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15 January 2021

Selwyn District Council
PO Box 90
Rolleston

Attention: Jocelyn Lewes



Dear Ms Lewes,

**RE: Plan Change PC 76
605, 617 & 627 East Maddisons Road, Rolleston
Dunweavin 2020 Ltd
Geotechnical Report Peer Review**

Dunweavin 2020 Ltd has applied to rezone an area of about 13 hectares to allow the subdivision of approximately 155 new residential lots. Selwyn District Council has requested a peer review of the geotechnical report submitted with the application with respect to whether the investigations and conclusions are appropriate in the circumstances.

The geotechnical report submitted is by Fraser Thomas Ltd, titled *Geotechnical Investigation report, Submission on the Proposed Selwyn District Plan, East Maddison Rpad, Rolleston*, dated 10 December 2020, for Dunweavin 2020 Ltd. The PC76 area consists of three titles; Lot 1 DP 26880 and Lots 2 & 3 DP 74311, with a total area of 12.97 hectares.

Testing and subsoil conditions

Eight shallow hand auger boreholes and associated scala tests have been made on the site. Topsoil 0.2 – 0.3m thick is reported as directly overlying sandy gravel, with a layer of silt found in one test over gravel at 0.6m depth. The auger holes all stopped in the top of the gravel. Reference is made to well logs from the Ecan database, but the specific wells are not identified or the borelogs appended. The groundwater depth is assessed at about 10m depth based on the well logs.

Comment: The MBIE Guidance for plan change investigations suggests 0.2 – 0.5 deep test per hectare. This would give 3 to 7 tests for the 13 ha block. The coverage is therefore adequate. However, as the tests were all less than 0.6m deep, the deeper soil profile can only have been inferred from other information. This general area is known for the uniformity of deep gravel dominated soil profile, a relatively deep depth to ground water and a general lack of any issue of geotechnical concern, but the lack of detail on the Ecan well logs used is regrettable.

Geotechnical Hazards

The report concludes that the site is not susceptible to liquefaction due to the deep groundwater and the soil profile. The equivalent Foundation technical category is not mentioned. Other RMA section 106 hazards are not considered. Comment on the 2010-11 earthquakes is included, with there being no record or observation that ground damage occurred.

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Comment: We accept that there is a very low risk of liquefaction at the site given the gravel soils and depth to groundwater. Although general knowledge suggests that there is no or low probability of other geotechnical hazards being present, this is not included in the report.

Engineering design

Details are provided for house foundation design and earthworks. NZS3604:2011 standard shallow house foundations are assessed as being suitable. A 5m setback from the banks of the shallow water race is suggested for building foundations, although this would not be required if the race is filled in with properly engineered earthfill.

Comment: Although not explicitly stated, the tests on the site indicate that the site complies with the definition of "good ground" in NZS3604. The set back from the race is conservative.

Conclusion

The general site area is geotechnically "benign" and we have little issue with the conclusions reached in the report. However, to provide a better basis for accepting the geotechnical suitability of the site for subdivision (the purpose of the plan change), we therefore request some further information on the geotechnical report.

- 1) Please provide data (the well reference number and location relative to the site) for the well logs used to verify the shallow gravel found in the site tests is continuous for many metres.
- 2) Please confirm that the equivalent Foundation Technical Category is TC1.
- 3) Please outline whether the hazards in the RMA section 106 are present or not and if they are, how they may be mitigated.

No additional site testing is needed for this plan change, but it should also be noted that additional testing will be needed at subdivision consent stage, and site specific testing may be required at building Consent stage.

Yours faithfully

Geotech Consulting Limited



Ian McCahon