GEOTECHNICS

Ground Investigation Services

Geotechnics is New Zealand’s premier provider of end-to-end ground investigation services for over 60 years.

www.geotechnics.co.nz

About us

Geotechnics has over 50+ years of experience across Oceania. Geotechnics delivers end-to-end ground investigation(E2E GI) services for the construction and extractive industries.

Our in-house team scopes, costs, and manages investigations across infrastructure, building, and energy sectors - providing reliable data to support geotechnical and environmental decisions. This enables your projects to advance by :

- delivering investigation scoping;
- planning, obtaining permits, engaging subcontractors (e.g. traffic management);
- Intrusive and non-intrusive investigations;
- Logging;
- Instrumentation and Monitoring; and
- Factual reporting.

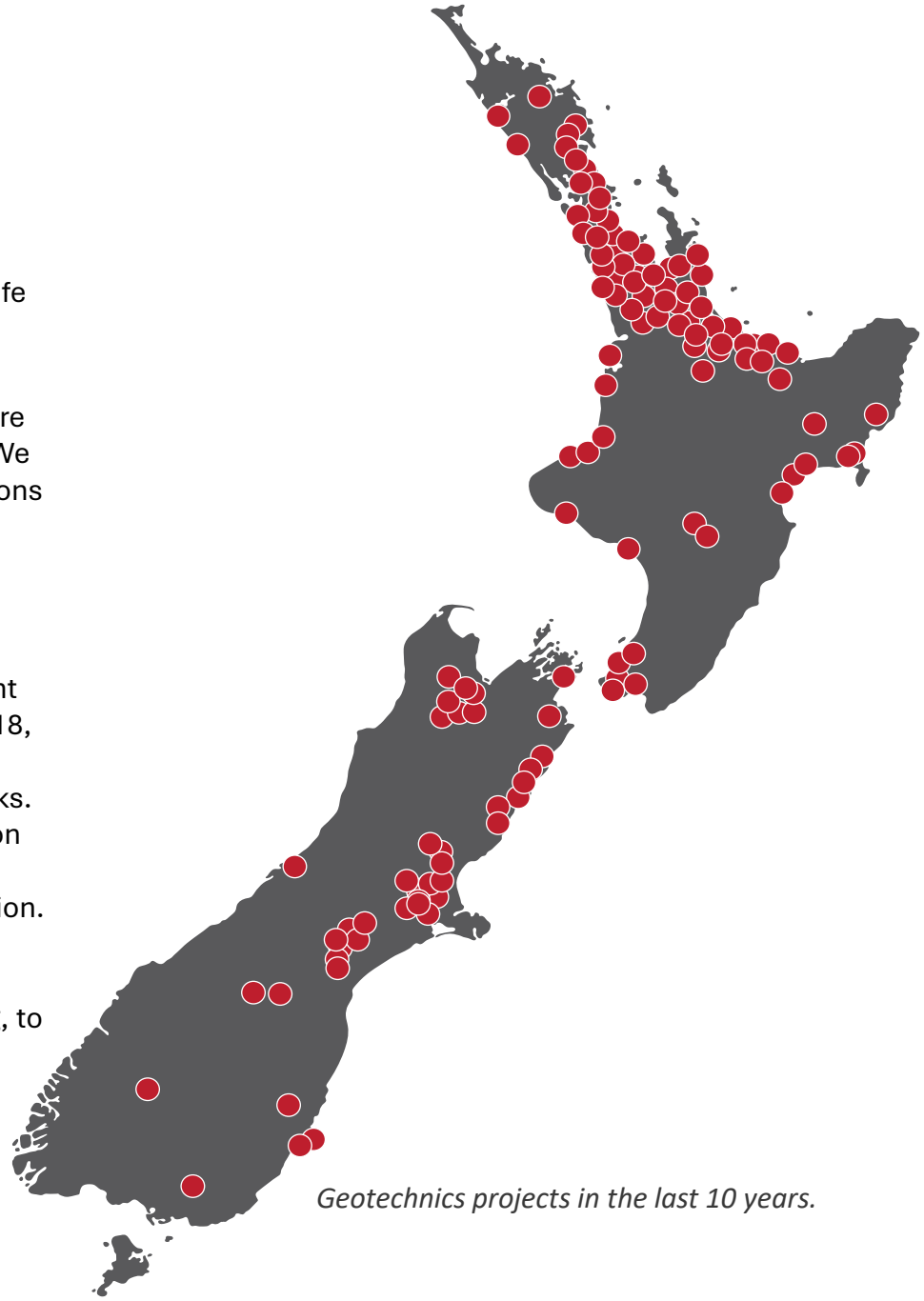
We optimise timelines and budgets without compromising on quality, and collaborate with trusted partners when specialist input is needed. Our growing digital capabilities enable seamless, machine-readable data delivery to clients to provide added value and efficiency. Our E2E projects can range from a simple single lot to major infrastructure projects and every site inbetween.

