4415
29 October 2021

Selwyn District Council
PO Box 90
Rolleston

Attention: Liz Whyte

Dear Liz,

RE: Plan Change PC 80
7 - 183 Two Chain Road, Rolleston
Two Chain Road Ltd
Geotechnical Report Peer Review

The land at 7 to 183 Two Chain Road, Rolleston, is subject to a Plan Change application (PC80). This area of about 98 hectare is made up of 13 titles and would be for industrial use if rezoned. It is bordered by Two Chain road to the north, Walkers Road to the west, Main south railway to the south and Midland railway to the east. The geotechnical report submitted with the application is by Tetra Tech Coffey, titled *Geotechnical Assessment Report, 7 to 183 Two Chain Road Plan Change,* dated 24 August 2021, for Two Chain Road Ltd. 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.

Testing and subsoil conditions

Six shallow hand auger boreholes and six test pits up to 3m depth from the NZGD, and eleven well logs of between 35 and 56m depth from the Ecan database have been referenced. More than 50 shallow DCP tests and hand auger boreholes have also been carried out, although their locations or depths are not shown. The deep boreholes include two on the northern side of the site area, seven off the site to the north, one off the site to the west and one off the site to the south. Most of the shallow tests from NZGD all lie off the site to the south, with two to the west and three to the east. Topsoil 0.15 – 0.2m thick is reported as overlying silt with some sand which in turn overlies sandy gravel at between 0.3m and 0.9m depth. The groundwater depth is assessed at between 7.5m and 13m 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 20 to 50 tests for the 98 ha block. The 11 deep tests are therefore well below this suggested range, particularly when the distribution is skewed off the site to the north, but the additional shallow testing confirms the presence of gravel at shallow depths across the wider area. 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. We consider that the testing coverage is sufficient and meets the intent of the MBIE Guidance.*

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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 considered to be TC1-like. Other RMA section 106 hazards are considered to be either not present or of low risk such that any geotechnical hazards can be appropriately avoided, remedied or mitigated.

> *Comment: We accept that there is a very low risk of liquefaction at the site given the gravel soils and depth to groundwater, the TC1 classification is appropriate and section 106 hazards are either not present or can be properly mitigated.*

Conclusion

The lack of any documentation on the "more than 50 " shallow tests over the area is a deficit, as we can only rely on a single sentence as to their existence, and assume that the summary of soil profile accurately encapsulates this data. However, given the general uniformity of the soil profile in the overall area, we consider that no additional site testing is needed for this plan change. The general site area is geotechnically "benign" and we have no issue with the conclusions reached in the report. 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