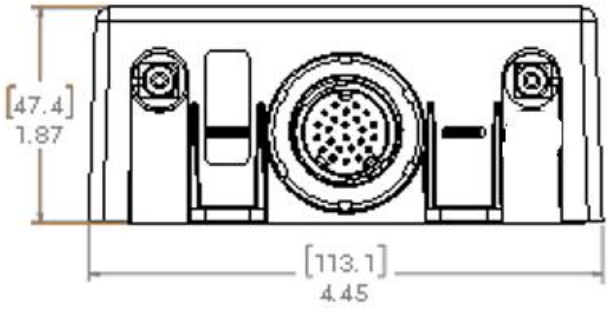


Figure 18: ST 9100 Side Connector View Dimensions

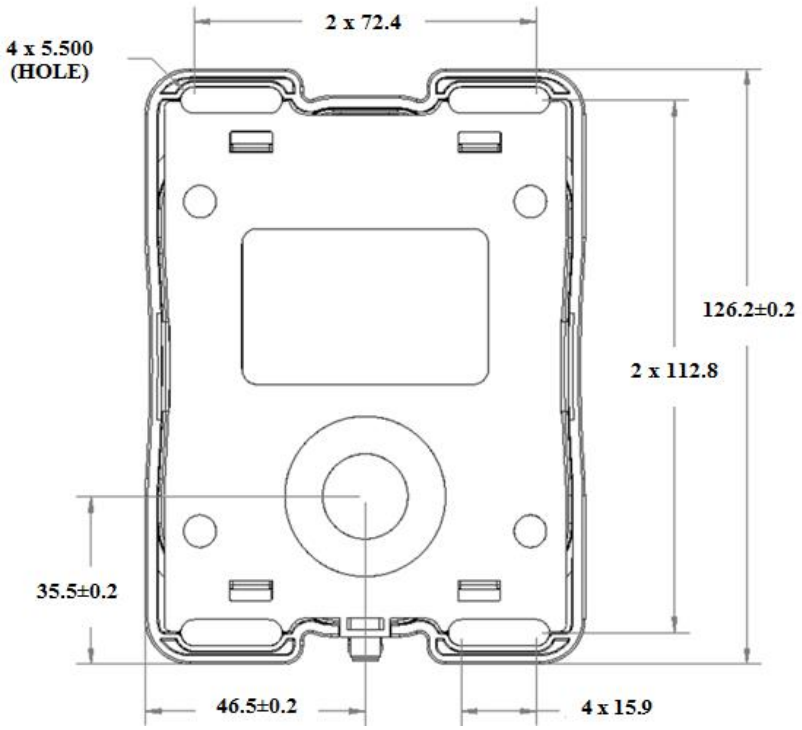


2.15.2 Cellular Antenna

Parameter	Value
Mass	55 g (2 oz.)
Dimensions	129.5 x 22.8 x 7 mm (5 in. x 0.9 x 0.27 in.)
Cable length	3 m (10 ft.)
Mounting	FAKRA straight plug connector
Operating Temperature	-40°C to 85°C (-40°F to 185°F)

2.15.3 Satellite Antenna

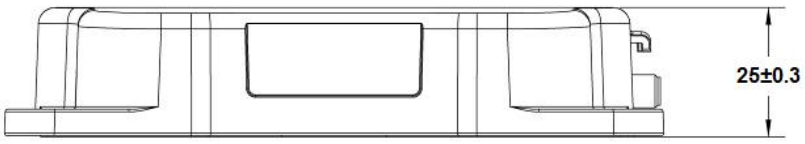
Figure 19: Satellite Antenna (standard and low elevation) - Bottom View (mm)



2.15.3.1 Standard Antenna

Parameter	Value
Mass	Side entry with 5 m (16 ft.) cable: 360 g (13 oz.)
Enclosure Material	Lexan EXL
Color Code	8T9D076 (white)
Sealing Gasket Material	Santoprene®

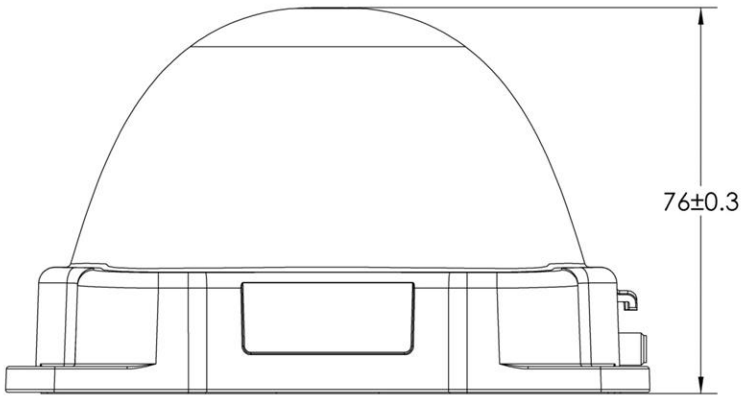
Figure 20: Standard Antenna Height Dimensions (mm)



2.15.3.2 Low Elevation Antenna

Parameter	Value
Mass	Side entry with 5 m (16 ft.) cable: 365 g (13 oz.)
Enclosure Material	Lexan EXL
Color Code	8T9D076 (white)
Sealing Gasket Material	Santoprene®

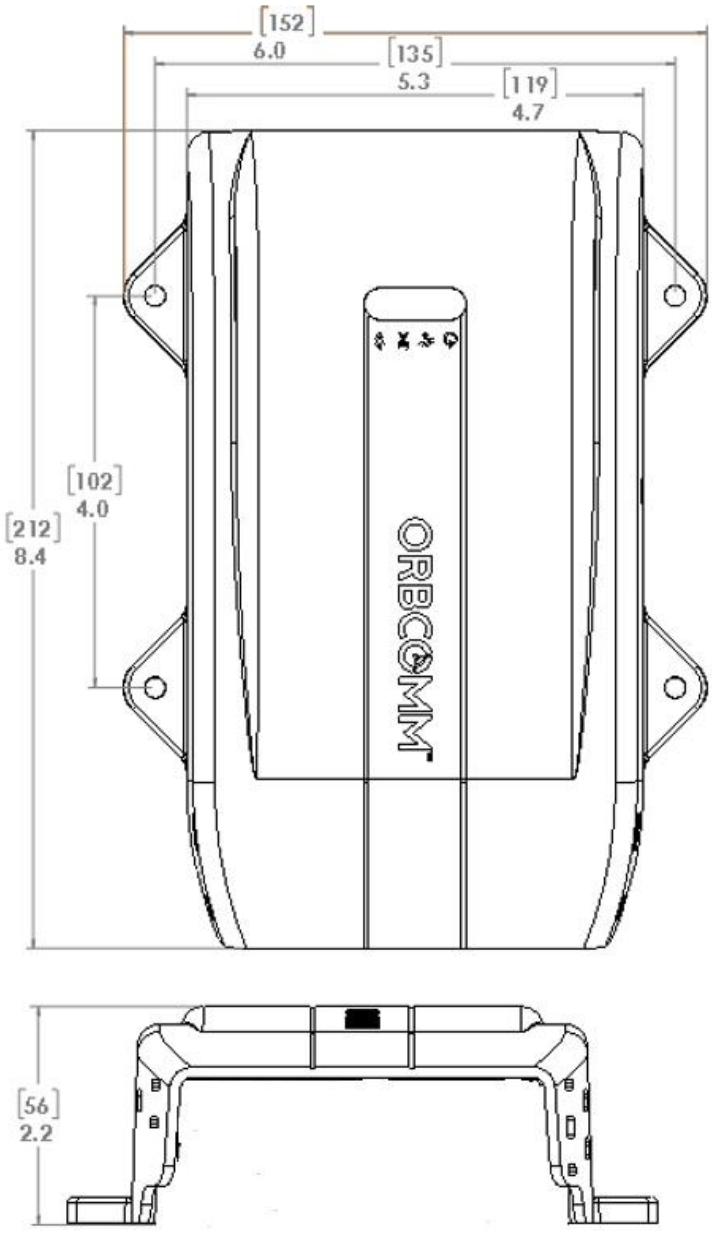
Figure 21: Low Elevation Antenna Height Dimensions (mm)



2.15.3.3 Terminal Shroud

Parameter	Value
Mass	150 g (2 oz.)
Enclosure Material	Lexan EXL
Color Code	8T9D076 (white)

Figure 22: Terminal Shroud Dimensions



3 COMPLIANCE

Certifications for the following have been received, unless noted otherwise. Contact your Account Manger for updates.

Inmarsat Type Approval

Industry Canada

- IC certification is pending
- ICES-003
- RSS-170, Issue 2, Spectrum Management and Telecommunications Policy, Radio Standard
- RSS-102, radiation safety per Safety Code 6 (compliance shown by computation)
- IC ID: 11881A-ST9100; 11881A-UNNB30; 8595A-TOBYL280 OR 8595A-1EHM44NN

Anatel Homologation

FCC

- FCC certification is pending
- CFR 47 Part 25, CFR 47 Part 15
- CONTAINS FCC ID: XGS-ST9100; XGS-UNNB30; XPYTOBYL280 OR XPY1EHM44NN

CE RED 2014/53/EU

Ingress Protection

- Cellular antenna: IP65
- Satellite antenna: IP67
- Transceiver unit: IP67

RoHS

- Restriction of Hazardous Substances (RoHS) [1]

UN

- UN 38.3 Transportation Compliance

PTCRB

AMAC

- Certification is pending

[1]European Union's (EU) Directive 2002/95/EEC "Restriction of Hazardous Substances" (RoHS) in Electronic and Electrical Equipment.

EU Declaration of Conformity

Hereby, ORBCOMM Inc. declares that the radio equipment types listed in this document comply with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available from http://www2.orbcomm.com/eudoc.

WARNING:

- The minimum 20 cm (8 in.) separation distance from the device is required for RF exposure safety for all persons.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference.(2) This device must accept any interference, including interference that may cause undesired operation of the device.
    - L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

      1) L'appareil ne doit pas produire de brouillage;

      2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

APPENDIX A DEVELOPMENT CABLE

The development cable is p/n ST101084-001.

Figure 23: Development Cable

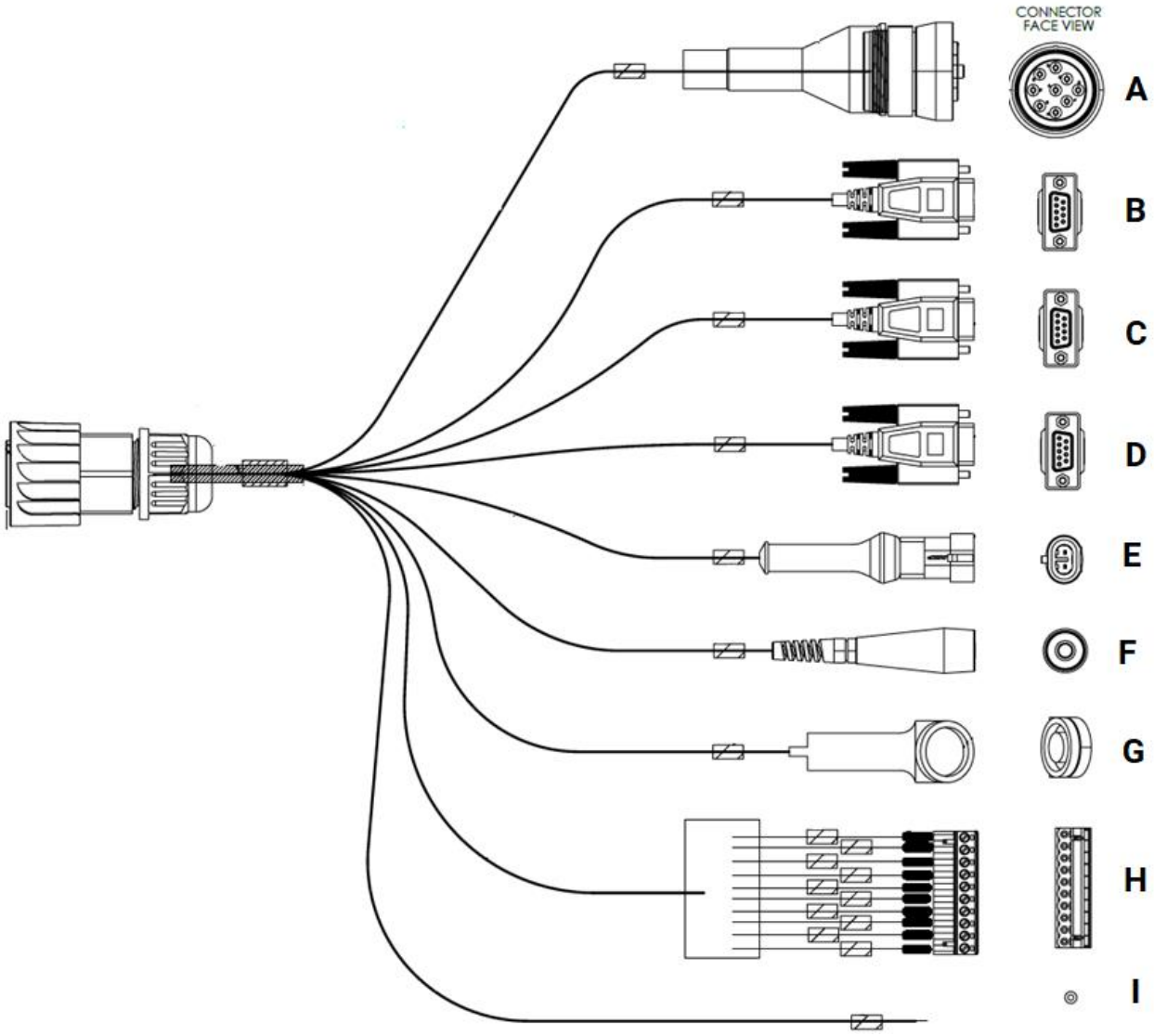
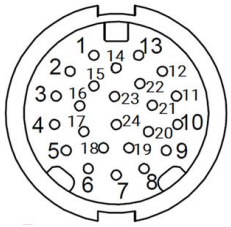
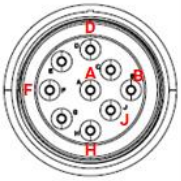
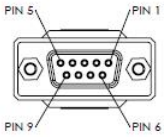
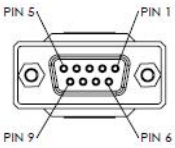
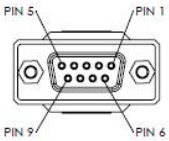
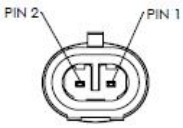
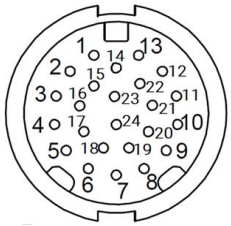
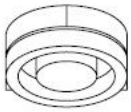
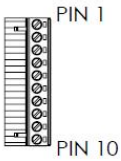
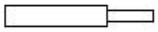


Table 7: Development Cable Connectors

Transceiver Connector	End A	End B	End C	End D	End E
					
PIN 9 - 1Wire Com					
PIN 10 - RS232 TX		PIN 2			
PIN 21 - RS232 RX		PIN 3			
PIN 22 - AUX RS232 TX			PIN 2		
PIN 13 - CAN 1 Low	PIN D				
PIN 14 - CAN 0 Low	PIN J				
PIN 1 - RS485 A				PIN 1	
PIN 24 - Dig IN 2					
PIN 16 - Dig IN 1					
PIN 4 - I/O_4					
PIN 5 - I/O_2					
PIN 6 _ Ground	PIN A and PIN E	PIN 5	PIN 5	PIN 5	PIN 2
PIN 7 - VEXT	PIN B				PIN 1
PIN 8 - Out 6					
PIN 18 - I/O_1					
PIN 17 - I/O_3					
PIN 3 - Dig IN 3					
PIN 15 - RS485 B				PIN 2	
PIN 23 - CAN 0 High	PIN H				
PIN 12 - CAN 1 High	PIN C				
PIN 11 - AUX RS232 RX			PIN 3		
PIN 20 - 1Wire Data					
PIN 19 - Out 5					
PIN 2 - Dig IN 4					

Transceiver Connector	End F	End G	End H	End I
				
PIN 9 - 1Wire Com		1Wire Common		
PIN 10 - RS232 TX				
PIN 21 - RS232 RX				
PIN 22 - AUX RS232 TX				
PIN 13 - CAN 1 Low				
PIN 14 - CAN 0 Low				
PIN 1 - RS485 A				
PIN 24 - Dig IN 2			PIN 8	
PIN 16 - Dig IN 1			PIN 7	
PIN 4 - I/O_4			PIN 4	
PIN 5 - I/O_2	Input 1			
PIN 6 _ Ground	Ground		PIN 2	
PIN 7 - VEXT			PIN 1	
PIN 8 - Out 6			PIN 6	
PIN 18 - I/O_1				I/O_1
PIN 17 - I/O_3			PIN 3	
PIN 3 - Dig IN 3			PIN 9	
PIN 15 - RS485 B				
PIN 23 - CAN 0 High				
PIN 12 - CAN 1 High				
PIN 11 - AUX RS232 RX				
PIN 20 - 1Wire Data		1Wire Data		
PIN 19 - Out 5			PIN 5	
PIN 2 - Dig IN 4			PIN 10	

Project:

Northland Regional Council

May 31, 2021

OPTIONS

HSS

ENGINEERING®

WARNING SYSTEM SOLUTIONS

GIANT VOICE®

EMERGENCY SYSTEMS

GV-CORE-NANO
Right, fast and simple decisions in critical situations

Mounting optional GV-CORE-NANO-RM

MINI CONTROL UNIT
GV-CORE-NANO

The GV-CORE-NANO is a device integrating the standard interacting functions of a system and its operators with advanced warning, communications and process automation functions. It can be implemented as a simple activation panel saving costs and space significantly.
The GV-CORE-NANO is the ideal device for activate tones, pre-recorded messages and Public Address in real time. With the touch interface you can manage the entire siren network communication.
The functionality of the GV-CORE-NANO control unit is given by the applications it contains, which are supplied according to a client's needs and selection. These applications are designed to be mutually and directly interconnected into the complex whole. Depending on the applications combinations, it is possible to create a tailor-made solution to suit a specific client.