Compliance

Geotechnics is committed to providing a safe and healthy environment for our workforce, clients, site visitors, and the public.

Health, Safety, and Wellbeing (HSW) is a core value embedded in our company strategy. We are dedicated to exceeding client expectations by upholding the highest HSW standards, aligning with regulatory frameworks, international standards, and industry best practices.

Our certified Health and Safety Management System (HSMS), aligned with ISO 45001:2018, integrates robust policies, procedures, and controls to systematically manage HSW risks. We promote a strong safety culture based on shared responsibility at all levels, including individuals, teams, and the wider organisation. Continuous improvement is central to our approach, and we actively learn from every experience, whether positive or challenging, to strengthen our practices and outcomes.



Geotechnics projects in the last 10 years.

Project Management System

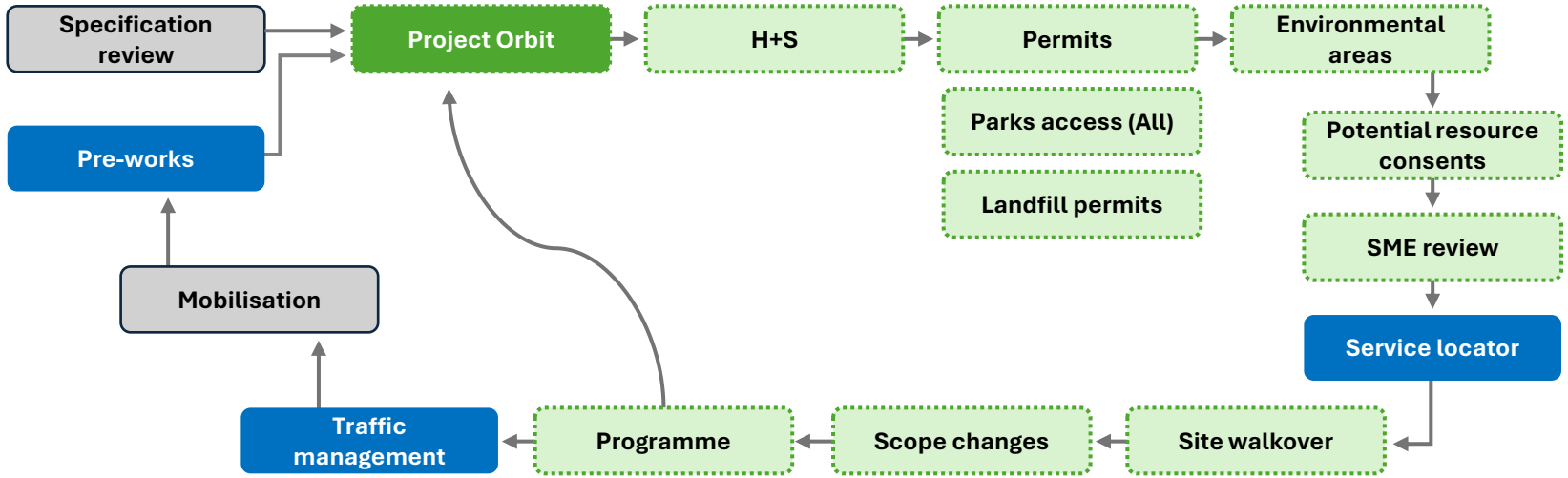
ProjectOrbit as our in-house central sharepoint site, to manage project data, streamline communication, and track progress.

