

Geosolve Ref: 150098

20 April 2015

Ayburn Farm Developments Limited
c/- Winton Partners Investments Ltd
Level 2,
33 Shortland St
Auckland 1010

Attention: Chris Meehan

Dear Chris

Geotechnical Investigation and Assessment for Resource Consent and Detailed Design

Proposed Ayrburn Farm Subdivision

Lake Hayes – Arrowtown Road

1.0 Introduction

Following our recent correspondence and in accordance with your request we are pleased to confirm the basis on which we can undertake geotechnical investigations and reporting on the above proposed subdivision for you as our client.

2.0 Proposed Development

We understand the proposal comprises the development of approximately 120 residential lots 850m north of Lake Hayes in an area of undeveloped farmland.

We understand you require an assessment of natural hazards at the site and a review of mitigation measures that may be required to reduce the risk as part of subdivision application.

In terms of liquefaction risk, the topographically lowest area of the site, on either side of the creek, is designated as 'possibly moderate' on Queenstown Lakes District Council (QLDC) hazard mapping. Geotechnical investigations are recommended to confirm the actual risk and extent of the affected area.

QLDC hazard mapping also indicates western areas of the site may be affected by alluvial fan activity, described as 'regional scale, debris dominated and active.' We understand you require us to complete sufficient assessment to quantify this risk and, if appropriate, comment on suitable remedial measures.

Additionally, we understand you require assessment of any slope stability issues and set back/building constraints along the crest of the slope on the western side of the creek.

3.0 Scope of work

We anticipate that the geotechnical investigation and assessment will comprise the following:

- 1) Desktop review of existing information pertaining to the site;
- 2) Geological mapping of the subdivision area;
- 3) Stage 1 investigations, supervise and log 35 - 40 test pits to 3.5-5m depth to confirm the geological ground model at shallow depths;
- 4) Stage 2 investigations, organise and supervise investigation contractors to assess the geological conditions at depth. CPT and borehole investigations are assessed as being the most appropriate methodology;
- 5) Liquefaction hazard assessment;
- 6) Slope stability assessment;
- 7) Alluvial fan hazard assessment;
- 8) Complete a geotechnical report that details the results of the above investigations and assessment and provides recommendations and conclusions as appropriate with respect to the potential hazards for the proposed residential subdivision.

Based on the results of the investigations and assessment detailed design may be required to address the issues present. If required it is expected this stage of the contract will be addressed under a separate contract.

4.0 Timing

The timing of report issue will depend largely on the availability of an investigation sub-contractor to complete the Stage 2 investigations, however, we expect to provide verbal confirmation of the findings prior to the 8th May, and follow up shortly after with our written report, approximately 1 week later.

5.0 Geosolve fees and disbursements estimate

The work will be carried out in accordance with our attached Conditions of Engagement. Our fee for the geotechnical services required will be on a time and expenses basis, with a fees estimate of \$15,200 (exclusive of GST and sub-contractor costs).

Table 1 Estimate of Geosolve fees and costs for the above scope of work

Item	Scope	Fee estimate (ex GST)	Expenses estimate (ex GST)	Sub Totals (ex GST)
1	Field work, mapping, test pitting logging and sub-contractor on-site management	\$2,850	\$150	\$2,850
2	Engineering geological log preparation, HDCP logs, site plans, cross sections and draughting	\$4,500		\$4,500
3	Slope Stability Assessment for terrace edge setback distances	\$2,000		\$900
4	Liquefaction assessment	\$2,000		\$1,600
5	Alluvial Fan Hazard assessment	\$2,100		\$2,100
6	Liaison & administration	\$600		\$600
7	Reporting	\$2,650		\$2,650
Total fees (excluding GST and Subcontractor Costs)				\$15,200

Any Geosolve budget remaining upon completion of the agreed scope of work will not be invoiced.

If following verbal communication of the results you do not wish to proceed with the final report, then Item 7 (\$2650+GST) will not be invoiced.

We will endeavour to complete the work within our budget estimate, however, there are many inherent uncertainties associated with geotechnical site investigations such as variable subsoil conditions, unfavourable geology, bad weather and site access difficulties. When possible, we will obtain your prior approval for additional budget.

