BEFORE THE HEARINGS PANEL
FOR THE QUEENSTOWN LAKES
PROPOSED DISTRICT PLAN

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER X-Ray Trust and Avenue Trust
QLDC Stage 2 PDP hearing.

STATEMENT OF EVIDENCE GRAHAM SALT

Dated this 11th day of June 2018

MACALISTER TODD PHILLIPS
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1 Introduction

1.1 My name is Graham Salt. I hold degrees in engineering geology and civil-geotechnical engineering including a Doctorate in geotechnical engineering.

1.2 I am a Technical Director at GeoSolve Ltd. I am a Fellow of the New Zealand Institute of Professional Engineers. I am a Chartered Professional Engineer with over 40 years' experience, principally in geotechnical site investigations.

1.3 I have complied with the Code of Conduct for Expert Witnesses contained in the Environment Court Consolidated Practice Note 2014. This evidence is within my area of expertise, except where I state that I am relying on another person, and I have not omitted to consider any material facts known to me that might alter or detract from the opinions I express.

1.4 This evidence has been prepared on behalf of X-Ray Trust and Avenue Trust for the Stage 2 QLDC Proposed District Plan.

1.5 Subsurface investigations have been carried out under my direction throughout the proposed subdivision, obtaining detailed information on the relevant geotechnical conditions.

2 Nature of proposal

2.1 The proposed subdivision layout is provided in Blakely Wallace Associates Drawing L01 18/5/2018: Proposed Zoning, Speargrass Flat Structure Plan for X-Ray Trust and Avenue Trust. There are five separate development nodes proposed, on gently inclined ground.

3 Geotechnical Assessment

3.1 Geology: The surrounding terrain comprises undulating ice scoured ridges of hard predominantly unweathered schist (bedrock) capped with moraine which is predominantly compact sand and gravel in a silt matrix (till). Subsurface investigations confirm the proposed development nodes are located in the valley floor of schist terrain which has been infilled with glacial sediments, alluvium and subsequently a series of alluvial fans which grade gently from the northern flanks of the valley.

3.2 No groundwater was intercepted in test pits dug to between 3 and 4 metres at the nodes. Locally some perched groundwater may develop during sustained rainfall, but from neighbouring bores, the regional groundwater table is likely to be at about 6 metres or more.

3.3 The materials encountered were typical of fan alluvium deposits, ie silt, sand and gravel in variable thickness lenses in a loose to medium dense condition but providing suitable bearing for residential dwellings with standard footings.

3.4 Schist bedrock is expected to lie at depths of at least 10 metres but possibly 30 m or more.

3.5 The alluvial fans have only small catchment areas and design discharges will be straightforward to manage with standard control measures. This aspect was confirmed by our senior hydrologist Hank Stocker. The risk presented by debris flows or other forms of slope instability are very low for all five of the proposed development nodes.

3.6 Seismicity: No active faults have been identified in this vicinity. The most probable source of seismic shaking is the Alpine Fault so the design accelerations are no different from those in the nearby settlements of Arrowtown and Frankton.

3.7 Liquefaction is a low risk in the well drained fan alluvium because it has been established there is a substantial raft (probably at least 6 to 10 metres thick) of non-liquefiable sediment beneath all nodes.

3.8 Wastewater: There is reticulated wastewater a short distance to the east. Also however, the fan alluvium is well suited to soakage disposal on site if required, and there are sizeable areas marginal to the development nodes that could be considered.

4 Conclusions

4.1 The Speargrass Flat proposed development nodes are located on gently inclined alluvial fans that will be quite suitable for this usage.

4.2 Standard solutions for dwelling foundations and stormwater control can be applied.

4.3 No geotechnical issues which limit the proposed development have been identified.

Dr Graham Salt CPEng

Technical Director

GeoSolve Ltd

8 June 2018