Key benefits include real-time updates, centralised records, automated tracking of RFIs and seamless document integration. This has improved transparency while saving time and resources.

Before mobilisation, we prioritise our work with thorough planning and risk mitigation to ensure a smooth transition to works. Key activities include reviewing specifications, assessing risks, and confirming regulatory compliance, permits, and approvals.

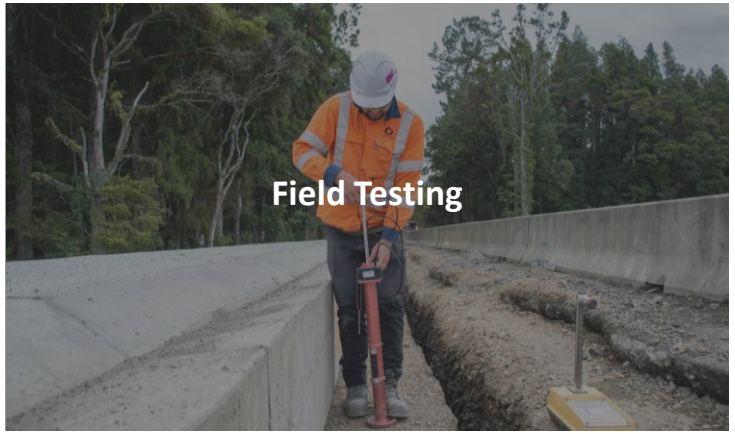
Once all systems are in place, we mobilise the field team and begin investigations, ensuring efficient and well-coordinated delivery.

Ground Investigation process



Terrier Rig

Field Investigations and Testing



Field Investigations

Geotechnics has over 50 qualified staff across New Zealand, experienced in all aspects of ground investigations. Our services include stakeholder engagement, Traffic Management processes and Planss for access, site works (e.g. **boreholes, CPTs, seismic CPT's, surface geophysics, augers, trial pits, sampling**) ensuring all investigations meet regulatory requirements.

We operate a fleet of **CPT** and **Terrier rigs** for varied ground conditions, and then collaborate with trusted partners for deep drilling, down hole geophysics, complex access, seismic testing, over water barge or jack-up and helicopter-supported work.

Materials are logged using **NZGS (2005)** standards and international rock mass classification systems (RMR, Q-System, GSI).

Field samples are collected for laboratory testing, with geological, geotechnical, geo-environmental or hydrogeological. Post works we install monitoring instruments specifications.

Core samples can be stored at our facilities for technical review and validation.

Deliverables are available in .ags, .xlsx, and certified .pdf formats.