FEATURES

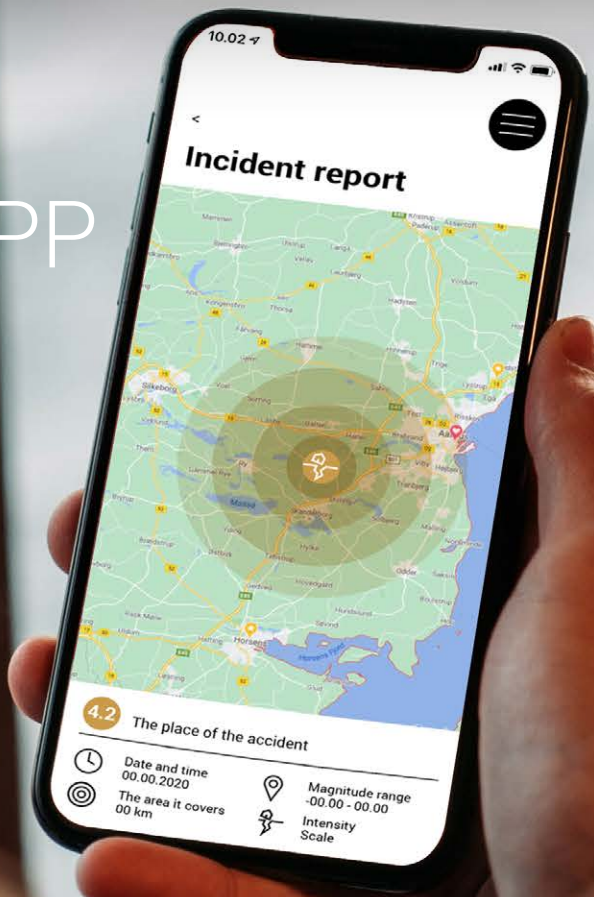
- Touch screen control
- Friendly interface for user
- Activation of the desired tone by groups of sirens, individually or to the entire network
- Redundant and simultaneous communication controls: Radio, GSM, SAT, IP
- Checking the correct communication with the different sirens on different channels
- Access restricted by security codes
- Restriction of allowed functions according to entered code
- Possibility of integration with GV-EMS Emergency management system
- Desk top or rack mounting version

HSS Engineering A/S
Laegaardsvej 12 · 8520 Lystrup · Denmark
Phone + 45 7022 8844
www.hss.dk · info@hss.dk

HSS ENGINEERING®
WARNING SYSTEM SOLUTIONS

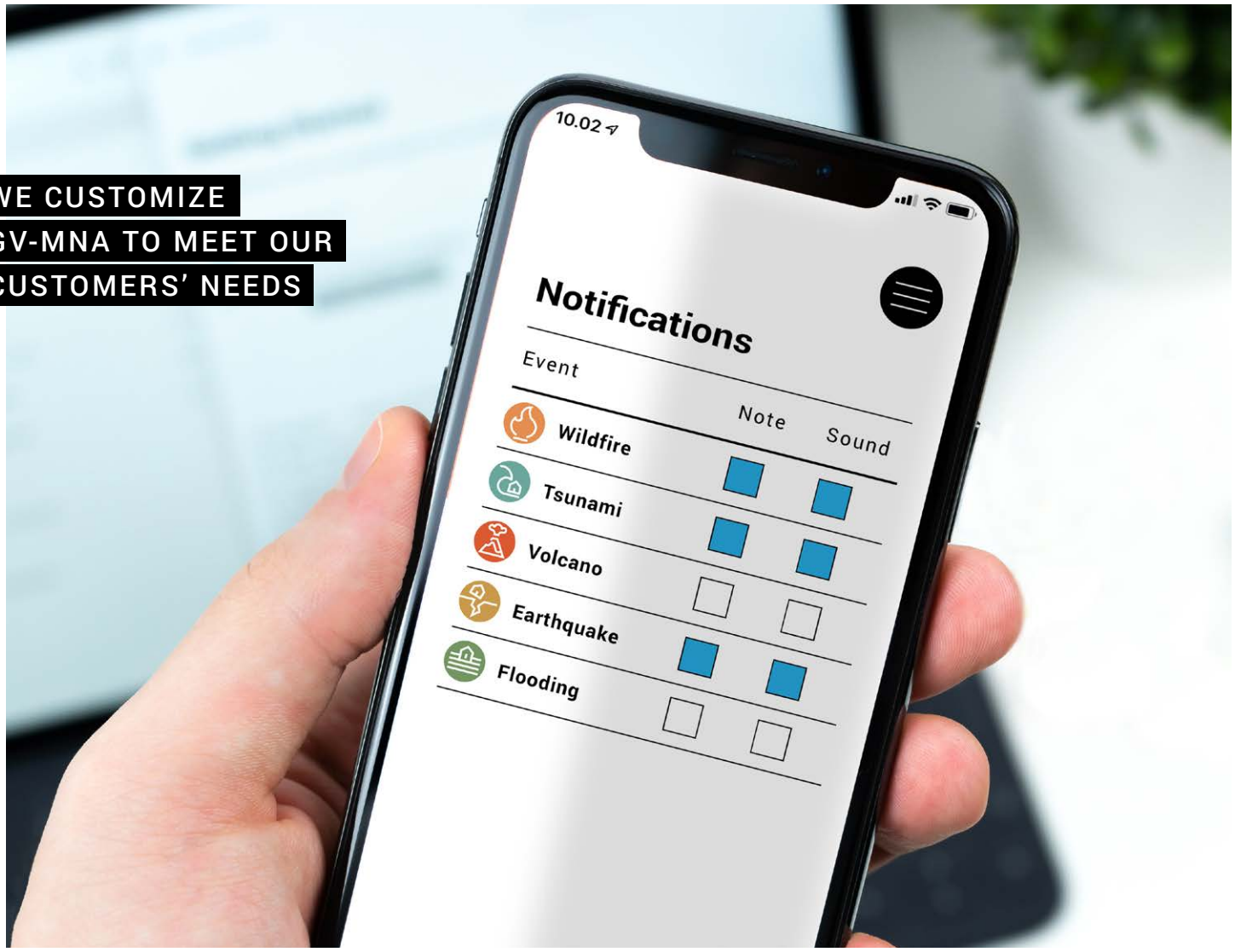
MONITORING MANAGEMENT CONTROL

MOBILE APP



HSS
ENGINEERING®
WARNING SYSTEM SOLUTIONS

ALLOWS YOU TO SEND URGENT INFORMATION TO YOUR EMPLOYEES OR CITIZENS



The mobile app Giant Voice® Mass Notification App, is an emergency alert system which allows you to send and receive information to your employees or citizens. The App has a user-friendly interface and has the ability to receive all kinds of alerts in a matter of seconds. We focus on alerting your staff or population regarding the emergency such as natural disasters, industrial disasters or a simple informative notification. The user can configure the type of notification depending on geographic area and type of emergency.

If alarms are activated because of a threat, your organization will be notified promptly via emergency alerts, that will inform you to evacuate towards a safer location.

Giant Voice® Mass Notification App provides a cost-effective solution with real-time messaging that can be used by any organization. The Giant Voice® Mass Notification App provides the ability to send and receive thousands of messages in seconds via SMS, Push Notification, and E-mail.

GIANT VOICE®

EMERGENCY SYSTEMS

ALERTS PEOPLE TO POSSIBLE DANGER

ORDERING INFORMATION

Product Description
Mini control unit
Order No.
GV-CORE-NANO

Option

Product Description
Rack mounted mini control unit
Order No.
GV-CORE-NANO-RM

REV. B

APPLICATIONS

- Critical infrastructures (Dams, waterworks and civil protection facilities)
- Emergency services (fire-fighting, rescue units and police stations)
- Security services (banks, insurance companies and shopping centers)
- PA systems

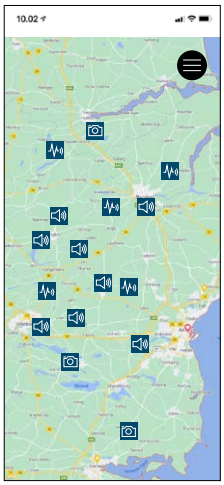
TECHNICAL DATA

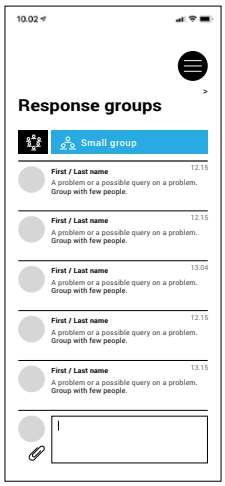
Input voltage	12V
Available ports	Audio 600 Ω balanced output, RS-232 serial, Ethernet and isolated contact inputs (optional)
Communications	Radio, GSM, SAT, IP
Mounting	Horizontal or vertical on the wall
Material	Aluminum front
Operating temperature	-25° C – +65° C
Dimensions	Width: 250 cm (98.43") Height: 180 cm (70.87") Depth: 80 cm (31.50")
Weight	Approx 1 kg

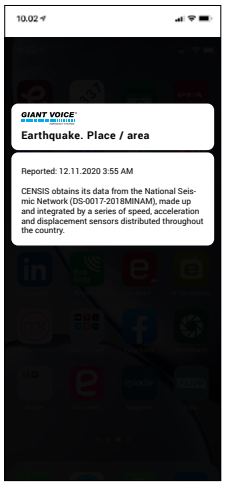
HSS Engineering A/S
Laegaardsvej 12 · 8520 Lystrup · Denmark
Phone + 45 7022 8844
www.hss.dk · info@hss.dk

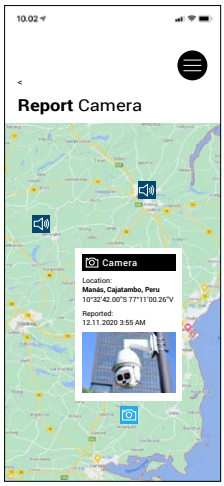
HSS ENGINEERING®
WARNING SYSTEM SOLUTIONS

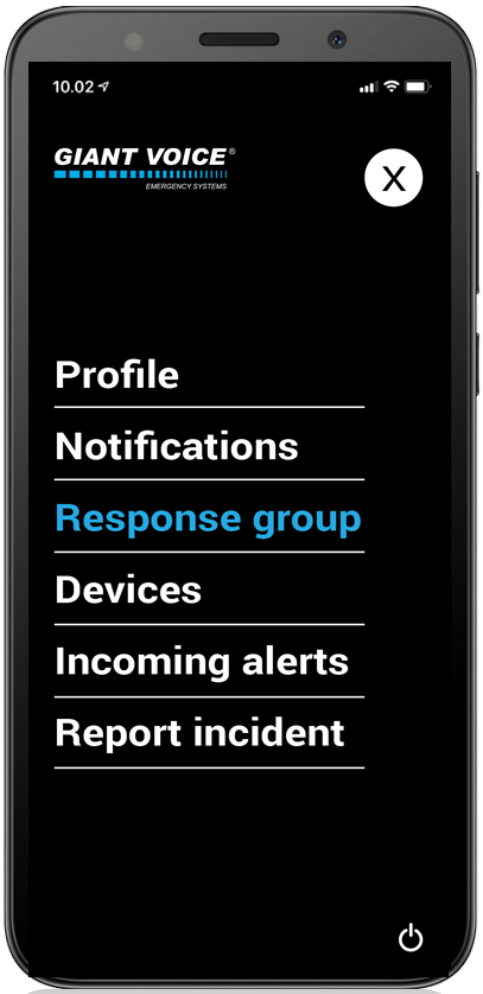
PERSONALIZED NOTIFICATIONS

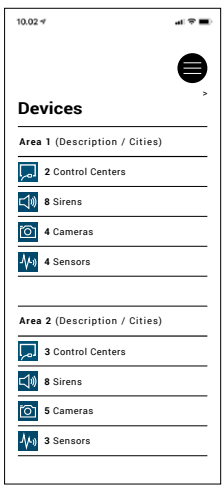


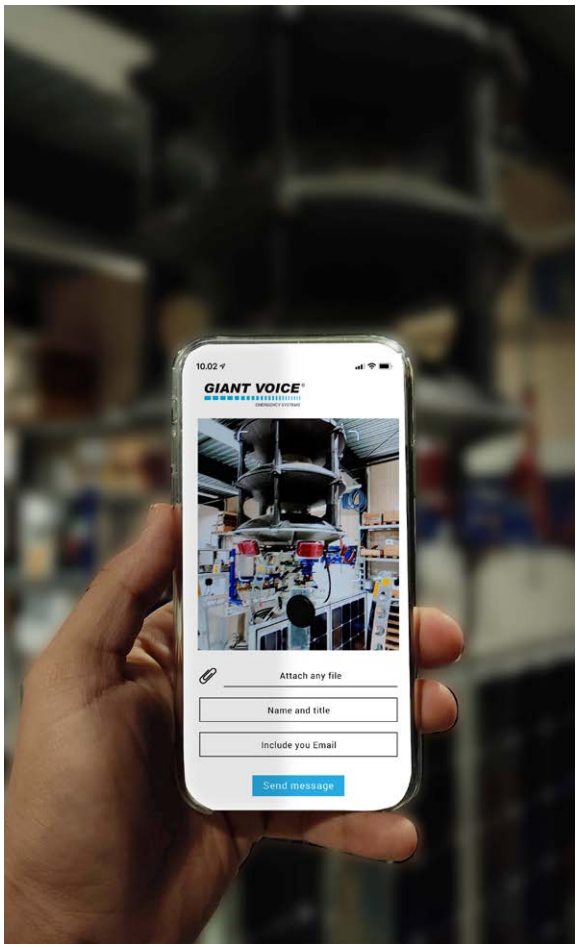








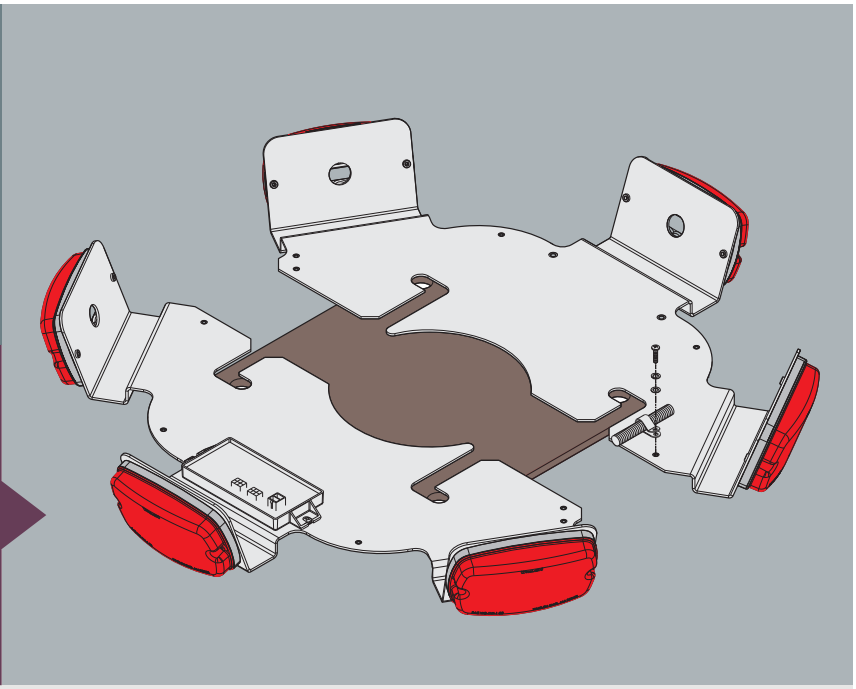




FEATURES

- Compatible with GV-EMS platform
- Apple: The lastest version and 35 MB free space
- Android: The lastest version and 35 MB free space
- Specific emergency status
- Notification depending on location
- Device status
- Unlimited number of users
- Notification of situation awareness
- Device failure notification
- Convertible web subscription
- Geo-location of personal
- Send and receive information

Omni-directional six lighthead Super-LED VisuAlert



VISUAL LED WARNING

TWS-VISUALERT

Enhance your Voice and Siren Mass Notification System with an optional visual component: The Omni-directional Visual Lighting for TWS-290 & OA Series.

