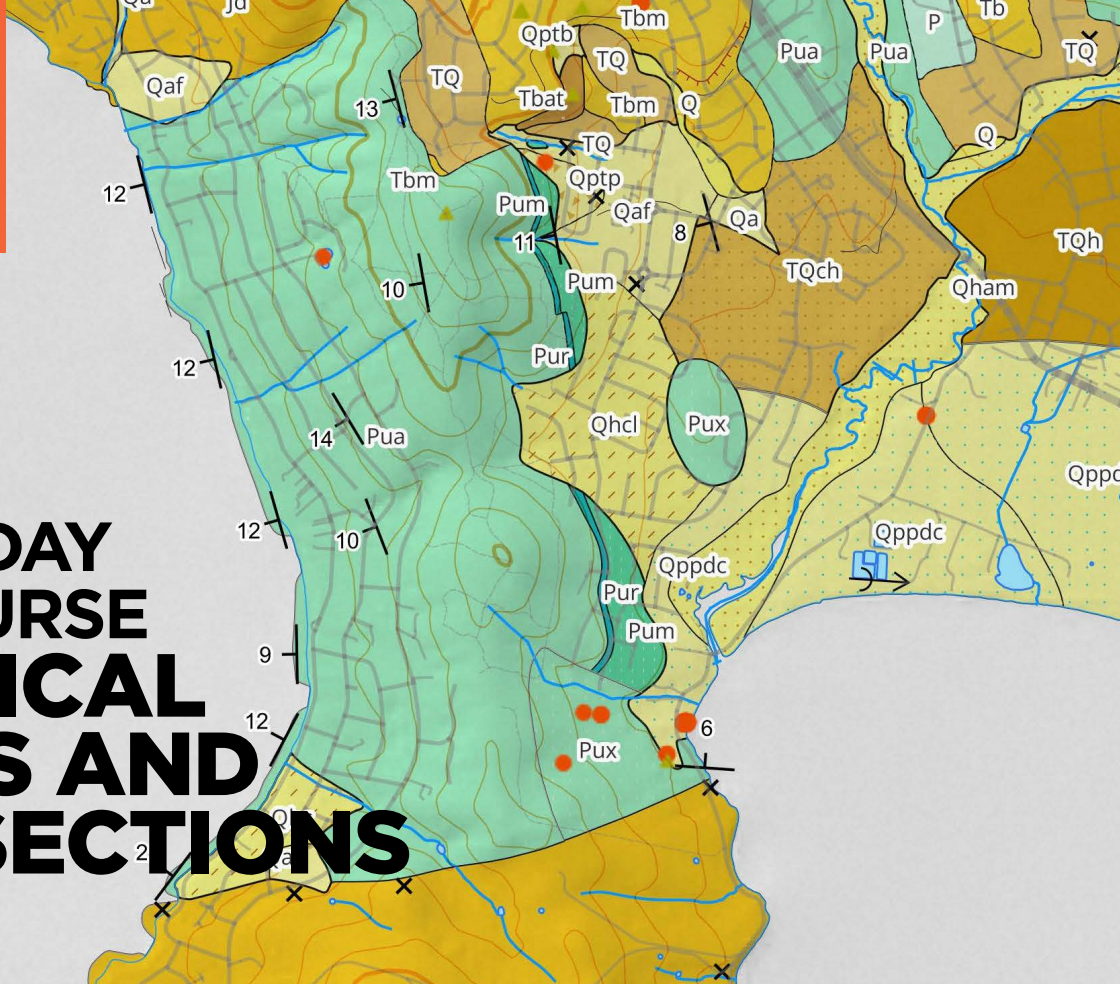
NEW ZEALAND GEOTECHNICAL SOCIETY INC
www.nzgs.org



2025 ONE-DAY SHORT COURSE GEOLOGICAL LEGENDS AND CROSS-SECTIONS IN QGIS

The NZ Geotechnical Society is offering a one-day short course on creating professional-looking geological legends and cross-sections using the QGIS software platform.

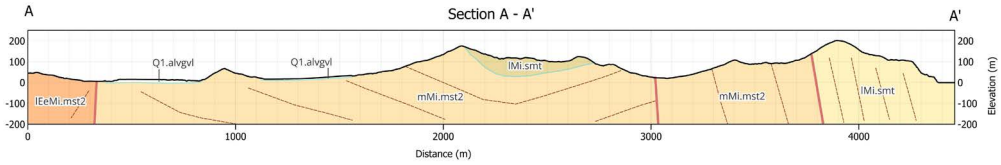
This course is new to 2025 and follows on from previous ones compiled by the author. Participants must already have proficiency in QGIS, such as having attended a previous course.

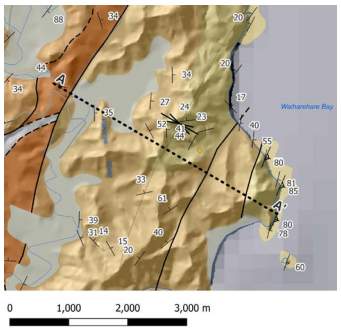
Aims of the Course

Creating basic legends in QGIS is a relatively easy task, but QGIS offers powerful additional capabilities that allow standard geological conventions to be followed and will lift their appearance to a standard akin to published maps such as New Zealand's QMAP (the national 1:250 000 scale geological mapping series). In addition, by building the legend using these capabilities, they will largely automate the process to adjust to subsequent projects, saving considerable time! The tools and workflows required to achieve this will be demonstrated, allowing each person to create their own legend in a manner of their choosing using the supplied QMAP dataset or an alternative dataset they wish to bring along. Participants are encouraged to bring along existing company templates for QGIS Print Layouts if they exist.