5.0 Sub-contractor fee estimate.

We are able to engage the investigation contractors on your behalf to enable the geotechnical investigation works to be completed, and will invoice you for the actual cost incurred plus 10%. Alternatively you can engage the contractors directly.

The extent of the Stage 2 investigations will be determined based on the results of the Stage 1 works, however for preliminary budgeting purposes an appropriate level of investigation has been assumed. The extent of investigation for Stages 1 and 2 is preliminary assessed as follows:

Excavator Contractor: Approximately 35 – 40 excavations completed to depths of 3.5 – 5.0m. Excavator time on site 2 - 2.5 days.

CPT Contractor: 14-16 soundings to 15-20m depth. Qo

Drilling Contractor: 3 drill holes to 20m depth, or 60m depth of drilling.

We anticipate the costs associated with hiring the investigation contractors will be approximately **\$27,988 to \$28,488** (excluding GST). The final cost will be primarily governed by site issues such as weather conditions, site access, movement of equipment around the site and the complexity of

subsurface conditions. Table 2 summarises our budget estimate for the site investigation sub-contractor costs if required. S

Underground Services

Underground Services – Potential Damage & Safety Issues: Costs for additional location of services (typically \$600 on large unoccupied sites) and/or any direct or indirect costs related to services damaged by investigations will be the responsibility of the Client or Client's Principal. If subsurface investigations are required, we will undertake these service locations on your behalf unless comprehensive site-specific service location plans are provided by the utility owners and the locations of all buried services are marked by the utility owners with spray paint on site (inclusive of power cables, Telecom & Telstra Clear cables, water pipes, sewer pipes, stormwater pipes, gas pipes and any other buried infrastructure that could be damaged or presents a hazard). No subsurface investigations can be carried out in the absence of this information.

Please state if you will complete these service locations yourself or whether you would like GeoSolve to undertake this work.

Table 2 – Estimates/Quotes of Investigation contractor & service location costs

Contractor	Estimated/quoted Cost
Excavator Hire (estimated)	\$3,500 to \$4,000
CPT (Quoted)	\$5888.70
Drill Holes (Quoted)	\$18,000 + Overnight allowance
Buried Service Location	\$600.00
Total (Excluding GST)	\$27,988 to \$28,488

6.0 Site restoration

Subsurface investigations typically involve significant disruption of sites with excavator track marks, depressions and mounds. Subsidence and surface softening are especially likely if the subsurface is saturated or soft. Grassed surfaces and seal will be lost around backfilled test pits. Costs for restoration of sites to their original condition using compacted hardfill have not been allowed, but please forward a specific instruction if this is required. Otherwise we assume new construction will follow in the near future. If other use of the land in the interim is intended, please advise us specifically so we can plan and cost this component separately (see Section 1.5 attached).

7.0 Proviso on costs

Our costs will be minimised if development proposals are well documented (as described in the Requirements for Geotechnical Investigation, listed below).

Because of the investigatory nature of the work being undertaken, it is not always possible to estimate accurately the time required and we may need to seek approval for an increase of the budget to achieve the objectives originally set.

8.0 Closure

We trust that this satisfactorily confirms our discussions. Please sign and return a copy of this letter to us to confirm acceptance by email to Paul Faulkner at pfaulkner@geosolve.co.nz. We look forward to working with you on this project.

We will be pleased to discuss any aspect of this proposal or to supply additional information if this is required.

Yours faithfully,



Project Manager

**GEO SOLVE**

Attached: Signatory form
 Conditions of Engagement

REQUIREMENTS FOR GEOTECHNICAL INVESTIGATIONS & REPORTING

1. A contour plan of the site and surrounding area.

This needs to show the footprint of the proposed structure(s). Where excavations are proposed, the contours need to be extended beyond the boundaries by a width equal to about twice the maximum depth of excavations, and also show footprints of any neighbouring structures so we can assess whether they will require support during any excavation.

2. Cross sections

Representative cross sections and long sections extending beyond the site boundaries, if any excavations are proposed), and showing any neighbouring wall or excavation details. Both sets of sections should include locations that show the deepest areas of cut and need to identify existing and proposed ground surface lines.