ORDERING INFORMATION

Product Description
TWS-Valert LED Light Cluster Accessory for TWS Series.
Order No.
TWS-VALERT*

Options

Product Description
LED Controller
Order No.
LEDCTRL

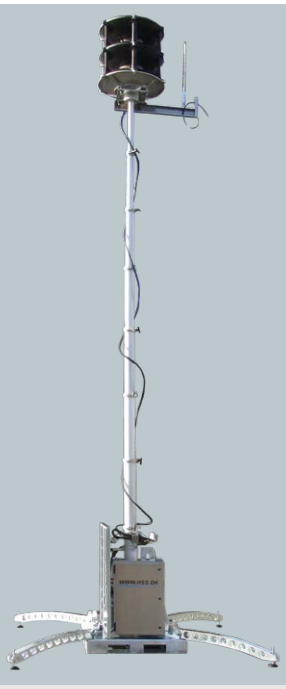
* Denotes color Code:
A-Amber, B-Blue, C-Clear (white), R-Red.
REV. F

FEATURES

- VisuAlert Super-LED® mounts under a TWS-290 or Omni-Alert system
- Complete 360° highly effective LED warning
- VisuAlert illuminates with a designed flash pattern when siren is activated
- Cluster of six LED Whelen M6 Series warning lightheads, 24 VDC
- All connections are waterproof
- All wiring is encased in protective sheathing, anchored to brackets to protect from damage
- Available in Red, Blue, White (Clear) or Amber
- Light source control module fully encapsulated and weatherproof
- Light source control module provides flash pattern selection and light synchronization
- Light source module covered by Whelen's two year warranty
- Bracket supports are 300 Series aluminium alloy in a high strength
- VisuAlert can be adapted to older ESC2020-controlled sirens
- 1.2 amps per light source @ 24 VDC.
- 2.5 amps total current draw when VisuAlert is operating
- Light source is greater than 6000 peak candela
- 84 flashes per minute
- M6 Series lighthead dimensions: 109 mm H x 170 mm W x 35 mm D
- Weight: 12 kg
- IP rating: IP-66
- Operation temperature: -40° C to + 75° C

HSS Engineering A/S
Laegaardsvej 12 · 8520 Lystrup · Denmark
Phone + 45 7022 8844
www.hss.dk · info@hss.dk

HSS
ENGINEERING®
WARNING SYSTEM SOLUTIONS



GIANT VOICE®

EMERGENCY SYSTEMS

The flexible alternative for temporary warning installation

The Giant Voice® Deployable Unit is a flexible alternative for temporary warning system installation designed to meet your requirements even in harsh environments.

DEPLOYABLE UNIT

GV-DPU

Featuring the TWS-292 high power voice and siren system. This Deployable Unit provides a 360° superior coverage. The GV-DPU is easy to handle and the solid supporting legs make it possible to extend the 6-meter lockable pneumatic telescopic mast on rough ground. The deployable unit is equipped with 2 x 100 W solar panels as well as a universal AC charger for recharging the batteries. This is a flexible solution that allows you to charge your deployable unit whenever it is needed. The deployable unit is equipped with a 25 W radio (VHF or UHF) and can be activated remotely from any Giant Voice® Control Centre equipment.
The Giant Voice® Deployable Unit meets NATO standard requirements and can easily be moved to any site with a forklift or similar machine for fast and reliable warnings. The chassis has been designed to reduce freight volume plus transportation costs and to improve handling and easy installation.

FEATURES

- TWS-292 - two omni-directional speaker cells
- 6-meter lockable pneumatic telescopic mast
- Two compartment aluminum cabinet
- 25 Watts 2-way radio incl. omni-directional 0dB gain antenna
- Local push button panel
- Solar Panel charging
- 115/230 VAC charging possibility
- UFC 4-021-01 compliant
- CAP (Common Alerting Protocol) compliant
- IPAWS compliant

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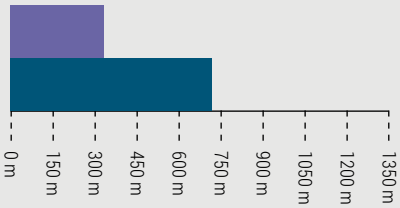
GIANT VOICE®

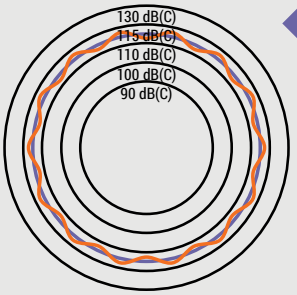
EMERGENCY SYSTEMS

ACOUSTIC PERFORMANCE

SPL @ 30 m: 115dB(C)
Estimated 80dB range: 366 m
Estimated 70dB range: 731 m



Note: 30 m performance levels listed represent repeatable results within +/-2 dB to stated levels. Estimated 80 dB perimeter is based on the Federal Emergency Management Agency's (FEMA) -10 dB per distance doubled path model.



The superior design of the speaker cluster provides a true 360° high sound output throughout the entire frequency range.

ENVIRONMENTAL

Operating Temperature	-35° C to +60° C
Storage Temperature	-65° C to +125° C
Humidity, Non-Condensing	0 to 95%

TECHNICAL DATA

Output	115 dB(C) @ 30 meters/100'
Endurance	Minimum 30 minutes of full power output with our recommended batteries
Standard Tones	Wail, Whoop, Attack, Hi-Lo, Alert, Airhorn plus Public Address
System Test/Supervision	SI-Test®, Low Battery Alarm and more
Siren output (tones)	800 Watts
Siren output (voice)	1000 Watts
Standby current	40 mAmp
Power input	2 x 100 Watts solar panels or 110/220 VAC
Batteries	2 x 12 V 70 AH batteries (included)
Dimensions	Height: 252 cm Height erected: 660 cm Length: 113 cm Width: 113 cm Weight: 500 kg
Operating temperature	-35°C to 60°C (-31°F to 140°F)
Storage temperature	-65°C to 125°C (-85°F to 267°F)
Humidity, non-condensing	0 to 95%
Wind speed	Up to 27 m/s (without guide wires)

ORDERING INFORMATION

Product Description
Giant Voice Deployable Unit V5
Order No.
GV-DPU

Options

Product Description
Communication via UHF/VHF
For more information contact us.

REV. F

OPTIONS

- **VISU-ALERT:** Cluster of 6 LED lightheads for a complete 360° highly effective warning
- **TWS-TL31R:** Top mounted LED strobe light
- **GV-FLOODLIGHT:** Upgrade your deployable unit with a cluster of LED floodlights for a combined mobile warning and light tower
- **GV-GSM-RTU:** For GSM activation

HSS Engineering A/S
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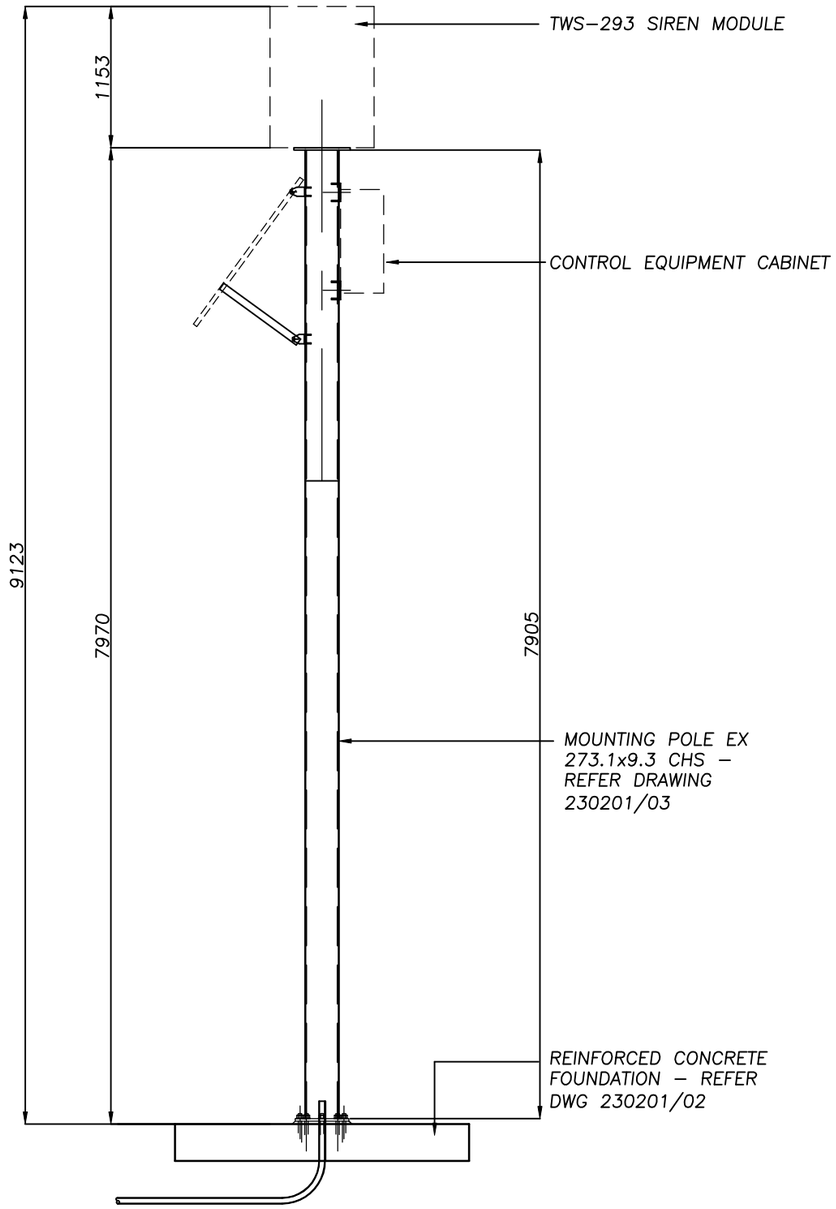
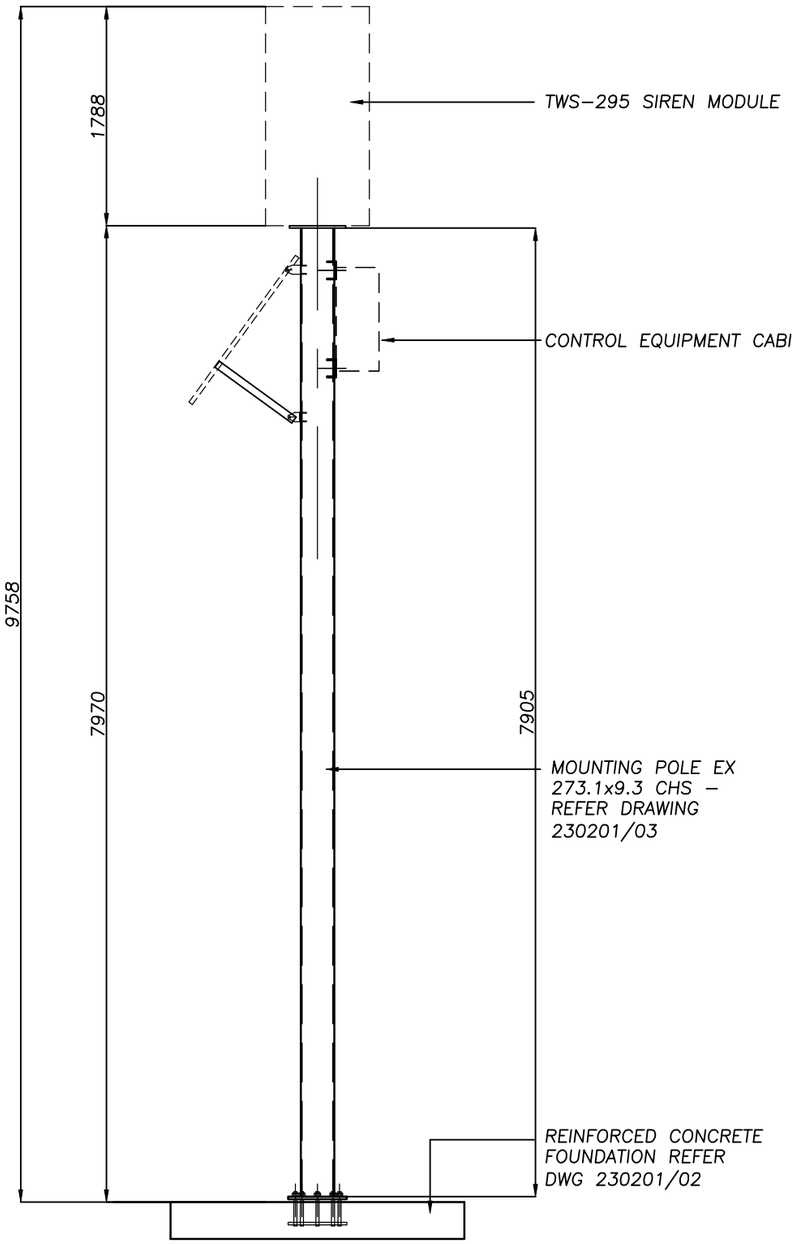
HSS ENGINEERING®
WARNING SYSTEM SOLUTIONS



GENERAL ARRANGEMENT – TWS–293 SIREN
1:50



GENERAL ARRANGEMENT – TWS–295 SIREN
1:50

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
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Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

client: NORTHLAND REGIONAL COUNCIL

location: VARIOUS IN WHANGAREI, KAIPARA AND FAR NORTH DISTRICTS

SCALES: 1:50

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: GENERAL ARRANGEMENT OF SIREN ASSEMBLY, POLE AND FOUNDATION

FILE: nrc-ga drawing01
DATE: 02/23
ORIGINAL SIZE: A3

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
230201/01
REVISION: A

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23 February 2023

Barker and Associates
Kerikeri CBD
Far North
Northland 0230

Attention: Makarena Dalton

Dear Makarena

TSUNAMI WARNING SIRENS - COMPLIANCE

Barker and Associates has engaged Marshall Day Acoustics to provide advice regarding tsunami warning sirens. The main request is to evaluate the proposed loudspeaker noise level emissions to enable comparison with the relevant District Plan noise limits across Northland.

We do not consider that District Plan noise rules should typically apply to tsunami warning sirens. We consider that tsunami warning siren noise is effectively a positive noise effect on people. Requiring a tsunami siren to meet a typical daytime or night-time noise residential "noise limit" would not allow the tsunami warning system to work as intended and would not be in the interest of wider society.

