

**BUILDING
PERFORMANCE**

New Zealand Geotechnical Database

NZGD Showcase support setting
Civil Engineering Testing Standards

Presenter: Tony Kao (MBIE)

Co-presenter: Kiran Saligame (MBIE)



MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government



New Zealand Geotechnical Database(NZGD)

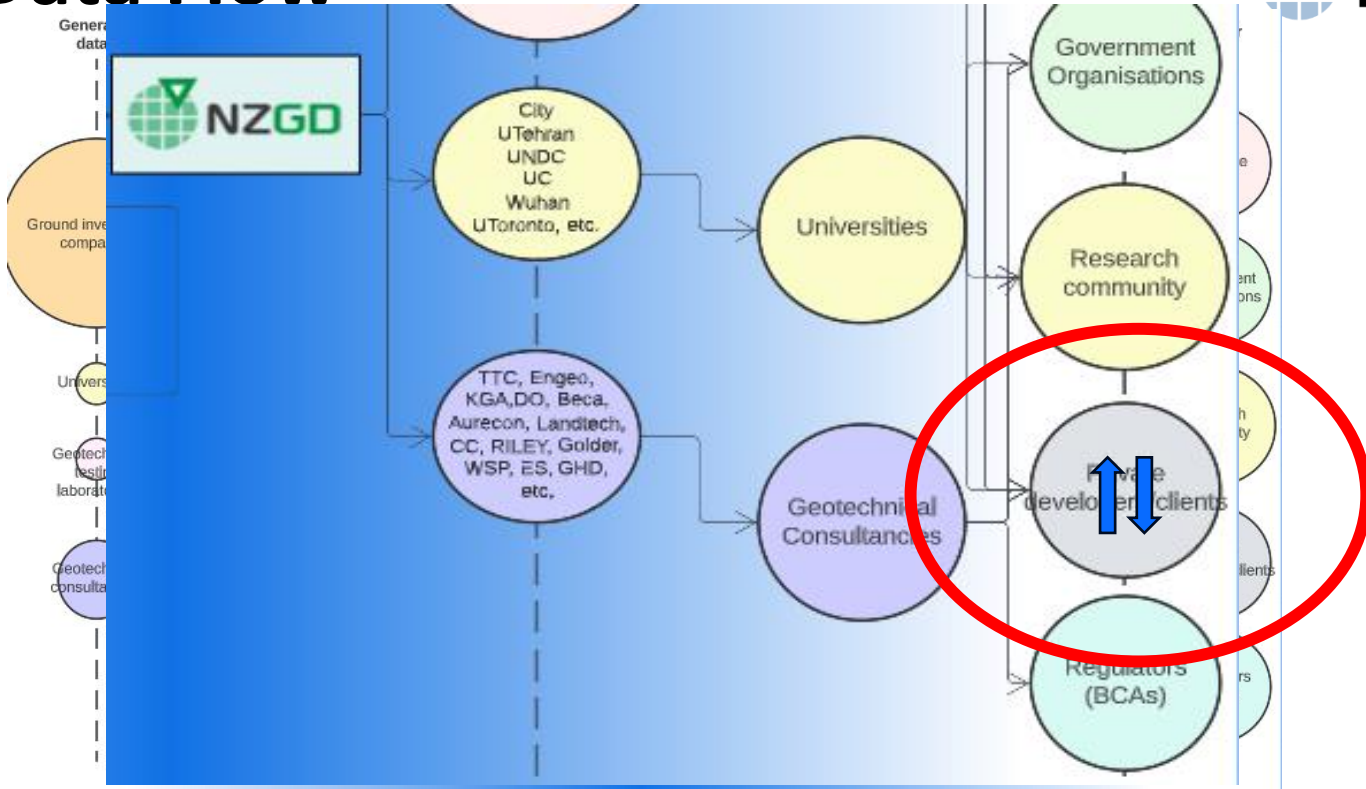
What is NZGD?



- New Zealand Geotechnical Database (formerly CGD) is a repository of crowd sourced live geotechnical related information (inclusive of laboratory testing results).
- Beca is the new supplier of NZGD and the new system went LIVE in November 2024.
- NZGD provides free access to centralised, open access and high -quality geotechnical information.
- NZGD supports development of new testing methodologies, predictive modelling and risk assessments, all of which contribute to raising civil testing standards.

