

13th November 2025

Ref: 5057-S92

Re: 22 & 22A Summit Drive – LUC60456483 Response to Auckland Council’s s92 Geotechnical Queries

GeoStudio Ltd has been provided with a Further Information Request letter issued by Auckland Council regarding to Resource Consent application LUC6046483, dated 16 October 2025. We previously prepared a Geotechnical Investigation Report, ref: 5057, dated 11th February 2025.

The geotechnical related queries and our response are summarised below.

“5. The submitted Geotechnical Report prepared by Geo Studio (dated 11 February 2025, Rev B) does not provide any specific assessment or comment regarding the potential effects of the proposed soakage on slope stability. Please provide a geotechnical assessment demonstrating that the proposed soakage devices for each dwelling will not adversely affect slope stability or cause seepage or springing downslope.”

Slopes

- Designs should be considered on a case-by-case basis by the designer and may require geotechnical investigations where stability issues or significant changes in the groundwater regime could occur.
- Devices on potentially unstable slopes, including all slopes >25% (or closer than 15 m to a 15% slope) must have the design reviewed by a suitably qualified geotechnical engineer, engineering geologist or hydrogeologist to check stability and identify any risks to groundwater springs downstream.

GeoStudio’s comments: Based on the soakage bore log sheets prepared by Intorock Drilling Ltd (attached to the Drainage, Earthworks and Overland Flowpath Report prepared by Anchor Consultants Ltd dated May 2025-Rev A, the site is covered by 2.5m deep of volcanic ash, which is in turn underlain by basalt rock or scoria down to the hole termination depths of 6.5m and 15.5m. Water soakage is expected to occur through the deep fractured rock/scoria layers and therefore would have negligible adverse effects to the stability of the site. The relatively high recorded flow rate suggests that the basalt rock and scoria contain high void ratios where piezometric line formed (if any) would be steep, which will unlikely result in springs being formed downslope.

“7. Council’s GeoMaps identifies that the site contains slopes steeper than a 1:3 gradient. This gradient meets the definition for land which may be subject to instability under Chapter J of the AUP(OP). Please provide a quantitative slope stability assessment that demonstrates how the proposed works will not increase instability risks. The submitted geotechnical report does not include such analysis, and further information is required to confirm compliance with Auckland Council’s Code of Practice for Land Development and Subdivision (Chapter 2 – Geotechnical).”

GeoStudio’s comments: Auckland Council’s Geomaps suggest that the site contains slopes with gradients of 1V:(3.7-5.8)H. This is illustrated on Figure 1 where horizontal distances are labelled between 1m vertical contour lines. This is also consistent with the site-specific topographical survey data. Therefore the site is does not meet the definition of “land which may be subject to instability”.

Furthermore the site was found to be underlain by very stiff to hard volcanic ash and basalt rock/boulders. It is our professional opinion that the site is considered stable. Specific slope stability analyses are not required.



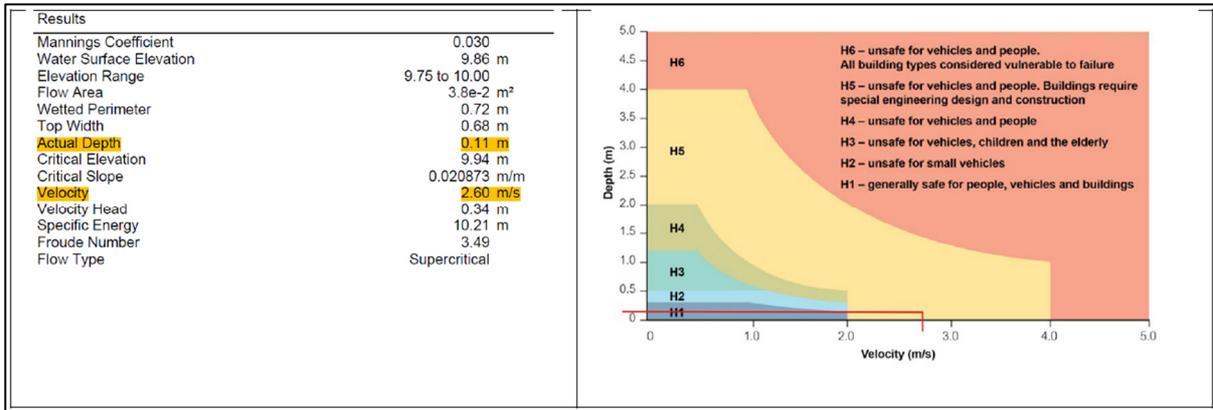
Figure 1: Slope Gradient as shown on Auckland Council's Geomaps