We would prefer emailed copies of all plans and diagrams as AutoCAD drawing files (DWG) to admin@geosolve.co.nz prior to site investigations. Contours are preferred to be 3D polylines with the elevation of the polyline set to the RL of the contour. Drawings should be in metre units. If the information were not available at this stage, we would prepare a preliminary report based on available mapping. Where .dwg files are not available site information can be provided in editable .pdf format.

3. Services location

If subsurface investigations are required, we will undertake these service locations on your behalf unless comprehensive site-specific service location plans are provided by the utility owners and the locations of all buried services are marked by the utility owners with spray paint on site (inclusive of power cables, Telecom & Telstra Clear cables, water pipes, sewer pipes, stormwater pipes, gas pipes and any other buried infrastructure that could be damaged or presents a hazard). No subsurface investigations can be carried out in the absence of this information.

Location plans from utility owners to confirm absence of all buried services and site mark out (if applicable) of any underground services within the property boundary, or signed authorisation for GeoSolve Ltd. to proceed with service location checks at additional cost (see Section 1.5 below).

Costs for additional location of services (typically \$700) and/or any direct or indirect costs related to services damaged by investigations will be the responsibility of the Client or Client's Principal. After an excavator or drill rig is used, cuttings and disturbed ground may be left within 10 m of each test pit, and in areas where the excavator moves between test pits. Other surfaces, such as paths, may also be disturbed and trees may need to be cut back to provide access. As development is expected to follow our investigations, no reinstatement will be made unless requested as a variation.

Signatory form

GSL Ref: 150098

Date: 20 April 2015

Confirmation by Client: I/we acknowledge that I/we have read the Conditions of Engagement, including the Limitations of Liability, and I/we accept those terms and authorise the above

Company: Ayrburn Farm Developments Limited
c/- Winton Partners
Level 2,
33 Shortland St
Auckland 1010

Attention: Chris Meehan

Signature: 

Name: ANDREW CAVILL

Position: INVESTMENT MANAGER

Date: 20/04/15

Invoicing Name & Address (if different):

Please note that the signatory is the contracting party and will be invoiced directly.

Service Check: I/We authorise GeoSolve Ltd to carry out checks for buried services in accordance with conditions outlined above. (Note: If this is not required then please forward site-specific service location plans and arrange for services to be marked out on site, as detailed above. Subsurface investigations cannot proceed in the absence of this information.)

Signature: 

Please return one signed copy to Paul Faulkner of GeoSolve Ltd at email pfaulkner@geosolve.co.nz or to the address on the letterhead.

Conditions of Engagement

Our work will be undertaken within the general provisions of the attached document published by the Institution of Professional Engineers New Zealand (IPENZ) and others entitled "Short Form Model Conditions of Engagement" and the following additional conditions.

1. General (Add to clause 5)

The client shall ensure that instructions and requirements are clearly and unambiguously conveyed to the Consultant and that all supporting data is complete and accurate.

All rights of entry, services information and consents (other than those provided by the Consultant under this agreement), to enable the completion of the commission shall be secured by the Client or the Agent and correction of any damage to surfaces or subsoil arising from the work is outside this Agreement.

2. Additional condition (Add to clause 7)

Progress payments may be rendered on or after the first working day of the month for the full value of the work undertaken in the preceding month or on completion of the Services. The Client will make payment on receipt of the invoice. If payment is not received within twenty (20) working days and alternative terms are not agreed, the Consultant may withhold documents and cease future work. The Agent is also responsible for passing on to the Client all advice given and all copies of documents provided by the Consultant.

3. Additional condition (Add new clause 20)

Where the Consultant has to direct and/or co-ordinate the work of other consultants engaged by the client, the Consultant shall not be responsible for the Services and/or work of such other consultants.