NZGD Data Flow

Download Process/ Interpret End User



New System Overview

- Betl
- Nev
- Imp
- Clos
star
- Enh
info
- Betl
- Sim
- Qui



New Secure Platform on Latest Cloud Architecture

BEYON™

[SOLUTION](#) [PRICING](#) [ABOUT US](#) [RESOURCES](#)

[CONTACT US TODAY](#)

[TRY THE DEMO](#)

The background of the hero section is a dark blue and purple abstract image with glowing orange and yellow lines, suggesting a digital network or data flow.

BEYON Digital Twin
your view into better
business and a better
future

POWERED BY
DIGITAL TWIN TECHNOLOGY

WHAT IS BEYON™

BEYON™ connects complex data sources so that people can make the right decisions with confidence. A single pane of glass across all your asset information, BEYON unlocks the true value of your data, regardless of its source system – without the cost of new systems or complex integration.

Designed for stakeholders of large scale asset intensive organisations spanning various industries and sectors. From shop floor engineers to key decision



User Information for Decision Making



Lucus

Gordon

Contact Phone Number

Country

New Zealand

Region

Canterbury

Field of practice

Engineer (Structural)

Organisation

IGeotechnical Limited

About your Organisation

Local Authority

Do you work in a Building Control function?

Yes

No

Yes

Compliance

☒ I have read and I consent to the [Terms of use](#)



Browse and Search Information

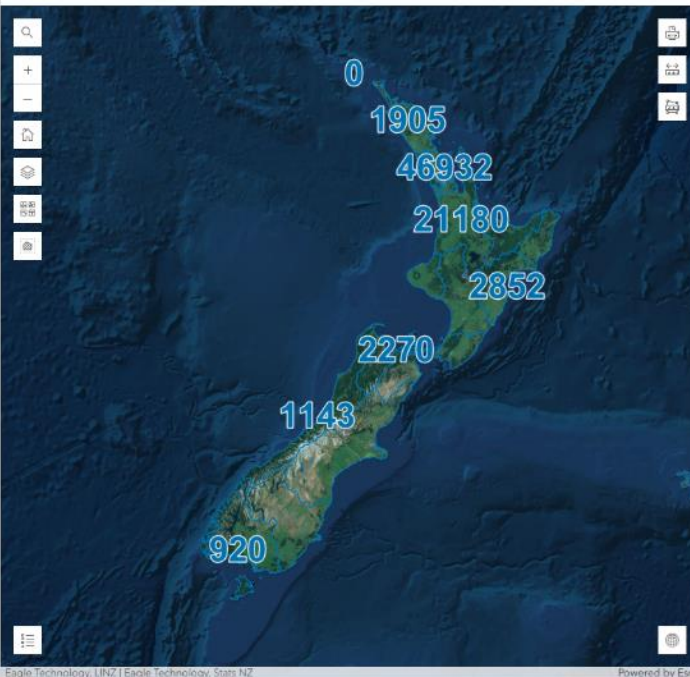
Filter ...

INVESTIGATIONS

Map

- Projects
- Create & Upload Records
- Manage Records
- My File Downloads
- Support & Info
- Reporting (MBIE Admin)

