

4415
26 February 2025

Selwyn District Council
PO Box 90
Rolleston

Attention: Jane Anderson



Dear Jane,

RE: Solar Farm – RC 245775
1352 Homebush Road, Darfield
Geotechnical Summary Peer Review

Geotech Consulting has been asked to carry out a peer review of the geotechnical report submitted as part of the application for the development of a 117 MW solar farm at 1352 Homebush Road (Lot 2 DP 60325 & Lot 1 DP 434071). In particular, the review is to confirm that the report contains sufficient information to a resource consent.

The geotechnical report forwarded is titled *Geotechnical Desktop Assessment, Darfield Solar Farm* dated 18 October 2024, by BCD group, for Darfield Solar and Energy Storage Ltd. The report is a desk study only and the report recommendations are “subject to site testing and verification” with detailed site-specific geotechnical investigation recommended prior to design.

Report Summary

The site for which the report applies, is an irregular area of 154 hectares, adjacent to the Fonterra milk factory and about 3km north of Darfield town. There is an elevation difference of about 17m over the site, but this is on a distance of 2.1 km to give a gradient of about 1 in 125, consistent with the alluvial outwash plain origin.

Data referenced include geological maps, GNS active fault database and the NZ geotechnical database. The latter source provided two 30m deep boreholes from the Fonterra site to the east, 4 test pits to the east and 4 hand auger bores to the northwest. All the tests showed shallow topsoil / sandy silt soils overlying gravel at shallow depths with the gravel continuous to the end of the tests. Groundwater levels in the deep bores during drilling were at 16 – 18m depth. Relevant geological, active fault, liquefaction hazard, flood hazard and contour maps are appended.

Liquefaction hazard is assessed as being very low given the depth to groundwater and gravel soils. Slope stability is not an issue given the effectively level ground setting.

The report concludes that there appear to be no major geotechnical hazards impacting the site. The proposed pile foundations to the solar panels should accommodate any variation in assumed soil profile.

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Conclusions

The soil profile identified is consistent with that in the much wider general area. The BCD report does not refer to wells from the Ecan database. A quick check there confirms additional wells in the general area all with gravel from a shallow depth to the extent of the wells (up to 135m in one well 2km east at Kimberely and 60m close to the north end of the site). We agree that there is minimal to no liquefaction potential at the site and that active faulting is unlikely to be a hazard. The site for the solar farm is geotechnically “benign” and, in our opinion, the desk study is sufficient for resource consent purposes.

We note that the proposed pile foundation system for the solar panels can be easily adjusted for variation in depth to gravel and thus the lack of test data from the site itself does not present the same risks as could apply to an intensive residential development, for instance. Existing development of the Fonterra plant and recent subdivisions in Darfield town, all on essentially the same ground conditions, also demonstrate the suitability of the ground conditions to support a range of development.

We do not consider that any conditions pertaining to geotechnical issues are necessary. Further site testing will be necessary at building consent stage, and can be left until then.

Yours faithfully

Geotech Consulting Limited



Ian McCahon