



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.

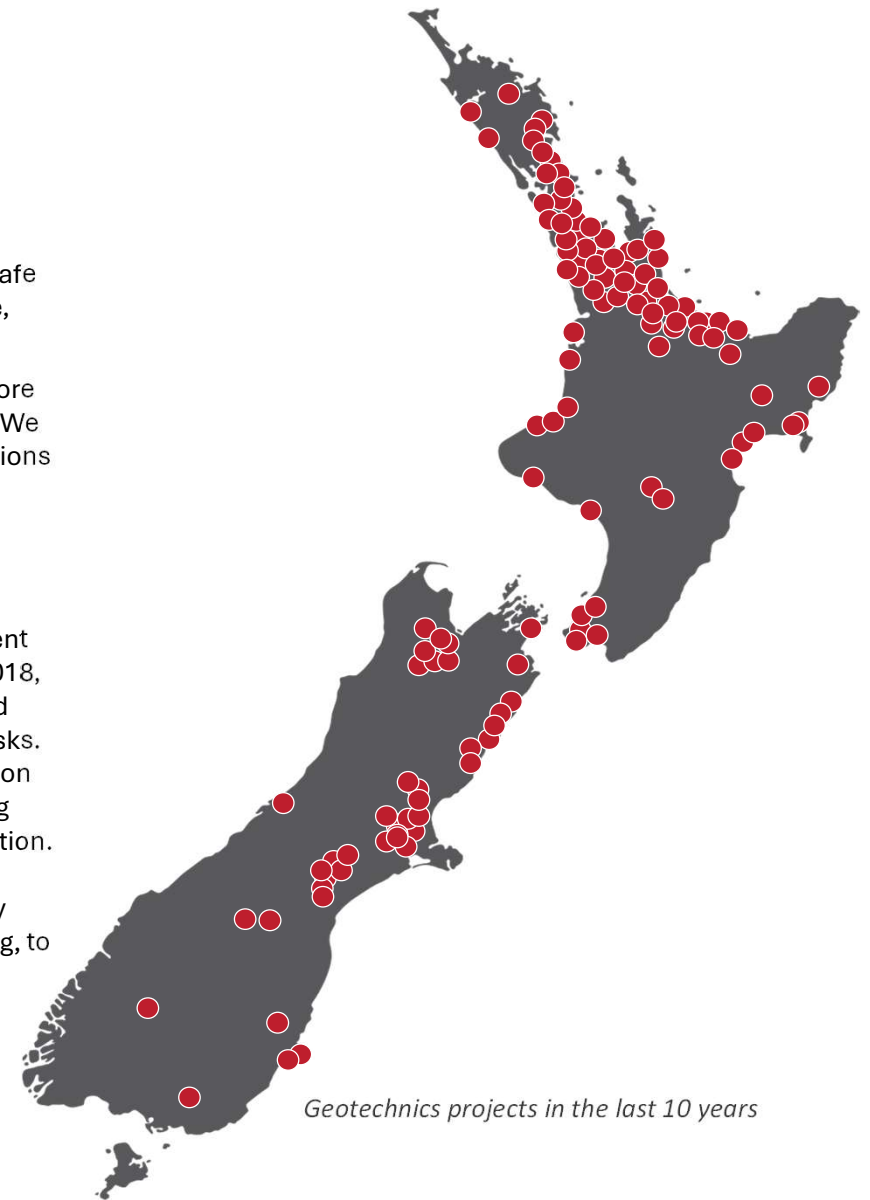
E2E costs range from the simple single lot (low cost) to major infrastructure projects where costs enter the millions.

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.