MAP



PUBLISHED INVESTIGATIONS

Advanced filtering

Search



EXPORT

COLUMNS

EXPORT ZIP

EXPORT KMZ

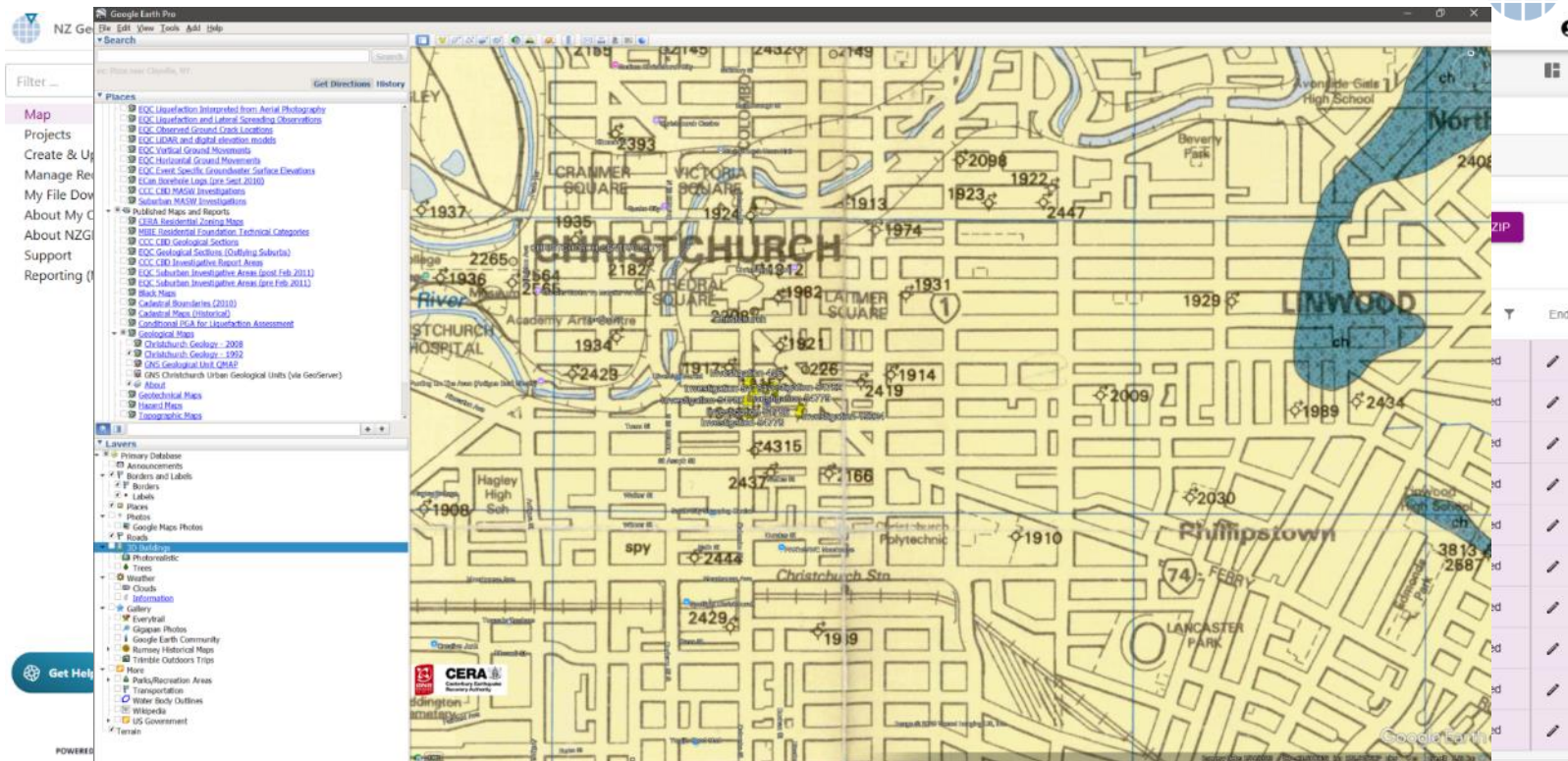
☐	NZGD ID	Project Name	Investigation ID	Status	End
☐	1	TonkinANDTaylorLtd., ...	CPT-ARN-01	Published	
☐	2	TonkinANDTaylorLtd., ...	CPT-ARN-02	Published	
☐	3	TonkinANDTaylorLtd., ...	CPT-ARN-03	Published	
☐	4	TonkinANDTaylorLtd., ...	CPT-ARN-04	Published	
☐	5	TonkinANDTaylorLtd., ...	CPT-ARN-05	Published	
☐	6	TonkinANDTaylorLtd., ...	CPT-ARN-06	Published	
☐	7	TonkinANDTaylorLtd., ...	CPT-ARN-07	Published	
☐	8	TonkinANDTaylorLtd., ...	CPT-ARN-08	Published	
☐	9	TonkinANDTaylorLtd., ...	CPT-ARN-09	Published	
☐	10	TonkinANDTaylorLtd., ...	CPT-ARN-10	Published	