Tsunami warning sirens are intended to be a loud source of sound. A natural consequence of this is that there could be (and should be) a *technical breach* of a District Plan noise rule (if there is no specific exclusion for emergency sirens within the District Plan rule).

We do not consider that there will be any adverse noise effects arising from occasional testing or emergency use of the tsunami warning system where these technically breach any District Plan noise rules.

Notwithstanding the above, this letter provides initial information on noise emissions that can be used to establish locations in which a technical exceedance of the zone noise limits may occur. The letter is not intended to provide a very high level of detail on noise emissions from each individual loudspeaker tower[1]. We have made a range of assumptions based on previous measurements to establish our design advice. As a result, our conclusions are generalised.

District plan noise rules: each district has quite different noise limits

We understand that the tsunami sirens are intended to be deployed in the:

- Kaipara District
- Far North District
- Whangarei District

The noise rules in each of these Districts differ even for similar types of zones. For instance, the *Rural Production* daytime noise rule in the Far North District is **65 dB L_{A10}** at the site boundary, whereas in Kaipara District the noise limit in the *Rural* zone is **50 dB L_{Aeq}** at the notional boundary.

The use of different noise standard descriptors (e.g. L_{A10} vs L_{Aeq}), the different numerical noise limits (e.g. 65 dB in the Far North vs 50 dB in Kaipara) and the different assessment position at which the noise limits apply

[1] Noise modelling of the individual loudspeaker towers has not been carried out for this assessment

(e.g. the site boundary in Far North and the notional boundary in Kaipara) means that it quickly becomes complex to determine where a technical breach of the noise limit will occur in each District.

Because of this we have prepared a "matrix of distances" that the planning assessment can use to estimate the properties where the relevant District Plan noise limits will be exceeded. These are tabulated and appended to this letter.

Exclusions within the District Plan

Ideally the operation and testing of tsunami warning sirens would be excluded from assessment against the District Plan zone noise limits, as these rules are inappropriate for tsunami sirens.

We note that the Whangarei District Plan make the following statement regarding warning sirens: *"The noise rules shall not apply to the following activities:…The operation of emergency service vehicles or emergency callout sirens."* *"Emergency callout sirens"* is not defined in the District Plan[2] but the words appear to relate directly to the use of a tsunami siren[3] In our view, this clause means that no noise limits apply to tsunami warning siren noise in any zones within Whangarei.

We are not aware of any specific exclusions in Kaipara or Far North District Plans but will review any clauses if provided to us. We recommend tsunami warning noise is excluded from compliance in any future district Plan revisions. We recommend Northland Regional Council submit on this matter or seek a plan change if required.

We have calculated the distances at which noise levels (in 5 dBA bands) will be complied with

Appendix A to Appendix C gives the approximate distances at which tsunami siren noise will be below specific noise levels. These have been given in 5 dBA tiers for the following scenarios:

Scenario A: Daytime testing

Scenario B: Daytime emergency operation

Scenario C: Night-time emergency operation

Noise levels for L_{Aeq} (Whangarei and Kaipara) and L_{A10} (Far North) are given separately so that the noise levels in each district can be separately evaluated.

The following assumptions have been used in our noise modelling.

- 145 dB L_{WA} based sound power level and omnidirectional source (refer Appendix D for technical details).
- 80% relative humidity. Noise levels in dry air conditions may be slightly lower.
- 80% soft ground at source, middle and receiver distances. Noise levels over hard ground (e.g. water) may be higher.
- Propagation calculated using International Standard ISO 9613-2:1996 *Acoustics - Attenuation of sound during propagation outdoors – Part 2: General method of calculation*. This standard calculated noise in conditions favourable to sound propagation such as downwind or temperature inversion conditions. Noise levels in upwind or temperature lapse conditions will be appreciably lower (refer Appendix E for technical details).
- No acoustic screening will occur. Noise levels behind ridgelines (where there is no line-of-sight to the tsunami siren) or behind buildings will be appreciably lower.

[2] The definitions section states that if a phrase is not defined it should take its common meaning from the concise Oxford English Dictionary.

[3] Tsunami sirens are "calling out" a message and an alarm during an emergency and thus clearly fit within the everyday definition of this clause.

- Only one siren contributes to the noise level at each receiver.

The appendices show that:

- during **daytime testing** of sirens, the District Plan noise limits may be exceeded at up to 1,600 metres of the individual siren towers in some zones (e.g. rural, residential)
- during **daytime emergency operation,** the District Plan noise limits may be exceeded at up to 3,300 metres in some zones (e.g. residential, rural, coastal, etc.)
- during **night-time emergency operation,** the District Plan noise limits may be exceeded at up to 6,200 metres in some zones (e.g. r residential, rural, coastal, etc.)

Refer to the appendices for more information on the distances at which specific noise levels will occur in each district.

We trust this information is useful. Please contact us if you have any questions.

Yours faithfully

MARSHALL DAY ACOUSTICS LTD

[redacted]

Peter Ibbotson

Acoustic Engineer

APPENDIX A DAYTIME TESTING

Table 1: Distance at which rating noise levels are likely to be met in Kaipara and Whangarei (L_{Aeq} limits) DURING DAYTIME TESTING

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating Sound Power Level of 136 dB $L_{WA,eq(15\ min)}$							
	75 dB L_{Aeq}	**70 dB L_{Aeq}**	**65 dB L_{Aeq}**	**60 dB L_{Aeq}**	**55 dB L_{Aeq}**	**50 dB L_{Aeq}**	**45 dB L_{Aeq}**	**40 dB L_{Aeq}**
DAY TESTING	**250m**	**400m**	**600m**	**850m**	**1200m**	**1600m**	N/A	N/A
Kaipara Zone Examples	***If emitted from an Industrial zone:*** *Industrial*			***If emitted from a Commercial zone:*** *Commercial*	***If emitted from an Industrial zone:*** *Residential, Rural, Māori Purpose zone*	***If emitted from Rural, Residential, Commercial, Māori Purpose:*** *Rural, Residential, Māori Purpose*		
Whangarei Zone Examples ***[NOTE THAT EMERGENCY SIRENS EXCLUDED IN THIS PLAN]***	*Heavy Industrial, Settlement Zone Industrial, SRIZ*		*Light Industry, Commercial, Sport and Active Recreation, Shopping Centre, Hospital, Airport*	*City Centre, Waterfront[2], Mixed Use, Local Centre, Settlement Centre*	***If emitted from Port, Settlement, Heavy Industrial, light industrial, commercial, Sport and Active Recreation:*** *Residential, Neighbourhood Centre, Natural Open Space, Open Space,* ***Rural Production, Rural Lifestyle, Settlement, Future Urban.*** ***If emitted from most other zones:*** *Open Space, Rural Production.*	***If emitted from most other zones:*** *Residential, Neighbourhood Centre, Rural Lifestyle, Settlement, Future Urban*		

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones in each District are given
2. The District Plans include some errors. If there is question over what limit should apply, we have used our discretion (for instance there are conflicting limits for Rural Production zone in Whangarei)
3. In some Districts, the limit varies depending on the zone the noise source is located in.

Table 2: Distance at which rating noise levels are likely to be met in Far North (L_{A10} limits) DURING DAYTIME TESTING

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating sound power level of 133 dB $L_{WA,10\ (15\ min)}$							
	75 dB L_{A10}	70 dB L_{A10}	65 dB L_{A10}	60 dB L_{A10}	55 dB L_{A10}	50 dB L_{A10}	45 dB L_{A10}	40 dB L_{A10}
DAY TESTING	180m	300m	450m	700m	950m	1,400m	N/A	N/A
Far North Zone Examples			***If emitted from a Rural Production zone:*** *Rural Production, Residential, Coastal Residential, Russell Township [site boundary]* *- other rural or coastal zone [notional boundary]* ***If emitted from a Commercial zone:*** *Commercial [site]* ***If emitted from an Industrial Zone:*** *Industrial [site]*		***If emitted from a Rural Living, Commercial, Industrial, Minerals or any Coastal zone:*** *- Coastal Residential, Residential, Russell Township [site boundary]* *- any Rural or Coastal zone [notional boundary]*	***If emitted from a Residential zone:*** *- Residential [site boundary]* *- any Rural or Coastal zone [notional boundary]*		

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones are given.
2. In the FNDC, the limit varies depending on the zone the noise source is located in (for instance if a siren was located in a *Rural Production* zone, it would need to meet 65 dB L_{A10} at another *Rural Production* zone during the day, but if a siren was located in a *Rural Living* zone the limit would be 55 dB L_{A10} at a *Rural Production* zone during the day).

APPENDIX B DAYTIME EMERGENCY OPERATION

Table 3: Distance at which rating noise levels are likely to be met in Kaipara and Whangarei (L_{Aeq} limits) during DAYTIME EMERGENCY OPERATION

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating Sound Power Level of 145 dB $L_{WA,eq(15\ min)}$							
	75 dB L_{Aeq}	**70 dB L_{Aeq}**	**65 dB L_{Aeq}**	**60 dB L_{Aeq}**	**55 dB L_{Aeq}**	**50 dB L_{Aeq}**	**45 dB L_{Aeq}**	**40 dB L_{Aeq}**
DAY EMERGENCY	**550m**	**800m**	**1,100m**	**1,500m**	**2,000m**	**2,600m**	N/A	N/A
Kaipara Zone Examples	***If emitted from an Industrial zone:*** *Industrial*			***If emitted from a Commercial zone:*** *Commercial*	***If emitted from an Industrial zone:*** *Residential, Rural, Māori Purpose zone*	***If emitted from Rural, Residential, Commercial, Māori Purpose:*** *Rural, Residential, Māori Purpose*		
Whangarei Zone Examples ***[NOTE THAT EMERGENCY SIRENS EXCLUDED IN THIS PLAN]***	*Heavy Industrial, Settlement Zone Industrial, SRIZ*		*Light Industry, Commercial, Sport and Active Recreation, Shopping Centre, Hospital, Airport*	*City Centre, Waterfront[2], Mixed Use, Local Centre, Settlement Centre*	***If emitted from Port, Settlement, Heavy Industrial, Light Industrial, Commercial, Sport and Active Recreation:*** *Residential, Neighbourhood Centre, Natural Open Space, Open Space, Rural Production, Rural Lifestyle, Settlement, Future Urban.* ***If emitted from most other zones:*** *Open Space, Rural Production.*	***If emitted from most other zones:*** *Residential, Neighbourhood Centre, Rural Lifestyle, Settlement, Future Urban*		

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones in each District are given
2. The District Plans include some errors. If there is question over what limit should apply, we have used our discretion (for instance there are conflicting limits for Rural Production zone in Whangarei)
3. In some Districts, the limit varies depending on the zone the noise source is located in.

Table 4: Distance at which rating noise levels are likely to be met in Far North (L_{A10} limits) DAYTIME EMERGENCY OPERATION

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating sound power level of 150 dB $L_{WA,10\ (15\ min)}$							
	75 dB L_{A10}	**70 dB L_{A10}**	**65 dB L_{A10}**	**60 dB L_{A10}**	**55 dB L_{A10}**	**50 dB L_{A10}**	**45 dB L_{A10}**	**40 dB L_{A10}**
DAY EMERGENCY	**800m**	**1,100m**	**1,500m**	**2,000m**	**2,600m**	**3,300m**	N/A	N/A
Far North Zone Examples			***If emitted from a Rural Production zone:*** *Rural Production, Residential, Coastal Residential, Russell Township [site boundary]* *- other rural or coastal zone [notional boundary]* ***If emitted from a Commercial zone:*** *Commercial [site]* ***If emitted from an Industrial Zone:*** *Industrial [site]*		***If emitted from a Rural Living, Commercial, Industrial, Minerals or any Coastal zone:*** *- Coastal Residential, Residential, Russell Township [site boundary]* *- any Rural or Coastal zone [notional boundary]*	***If emitted from a Residential zone:*** *- Residential [site boundary]* *- any Rural or Coastal zone [notional boundary]*		

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones are given.
2. In the FNDC, the limit varies depending on the zone the noise source is located in (for instance if a siren was located in a *Rural Production* zone, it would need to meet 65 dB L_{A10} at another *Rural Production* zone during the day, but if a siren was located in a *Rural Living* zone the limit would be 55 dB L_{A10} at a *Rural Production* zone during the day).

APPENDIX C NIGHT-TIME EMERGENCY OPERATION

Table 5: Distance at which rating noise levels are likely to be met in Kaipara and Whangarei (L_{Aeq} limits) during NIGHT-TIME EMERGENCY OPERATION

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating sound power level of 150 dB $L_{WA,eq\ (15\ min)}$							
	75 dB L_{Aeq}	**70 dB L_{Aeq}**	**65 dB L_{Aeq}**	**60 dB L_{Aeq}**	**55 dB L_{Aeq}**	**50 dB L_{Aeq}**	**45 dB L_{Aeq}**	**40 dB L_{Aeq}**
NIGHT EMERGENCY	**800m**	**1,100m**	**1,500m**	**2,000m**	**2,600m**	**3,300m**	**4,200m**	**5,100m**
Kaipara Zone Examples	***If emitted from an Industrial zone:*** *Industrial*			***If emitted from a Commercial zone:*** *Commercial*			***If emitted from an Industrial zone:*** *Residential, Rural, Māori Purpose zone*	***If emitted from Rural, Residential, Commercial, Māori Purpose:*** *Rural, Residential, Māori Purpose*
Whangarei Zone Examples ***[NOTE THAT EMERGENCY SIRENS EXCLUDED IN THIS PLAN]***	*Heavy Industrial, Settlement Zone Industrial, SRIZ*			*Light Industry, Commercial, Sport and Active Recreation, Shopping Centre, Hospital, Airport*	*City Centre, Waterfront*[2]	*Mixed Use, Local Centre, Settlement Centre* ***If emitted from most other zones:*** *Residential, Neighbourhood Centre, Rural Lifestyle, Settlement, Future Urban*	***If emitted from Port, Settlement, Heavy Industrial, Light Industrial, Commercial, Sport and Active Recreation:*** *Residential, Neighbourhood Centre, Natural Open Space, Open Space.*	***If emitted from most other zones:*** *Open Space, Rural Production, Residential, Neighbourhood Centre, Rural Lifestyle, Settlement, Future Urban*

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones in each District are given
2. The District Plans include some errors. Where there is question over what limit should apply, we have used our discretion (for instance there are conflicting limits for Rural Production zone in Whangarei)
3. In these districts, the limit varies depending on the zone the noise source is located in.

Table 6: Distance at which rating noise levels are likely to be met in Far North (L_{A10} limits) during NIGHT-TIME EMERGENCY OPERATION

	Distance at which rating noise level is met (assessed in accordance with NZS6802:2008). Rating sound power level of 155 dB $L_{WA,10\ (15\ min)}$							
	75 dB L_{Aeq}	**70 dB L_{Aeq}**	**65 dB L_{Aeq}**	**60 dB L_{Aeq}**	**55 dB L_{Aeq}**	**50 dB L_{Aeq}**	**45 dB L_{Aeq}**	**40 dB L_{Aeq}**
NIGHT EMERGENCY	**1,100m**	**1,500m**	**2,000m**	**2,600m**	**3,300m**	**4,200m**	**5,100m**	**6,200m**
Far North Zone Examples					***If emitted from a Commercial zone:*** *Commercial [site]* ***If emitted from an Industrial Zone:*** *Industrial [site]*		***If emitted from a Rural Production zone:*** *Rural Production, Residential, Coastal Residential, Russell Township [site boundary] - other rural or coastal zone [notional boundary]* ***If emitted from a Commercial, Industrial, Coastal or Residential zone:*** *- Residential, Coastal Residential, Russell Township [site boundary] - other rural or coastal zone [notional boundary].*	

Notes:

1. Zone examples should be checked by the consultant planner for accuracy. Not all zones are given.

APPENDIX D SIREN SYSTEM SELECTIONS:

We do not expect the siren systems to deliver the sound pressure levels claimed (when considered as an $L_{Aeq(t)}$ level). Two siren system models are proposed to be used. These are the HSS Engineering TWS-293 and TWS-295. The manufacturer datasheet provides the following acoustic data:

- TWS-293 149 dBC @ 1m, 119 dBC @ 30m
- TWS-295 153 dBC @ 1m, 123 dBC @30m

The District Plan limits use "A-weighting" whereas the stated HSS Engineering data sheets state sound pressure levels in terms of "C-weighting". Our evaluation of other tsunami siren tests is that there is a negligible difference between the A- and C-weightings when measured in the field (less than 1 decibel of difference within 50 metres of the sirens). On this basis, we consider that any C-weighted specification can simply be read as an A-weighted level[4].