Project Management System

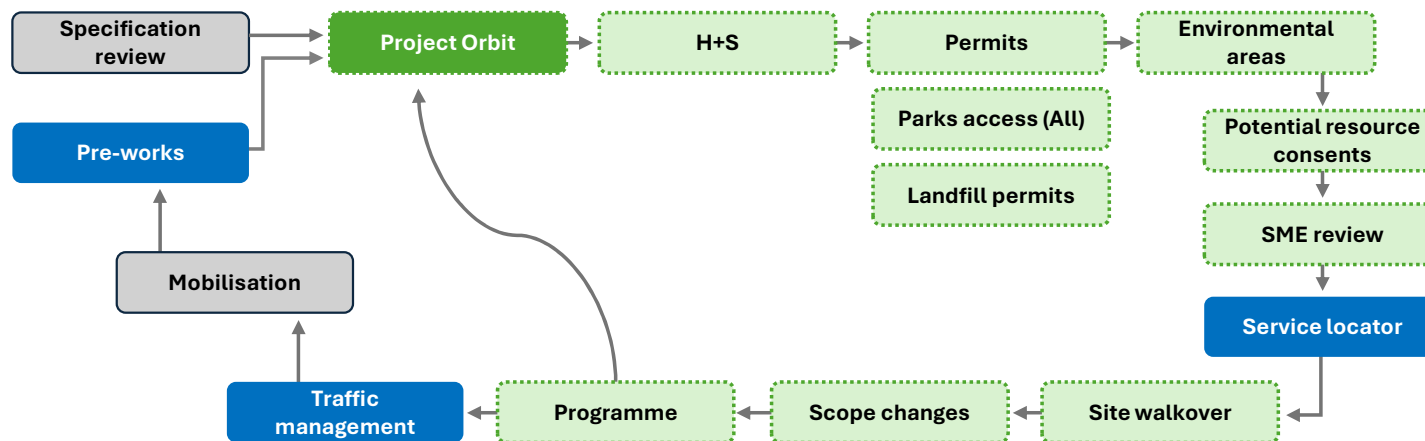
ProjectOrbit as our in-house central sharepoint site, to manage project data, streamline communication, and track progress.

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



Field Investigations and Testing



Ground Investigations

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 Plans 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.



Field Testing

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 Geophysical Testing

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

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



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
- Inclinator
- 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



- Dashboard
- Project
- Tracking

Dashboard / Project Management / Project Request Form

Project Request Form

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
HAD2	HAD2-01	178585	HA	0.4	0.5	Disturbed	Soil	clayey SILT, dark brown	22-09-2023	XXX
HAD2	HAD2-02	178586	HA	0.8	1	Disturbed	Soil	clayey SILT, orange br	22-09-2023	XXX
HAD2	HAD2-03	178587	HA	1.4	1.5	Disturbed	Soil	clayey SILT, orange br	22-09-2023	XXX
HAD2	HAD2-04	178588	HA	1.9	2	Disturbed	Soil	silty CLAY, light cream	22-09-2023	XXX
HAD2	HAD2-05	178597	HA	2.4	2.5	Disturbed	Soil	silty CLAY, light cream	22-09-2023	XXX
HAD2	HAD2-06	178590	HA	2.9	3	Disturbed	Soil	clayey SILT, orange br	22-09-2023	XXX
HAD4	HAD4-01	178591	HA	0.4	0.5	Disturbed	Soil	clayey SILT, orange br	22-09-2023	XXX
HAD4	HAD4-02	178592	HA	0.9	1	Disturbed	Soil	clayey SILT, orange br	22-09-2023	XXX
HAD4	HAD4-03	178593	HA	1.4	1.5	Disturbed	Soil	silty CLAY, light cream	22-09-2023	XXX
HAD4	HAD4-04	178594	HA	1.9	2	Disturbed	Soil	silty CLAY, light cream	22-09-2023	XXX

- Time-series graphs
- Displacement graphs
- Cameras
- Tables
- Import

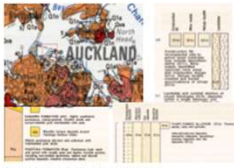
Time-series graphs

Filters: ShapeArray | Barbit | BH03 Shallow

Update Selected Favourite Save as Favourite Expand



Reporting



2.2 Site Specific Observations

The material measured for the investigations generally comprised of unconsolidated sands, silts and clays. There are two main units:

Most of the hydraulic conductivity and surface roughness (α) occurred in the α -1, α -2 and α -3 and was defined based on the isolated fragments of unconsolidated material, coarse and ultra-coarse.

comping:

National Technical University (NTU), now known Technical University (Hanoi) at 11101, and National University (Hanoi) at 11101, Hanoi, Vietnam. (The following information is for the National University of Hanoi, Vietnam.)