Get Help

Data Discovery – Data Interpretation



Data Discovery – Data Interpretation



Data Interactions – Table Features


NZ Geotechnical Database <


NZGD

- Map
- Projects**
- Create & Upload Records
- Manage Records
- My File Downloads
- Support & Info
- Reporting (MBIE Admin)

PROJECTS

EXPORT COLUMNS ADD

☐	Organisation ↑	Project Name	Client Name	Project Location	Contractor Name	Engineering Company	Project Id	
☐	Tetrad Consulting	20200612160048.543	223 Peterborough Street Ltd			Other	Migrated 94	
☐	Tetrad Consulting	ed, 202205201123...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting	ed, 202205201127...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Limited, 202205201130...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Limited, 202205201133...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Limited, 202205201136...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Limited, 202205201138...	Citrus Living			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Ltd, 20220520120930.067	Figure & Ground			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Ltd, 20220520121220.73	Figure & Ground			Other	Migrated 10	
☐	Tetrad Consulting Ltd	Other, Tetrad Consulting Limited, 202206071128...	Ainsworth Builders			Other	Migrated 10	

1< < 1 2 3 4 5 6 7 8 9 10 ... > >>

1-10 of 5000+ items


Get Help

POWERED BY **BEYON.**

Create Data Experience



NZ Geotechnical Database <



Filter ...

- Map
- Projects
- Create & Upload Records
- Manage Records
- My File Downloads
- Support & Info
- Reporting (MBIE Admin)

MANUAL UPLOAD AGS UPLOAD

Investigation ID *

Project *

If you cannot see the project associated with this investigation in the list please go to the Projects Page and add it first.

Location Details

Location *

Coordinate System

NZGD2000 / New Zealand Transverse Mercator 2000 (EPSG: 2193)

Location By *

Location Description

Northing

Easting

CLOSE MAP



Get Help

POWERED BY BEYON.

AGS Upload



NZ Geotechnical Database

Filter ...

Map

Projects

Create & Upload Records

Manage Records

My File Downloads

About My Organisation

About NZGD

Support

NZGD

MANUAL UPLOAD

AGS UPLOAD

NZGD AGS4 Upload

The AGS reader imports data from an .ags file to automatically create a single new project, with one or more draft geotechnical records. The importer supports two options:

Option 1: A single .ags file containing a single project with one or more investigations and associated records.

This option requires the uploader to take the step of manually attaching Investigation Log files, graphical logs and other related files to the draft record before submitting for publishing

Option 2: A single .zip file in the prescribed folder structure, containing both the .ags file and all associated files. Referenced files (graphical logs and raw files) in the AGS FILE_FSET group will be processed and attached to the relevant draft record on creation.

On Successful Processing:

A row is added to the results table below with status "Completed", and a hyperlink to the NZGD project which will be in a draft state ready for review prior to submission. You will also receive an email confirming successful processing of the import.

On Unsuccessful Processing:

A row is added to the results table below with status "Failed", indicating that the system determines the AGS file is not AGS4 compliant or has invalid data compared to the AGS Code Reference file. You will receive an email confirming the import failure and listing the error messages for your review. You will need to correct your file and resubmit for processing.

You can learn more about the AGS NZ Data Standard [here](#).

NEW UPLOAD (AGS)

Project	File Name	Created By	Validation Errors	Status
There is no data available				

< > 1-0 of 0 items

AGS Upload Resources

File

Type

PREVIEW

NZGD%20AGS%20Upload%20Manual.pdf

Page 1 Of 2 125%

NZGD AGS Upload Manual

Background

The New Zealand Geotechnical Database (NZGD) was established to enable storing of geotechnical information and data. As the database grows, it will become an invaluable resource for geotechnical practitioners to deepen their understanding of the materials they work with. However, to fully utilise the potential, the data must be in an electronic format which is readily accessible.

In Britain, the Association of Geotechnical & Geoenvironmental Specialists (AGS) have developed a protocol for the transfer and transmittal of electronic geotechnical data, this standard consists of .ags files which are specifically formatted text files adhering to a specific schema. The NZGD is able to accept these files as an alternative to manually uploaded data.

