

17 October 2024

Gordonton Retirement Village
c/- Barker Associates Ltd
PO Box 9342
Waikato Mail Centre
Hamilton 3240

Attention: Rebecca Shaw

Dear Rebecca

SUMMARY OF PRELIMINARY GEOTECHNICAL FINDINGS FOR THE PROPOSED RETIREMENT VILLAGE
NO. 57 PIAKO ROAD, GORDONTON – REF: J5420/1

1. INTRODUCTION

We have been engaged by Barker and Associates Ltd to provide a preliminary geotechnical review for the proposed retirement village development at the above-mentioned site. The following is a summary memo of our preliminary geotechnical findings of the proposed project for which a fast-track application under the Natural and Built Environment Act 2023 is being applied for to cover the consenting of:

- The construction of a retirement village comprising of 659 residential units, cafe, apartment style accommodation and health care provisions.
- Roading, pedestrian, cycling infrastructure associated with the retirement village
- Water, wastewater and stormwater infrastructure associated with the retirement village
- Disturbance of earthworks associated with the retirement village
- Water Take Permit
- Water Discharge Permit

2. PROPOSED DEVELOPMENT VISION

The purpose of this project is to establish a retirement village/estate which has a point of difference to reflect the rural values and attributes of the site and surrounding locality and to provide much needed aged care living for the Waikato District & Region. The project shall include grazing land in and around the site to break up what would be the typical perception of a retirement village. An additional point of difference is also ensuring the site provides connectivity with the village of Gordonton through pedestrian walkways and/or cycleways.

The project shall create a unique village/estate style layout with 7 or so 'clusters' of housing. Each cluster is intended to be of approximately 6 hectare (ha) and having a density of approximately 15 -20 units per ha (approximately 120 housings/ units per cluster). A proposed concept plan is appended.

It is intended to provide on-site amenities/ facilities including a communal facility with the main centre offering typical village amenities, cafe, apartment style accommodation and further health care provision. Provision of infrastructure will all be managed on site.

3. SITE DESCRIPTION

3.1 General

The proposed site is of irregular shape and is approximately 66.55Ha comprised in one record of title 676234 legally described as Lot 3-4 Deposited Plan 328606 and Lot 2 Deposited Plan 481700. The site has a relatively flat topography (refer Figure 1 below).

Remnant forest vegetation occupies fragments of the site comprised within a small grove dominated by kahikatea (*Dacrycarpus dacrydioides*) with other native species present such as lemonwood (*Pittosporum eugenoides*), tī kōuka (*Cordyline australis*) and pōhuehue (*Muehlenbeckia australis*). The grove of remnant forest vegetation within the site is not marked as a Significant Natural Area (SNA) on current operative plan maps.



Figure 1: Site Topography¹

¹ Source: <https://waikatmaps.waikatoregion.govt.nz/Viewer/?map=8d6d6fda779b4e59951953ae97d0ec4a>

The site has approximately 3.8 km of stream habitat. There are seven artificial watercourses with a combined length of approximately 2.6 km and five modified watercourses with a total length of approximately 1.2 km. The site is identified to have a stream/ water body running along the west boundary adjoining with the Gordonton village identified as the Komakorau Stream.

3.2 Zoning

The site is zoned as 'Rural' under the Waikato Operative District Plan (ODP) and General Rural Zone under the Waikato Proposed District Plan – Appeals Version (PDP-AV). It adjoins Gordonton Primary School to the north also identified as Designation C31 under the ODP and Designation MEDU-29 under the PDP-AV. The site is also applicable to a Site of Significance to Maaori (item 284) which is detailed to be the Otaahua Paa and is described as a Paa site with shallow ditch, depressions and a small terrace.

4. SUMMARY OF PRELIMINARY GEOTECHNICAL FINDINGS

4.1 General

This report comprises of a preliminary review of our Stage 1 Geotechnical Site Investigations and Assessment supporting the 'fast track' consenting application. The site investigations took place in May 2024 and comprised eighteen bore holes and twelve CPT probes located strategically across the site. The data was analysed and computed to provide a preliminary review of the ground conditions and geotechnical hazards present across the site. The key areas and issues that impact on the proposed development were discussed with the wider design team. This review summarises our May 2024 geotechnical report² findings.

4.2 Review Summary

The site was divided into three main areas where similar ground conditions were present as demonstrated in Figure 2. Weak and organic rich soils were encountered at shallow depths, underlain by medium dense to dense Sands. A cemented sand layer was encountered near the ground surface at small portion of Area A.