Positively correlated sedimentary strata dominated by sandstone and mudstone deposited in a tectonically stable marine environment of late Pleistocene to Holocene age in the building area.

⁷ Kavalali, *State vs. Military*, no. 30 (2015). Revised draft report, framework for the process to determine satisfactory operation of the intelligence service (4 Oct. 2015), <http://www.ohchr.org/EN/Issues/Intelligence/Pages/201509.aspx>, last visited 12 Feb. 2016.

Example factual report

REPORT

Document control

[illegible]

Classification

© 2001 JPL Limited
 See backmatter, Table 17.10

Table of contents

1	Introduction
2	Geology
3	General knowledge
4	Geography
5	History
6	Science
7	Mathematics
8	English
9	Art
10	Physical Education
11	Music
12	Health
13	Religion
14	Social Studies
15	Foreign Languages
16	Electives
17	Practical Training
18	Research
19	Interdisciplinary Studies
20	Capstone Project

Appendix A 9

Appendix B Ground Investigation

1 Introduction

Two technical studies were engaged by IBC (intended to conduct a general investigation of 1200 cases) [Fig. 1(a)]. The first in the *Waterside* collection, as shown in Figure 1(a),¹ The investigation was undertaken to observe clothing and tagging of one person case for a park disappearance. One technical service was provided in accordance with the initial agreement and position with period dated 20 May 2014² and included the following scope of work:

- A 1 day, machine investigation at Rediff by Fredrik to target 12 or more calls based on field description and field strength observations, to 99%+ upon activation;
- One technician to observe clothing and provide tagging for one person case;

The detailed report details the results of the genetic analysis and investigations.

SITE LOCATION MAP

Figure 4.3: The plan presenting the distribution

2 Geology

2.1 Published Geology

The published geological map of the area (Jokinen, 1991) indicates that the site is underlain by:

- Intra- and/or interglacial (I/G),
- Glacial deposits (G/G), and
- Substrata Formation (S/G).

The location of the site in the context of the regional geology is presented on Figure 3.2 below.

Appendix A Figures

General investigation type	Investigation ID	Location (NUTS)		General Investigation ID	Depth	Relative Gas Concentration
		Building ID	Building ID			
Site	2-0-1	2754762	2701433	0	10	Target Depth
Site	2-0-0	2754802	2701791	0	10-20	Target Depth
Site	2-0-3	2754804	2701790	0	10-5	Target Depth
Site	2-0-0-1	2754780	2701780	0	10-20	Target Depth
Site	2-0-0-1-1	2754780	2701780	0	10-20	Target Depth

[illegible]

GEOTECHNICS

BOREHOLE LOG

BOREHOLE No.: **MDH03**

PROJECT:	CO BORNEO	RL GROUND: BN	LOGGERS: JH
APP No:	DL COLAN	CHECKED: BWE	DATE: 28/05/2023
LOCATION:	DIRECTION: NORTH	DATE: 28/05/2023	TIME: 08:00
	ANGLE FROM HORZ: 30°	SURVEY: Handheld GPS	FRISKI: GAT 28/05/2023