Purpose

The NZGD is utilising the AGS data format to provide an easier and more automated uploading process for the people that use it. The intention is that data uploaded to the NZGD using the AGS uploader tool in compliant format will be accepted directly into the database with minimal manual input. The purpose of this document is to provide an overview and introduction to AGS and outline the preparation and requirements for providing an AGS file for the NZGD AGS Upload Tool.

AGS Standard

The AGS standard is a text-based transfer standard which consists of groups and headings. Groups function like tables in a database or worksheets in a spreadsheet. Headings are similar to database fields and spreadsheet columns. Each heading has a specified type, whether text or number, includes decimal places, and suggests units where applicable.

For NZGD, we've kept modifications to the International AGS specifications minimal, while incorporating necessary additions from AGS NZ into the platform.



NZGD- Long-Term Opportunities

- Becoming a Nationally Significant Database
- Access to additional testing format
- Integration with advanced technology (IOT/ ML)
- Stewardship and Governance

Presenter: Kiran Saligame

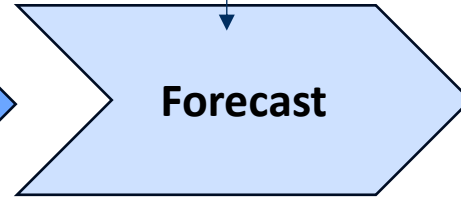
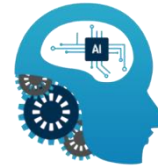
NZGD Opportunity Overview



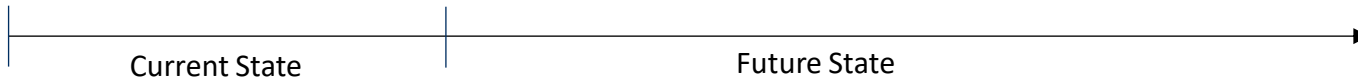
- Voluntary contributions.
- Most information uploaded upon completion of the project.



- Nationally significant datasets supporting mandatory contributions.
- Information uploaded real-time.



- Digital twin equivalent big datasets.
- Forecasting based on cumulative information.

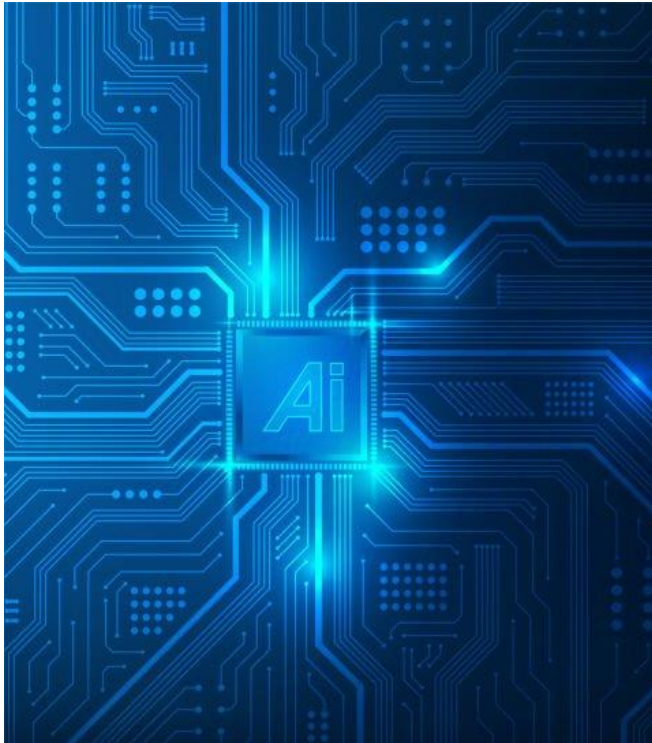


Opportunity – Future Proofing Additional Testing Formats

- Enhance framework to future proof the ever-evolving environment of testing methodologies.
- Possibility to share simple standardised test protocol template for more public consumption under the absence of engineering involvement.