Field Testing

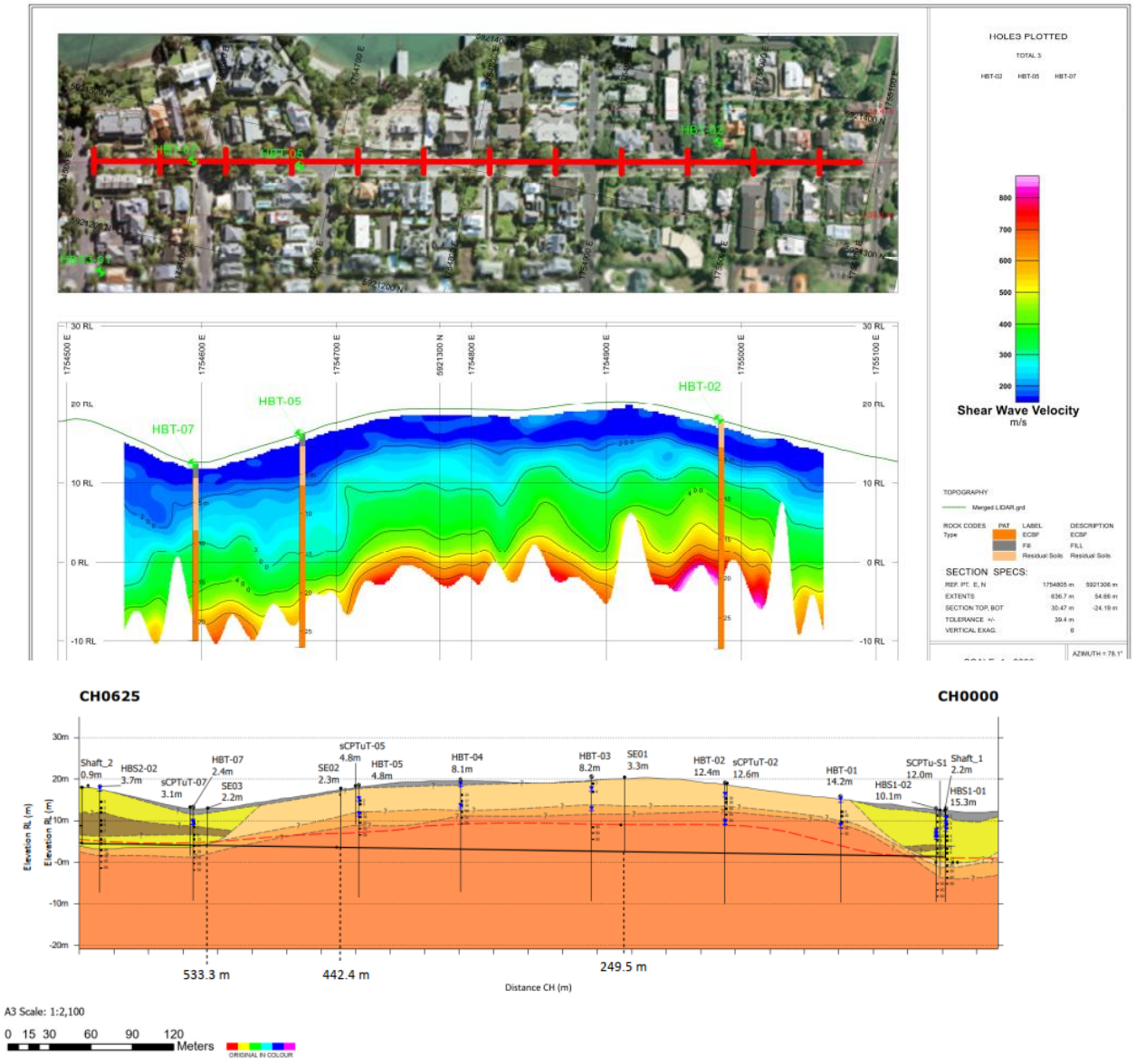
In-situ testing (such as **permeability/Lugeon, packer**, and **pressure meter tests**) supervised by our subject matter experts to verify field data and then validate against lab results when required.

Surface Geophysics

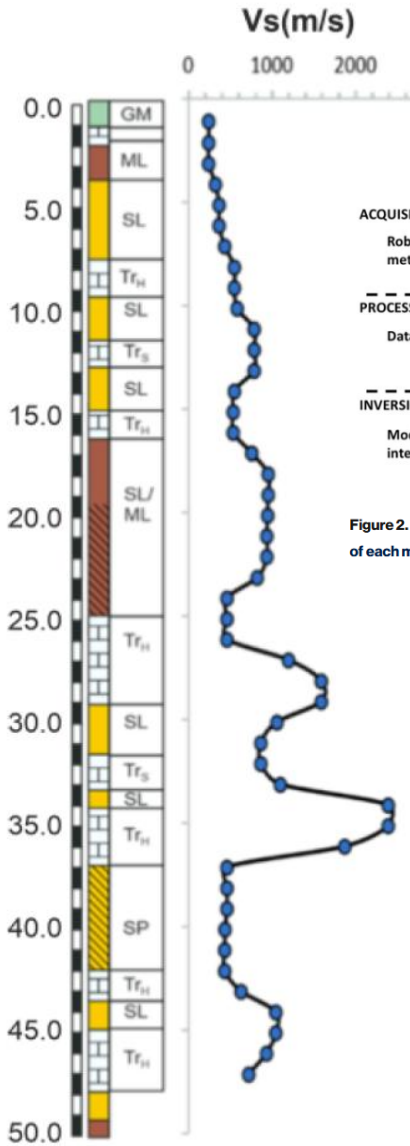
We utilise surface geophysical techniques to optimise the ground investigations and understand the changes in ground profile from soil into rock, especially through estuaries and alluvial materials.