“8. Given the site meets the definition of land which may be subject to land instability, please provide a natural hazard risk assessment report in accordance with the requirements of Chapter E36.9(2) of the AUP(OP). The assessment should include a detailed hazard risk assessment that addresses all matters outlined in clauses (a) to (l) of Chapter E36.9(2) Special Information Requirements.”

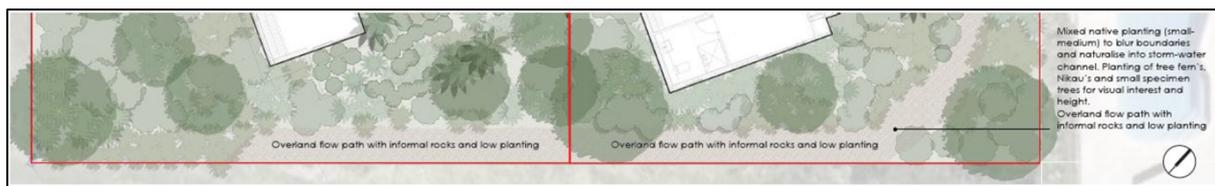
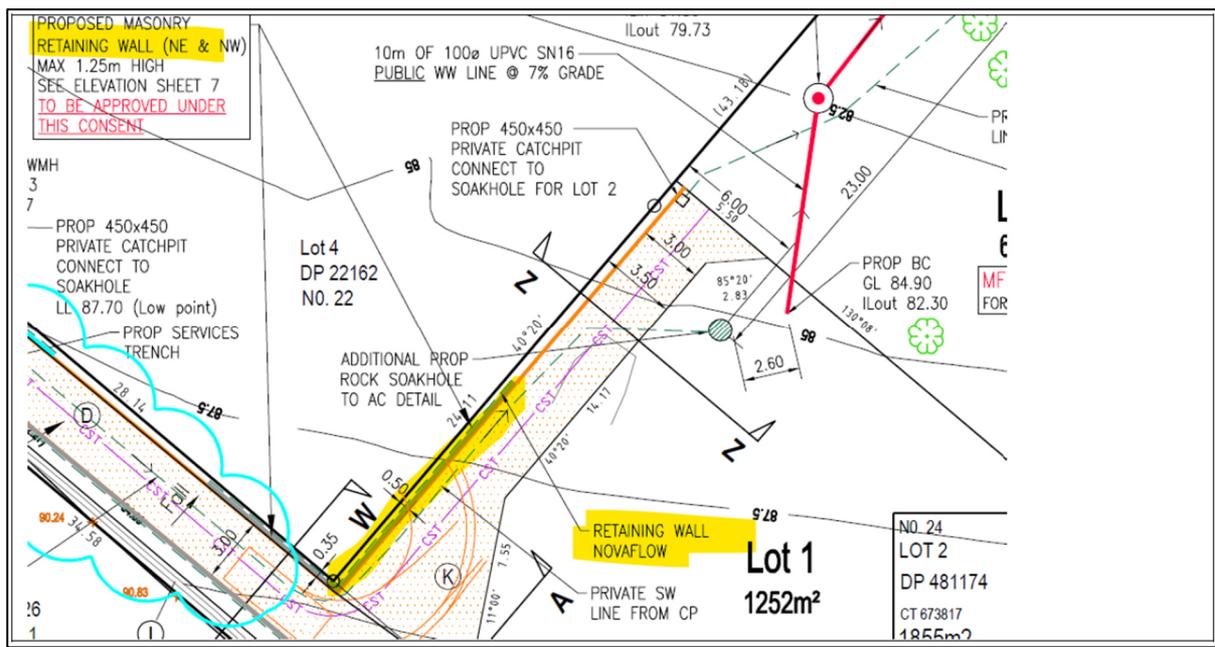
GeoStudio's comments: Refer to our response to Item 7. The site is does not meet the definition of “land which may be subject to instability”.