² GWE Consulting Limited – Gordonton Retirement Village, Preliminary Geotechnical Review for Proposed Retirement Village Report dated May 2024 (Ref: J5420)

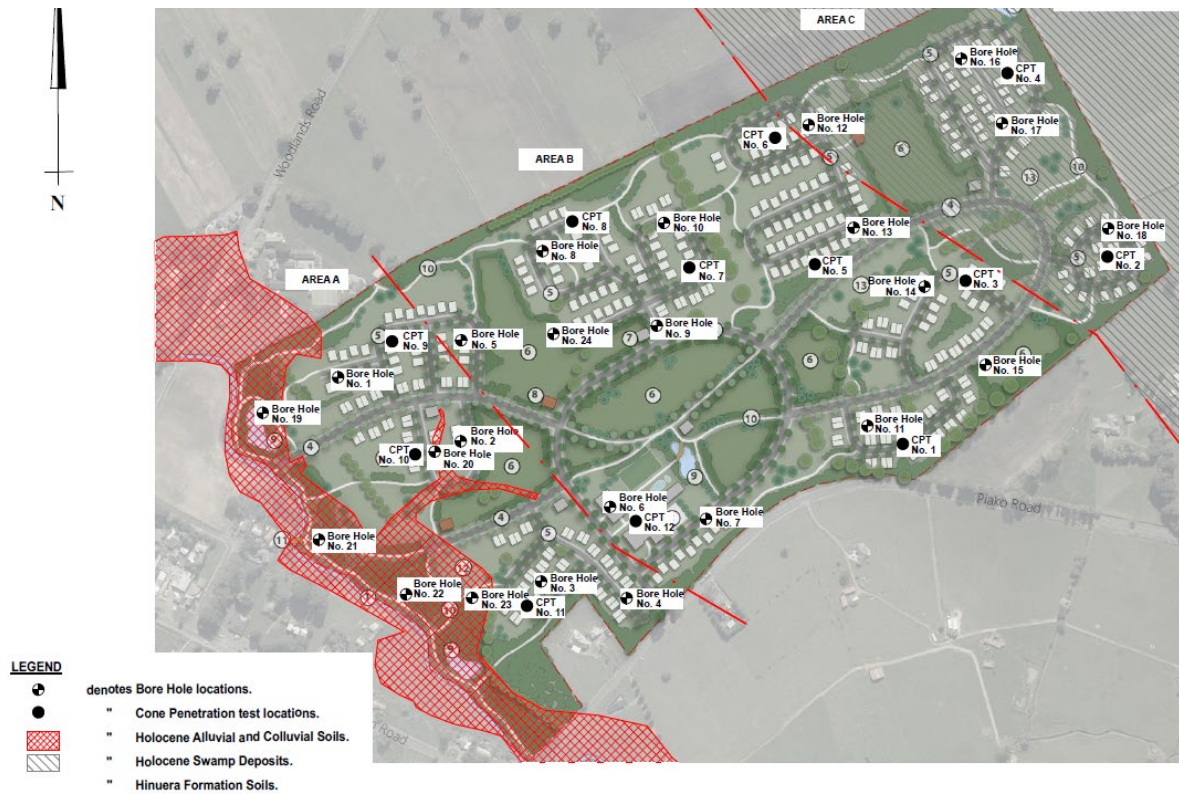


Figure 2: Site Plan - Geology

Surface water was observed within most of the farm drains closer to the Koakorua Stream in Area A. Groundwater levels are expected to typically be within 1m to 2m within the low-lying areas and may rise to the ground surface during prolonged wet weather. Groundwater levels are expected to typically be within 4m of the ground surface within elevated areas.

Notable identified geotechnical hazards for the development include soft and compressible soils and liquefaction in a moderate to high earthquake. The Seismic Liquefaction Hazard Zones for the site is shown on Figure 3.