- Accurate shear-wave velocity (Vs) measurement for precise VS_{30} calculations. High-resolution depth control exceeding surface-based methods
- Reduced surface noise interference via downhole sensors
- Clear identification of Vs contrasts at soil/rock boundaries
- Robust input for seismic hazard analysis, including site classification, ground response modelling, and earthquake engineering

Surface Geophysics - MASW



Vs30



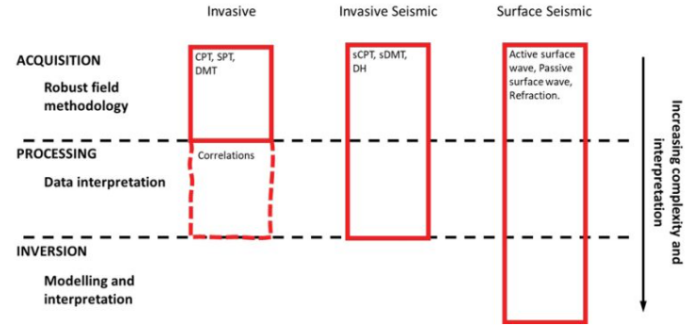


Figure 2. Summary of typical site investigation methods and the key steps involved in the application of each method. Some abbreviations are discussed in the body of the text.

National Seismic Hazard Model has changed the approach to seismic site classification in New Zealand, with the time-averaged shear wave velocity over the top 30 m of the subsurface profile (V_{S30}) at a site now being a key site classification metric.

Material Testing, Instrumentation and Reporting

Material testing

Adit is our geotechnical sample management portal, used to register samples and schedule internal or external testing. Managed internally, it provides full visibility of testing progress via ProjectOrbit.

Key benefits:

- Only integrated geotechnical sample platform in NZ
- Real-time status tracking
- Exportable .ags and .xlsx files
- Centralised, future-proofed test data
- External testing can be scheduled
- Unified logging and testing database with ADIT + ProjectOrbit

AGS Association of Geotechnical & Geoenvironmental Specialists

Data capture and instrumentation

Geotechnics is transitioning from manual field monitoring to telemetry for groundwater levels, contaminants, water quality, and surface water turbidity. As part of our E2E service data is collected via **Cirro**, our centralised monitoring platform, or through bespoke systems developed by our data and digital innovation teams and accessed through ProjectOrbit.

Cirro connects to most sensors, some examples include:

- Tilt Meter
- Profilometer
- Vibrating wire piezometer
- Inclinometer
- Flow meter
- Barometer temperature
- Water level transducer
- Laser distance gauge
- Magnetic extensometers
- Ultrasonic level meter
- Shape accel array (SAA)

