Soil&Rock Consultants
Your responsive & cost-effective engineers

PO Box 21 424
Henderson
Auckland 0650

Auckland
09 835 1740

Northland
09 982 8053

info@soilandrock.co.nz
www.soilandrock.co.nz

25 July 2024

Job No. 20111

James Kirkpatrick Ltd

Attention: Ms A Mac Sharry

Aoife@jkgl.co.nz

REQUEST FOR INFORMATION RESPONSE FOR

PROPOSED COMMERCIAL DEVELOPMENT

538 KARANGAHAPE ROAD, AUCKLAND CITY

BUN60427502

1.0 Introduction

Soil & Rock Consultants (S&RC) have prepared the following Request for Information (RFI) Response in association with the proposed development at 538 Karangahape Road, Auckland City (the site).

Auckland Council have issued an RFI for the proposed development (dated 22 February 2024). The relevant information regarding 'Geotechnical Investigation', 'Groundwater' and S&RC's subsequent responses are provided below.

2.0 S&RC Reporting

S&RC have prepared the following geotechnical reports in association with the proposed development:

- Geotechnical Investigation for Multi-Level Commercial Building at 538 Karangahape Road, Newton, job no. 20111, revision A, dated 22 August 2023; and
- Groundwater Drawdown and Settlement Assessment at 538 Karangahape Road, Auckland City, job no. 20111, revision D, dated 24 July 2024, herein referred to as 'GWDSR Rev D'.
- Draft Groundwater and Settlement Monitoring Plan at 538 Karangahape Road, Auckland City, job no. 20111, 24 July 2024, herein referred to as 'draft GSMCP'.

3.0 Requested Information and Response

Council Query 30:

Please provide high-level construction methodology for the installation of the temporary support in the form of barrier pile and/ or secant wall pile.

S&RC Response:

A high-level construction methodology is outlined in Section 6.0 of the GWDSR Rev D.

Council Query 36:

Please provide annotated drawings of the existing basement and foundations at 582 Karangahape Road, based on the property file records, which clearly demonstrate that Section C-C' is the critical section along the western boundary with a retained height of 5.8m.

S&R Response:

Please refer to Figures 1 & 2 below. The retained height has been amended to 7.4m based on the site measurements of the No. 582 block wall embedment depth measuring 70.0mRL. The ground level behind the wall is below the basement of 68.4mRL however active earth pressure has conservatively been applied from underside of the block wall. As can be seen in the sketches, due to building's approximate boundary loading and with the remainder of the western boundary being asphalted carpark, Section C-C' is considered the critical section through the western boundary.