Cross-sections are an essential method for building a geological model to demonstrate an understanding of geotechnical ground conditions. Many companies make use of 3D software to automate this task, but not all have these tools. Furthermore, not all projects require this automation and depending on the geological complexity, achieving a reliable model using 3D software may not be guaranteed without a lot of additional effort. One of the key advantages of constructing sections "manually" allows a competent practitioner to use their geological intuition to good effect. Within QGIS there are powerful tools that can be used to create sections relatively efficiently with the additional advantage of replicating the map styling (colour, patterns and labels) and in a single software environment.

The course will examine the available tools for section construction and provide workflows. Participants will use these methods to construct their own sections with supplied data or by bringing their own.





WHERE AND WHEN

AUCKLAND
Wednesday 19th March
Tonkin & Taylor
1 Fanshawe St

WELLINGTON
Tuesday 25th March
Engineering New Zealand
Level 6, 40 Taranaki Street

CHRISTCHURCH
Friday 28th March
ENGEO
124 Montreal Street

SHORT COURSE:
GEOLOGICAL LEGENDS AND CROSS-SECTIONS IN QGIS

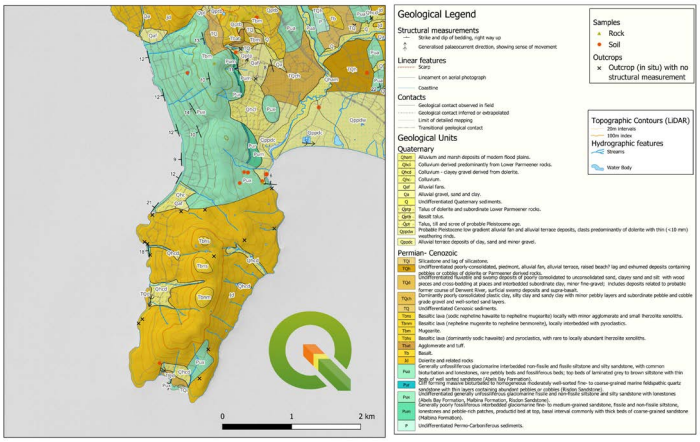
PART 1: GEOLOGICAL LEGENDS
Requirements in geotechnical practice?
Workflow overview
Map Canvas
- Preparing the map, existing styling and defining a study area

Map Canvas Layer controls
- Ordering, Unit Symbols, Textual descriptions
- Python coding demonstration: when automation is required.

Print Layout Controls
- Clipping to extent
- Content editing, sorting, removing and adding
- Grouping, Labels, Spacing, Sizing, Word wrapping
- Multiple legends and layout considerations

PART 2: CROSS-SECTIONS
Requirements in geotechnical practice?
Workflow overview and discussion of existing plugins
Map Canvas preparation
- Data assembly
- Profile line creation
- Creating and exporting data for the section

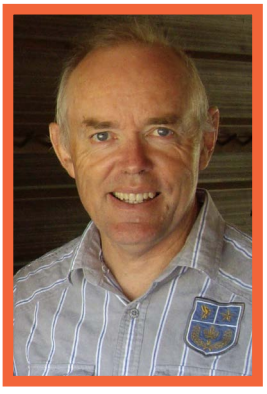
Beginning the section construction
Importing data and data model considerations
Interpretation, digitising and styling
Finishing off in the Print Layout
- Labels and Grids



COURSE PROGRAMME

(the times and sequence are indicative and may be changed on the day of the course)

9.00 – 9.20 am	Setup and Introductions
9.20-10.30 am	Part 1: Geological legends
10.30-10.45 am	Break
10.45 – 12.15 pm	Part 1 continued
12.15- 1.00 pm	Lunch
1.00 – 3.00 pm	Part 2: Cross Sections
3.00 – 3.15 pm	Break
3.15 – 4.30 pm	Part 2 continued
4.30 – 5.00 pm	Course wrap up and discussion



Presenter

The course will be led by Colin Mazengarb, a geologist residing in Hobart with 30 years GIS experience. Colin trained as a geologist at the University of Auckland, graduating with a MSc degree. He practiced as a regional geologist with the NZ Geological Survey (and successor organisations) for 20 years and a further 20 years as an engineering-geologist with Tasmania's geological survey (Mineral Resources Tasmania). Colin has provided this popular course over several years on behalf of the Australian Geomechanics Society and NZGS. While he has recently "retired", he continues to teach his GIS courses and undertakes hobby mapping including in the Gisborne region.

Colin and family lives in Hobart, Tasmania; enjoys among other things cycling, tennis, pickle ball and being a grandfather.

NEW ZEALAND GEOTECHNICAL SOCIETY INC

REGISTRATION

REGISTRATION FEES

$500 + GST for NZGS, NZSEE, SESOC and NZSOLD members (priority registration over non-members)

$800 + GST for non-NZGS, NZSEE, SESOC and NZSOLD members.

Registration fees include attendance of the course and course material (digital course notes) and full catering for the day (morning and afternoon teas, lunch tea and coffee). Fees will not be refunded if a participant is unable to attend, although a nominated substitute person may attend. If the course is cancelled fees will be refunded in full.

TO REGISTER

https://www.engineeringnz.org/courses-events/event-template/?eventtemplate=4173-geological-legends-cross-sections-in-qgis&region=NZGS

COURSE NUMBERS

Number of attendees is limited. Registrations will be accepted on a first come – first served basis.