Reporting

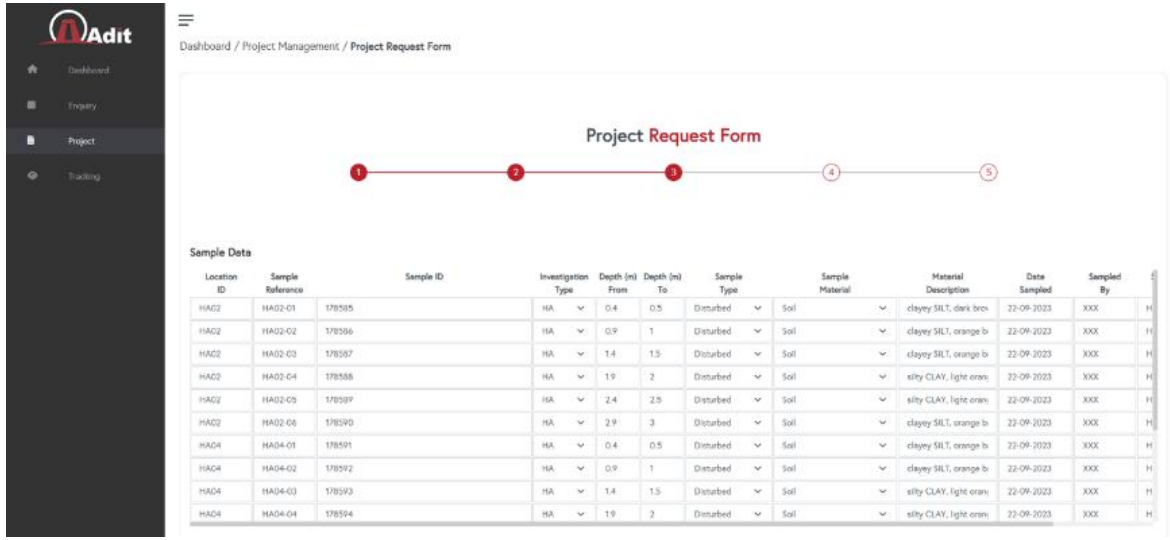
The E2E GI includes a standard factual report which will contain:

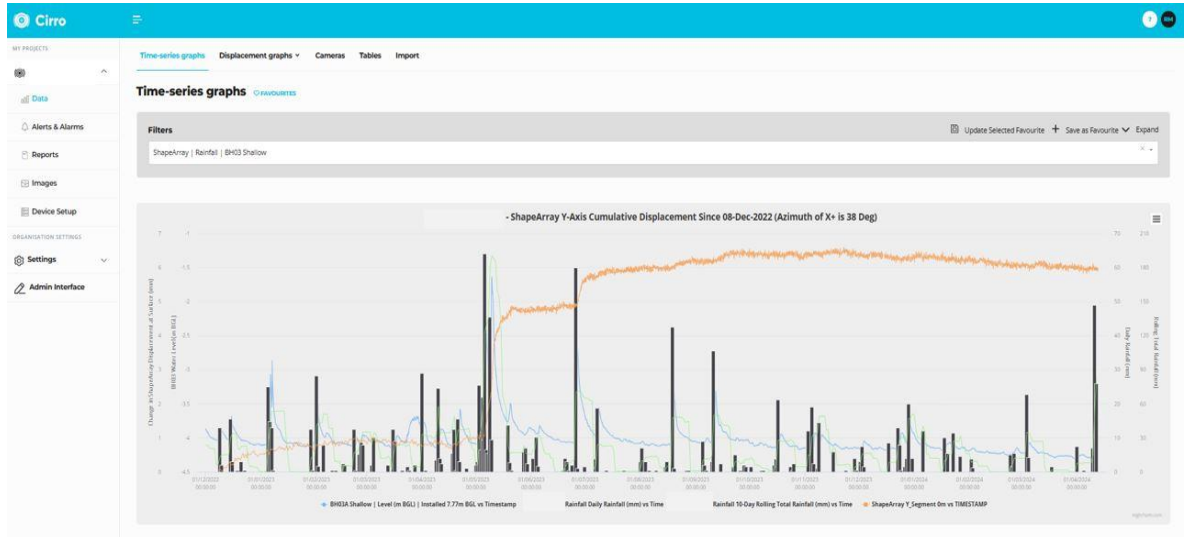
- Introduction, scope of works and published geology, works undertaken, installations, testing.
- Site plans (Appendix A). Files include .dwg/dxf, .shp
- Field Data from Investigations undertaken, including logs, CPT files, geophysical reports. Files include .xlsx and .ags (Appendix B).
- Instrumentation and monitoring (Appendix C). **Cirro** web portal
- Field testing (Appendix D).
- Sampling and material testing Files include .xlsx and .ags (Appendix E).