The HSS Engineering sound pressure levels given are determined in accordance with ISO13475-1. This standard provides a test methodology for measurement of loudspeaker level. However the level stated by the manufacturer does not clarify whether the stated level is given in terms of L_{AFmax}, $L_{Aeq(t)}$ or perhaps some other value such as L_{Cpeak}. The relevant District Plan noise limits are given in L_{Aeq} (or L_{A10} in the case of Far North)[5] and it is necessary to evaluate noise using these parameters[6].

We consider it likely that the level quoted by HSS refers to the L_{AFmax} (or possibly a L_{Zpeak}) noise level measured using a test signal in standardised conditions – we do not expect that the siren systems could generate L_{Aeq} noise levels over the duration of the test signal at sound pressure levels of 119 to 123 dB at 30 metres. Such noise levels would be extremely high and would be very unpleasant (and potentially debilitating) to anyone within 50 metres of the sirens who was not wearing hearing protection.

Our experience with similarly designed siren systems operating in the field is that sound pressure levels will be in the order of 80 - 82 dB $L_{Aeq\,(1\,min)}$ at 150 metres and around 90 - 91 dB $L_{Aeq\,(1\,min)}$ at 75 metres during tests[7]. This can be conservatively modelled as a sound power level of 145 dB $L_{WA,eq\,(1\,min)}$[8]. Based on our experience, we have calculated noise emissions, for this assessment, based on a simple omnidirectional loudspeaker with the following sound power level:

Table 7: Octave Band Noise Level Results

	Sound Power Level dB $L_{WA,eq\,(1\,min)}$ Octave Band Centre Frequency (Hz)							
Source	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**dBA**
HSS Loudspeakers (used both TWS-295 and TWS-293)	-	-	-	140	140	140	-	145

[4] The warning signal is broadly composed of a sweep of frequencies from around 500 to 2 kHz and as such there is little difference between A and C weighted levels.

[5] The L_{A10} and L_{Aeq} noise levels are numerically quite similar, whereas L_{AFmax} and L_{Zpeak} levels are numerically much higher.

[6] The District Plan night-time rules also have limits on L_{AFmax} noise levels. However in the case of a tsunami warning siren, the L_{A10} or L_{Aeq} night -time rules would control where a technical breach will occur.

[7] L_{AFmax} noise levels would be around 14 decibels higher than this and L_{Zpeak} levels would be around 21 decibels higher than this

[8] The sound power level is the amount of sound energy produced if you conceptualise the source as a very small point. As sound levels drop with respect to distance, you get the quoted sound pressure levels (L_{Aeq} or L_{A10}) at different distances. In this case with respect to a 145 dB L_{WA}, it allows for a small safety factor as this sound power level would return a sound pressure level of around 88 dB $L_{Aeq\,(1\,min)}$ at 150 metres from the base of the loudspeaker support

APPENDIX E CALCULATIONS IN ACCORDANCE WITH NZS6802

All District Plans reference New Zealand Standard NZS6802[9]. This standard sets out how environmental sound should be assessed in New Zealand for typical environmental sources.

The NZS6802 standard is not particularly well suited to the assessment of tsunami siren noise. However the District Plan requires the use of this standard and thus we have used it based on the following assumptions:

Testing

- The swept-sine nature of the siren would be subjectively tonal (but not objectively tonal) and a special audible characteristics correction of + 5dBA should therefore apply to all testing and operation.
- The NZS6802:2008 assessment period is 15 minutes. **Testing** of the tsunami sirens during the daytime has previously involved two cycles of around one minute of tsunami alarm signal (two minutes of signal in total). This correlates to a rating sound power level of 136 dB $L_{WA,eq(15\ min)}$ and 133 dB $L_{WA,10\ (15\ min)}$[10]
- A duration correction for a 15-hour day period can be used. A duration correction of -5 decibels would be appropriate during the day in all districts.
- Testing would occur twice per year during the statutory daytime. Testing of sirens would not occur at night.

Operation (Emergency Evacuation)

- During emergency operation (i.e. in an emergency tsunami evacuation) it is assumed that the siren could operate for at least a full 15-minute assessment period but for less than 5 hours of the day period. A full duration correction is considered appropriate during the daytime. This correlates to a rating sound power level of 145 dB $L_{WA,eq(15min)}$ and 150 dB $L_{WA,10\ (15\ min)}$[11].
- No duration correction can be applied at night. This correlates to a rating sound power level of 150 dB $L_{WA,eq(15min)}$ and 155 dB $L_{WA,10\ (15\ min)}$[12].

[9] The Far North District Plan still references the 1991 version of the standard, even though this was superceeded in 2008. The Kaipara and Whangarei District Plan versions reference the current 2008 version of the standard. An important difference between the standard is the way that special audible characteristics are applied. The 1991 version reduces the limit by 5 dBA, whereas the 2008 version adds a 5 decibel penalty to the assessed noise level. Both approaches are effectively the same, but use a different methodology. To avoid confusion in this assessment we have used the 2008 approach and added any special audible characeristics correction to the assessed noise level.

[10] This is the sound power level over a fifteen-minute period when the periods of noise (2 minutes) and quiet (13 minutes) are included. The L_{A10} value is less than the L_{Aeq} level as the signal is only present for two minutes of the fifteen-minute test period during the daytime – this has been determined from previous measurements carried out of tsunami siren operation elsewhere in NZ. The rating sound power level includes the SAC and duration correction for the day period.

[11] This is the sound power level assuming the siren operates continuously (warning alarm with speech between) for less than five hours during an evacuation. The L_{A10} value is higher than the L_{Aeq} value as the periods of louder noise (alarm) are present for longer during the assessment period. The rating sound power level includes the SAC and duration correction for the day period.

[12] This is the sound power level assuming the siren operates continuously (warning alarm with speech between) over any 15-minuite period at night. It is the same as the daytime sound power level, but without any -5 decibel duration correction.

Appendix 8 - Rules Checklist

Proposal: Northland Tsunami Rollout

District Plan: Far North District Plan

Siren 63	
Operative Zone	Russell Township
Proposed Zone	Kororāreka Russell Township
Operative Overlays/Controls	Heritage Area – Russell Township Basin and Gateway Area
Proposed Overlays/Controls	Coastal Environment, Heritage Area Part D, River Flood Hazard 100-year ARI Event and Coastal Flood Zones 1, 2, 3.
Designations	None

Rule	Compliance	Non-Compliance
Russell Township Zone		
10.9.5.1.1 RELOCATED BUILDINGS	N/A	
10.9.5.1.2 RESIDENTIAL INTENSITY	N/A	
10.9.5.1.3 SCALE OF ACTIVITIES	N/A	
10.9.5.1.4 BUILDING HEIGHT		No
10.9.5.1.5 BUILDING SCALE	Yes	
10.9.5.1.6 SUNLIGHT		No
10.9.5.1.7 STORMWATER MANAGEMENT	Yes	
10.9.5.1.8 SETBACK FROM BOUNDARIES	Yes	
10.9.5.1.9 OUTDOOR ACTIVITIES	Yes	
10.9.5.1.10 TRANSPORTATION	N/A	
10.9.5.1.12 KEEPING OF ANIMALS	N/A	
10.9.5.1.13 NOISE		No
10.9.5.1.14 HELICOPTER LANDING AREA	N/A	
Chapter 12 Natural and Physical Resources		
12.3.6.1.3 EXCAVATION AND/OR FILLING, EXCLUDING MINING AND QUARRYING, IN THE RESIDENTIAL, INDUSTRIAL, HORTICULTURAL PROCESSING, COASTAL RESIDENTIAL AND RUSSELL TOWNSHIP ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	

Rule	Compliance	Non-Compliance
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	
HA-R1 Maintenance and Repair of Buildings or Structures	N/A	
HA-R2 Additions or Alterations to Existing Buildings or Structures	N/A	
HA-R3 Strengthening or Fire Protection of Scheduled Heritage Resource	N/A	
HA-R4 New buildings or Structures	N/A	
HA-R5 Earthworks	Yes	
HA-R6 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R7 Buildings or Structures (including additions and alterations) Located within the Alderton Park Development	N/A	
HA-R8 New Buildings or Structures		No
HA-R9 New Buildings or Structures	N/A	
HA-R10 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R11 Activities Not Otherwise Listed in this chapter	N/A	
HA-R12 Relocation of a Scheduled Heritage Resource	N/A	
HA-R13 Demolition of a scheduled Heritage resource not otherwise listed in Rule HA-R13	N/A	
HA-R14 Demolition or relocation of a scheduled Heritage Resource	N/A	

Siren 64	
Operative Zone	Industrial
Proposed Zone	Light Industrial
Operative Overlays/Controls	Maritime Exemption Area
Proposed Overlays/Controls	Coastal Environment, River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 1, 2, 3.
Designations	None

Rule	Compliance	Non-Compliance
Industrial		
7.8.5.1.1 SUNLIGHT	Yes	

Rule	Compliance	Non-Compliance
7.8.5.1.2 VISUAL AMENITY AND ENVIRONMENTAL PROTECTION	Yes	
7.8.5.1.3 NOISE MITIGATION FOR RESIDENTIAL ACTIVITIES	N/A	
7.8.5.1.4 TRANSPORTATION	N/A	
7.8.5.1.5 KEEPING OF ANIMALS	N/A	
7.8.5.1.6 NOISE		No
7.8.5.1.7 SETBACK FROM BOUNDARIES	Yes	
7.8.5.1.8 BUILDING HEIGHT	Yes	
7.8.5.1.9 STORMWATER	Yes	
7.8.5.1.10 HELICOPTER LANDING AREA	N/A	
Natural and Physical Resources		
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
12.3.6.1.3 EXCAVATION AND/OR FILLING, EXCLUDING MINING AND QUARRYING, IN THE RESIDENTIAL, INDUSTRIAL, HORTICULTURAL PROCESSING, COASTAL RESIDENTIAL AND RUSSELL TOWNSHIP ZONES	Yes	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

Siren 65	
Operative Zone	Conservation Zone
Proposed Zone	Natural Open Space Zone
Operative Overlays/Controls	None
Proposed Overlays/Controls	High Natural Character ‘449’ and ‘451’
Designations	None

Rule	Compliance	Non-Compliance
Conservation Zone		
9.7.5.1.1 PURPOSE OF BUILDINGS		No
9.7.5.1.2 SCALE OF ACTIVITIES	N/A	

Rule	Compliance	Non-Compliance
9.7.5.1.3 BUILDING HEIGHT		No
9.7.5.1.4 SUNLIGHT		No
9.7.5.1.5 STORMWATER MANAGEMENT	Yes	
9.7.5.1.6 SCREENING FOR NEIGHBOURS		No
9.7.5.1.7 KEEPING OF ANIMALS	N/A	
9.7.5.1.8 NOISE		No
9.7.5.1.9 HELICOPTER MOVEMENTS	N/A	
9.7.5.1.10 SETBACK FROM BOUNDARIES	Yes	
9.7.5.1.11 BUILDING COVERAGE	Yes	
Natural and Physical Resources		
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

Siren 66	
Operative Zone	Recreational Activities
Proposed Zone	Open Space
Operative Overlays/Controls	None
Proposed Overlays/Controls	Coastal Environment, Heritage Area 'Part A', Heritage Item '90a', River Flood Hazard 10 and 100-year ARI Event and Coastal Flood Zones 2, 3.
Designations	None

Rule	Compliance	Non-Compliance
Recreational Activities Zone		
9.6.5.1.1 PURPOSE OF BUILDINGS		No

Rule	Compliance	Non-Compliance
9.6.5.1.2 SCALE OF ACTIVITIES	N/A	
9.6.5.1.3 BUILDING HEIGHT		No
9.6.5.1.4 SUNLIGHT		No
9.6.5.1.5 STORMWATER MANAGEMENT	Yes	
9.6.5.1.6 SETBACK FROM BOUNDARIES		No
9.6.5.1.7 TRANSPORTATION	N/A	
9.6.5.1.8 HOURS OF OPERATION	N/A	
9.6.5.1.9 SCREENING FOR NEIGHBOURS	N/A	
9.6.5.1.10 OUTDOOR ACTIVITIES	N/A	
9.6.5.1.11 KEEPING OF ANIMALS	N/A	
9.6.5.1.12 NOISE		No
9.6.5.1.13 HELICOPTER MOVEMENTS	N/A	
9.6.5.1.14 BUILDING COVERAGE	Yes	
Chapter 12 Natural and Physical Resources		
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
12.1.6.1.2 INDIGENOUS VEGETATION CLEARANCE IN OUTSTANDING LANDSCAPES	N/A	
12.1.6.1.4 EXCAVATION AND/OR FILLING WITHIN AN OUTSTANDING LANDSCAPE	Yes	
12.1.6.1.5 BUILDINGS WITHIN OUTSTANDING LANDSCAPES	Yes	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	
HA-R1 Maintenance and Repair of Buildings or Structures	N/A	

Rule	Compliance	Non-Compliance
HA-R2 Additions or Alterations to Existing Buildings or Structures	N/A	
HA-R3 Strengthening or Fire Protection of Scheduled Heritage Resource	N/A	
HA-R4 New buildings or Structures	N/A	
HA-R5 Earthworks	Yes	
HA-R6 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R7 Buildings or Structures (including additions and alterations) Located within the Alderton Park Development	N/A	
HA-R8 New Buildings or Structures	N/A	
HA-R9 New Buildings or Structures		No
HA-R10 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R11 Activities Not Otherwise Listed in this chapter	N/A	
HA-R12 Relocation of a Scheduled Heritage Resource	N/A	
HA-R13 Demolition of a scheduled Heritage resource not otherwise listed in Rule HA-R13	N/A	
HA-R14 Demolition or relocation of a scheduled Heritage Resource	N/A	

Siren 69	
Operative Zone	General Coastal
Proposed Zone	Māori Purpose - Rural
Operative Overlays/Controls	None
Proposed Overlays/Controls	Coastal Environment
Designations	Road

Rule	Compliance	Non-Compliance
General Coastal Zone		
10.6.5.1.1 VISUAL AMENITY	Yes	
10.6.5.1.2 RESIDENTIAL INTENSITY	N/A	
10.6.5.1.3 SCALE OF ACTIVITIES	N/A	
10.6.5.1.4 BUILDING HEIGHT		No
10.6.5.1.5 SUNLIGHT	Yes	
10.6.5.1.6 STORMWATER MANAGEMENT	Yes	
10.6.5.1.7 SETBACK FROM BOUNDARIES	Yes	
10.6.5.1.8 TRANSPORTATION	N/A	

Rule	Compliance	Non-Compliance
10.6.5.1.9 KEEPING OF ANIMALS	N/A	
10.6.5.1.10 NOISE		No
10.6.5.1.11 HELICOPTER LANDING AREA	N/A	
Natural and Physical Resources		
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

Siren 78	
Operative Zone	Recreational Activities
Proposed Zone	Open Space
Operative Overlays/Controls	None
Proposed Overlays/Controls	Coastal Environment, Heritage Area 'Part B'
Designations	None

Rule	Compliance	Non-Compliance
Recreational Activities Zone		
9.6.5.1.1 PURPOSE OF BUILDINGS		No
9.6.5.1.2 SCALE OF ACTIVITIES	N/A	
9.6.5.1.3 BUILDING HEIGHT		No
9.6.5.1.4 SUNLIGHT		No
9.6.5.1.5 STORMWATER MANAGEMENT	Yes	
9.6.5.1.6 SETBACK FROM BOUNDARIES	Yes	