	A	B	C	D	E	F	G
25	Investigati	LOCA_TY ABS		Automatic Ballast Sampler			
26	Investigati	LOCA_TY CP		Cable percussion (shell and auger)			
27	Investigati	LOCA_TY CC		Concrete core			
28	Investigati	LOCA_TY SCP		CPT - Cone Penetration Test			
29	Investigati	LOCA_TY DRIT		Double Ring Infiltrometer Test			
30	Investigati	LOCA_TY WLS		Dynamic (windowless) sampler			
31	Investigati	LOCA_TY DCP		Dynamic cone penetrometer (Scala)			
32	Investigati	LOCA_TY DP		Dynamic probe sampling			
33	Investigati	LOCA_TY DS		Dynamic Sampler			
34	Investigati	LOCA_TY EH		Exploratory Hole			
35	Investigati	LOCA_TY DMT		Flat Plate Dilatometer (Includes SDMT)			
36	Investigati	LOCA_TY GCOP		GCO probe			
37	Investigati	LOCA_TY GC		Gravity Core			
38	Investigati	LOCA_TY GPR		Ground Penetrating Radar			
39	Investigati	LOCA_TY HA		Hand Auger			
40	Investigati	LOCA_TY AUGH		Hollow Stem Auger			
41	Investigati	LOCA_TY HVSR		Horizontal Vertical Spectral Ratio			
42	Investigati	LOCA_TY ICBR		In situ CBR test			
43	Investigati	LOCA_TY IDEN		In situ density test			
44	Investigati	LOCA_TY IPLT		In situ plate loading test			
45	Investigati	LOCA_TY IRDX		In situ redox test			
46	Investigati	LOCA_TY IRES		In situ resistivity			
47	Investigati	LOCA_TY IVAN		In situ vane test			

NZGD long-term Opportunity – Technology, AI and ML



- IOT devices or application interface to drive real-time data contribution.
- AI/ML assisted testing
- methodology identification.
- AI/ML benchmarking
- AI/ML driven data auditing.

NZGD Stewardship and Funding



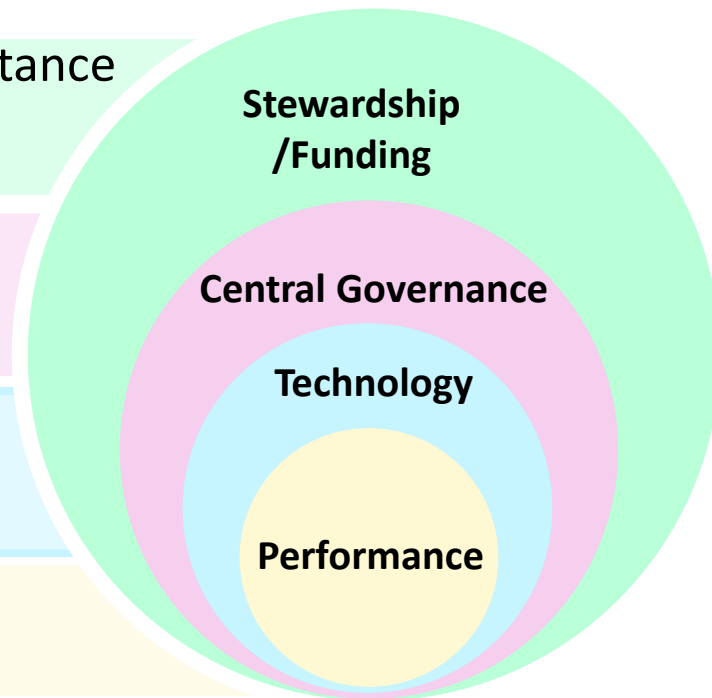
- The Building Act provides the basis to fund NZGD through the building levy.

Stewardship/ Funding: Reflects national importance and collaborative roots

Central Governance: Collaborative governance promotes best practice

Technology: Modern architecture and Interoperability

Performance: Availability, Scalability, Data Integration and validation tools



Acknowledgements



Questionnaire QR Code



Questions?



Thank you.

Ministry of Business, Innovation & Employment
15 Stout Street, PO Box 1473,
Wellington 6140, New Zealand.
www.mbie.govt.nz