Cirro installation

Adit

Cirro


Adit
Dashboard
Enquiry
Project
Tracking
Dashboard / Project Management / Project Request Form
Project Request Form
1
2
3
4
5
Sample Data
Location ID
Sample Reference
Sample ID
Investigation Type
Depth (m) From
Depth (m) To
Sample Type
Sample Material
Material Description
Date Sampled
Sampled By
HA02 HA02-01 178585 HA 0.4 0.5 Disturbed Soil clayey SILT, dark brow 22-09-2023 XXX
HA02 HA02-02 178586 HA 0.9 1 Disturbed Soil clayey SILT, orange b 22-09-2023 XXX
HA02 HA02-03 178587 HA 1.4 1.5 Disturbed Soil clayey SILT, orange b 22-09-2023 XXX
HA02 HA02-04 178588 HA 1.9 2 Disturbed Soil silty CLAY, light oran 22-09-2023 XXX
HA02 HA02-05 178589 HA 2.4 2.5 Disturbed Soil silty CLAY, light oran 22-09-2023 XXX
HA02 HA02-06 178590 HA 2.9 3 Disturbed Soil clayey SILT, orange b 22-09-2023 XXX
HA04 HA04-01 178591 HA 0.4 0.5 Disturbed Soil clayey SILT, orange b 22-09-2023 XXX
HA04 HA04-02 178592 HA 0.9 1 Disturbed Soil clayey SILT, orange b 22-09-2023 XXX
HA04 HA04-03 178593 HA 1.4 1.5 Disturbed Soil silty CLAY, light oran 22-09-2023 XXX
HA04 HA04-04 178594 HA 1.9 2 Disturbed Soil silty CLAY, light oran 22-09-2023 XXX


Cirro
Time-series graphs
Displacement graphs
Cameras
Tables
Import
Data
Alerts & Alarms
Reports
Images
Device Setup
Settings
Admin Interface
Time-series graphs
Filters
ShapeArray | Rainfall | BH03 Shallow
- ShapeArray Y-Axis Cumulative Displacement Since 08-Dec-2022 (Azimuth of X+ is 38 Deg)