Rule	Compliance	Non-Compliance
9.6.5.1.7 TRANSPORTATION	N/A	
9.6.5.1.8 HOURS OF OPERATION	N/A	
9.6.5.1.9 SCREENING FOR NEIGHBOURS		No
9.6.5.1.10 OUTDOOR ACTIVITIES	N/A	
9.6.5.1.11 KEEPING OF ANIMALS	N/A	
9.6.5.1.12 NOISE		No
9.6.5.1.13 HELICOPTER MOVEMENTS	N/A	
9.6.5.1.14 BUILDING COVERAGE	Yes	
Chapter 12 Natural and Physical Resources		
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	Yes	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
12.1.6.1.2 INDIGENOUS VEGETATION CLEARANCE IN OUTSTANDING LANDSCAPES	N/A	
12.1.6.1.4 EXCAVATION AND/OR FILLING WITHIN AN OUTSTANDING LANDSCAPE	Yes	
12.1.6.1.5 BUILDINGS WITHIN OUTSTANDING LANDSCAPES	Yes	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	
HA-R1 Maintenance and Repair of Buildings or Structures	N/A	
HA-R2 Additions or Alterations to Existing Buildings or Structures	N/A	
HA-R3 Strengthening or Fire Protection of Scheduled Heritage Resource	N/A	
HA-R4 New buildings or Structures	Yes	
HA-R5 Earthworks	Yes	

Rule	Compliance	Non-Compliance
HA-R6 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R7 Buildings or Structures (including additions and alterations) Located within the Alderton Park Development	N/A	
HA-R8 New Buildings or Structures	N/A	
HA-R9 New Buildings or Structures	N/A	
HA-R10 Infrastructure and Renewable Electricity Generation Infrastructure	N/A	
HA-R11 Activities Not Otherwise Listed in this chapter	N/A	
HA-R12 Relocation of a Scheduled Heritage Resource	N/A	
HA-R13 Demolition of a scheduled Heritage resource not otherwise listed in Rule HA-R13	N/A	
HA-R14 Demolition or relocation of a scheduled Heritage Resource	N/A	

Siren 99	
Operative Zone	Coastal Living
Proposed Zone	Rural Lifestyle
Operative Overlays/Controls	None
Proposed Overlays/Controls	Coastal Environment and Coastal Flood Zones 2 and 3.
Designations	None

Rule	Compliance	Non-Compliance
Coastal Living Zone		
10.7.5.1.1 VISUAL AMENITY	Yes	
10.7.5.1.2 RESIDENTIAL INTENSITY	N/A	
10.7.5.1.3 SCALE OF ACTIVITIES	N/A	
10.7.5.1.4 BUILDING HEIGHT		No
10.7.5.1.5 SUNLIGHT	Yes	
10.7.5.1.6 STORMWATER MANAGEMENT	Yes	
10.7.5.1.7 SETBACK FROM BOUNDARIES		No
10.7.5.1.8 SCREENING FOR NEIGHBOURS NON-RESIDENTIAL ACTIVITIES		No
10.7.5.1.9 TRANSPORTATION	N/A	
10.7.5.1.10 HOURS OF OPERATION NON-RESIDENTIAL ACTIVITIES	N/A	

Rule	Compliance	Non-Compliance
10.7.5.1.11 KEEPING OF ANIMALS	N/A	
10.7.5.1.12 NOISE		No
10.7.5.1.13 HELICOPTER LANDING AREA	N/A	
Chapter 12 Natural and Physical Resources		
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA		No
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

Siren 100	
Operative Zone	Rural Living
Proposed Zone	Natural Open Space
Operative Overlays/Controls	None
Proposed Overlays/Controls	Coastal Environment and Coastal Flood Zones 1, 2 and 3.
Designations	None

Rule	Compliance	Non-Compliance
Rural Living Zone		
8.7.5.1.1 RESIDENTIAL INTENSITY	N/A	
8.7.5.1.2 SCALE OF ACTIVITIES	N/A	
8.7.5.1.3 BUILDING HEIGHT		No
8.7.5.1.4 SUNLIGHT	Yes	
8.7.5.1.5 STORMWATER MANAGEMENT	yes	
8.7.5.1.6 SETBACK FROM BOUNDARIES	Yes	

Rule	Compliance	Non-Compliance
8.7.5.1.7 SCREENING FOR NEIGHBOURS – NON-RESIDENTIAL ACTIVITIES		No
8.7.5.1.8 TRANSPORTATION	N/A	
8.7.5.1.9 HOURS OF OPERATION - NON-RESIDENTIAL ACTIVITIES	N/A	
8.7.5.1.10 KEEPING OF ANIMALS	N/A	
8.7.5.1.11 NOISE		No
8.7.5.1.12 HELICOPTER LANDING AREA	N/A	
8.7.5.1.13 BUILDING COVERAGE		
Chapter 12 Natural and Physical Resources		
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA		No
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

Siren 101	
Operative Zone	Recreational Activities
Proposed Zone	Open Space
Operative Overlays/Controls	NRC Flood Susceptible.
Proposed Overlays/Controls	Pedestrian Frontage, Airport Protection Surfaces, River Flood Hazard 10 and 100-year ARI Event.
Designations	None

Rule	Compliance	Non-Compliance
Recreational Activities Zone		
9.6.5.1.1 PURPOSE OF BUILDINGS		No
9.6.5.1.2 SCALE OF ACTIVITIES	N/A	

Rule	Compliance	Non-Compliance
9.6.5.1.3 BUILDING HEIGHT		No
9.6.5.1.4 SUNLIGHT		No
9.6.5.1.5 STORMWATER MANAGEMENT	Yes	
9.6.5.1.6 SETBACK FROM BOUNDARIES	Yes	
9.6.5.1.7 TRANSPORTATION	N/A	
9.6.5.1.8 HOURS OF OPERATION	N/A	
9.6.5.1.9 SCREENING FOR NEIGHBOURS		No
9.6.5.1.10 OUTDOOR ACTIVITIES	N/A	
9.6.5.1.11 KEEPING OF ANIMALS	N/A	
9.6.5.1.12 NOISE		No
9.6.5.1.13 HELICOPTER MOVEMENTS	N/A	
9.6.5.1.14 BUILDING COVERAGE	Yes	
Chapter 12 Natural and Physical Resources		
12.3.6.1.2 EXCAVATION AND/OR FILLING, INCLUDING OBTAINING ROADING MATERIAL BUT EXCLUDING MINING AND QUARRYING, IN THE RURAL LIVING, COASTAL LIVING, SOUTH KERIKERI INLET, GENERAL COASTAL, RECREATIONAL ACTIVITIES, CONSERVATION, WAIMATE NORTH AND POINT VERONICA ZONES	Yes	
12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA	N/A	
12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS	N/A	
Proposed FNDC plan – rules that have immediate legal effect.		
EW-R12 Earthworks and the Discovery of Suspected Sensitive Material	Yes	
EW-R13 Earthworks and Erosion and Sediment Control	Yes	
EW-S3 Accidental Discovery Protocol	Yes	
EW-S5 Erosion and Sediment Control	Yes	

NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 63- SIREN TYPE TWS-293
13 CHURCH STREET, RUSSELL
GEOLOCATION -35.26065N, 174.12319E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

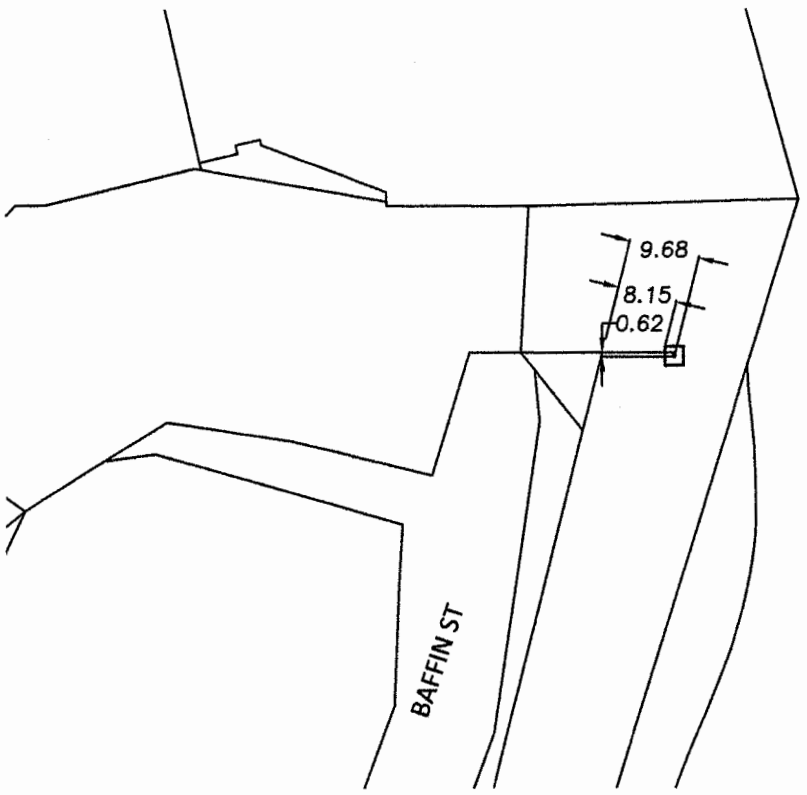
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER 231203/03

REVISION: A



N

NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 64- SIREN TYPE TWS-293
OPUA MARINA, ADJACENT TO 1 BAFFIN ST, OPUA
GEOLOCATION -35.31267N, 174.121527E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 2 - SEPPARABLE PORTION 2

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

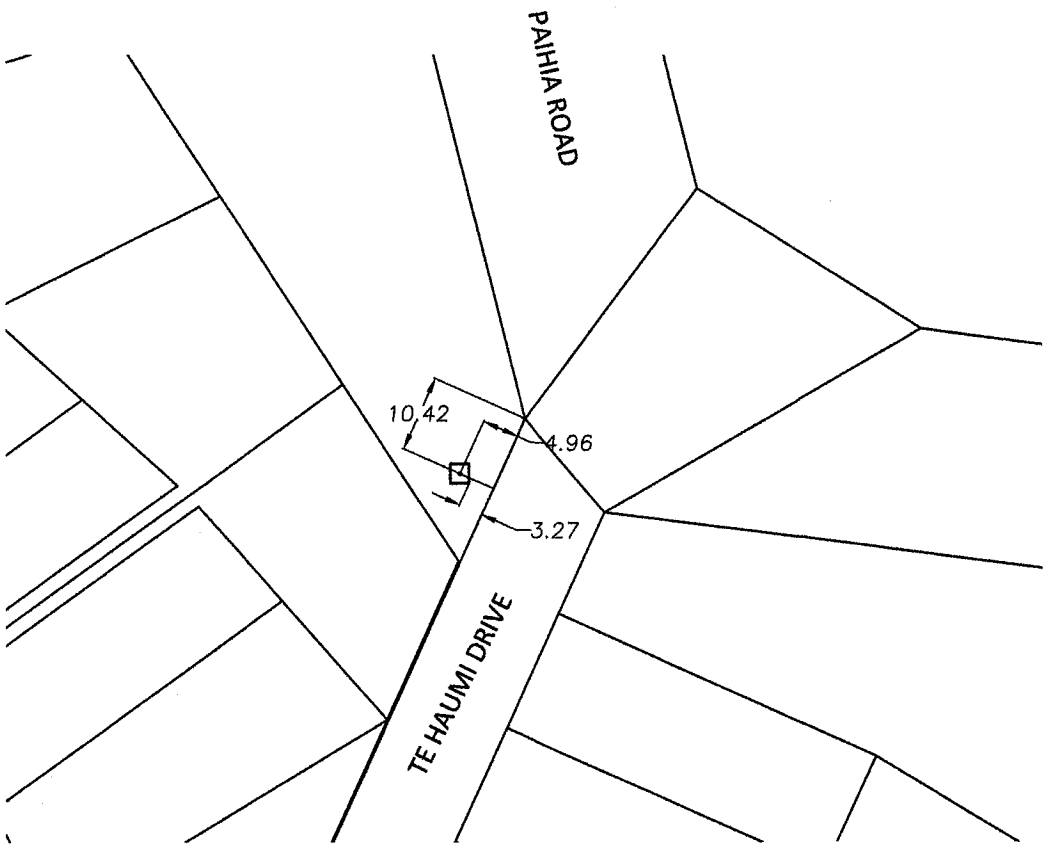
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/17

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 65- SIREN TYPE TWS-293
ADJACENT TO 8 PUKETIRO PLACE, CNR TE HAUMI DRIVE AND PAIHIA ROAD
GEOLOCATION -35.30195N, 174.098354E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
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client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

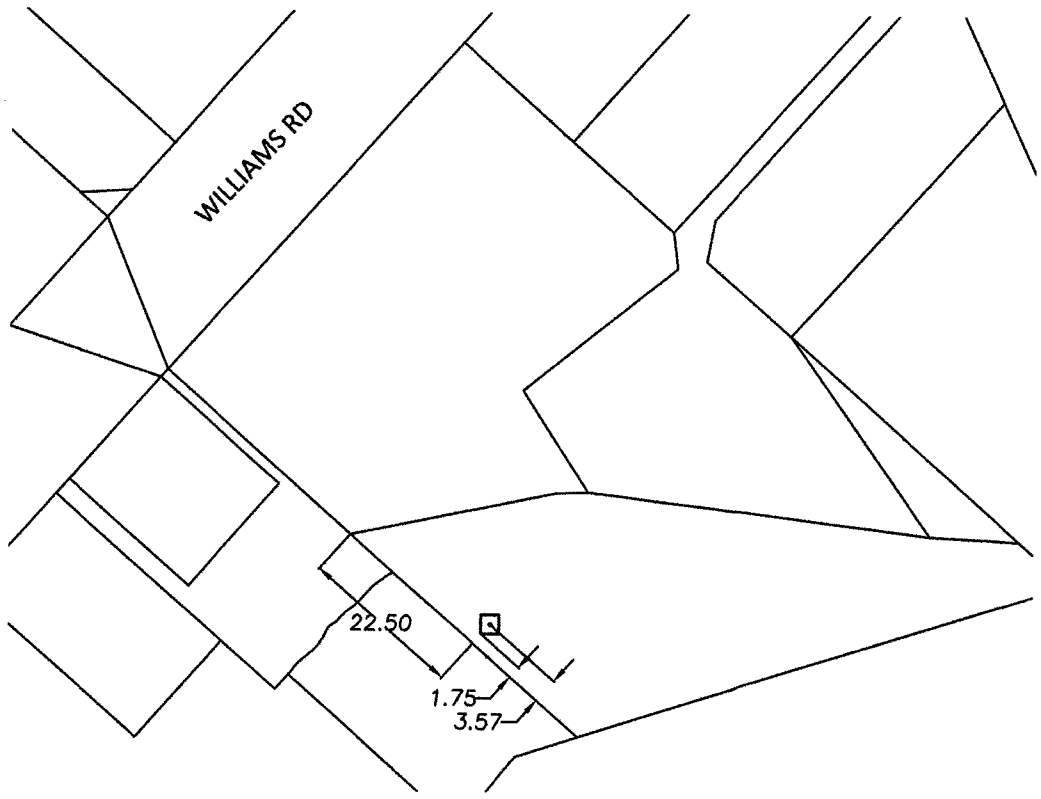
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/05

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 66- SIREN TYPE TWS-293
ADJACENT TO CARPARK, 3 SCHOOL RD, PAIHIA
GEOLOCATION -35.28253N, 174.09172E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

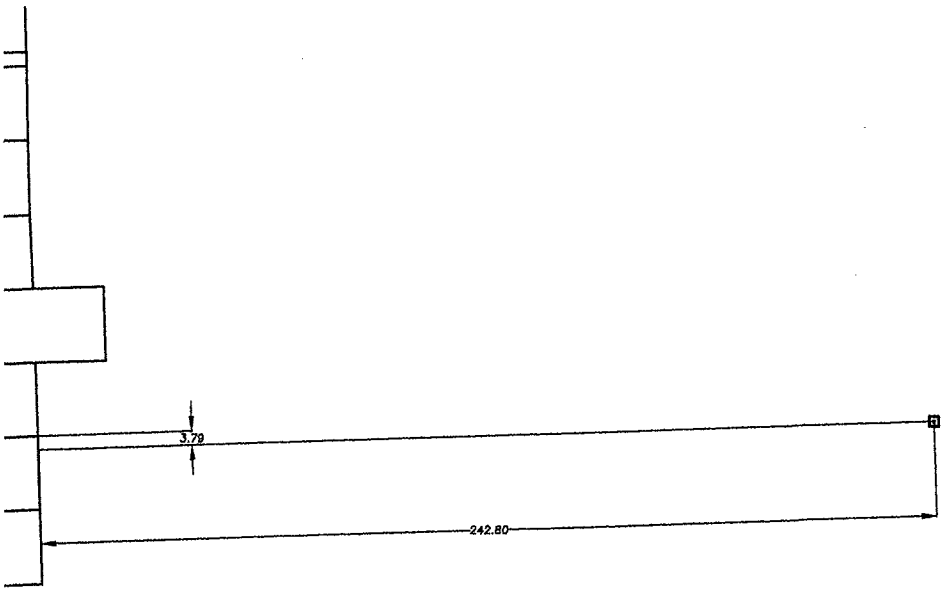
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER 231203/07