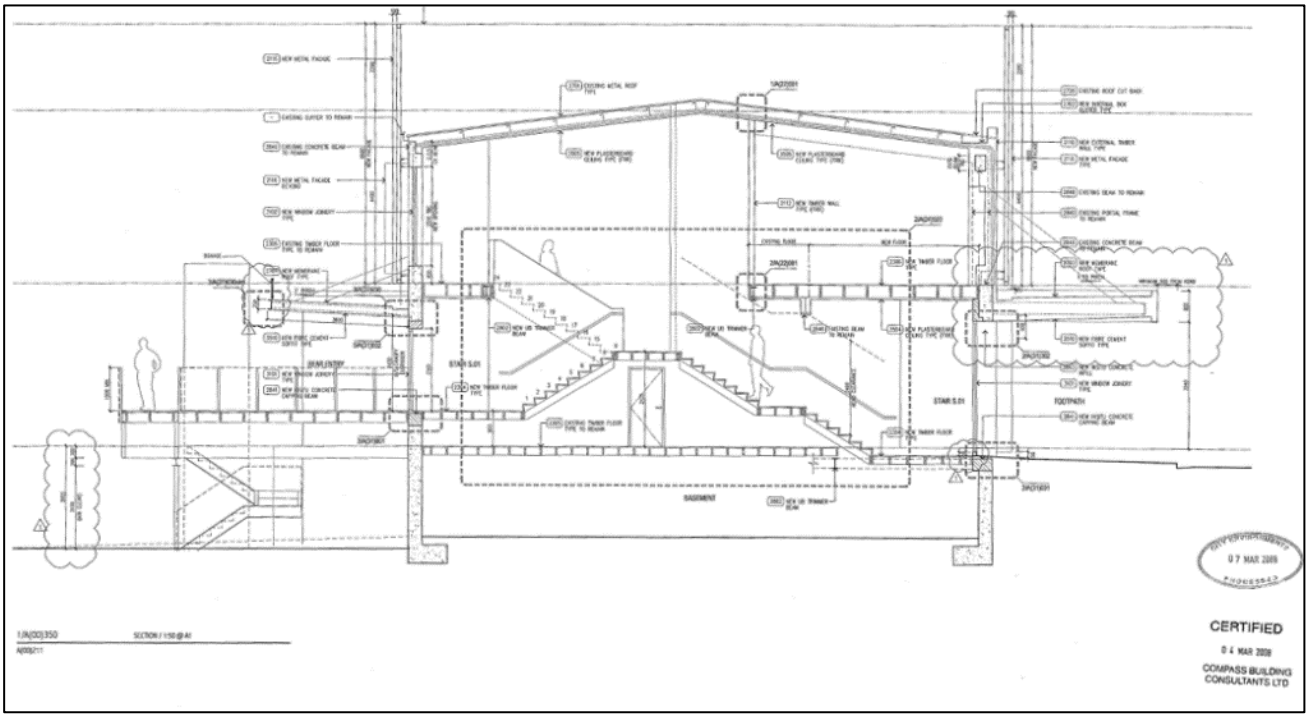


Figure 1: 582 Karangahape Road Southeast-Northwest *(Source: Property File)*

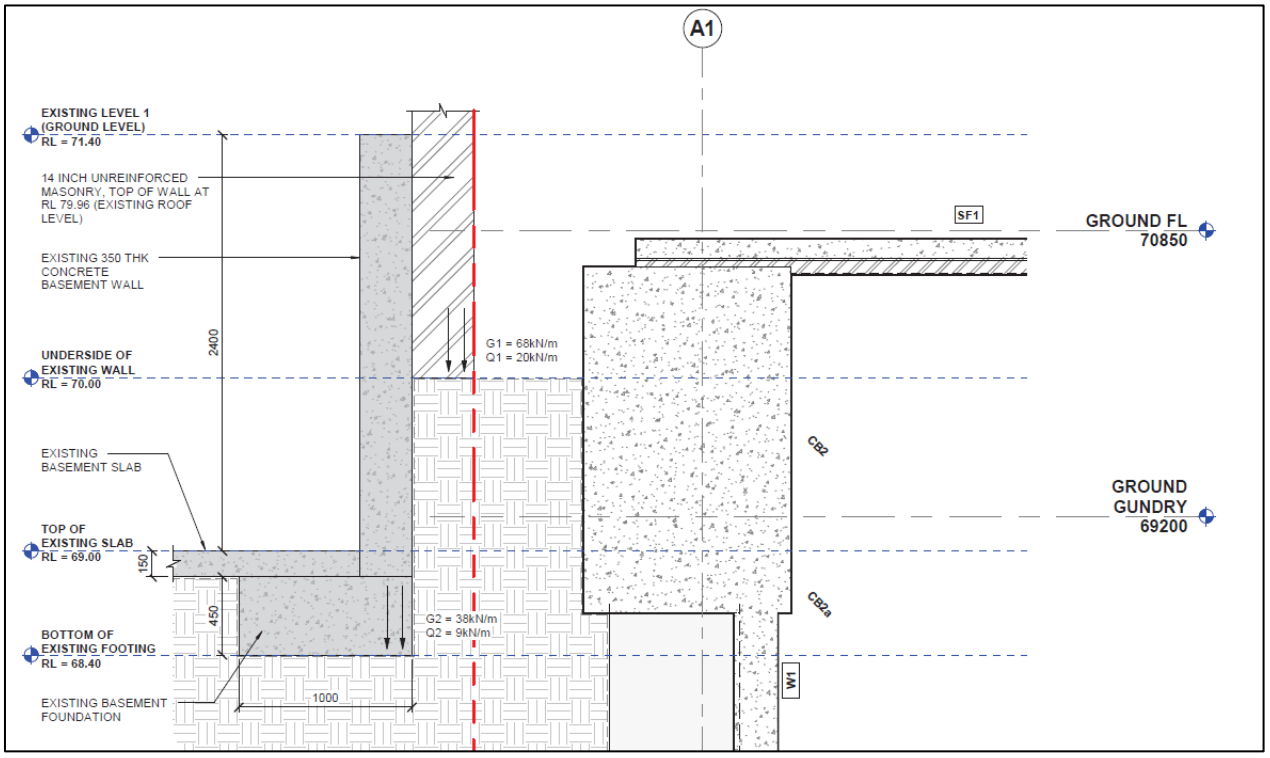


Figure 2: 582 Karangahape Road Basement Sketch Through Section C-C' *(Source: Enovate Consultants)*

Council Query 37:

Please update Table 1 in the November 2023 report by S & RC to reflect the proposed excavation level at RL62.65m as shown on the drawing titled "538 Karangahape Road, Auckland – Typical Details 3", prepared by Enovate Consultants, drawing No. S402 rev B, dated 10 October 2023, Project 22-0034.

S&R Response:

S&RC have updated our report and assessments accordingly as presented in GWDSR Rev D.

Council Query 38:

Table 7 in the November 2023 report by S & RC indicates that the minimum pile length at Section D is 18.4m , however the WALLAP graphical output for Section D indicates that the pile length is RL70.8m – RL56.4m = 14.4m, please provide clarification and update the report and assessment accordingly.

