

188 Beaumont Street – Auckland Council Recommended Draft Geotechnical Consent Conditions

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Condition GT1 - Further geotechnical investigation

Prior to the submission of detailed geotechnical design documentation for certification, the Consent Holder must undertake supplementary geotechnical investigations sufficient to confirm and refine the geotechnical ground model and the geotechnical parameters to be adopted for detailed design. The investigations must be undertaken under the direction of a Chartered Professional Engineer with appropriate geotechnical experience and must include, as appropriate, additional cone penetration testing, boreholes and laboratory testing.

Condition GT2 - Liquefaction assessment and detailed geotechnical design

Prior to the commencement of construction of the building foundations, the Consent Holder must provide to the Council for certification a detailed geotechnical design prepared or reviewed by a Chartered Professional Engineer with appropriate geotechnical experience. The detailed design must incorporate the findings of the supplementary geotechnical investigations required by Condition GT1 and include:

- a) a refined liquefaction assessment undertaken in accordance with applicable New Zealand Geotechnical Society guidance, including consideration of groundwater variability and liquefaction-induced settlement and differential movement;
- b) detailed foundation design that accounts for liquefaction effects, including reduced skin friction, downdrag, changes in lateral stiffness and capacity, and kinematic loading; and
- c) appropriate allowance for the variability of the East Coast Bays Formation rock, including rock strength and pile socket performance.

Condition GT3 - Excavation support and groundwater control

Prior to the commencement of the central and western tower core excavations, the Consent Holder must provide to the Council for certification detailed designs for the temporary excavation support and groundwater control systems prepared or reviewed by a Chartered Professional Engineer with appropriate geotechnical experience. The design must:

- a) provide for the stability of the temporary excavations;
- b) incorporate groundwater cut-off walls around the excavations;
- c) assess anticipated groundwater inflows having regard to site-specific ground conditions and tidal influences; and
- d) demonstrate that the excavation support and groundwater control systems are designed to avoid adverse settlement or lateral ground movement effects on adjacent buildings, structures and services.

The groundwater cut-off walls must be installed and maintained for the duration necessary to undertake the relevant excavation and dewatering works.

Condition GT4 - Geotechnical construction monitoring

Prior to the commencement of building foundation or core excavation works, the Consent Holder must prepare a Geotechnical Construction Monitoring Plan (GCMP) and submit it to the Council

for certification. The GCMP must be prepared by a Chartered Professional Engineer with appropriate geotechnical experience and must identify, as appropriate to the final detailed design:

- a) the geotechnical aspects of the works requiring construction monitoring;
- b) methods for verifying that ground and groundwater conditions encountered during construction are consistent with the design ground model and assumptions;
- c) groundwater level monitoring during excavation and dewatering works, including monitoring locations, monitoring frequency, trigger levels and reporting requirements, unless the detailed geotechnical design demonstrates that such monitoring is unnecessary;
- d) appropriate trigger levels for identified geotechnical risks; and
- e) the contingency actions to be implemented where a trigger level is exceeded or materially different ground or groundwater conditions are encountered.

The Consent Holder must implement the GCMP throughout the relevant construction works.

Condition GT5 - Geotechnical supervision

All geotechnically relevant foundation, excavation and groundwater control works must be undertaken under the supervision of a Chartered Professional Engineer with appropriate geotechnical experience, to the extent necessary to verify that the works have been undertaken in accordance with the approved detailed geotechnical design and the conditions encountered during construction.

Condition GT6 - Geotechnical completion certification

Within three months following completion of the building foundation and relevant geotechnical works, the Consent Holder must provide the Council with written certification from a Chartered Professional Engineer with appropriate geotechnical experience confirming that the works have been completed in accordance with the detailed geotechnical design required by these conditions, subject to any changes made in response to the ground conditions encountered during construction.

The certification must be supported by relevant producer statements or equivalent documentation, including PS2 and PS4 where applicable.