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 69- SIREN TYPE TWS-293
APPROX 300m EAST OF 18 TARONUI ROAD, TI TII
GEOLOCATION -35.125883N, 173.986548E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o te Taitokerau

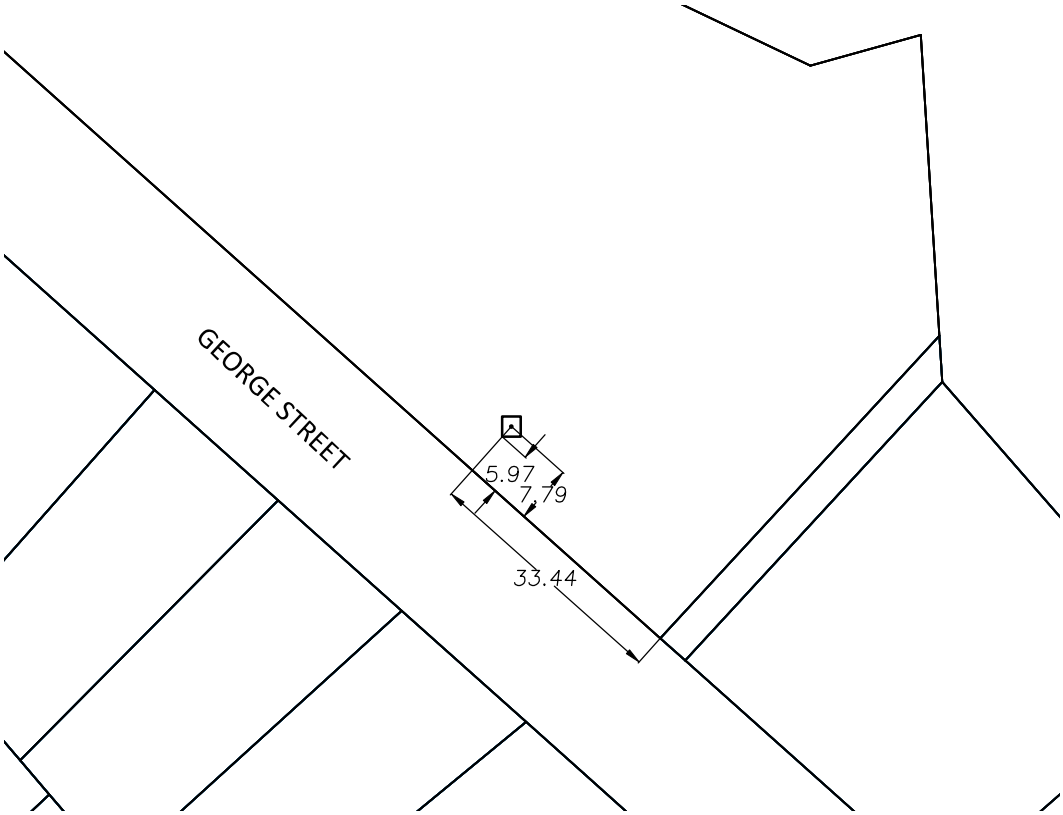
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE:
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/18

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 78- SIREN TYPE TWS-295
140 WATERFRONT DRIVE, OPPOSITE 6 GEORGE STREET, MANGONUI
GEOLOCATION -34.989673N, 173.533317E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

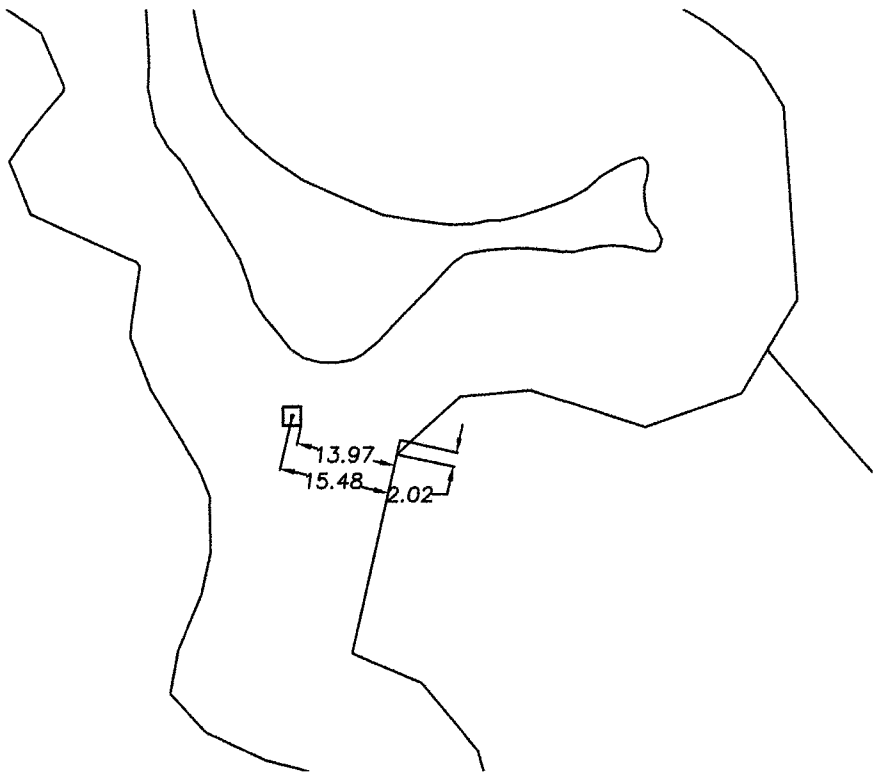
SCALES: 1:2000

FILE: SIREN LOC NORTH01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/22

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 99 - SIREN TYPE TWS-295
WINDSOR LANDING BOAT RAMP, ADJACENT TO 943 & 949 KERIKERI INLET RD, KERIKERI
GEOLOCATION -35.209643N, 174.026474E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: WHANGAREI, WHANGAREI DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: SETTING OUT DETAILS - SIREN SITES

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

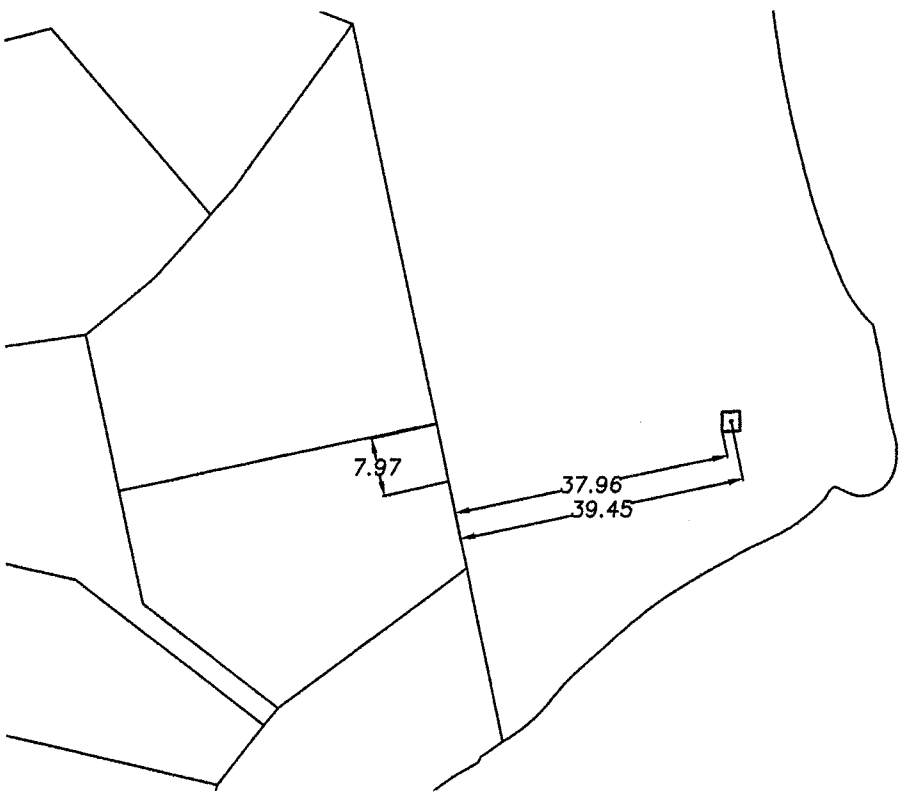
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 03/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER 231206/13

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 100 - SIREN TYPE TWS-295
WAIPAPA LANDING BOAT RAMP, 109 LANDING RD, KERIKERI
GEOLOCATION -35.204197N, 173.96823E

TUTUKAKA CONSULTANTS LIMITED
Consulting Engineers
50 Taonga Lane, Tutukaka
Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: WHANGAREI, WHANGAREI DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: SETTING OUT DETAILS - SIREN SITES

Northland REGIONAL COUNCIL
Te Kaunihera a rohe o Te Taitokerau

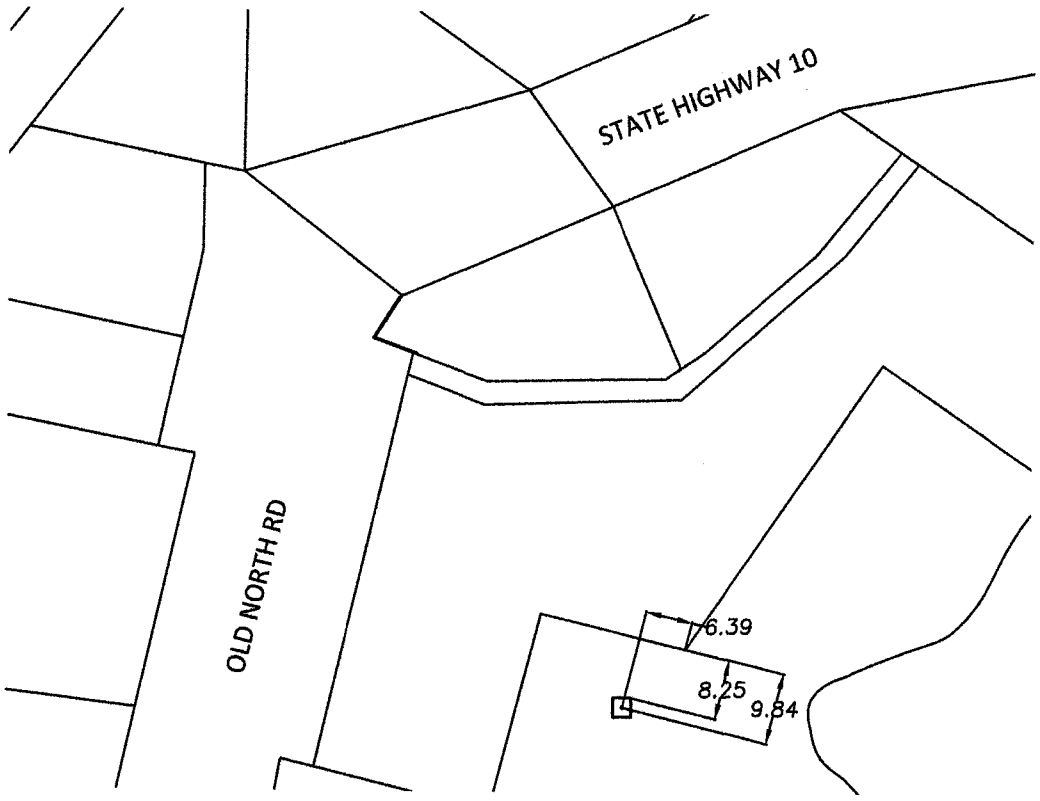
SCALES: 1:1000

FILE: SIREN LOC up~east01
DATE: 03/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/14

REVISION: A



NOTE:

FOUNDATION PAD PLAN SIZE 2.5m BY 2.5m

OVERALL HEIGHTS:

TWS-293 SIREN MODULE 9.123m

TWS-295 SIREN MODULE 9.758M

SITE NO 101 - SIREN TYPE TWS-295
117 STATE HIGHWAY 1, AWANUI
GEOLOCATION -35.047016N, 173.2568E

TUTUKAKA CONSULTANTS LIMITED
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Whangarei 0173
Phone (09) 434 3694, 0221 880 870
E-mail: wayne@tutukakaco.com