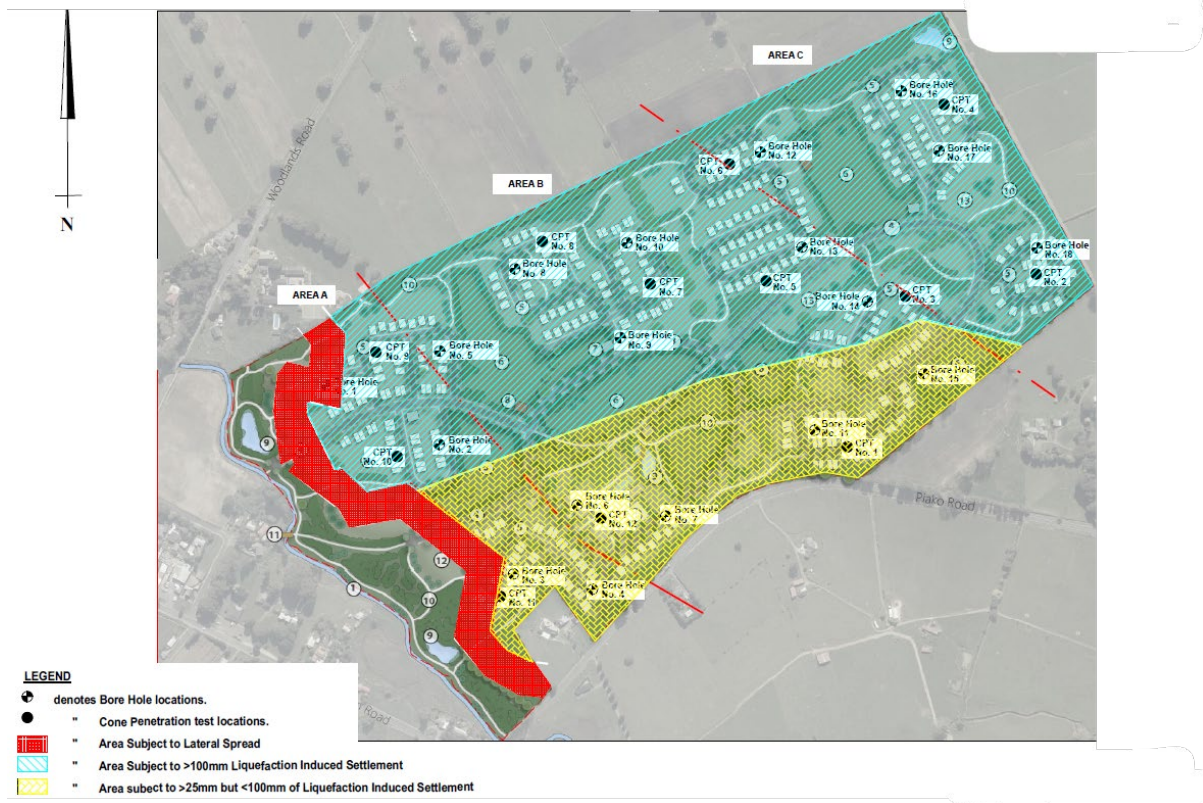


Figure 3: Site Plan - Seismic Liquefaction Hazard Zone

4.3 Conclusion

In summary the identified geotechnical hazards are not anticipated to prohibit the development of the site, though some may influence the economic feasibility of development in some areas. Our main conclusions and recommendations are summarised below:

- Engineer design foundations are expected to be suitable for each proposed building to counter the effects of liquefaction induced settlement and areas where greater than 100mm of settlement is predicted will require hybrid system with strengthened foundation and a geogrid reinforced gravel raft.
- Since the weak soils are present within the 0.5m to 1m of the ground surface, this will need to be removed and replaced with hardfill or Pit Sand to the underside of foundation level.
- The subgrade testing for the pavement will need to be carried out in order to estimate amount of undercut and compaction required to achieve an adopted design California Bearing Ratio (CBR) of 10.
- Installation of groundwater monitoring wells with level loggers is recommended to further refine the seismic model as part of the Stage 2 testing.

5. LIMITATIONS

This report has been prepared for the sole benefit of **Gordonton Retirement Village** as our Client, and their appointed representatives, according to their instructions, for the specific objectives described herein. This report is qualified in its entirety and should be considered in the light of our Terms of Engagement with the Client and the following:

- a. Data or opinions contained within the report may not be used in other contexts or for any other purpose without our prior review and written agreement. Any reliance will be at the parties' sole risk.
- b. No responsibility is assumed for inaccuracies in reporting by the information providers. In no event, regardless of whether GWE's consent has been provided, does GWE accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party to whom this report is disclosed placing any reliance on this report, in part or in full.
- c. GWE has relied on information provided by the Client and by third parties to produce this document and arrive at its conclusions. GWE has not verified information provided (unless specifically noted otherwise) and we assume no responsibility and make no representations with respect to the adequacy, accuracy, or completeness of such information. No responsibility is assumed for inaccuracies in reporting by the information providers.
- d. Only a finite amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. Due to the inherent variability in natural soils and subsurface conditions, it is unlikely that the results, assumptions, and conclusions set out in this report represent the extremes of conditions at any location removed in time and/or place from the specific points of sampling. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.
- e. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- f. Subsurface conditions, such as groundwater levels, can change over time. This should be borne in mind, particularly if the report is used after a protracted delay.

Sincerely

GWE Consulting Engineers

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