MATERIAL DESCRIPTION		ROCK MASS DISCONTINUITIES	
Interval	Description	Orientation	Additional Observations
Interval	Interval	Interval	Interval
0.00 - 0.10	Very hard, massive, greyish and white, ANDESITE, very blocky.	0.00 - 0.10	0.00 - 0.10
0.10 - 0.20	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.10 - 0.20	0.10 - 0.20
0.20 - 0.30	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.20 - 0.30	0.20 - 0.30
0.30 - 0.40	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.30 - 0.40	0.30 - 0.40
0.40 - 0.50	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.40 - 0.50	0.40 - 0.50
0.50 - 0.60	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.50 - 0.60	0.50 - 0.60
0.60 - 0.70	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.60 - 0.70	0.60 - 0.70
0.70 - 0.80	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.70 - 0.80	0.70 - 0.80
0.80 - 0.90	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.80 - 0.90	0.80 - 0.90
0.90 - 1.00	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	0.90 - 1.00	0.90 - 1.00
1.00 - 1.10	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.00 - 1.10	1.00 - 1.10
1.10 - 1.20	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.10 - 1.20	1.10 - 1.20
1.20 - 1.30	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.20 - 1.30	1.20 - 1.30
1.30 - 1.40	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.30 - 1.40	1.30 - 1.40
1.40 - 1.50	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.40 - 1.50	1.40 - 1.50
1.50 - 1.60	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.50 - 1.60	1.50 - 1.60
1.60 - 1.70	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.60 - 1.70	1.60 - 1.70
1.70 - 1.80	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.70 - 1.80	1.70 - 1.80
1.80 - 1.90	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.80 - 1.90	1.80 - 1.90
1.90 - 2.00	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	1.90 - 2.00	1.90 - 2.00
2.00 - 2.10	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.00 - 2.10	2.00 - 2.10
2.10 - 2.20	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.10 - 2.20	2.10 - 2.20
2.20 - 2.30	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.20 - 2.30	2.20 - 2.30
2.30 - 2.40	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.30 - 2.40	2.30 - 2.40
2.40 - 2.50	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.40 - 2.50	2.40 - 2.50
2.50 - 2.60	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.50 - 2.60	2.50 - 2.60
2.60 - 2.70	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.60 - 2.70	2.60 - 2.70
2.70 - 2.80	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.70 - 2.80	2.70 - 2.80
2.80 - 2.90	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.80 - 2.90	2.80 - 2.90
2.90 - 3.00	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	2.90 - 3.00	2.90 - 3.00
3.00 - 3.10	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.00 - 3.10	3.00 - 3.10
3.10 - 3.20	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.10 - 3.20	3.10 - 3.20
3.20 - 3.30	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.20 - 3.30	3.20 - 3.30
3.30 - 3.40	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.30 - 3.40	3.30 - 3.40
3.40 - 3.50	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.40 - 3.50	3.40 - 3.50
3.50 - 3.60	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.50 - 3.60	3.50 - 3.60
3.60 - 3.70	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.60 - 3.70	3.60 - 3.70
3.70 - 3.80	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.70 - 3.80	3.70 - 3.80
3.80 - 3.90	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.80 - 3.90	3.80 - 3.90
3.90 - 4.00	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	3.90 - 4.00	3.90 - 4.00
4.00 - 4.10	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.00 - 4.10	4.00 - 4.10
4.10 - 4.20	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.10 - 4.20	4.10 - 4.20
4.20 - 4.30	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.20 - 4.30	4.20 - 4.30
4.30 - 4.40	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.30 - 4.40	4.30 - 4.40
4.40 - 4.50	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.40 - 4.50	4.40 - 4.50
4.50 - 4.60	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.50 - 4.60	4.50 - 4.60
4.60 - 4.70	Very hard, massive, greyish and white, ANDESITE, very blocky, some mineral.	4.60 - 4.7	



Core photographs



Lab testing photographs

Graphical logs

Get in touch with one of our experts today

Auckland



Anthony Gilliland
Client & Operations Manager
+6493563517
agilliland@geotechnics.co.nz



Fraser Bainbridge
Ground Investigation Project Manager
+6493522929
fbainbridge@geotechnics.co.nz

Hamilton



Liam Mullen
Hamilton Team Leader
+6478347271
lmullen@geotechnics.co.nz

Tauranga



Dave Bennetto
Tauranga Manager
+6493622045
dbennetto@geotechnics.co.nz

Wellington



Alan Benton
Operations Manager
+6448064984
abenton@geotechnics.co.nz

Nelson



Corey Papu-Gread
Christchurch Manager
+6433610303
cpapu-gread@geotechnics.co.nz

Christchurch



Jeremy Brokenshire
Senior Geotechnical Technician
+6433610311
jbrokenshire@geotechnics.co.nz