SHORT FORM MODEL CONDITIONS OF ENGAGEMENT

1. The Consultant shall perform the Services as described in the attached documents.
2. Nothing in this Agreement shall restrict, negate, modify or limit any of the Client's rights under the Consumer Guarantees Act 1993 where the Services acquired are of a kind ordinarily acquired for personal, domestic or household use or consumption and the Client is not acquiring the Services for the purpose of a business.
3. The Client and the Consultant agree that where all or any of, the Services are acquired for the purposes of a business the provisions of the Consumer Guarantees Act 1993 are excluded in relation to those Services.
4. In providing the Services the Consultant shall exercise the degree of skill, care and diligence normally expected of a competent professional.
5. The Client shall provide to the Consultant, free of cost, as soon as practicable following any request for information, all information in his or her power to obtain which may relate to the Services. The Consultant shall not, without the Client's prior consent, use information provided by the Client for purposes unrelated to the Services. In providing the information to the Consultant, the Client shall ensure compliance with the Copyright Act 1994 and shall identify any proprietary rights that any other person may have in any information provided.
6. The Client may order variations to the Services in writing or may request the Consultant to submit proposals for variation to the Services. Where the Consultant considers a direction from the Client or any other circumstance is a Variation the Consultant shall notify the Client as soon as practicable.
7. The Client shall pay the Consultant for the Services the fees and expenses at the times and in the manner set out in the attached documents. Where this Agreement has been entered by an agent (or a person purporting to act as agent) on behalf of the Client, the agent and Client shall be jointly and severally liable for payment of all fees and expenses due to the Consultant under this Agreement.

8. All amounts payable by the Client shall be paid within twenty (20) working days of the relevant invoice being mailed to the Client. Late payment shall constitute a default, and the Client shall pay default interest on overdue amounts from the date payment falls due to the date of payment at the rate of the Consultant's overdraft rate plus 2% and in addition the costs of any actions taken by the Consultant to recover the debt.
9. Where Services are carried out on a time charge basis, the Consultant may purchase such incidental goods and/or Services as are reasonably required for the Consultant to perform the Services. The cost of obtaining such incidental goods and/or Services shall be payable by the Client. The Consultant shall maintain records which clearly identify time and expenses incurred.
10. Where the Consultant breaches this Agreement, the Consultant is liable to the Client for reasonably foreseeable claims, damages, liabilities, losses or expenses caused directly by the breach. The Consultant shall not be liable to the Client under this Agreement for the Client's indirect, consequential or special loss, or loss of profit, however arising, whether under contract, in tort or otherwise.
11. The maximum aggregate amount payable, whether in contract, tort or otherwise, in relation to claims, damages, liabilities, losses or expenses, shall be five times the fee (exclusive of GST and disbursements) with a maximum limit of \$NZ500,000.
12. Without limiting any defences a Party may have under the Limitation Act 2010, neither Party shall be considered liable for any loss or damage resulting from any occurrence unless a claim is formally made on a Party within 6 years from completion of the Services.
13. The Consultant shall take out and maintain for the duration of the Services a policy of Professional Indemnity insurance for the amount of liability under clause 11. The Consultant undertakes to use all reasonable endeavours to maintain a similar policy of insurance for six years after the completion of the Services.
14. If either Party is found liable to the other (whether in contract, tort or otherwise), and the claiming Party and/or a Third Party has contributed to the loss or damage, the liable Party shall only be liable to the proportional extent of its own contribution.
15. Intellectual property prepared or created by the Consultant in carrying out the Services ("New Intellectual Property") shall be jointly owned by the Client and the Consultant. The Client and Consultant hereby grant to the other an unrestricted royalty-free license in perpetuity to copy or use New Intellectual Property. Intellectual property owned by a Party prior to the commencement of this Agreement and intellectual property created by a Party independently of this Agreement remains the property of that Party. The ownership of data and factual information collected by the Consultant and paid for by the Client shall, after payment by the Client, lie with the Client. The Consultant does not warrant the suitability of New Intellectual Property for any purpose other than the Services or any other use stated in the Agreement.
16. The Consultant has not and will not assume any obligation as the Client's Agent or otherwise which may be imposed upon the Client from time to time pursuant to the Health and Safety in Employment Act 1992 ("the Act") arising out of this engagement. The Consultant and Client agree that in terms of the Act, the Consultant will not be the person who controls the place of work.
17. The Client may suspend all or part of the Services by notice to the Consultant who shall immediately make arrangements to stop the Services and minimise further expenditure. The Client and the Consultant may (in the event the other Party is in material default) terminate the Agreement by notice to the other Party. Suspension or termination shall not prejudice or affect the accrued rights or claims and liabilities of the Parties.
18. The Parties shall attempt in good faith to settle any dispute by mediation.
19. This Agreement is governed by the New Zealand law, the New Zealand courts have jurisdiction in respect of this Agreement, and all amounts are payable in New Zealand dollars.