S&R Response:

The minimum pile length through Section D is 14.4m. S&RC have corrected this in GWDSR Rev D.

Council Query 39:

Please provide the calculations that inform the predicted maximum differential settlements of 1:500 and 1:800 on the settlement profile for Section C-C', 1:950 on the settlement profile for Section D – D' and 1:900 on the settlement profile for Section E - E'

S&R Response:

S&RC have calculated the maximum differential settlements presented in our GWDSR Rev D by interpreting the graph between two points along the steepest part of the total settlement curve in the vicinity of affected structure footprints as below:

Section	Max Differential Settlement	x_1 (m)	x_1 (m)	y_1 (mm)	y_2 (mm)
Section C (1)	1:2000	0.0	2.0	9.1	10.1
Section C (2)	1:1111	4.0	6.0	10.0	8.2
Section D	1:909	0.0	2.0	11.5	9.3
Section E	1:952	0.0	2.0	8.1	6.0

Council Query 40:

The Burland Classification of Damage (Stage 1 Assessment) for the building at 582 Karangahape Road is "Slight". The predicted maximum total settlement is 14mm and predicted maximum differential settlement is 1:500. On the basis of the Stage 1 assessment the effects of the proposed activity on the building at 582 Karangahape Road are potentially adverse i.e. not less than minor and Notification of the owners of this building is recommended.

Please undertake a Burland Stage 2 Assessment based on a review of the foundation drawings of the building at 582 Karangahape Road.

S&R Response:

S&RC have updated the construction methodology through Section C-C' adjacent to the neighbouring building at 582 Karangahape Road with a view to reduce settlement effects throughout construction. This updated methodology involves two levels of temporary braces before full excavation. The updated assessment of effects estimates a maximum combined vertical settlement of 10mm and a maximum differential settlement of 1:1000, which is within Category 1. On the basis of our assessment of effects, a Stage 2 assessment is not expected to be required. Notwithstanding, a pre-construction condition survey and on-going monitoring of the subject building forms part of our draft GSMCP.

Council Query 41:

Please undertake an assessment of the effects of the predicted total and differential settlement on the gas pipe (beneath the footpath on K" Road adjacent to the site) and the transformer box in the northern corner of the siter (if it is to remain), as shown on the drawing titled "Proposed Earthworks Plan", prepared by Maven Associates , Drawing No. C220 Rev A d dated October 2023.

S&R Response:

S&RC have included the gas pipe that runs within the K Road berm in our settlement assessments for Critical Section D. S&RC have updated our GWDSR Rev C to assess effects on the gas pipe.

The transformer as shown on the Maven Associates civil drawing has since been removed as part of the recent Karangahape Road upgrades.

Council Query 42:

On the basis of the settlement predictions a draft Groundwater Settlement Monitoring & Contingency Plan (GSMCP) is required. The draft GSMCP should include (but not be limited to): a plan showing the locations and types of monitoring devices including groundwater monitoring bores, building settlement marks (targets and or microprisms) on the neighbouring buildings/structures, ground settlement marks, retaining wall capping beam deflection marks and inclinometers. Alert and alarm trigger levels and monitoring frequency are also required for total and differential settlement of the ground surface, buildings and retaining walls and alert levels 1 & 2 for groundwater level monitoring. Pre-and-post dewatering detailed condition surveys are required for existing walls, together with appropriate settlement monitoring and the identification of neighbouring buildings/structures that require pre-and-post dewatering detailed condition surveys, together with those public services , which require pre-and -post dewatering CCTV condition surveys, together with a description of the proposed construction methodology/sequence and contingency options.

S&R Response:

S&RC have subsequently issued a draft GSMCP that addresses these requests.

Council Query 43:

Please confirm if the predicted total and differential ground settlement as a result of the proposed activity are within the tolerable thresholds of private services on neighbouring sites.

S&R Response:

S&RC have confirmed this in Section 5.2 of our GWDSR Revision D.

4.0 Limitations

This report has been prepared by Soil & Rock Consultants for the sole benefit of Client with respect to the proposed development at 538 Karangahape Road, Auckland City and the brief given to us. This document may be used by the Client's subcontractor and/or Auckland Council or their appointed Consultants with reference to works completed for this investigation.

The data and/or opinions contained in this report may not be used in other contexts or for any other purpose without our prior review and agreement. This document may only be read or transmitted in its entirety.

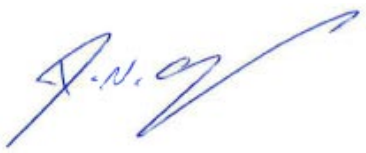
We trust that the information contained in this report meets your current requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Yours faithfully
SOIL & ROCK CONSULTANTS

Prepared By:

Michael Chan
Senior Geotechnical Engineer

Reviewed & Authorised By:



Dave Ouwejan
Principal Geotechnical Engineer