client: NORTHLAND REGIONAL COUNCIL

location: FAR NORTH DISTRICT

project: NORTHLAND TSUNAMI SIREN NETWORK

drawing title: RESOURCE CONSENT STAGE 1 - SEPARABLE PORTION 1

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

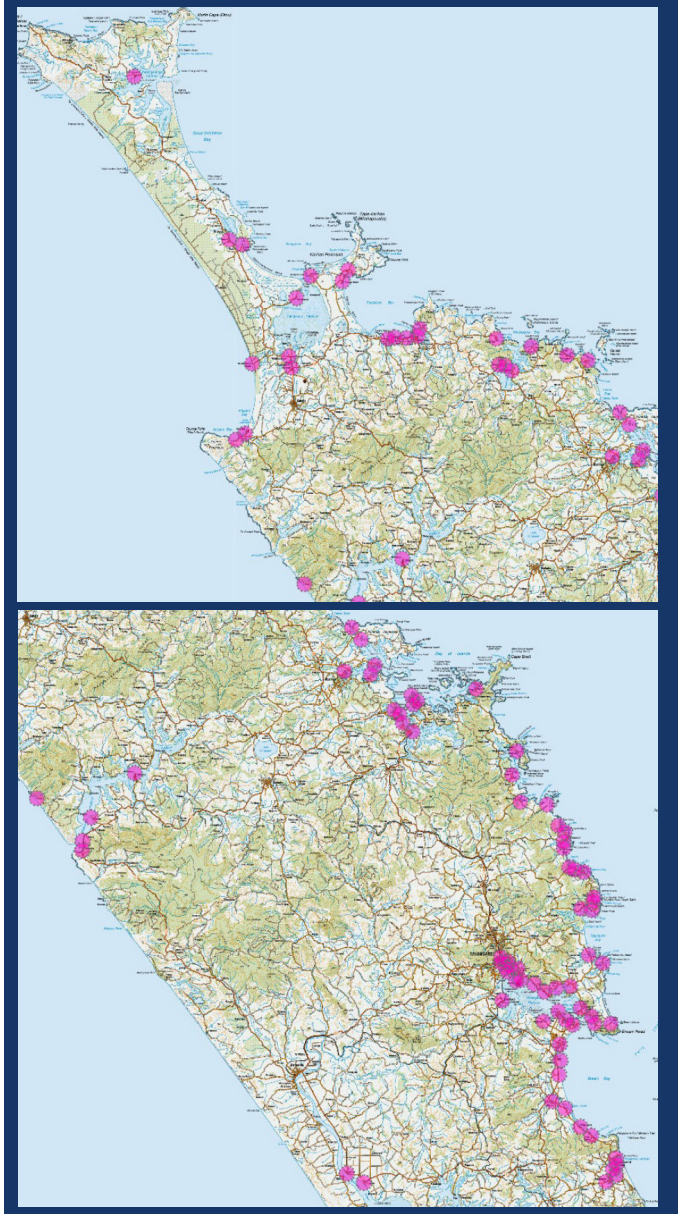
SCALES: 1:1000

FILE: SIREN LOC NORTH01
DATE: 07/23
ORIGINAL SIZE: A4

REVISIONS
A ISSUE FOR CLIENT APPROVAL

DRAWING NUMBER
231203/36
REVISION: A

New Siren Coverage Maps



Legend

Approximate siren sound coverage

NORTHLAND EMERGENCY MANAGEMENT GROUP

CIVIL DEFENCE

GET READY
.govt.nz

National Emergency Management Agency
Te Rākau Whakamarumaru

www.civildefence.govt.nz

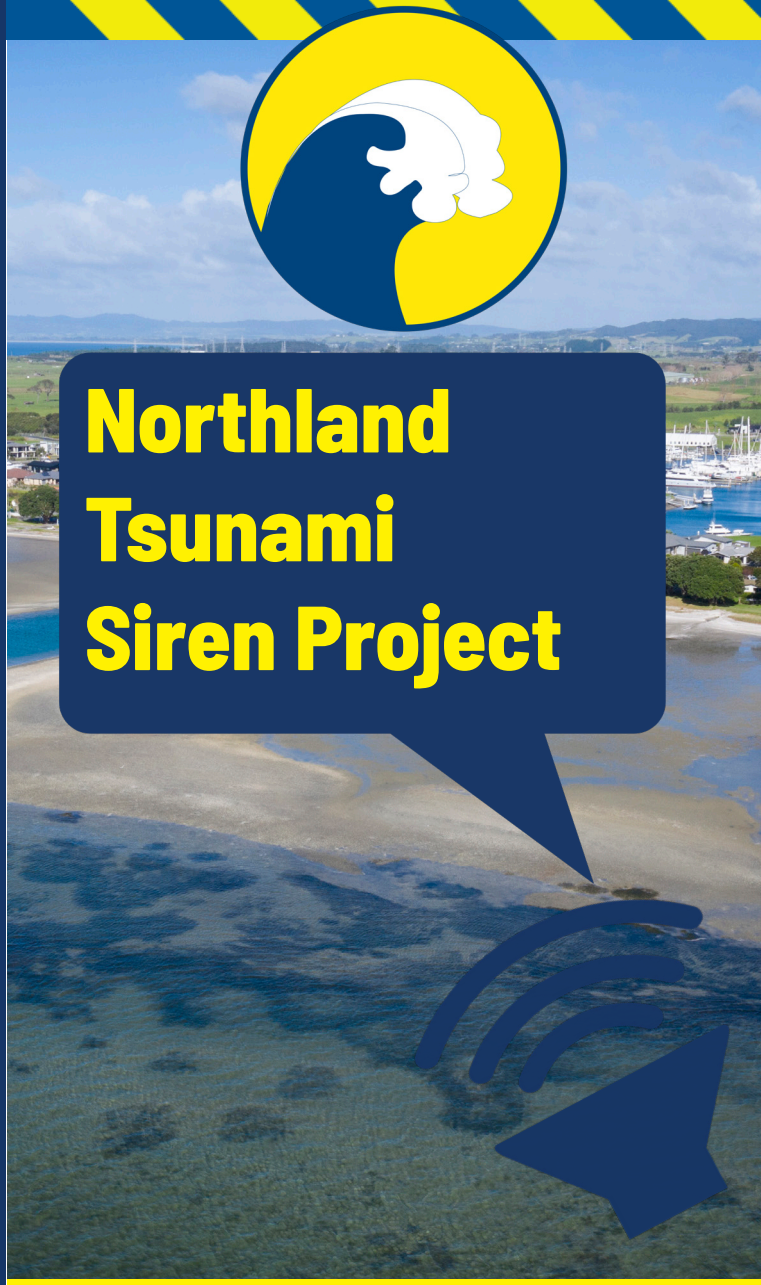
Northland Regional Council
www.nrc.govt.nz
0800 002 004

Whangarei District Council
www.wdc.govt.nz
0800 002 004

Kaipara te Oranganui
KAIPARA DISTRICT
Two Oceans Two Harbours
www.kaipara.govt.nz
0800 727 059

Far North District Council
Te Kaunihera o Tai Tokerau ki te Raki
www.fndc.govt.nz
0800 920 029

GNS SCIENCE TE PŪ AO



Northland Tsunami Siren Project

WHAT YOU NEED TO KNOW

Northland's tsunami sirens are being replaced

FIND OUT MORE INSIDE

Tsunami sirens in Northland

The current Northland tsunami siren network is made up of over 200 sirens located along Northland's coastline.

This network is an initial warning system to alert coastal communities of distant source Tsunami threats.

The sirens are owned by the local District Councils and managed by the Northland Civil Defence Emergency Management Group on behalf of all Northlanders.

The current system is coming to the end of its expected life and is set to be replaced with up-to-date technology.

Some areas across Northland that cannot hear the outdoor sirens also have indoor sirens. These are activated simultaneously with the outdoor sirens.

What to do when you hear a tsunami siren?

Always remember, tsunami sirens are just one part of a range of formal and informal warning systems, any of which can alert people to a tsunami.

When there is a tsunami warning the siren will sound intermittently. This is a strong signal to

SEEK FURTHER INFORMATION.

Evacuation maps

Find out if you live, work, or play in a tsunami zone so you can plan your evauation route ahead of time.

Go to www.nrc.govt.nz/tsunami to view our interactive maps.

Current Northland tsunami sirens

Tsunami siren replacement project

To help better protect Northlanders against the threat of Tsunami and meet the new siren guidelines, a joint project was initiated by all four Northland councils, to replace the existing sirens with new models that are standard compliant. The project is set to replace the current sirens with 96 new sirens – starting in 2023 and rolling out over the next couple of years.

The new sirens are quite different from the existing ones. They have much greater sound coverage, can provide voice messaging as well as multi-tone siren sounds, have back-up solar power, and are activated separately from the mains power via the cell phone network or satellite.

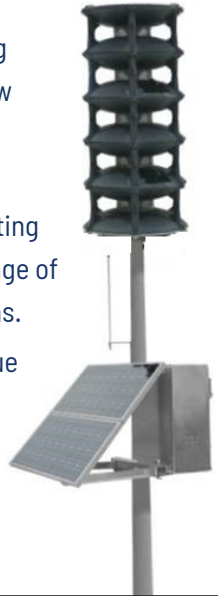
As they are independent of the power grid, they will also be on their own poles, and because they have greater sound coverage, we'll require fewer sirens in fewer, more effective locations.

The Northland Civil Defence Emergency Management Group has been working with the siren suppliers – HSS Engineering – to identify the best locations for the new sirens that will provide the best coverage across the region.

However, the project remains about updating what we have, while improving the coverage of existing areas, not adding additional areas.

The current indoor sirens will also continue to be activated simultaneously with the outdoor sirens for the forseeable future.

For more information on the project head to: www.nrc.govt.nz/tsunami



Example of new tsunami siren

Seeking further information

Whether it's the current sirens or the new sirens, when you hear one, the first thing to do is to seek further information. Here are some of the key places to check:

- Emergency Mobile Alert or Red Cross Hazard App notification. Find out more at: www.nrc.govt.nz/cdalert
- Northland Civil Defence Facebook page (civildefencenorthland)
- Northland council websites, such as www.nrc.govt.nz/civildefence
- TV and Radio
- Other social media sites

Follow the instructions given by Civil Defence and spread the word to people you think may be at risk.

Remember, tsunami sirens don't necessarily mean you need to evacuate the area right away. They do mean you need to find out what the level of threat is.

Make sure you stay up-to-date and check multiple sources during the alert if you can. No single source of information works for everyone, so make sure you share any official alerts with others – especially those you know are isolated.

Natural warnings

For a local source tsunami, which could arrive in minutes, there won't be time for an official warning. It is important to recognise the natural warning signs and act quickly.

If you experience:

Out of the ordinary sea behaviour, such as sudden sea level rise or fall and/or an unusual noise.

A strong earthquake that is hard to stand up or lasts longer than a minute.

Don't wait for official warning, evacuate, and wait in a safe place for the official all clear – a wave could arrive within minutes.

DECISION ON LAND USE CONSENT APPLICATION

UNDER THE RESOURCE MANAGEMENT ACT 1991

Decision

Pursuant to section 34(1) and sections 104, 104B and Part 2 of the Resource Management Act 1991 (the Act), the Far North District Council **grants** land use resource consent for the following:

Council Reference:	2240061-RMALUC
Applicant:	Northland Regional Council
Property Address:	Long Beach Road, Russell 0202
Legal Description:	Sec 4 SO 364056
Description of Application:	To construct and install 21 Tsunami Sirens across the Far North District to Support Northland Civil Defence (CDEM) response to Tsunami Risk. Consent is required for a Discretionary Activity.

Conditions

Pursuant to sections 108 of the Act, this consent is granted subject to the following conditions:

General Conditions

1. The activity shall be carried out in accordance with the approved plans prepared by Northland Regional Council, referenced Northland Tsunami Siren Network, drawings numbered 230702/02 – 230703/15 dated 07/23, and attached to this consent with the Council's "Approved Stamp" affixed to them.

Pre Construction Conditions

2. Prior to the commencement of any physical work authorised under this consent, a Construction Management Plan ("CMP") shall be provided to Council's Engineer, or their delegated representative for certification.

3. Prior to the commencement of any physical work within the Council's road reserve, the Consent Holder shall submit a Corridor Access Request ("CAR") application, including a Traffic Management Plan/s, to the Northern Transportation Alliance Corridor Access Manager or delegated representative and obtain approval.

4. At least 30 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall submit a Temporary Traffic Management Plan (TMP) to the NTA Corridor Access Specialist for certification of the plan.

Earthworks conditions

5. The consent holder shall ensure stormwater diversion and silt control measures are in place in accordance with the Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) prior to the commencement of earthworks. Photographic evidence of ESP measures being in place are to be emailed to FNDC Team Leader Monitoring and Compliance RCmonitoring@fndc.govt.nz referencing 2240061 – RMALUC.

6. The consent holder shall ensure that all earthwork operations are carried out in a way that reduces the risk of slope instability and soil erosion. To reduce and/or minimize any slope failures, effective mitigation measures must be constructed as needed.

Operational Conditions

7. The tsunami siren may be tested twice a year at the turn of daylight savings. Each test shall be undertaken for a maximum duration of two minutes during the daytime. Testing of the sirens shall not occur at night.

Advice Notes

Lapsing of Consent

1. *Pursuant to section 125 of the Act, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;*
   a) *The consent is given effect to; or*
   b) *An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Act.*

Right of Objection

2. *If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Act) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.*

Archaeological Sites

3. *Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information.This should be made available to all person(s) working on site.*

Reasons for the Decision

1. By way of an earlier report that is contained within the electronic file of this consent, it was determined that pursuant to sections 95A and 95B of the Act the proposed activity will not have, and is not likely to have, adverse effects on the environment that are more

than minor, there are also no affected persons and no special circumstances exist. Therefore, under delegated authority, it was determined that the application be processed without notification.

2. The application is for a Discretionary activity resource consent as such under section 104 the Council can consider all relevant matters.

3. In regard to section 104(1)(a) of the Act the actual and potential effects of the proposal will be acceptable as:
   a. The permitted baseline is not relevant in this instance.
   b. The receiving environment is as described in Section 3 of the notification assessment. There are no known granted but unimplemented consents of relevance to the application.
   c. Access and traffic effects are less than minor as construction works will be short in duration and the safe operation of the roading network will be maintained during the works.
   d. Adverse effects associated with landscape character and visual amenity values are less than minor due to the small footprint of the structures and that they will not result in domination, overshadowing or loss of privacy effects.
   e. Overall, adverse effects associated with aural amenity values from construction the sirens are considered to be less than minor. However, adverse effects associated with aural amenity values from the operation of the sirens are considered to be minor given the testing proposed.
   f. Effects on Cultural and Archaeological Values are less than minor
   g. The proposal will also result in positive effects, including:
      - Provide for the safety for coastal communities across the Far North District;
      - Improve civil defence and emergency management practices within the District; and
      - The proposal will ensure Te Taitokerau Northland is in line with NEMA standards and best practice (which current sirens do not achieve.

4. In regard to section 104(1)(ab) of the Act there are no offsetting or environmental compensation measures proposed or agreed to by the applicant for the activity.

5. In regard to section 104(1)(b) of the Act the following statutory documents are considered to be relevant to the application:
   a. New Zealand Coastal Policy Statement 2011,
   b. Northland Regional Policy Statement 2016,
   c. Operative Far North District Plan 2009,
   d. Proposed Far North District Plan 2022

   The activity is consistent with these documents for the reasons set out in pages 23- 25 of the Assessment of Environmental Effects submitted with the application. In particular:

   New Zealand Coastal Policy Statement 2011 (NZCPS)

   Of particular relevance to this proposal are the NZCPS objectives 2, 4, 6 and policies 6, 13, 18, 19, 24 and 25. The following comments are made in regards to the relevant objectives and policies:

- The sirens are predominately not identified as an outstanding feature or landscape, and it has been established that and adverse effects on natural character will be less than minor.
- The proposed activity does not restrict public access in any way.
- The proposal is considered appropriate and have a functional and operational need to be located within the coastal environment for the reasons discussed throughout the assessment provided as part of this application.
- The tsunami sirens are a method that will mitigate coastal hazards such as tsunami by alerting the community and to ensure their safety.

For the reasons noted above, it is considered that the proposal is aligned with the outcomes sought by the NZCPS.

Northland Regional Policy Statement 2016 (RPS)

Of particular relevance to this proposal are RPS objectives 3.7, 3.8, 3.13 and policy 4.8.

In regards to those objectives and policies, the following is noted:

- The proposal is considered appropriate and a functional need for the reasons discussed throughout the assessment provided as part of this application.
- The tsunami sirens are a method that will mitigate coastal hazards such as tsunami by alerting the community and to ensure their safety.

On this basis, the proposal is considered to be consistent with outcomes of the RPS.

Operative Far North District Plan

The proposal results in tsunami siren infrastructure being located within the General Coastal, Conservation, Coastal Living, Recreational Activities, Industrial, Residential, Coastal Residential, and Rural Living Zones.

Overall, it is considered that there is a gap within the ODP with respect to CDEM service activities and emergency services. Tsunami siren infrastructure is considered a fairly unique and uncommon in this context but are nonetheless important and required support the regions civil defence and emergency management response to the risk of tsunami hazards within the region.

Lifesaving infrastructure supports and provides for the health, safety and wellbeing of the communities of the Far North while appropriately managing effects on the localised and wider environment. While the ODP does not specifically provide for the proposed tsunami siren activity, it is considered that the proposal is not contrary to the anticipated outcomes of the ODP.

Proposed Far North District Plan

The proposal results in tsunami siren infrastructure being located within the Rural Production, Natural open space, Rural Lifestyle, Sport and Active Recreation, Settlement, Open Space, General Residential, and Rural Residential Zones. The proposal also interreacts with overlays that include the Coastal Environment, Coastal Flood Zone 1, 2 and 3, Notable Tree (36 and 141), River Flood Hazard 10- and 100-year ARI Event, Heritage Area – Part A – The Strand and Part C – Christ Church, High Natural Character (204 and 170), Treaty Settlement Area of Interest, Statutory Acknowledgement Area, Rāwene Heritage Area – Part B and Part A, and pedestrian frontage.

Overall, it is considered that there is a gap within the PDP with respect to CDEM service activities, which are considered fairly unique and uncommon in this context but are nonetheless important and required support the Regions civil defence and emergency management response. The proposed tsunami siren infrastructure is pivotal to the Region's resilience plan for managing and addressing the risk of tsunami hazards within Te Taitokerau. Further, the proposal is considered to support the overall health, safety and wellbeing of the Region's communities.

On this basis, the proposal is not considered to be contrary to, but is not entirely consistent with the anticipated outcomes of the PDP.

Weighting

For this resource consent application, the relevant provisions of both an operative and any proposed plan must be considered. Weighting is relevant if different outcomes arise from assessments of objectives and policies under both the operative and proposed plans.

As the outcomes sought are the same under the operative and the proposed plan frameworks, no weighting is necessary.

6. In regard to section 104(1)(c) of the Act there are no other matters relevant to the application.
7. Based on the assessment above the activity will be consistent with Part 2 of the Act.

   The activity will avoid, remedy or mitigate any potential adverse effects on the environment while providing for the sustainable management of natural and physical resources and is therefore in keeping with the Purpose and Principles of the Act. There are no matters under section 6 that are relevant to the application. The proposal is an efficient use and development of the sites that will maintain existing amenity values without compromising the quality of the environment. The activity is not considered to raise any issues in regard to Te Tiriti o Waitangi.
8. Overall, for the reasons above it is appropriate for consent to be granted subject to the imposed conditions.

Approval

This resource consent has been prepared by Elisha Oldridge, Senior Planner. I have reviewed this and the associated information (including the application and electronic file material) and for the reasons and subject to the conditions above, and under delegated authority, grant this resource consent.

Patricia (Trish) Routley Date: 18/12/2023

Manager Resource Consents