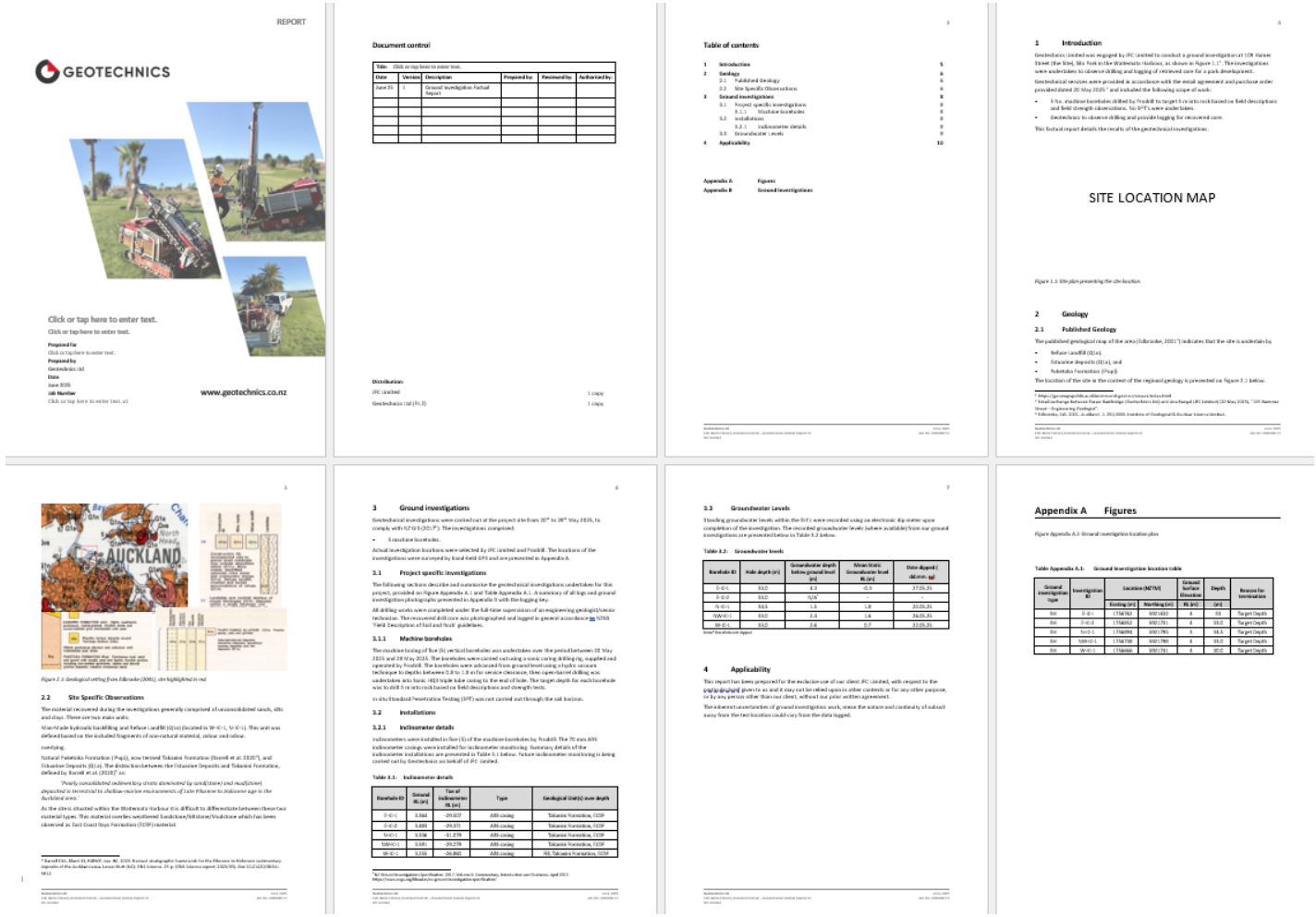

Laboratory testing


Laboratory testing

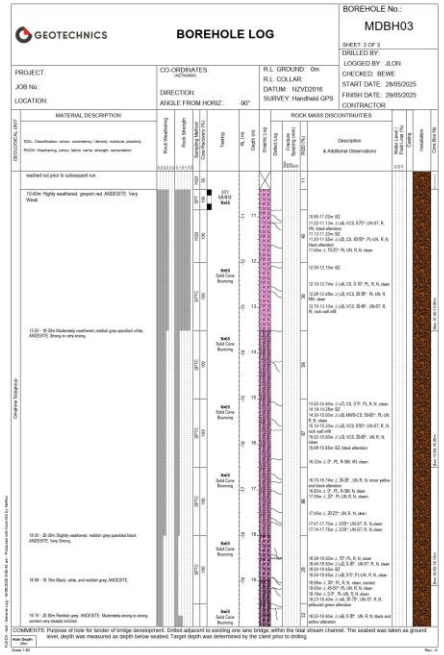

Geotechnical & environmental sensors

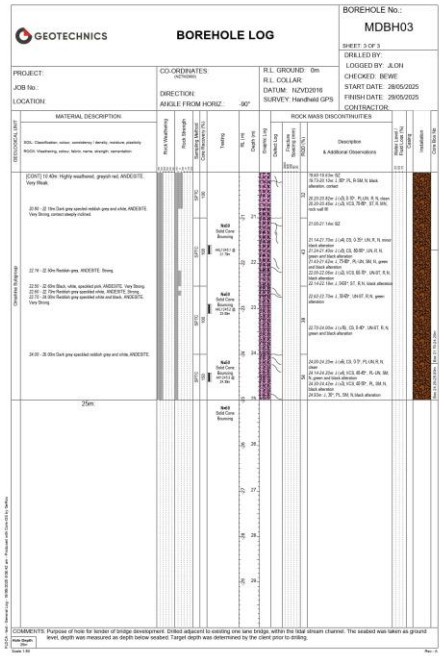

CCTV & thermal imaging

Reporting



Example factual report





Graphical logs

Core photographs

Lab testing photographs

Get in touch with one of our experts today

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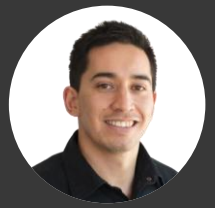

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