“Non-Section 92 – 3. The identified Overland Flow Path (OLFP) has a catchment area of less than 4000m². Therefore, this doesn't fall under the definition of an OLFP under Chapter J of the AUP(OP).

However, the applicant has provided calculations for this OLFP. Based on the flood risk management guideline of the Australian Disaster Resilience Handbook Collection (see below for chart), it is considered that the maximum flood depth and velocities to be H5, which is identified as unsafe for vehicles and people.



The assessed peak velocity within the OLFP is 2.60 m/s on slopes steeper than 1:3. Informal rock placement and planting are unlikely to provide adequate erosion resistance at this velocity. The applicant's geotechnical engineer is encouraged to check that concentrated surface flows and any excavation/structures do not reduce slope stability (global and local), including for potential undercutting and loss of support near boundaries/driveways/retaining walls for neighbouring properties."



GeoStudio's comments: Please note that assessing the scoring potential of land/retaining walls at a certain OLFP velocity is outside the expertise of a general geotechnical engineer experienced in geomechanics. We provide the following general comments in regards to slope stability: Refer to our response to Item 7. The site is no steeper than 1V:3H. Surface water created by the OLFP may reduce



the short term stability of the slope, but this has already been considered as part of the risk assessment of the elevated groundwater condition for slopes which are no steeper than 1V:3H in certain geological settings. It is therefore our opinion that the overall slope stability of the site, even considering the OLFP is acceptable.

Non-Section 92 - 4. Additionally, please be advised that the Draft Plan Change 120: Housing Intensification and Resilience, suggests changes to how we manage natural hazards, including OLFPs, among other things. Depending on timeframes, there may be a requirement to include further assessment in respect of the PC120 provisions.

GeoStudio's comments: Auckland Council recently introduced an landslide overlay to its Geomaps labelled as "Level A Analysis - Shallow Landslide Susceptibility 2025". The lands are categorised into five susceptibility classes: Very Low, Low, Moderate, High and Very High. As detailed in the Auckland Council metadata for this overlay, the council has clarified the followings:

- the overlay is "intended as a regional overview and does not replace site-specific assessments", and;
- the overlay "is a susceptibility dataset and does not describe a hazard or risk", and;
- the overlay "is a regional-level assessment and is not intended for site-specific use without further, more detailed assessment", and;
- "property owners and developers should seek independent advice from a suitably qualified Geotechnical Professional (PEngGeol and/or CPEng) with appropriate relevant experience, on land stability at their particular property when considering development or the existing level of slope instability hazard."

GeoStudio Ltd is a professional geotechnical engineering consultancy who hold relevant qualifications and experience on slope instability hazards. We have been engaged by the Applicant as part of the resource consent proposal for development at 22 & 22A Summit Drive, Mt Albert and prepared supporting geotechnical assessment for the residential development sought. We have authored the latest Geotechnical Investigation Report, ref: 5057, dated 11th February 2025. We have also reviewed the recently added subject overlay on Auckland Council's GeoMaps, and correlated application of the categories set out in the overlay affecting the subject site, being moderate and high shallow landslide susceptibility.

Shallow and deep ground investigations have been undertaken (including hand augers, Scala penetrometer testing and percussion soakage boring), which indicate no evidence of landslide susceptibility within the site. Both the GeoMaps and the topographical site survey confirmed that the site is no steeper than 1V:3H which means that the does not meet the definition of "land which may be subject to instability" according to Chapter J of the AUP(OP).

It is our professional opinion that, provided our geotechnical recommendations and specific engineering design measures outlined in the Geotechnical Investigation Report are implemented, the subject site is considered stable and is not at risk

In summary, our site-specific geotechnical assessment provides evidence of ground stability based on site-specific subsoil investigation and assessment. On this basis, low instability risks are anticipated and no further hazard risk assessment is considered necessary.

Should you have any further questions, please feel free to contact the undersigned.



REPORT PREPARED BY:

A handwritten signature in blue ink, appearing to read 'Geoffrey Kang'.

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