Environment Canterbury
Regional Council
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31st May 2022

Graham Fowler
fowlerg@xtra.co.nz

Dear Graham

SECTION 3 BLOCK IV RESERVE 959 – 606 RIDGE ROAD, MOTUKARARA

Flood Hazard

The property is located within the floodplain of the Halswell River catchment and is susceptible to flooding from this source.

Enclosed are photographs from 1986 and 2013 taken following heavy rainfall in the area. Note that photographs are unlikely to show flooding at its peak as there is usually a delay between the cessation of rainfall and the taking of photographs.

Enclosed is a LiDAR map showing ground levels across the property. LiDAR is an airborne laser system that surveys ground topography. When compared to known survey points, the data has an accuracy of ± 150 mm or better. The ground levels, surveyed in 2017, are presented in meters – Lyttelton 1937 Datum (LVD 37). This map shows ground levels at the proposed lots 2, 3 and 4 are around 2.4 – 3.0 m LVD 37.

Selwyn District Council has recently completed rain-on-grid flood modelling for the majority of the district. This modelling includes 200 and 500 year average recurrence interval (ARI) events. Results of this modelling at proposed lots 2, 3, and 4 show flood levels of 2.95 and 3.0 m LVD 37 for the modelled 200 and 500 year events respectively. Mapped results of this modelling are available here:

https://apps.canterburymaps.govt.nz/FloodModelResults/?extent=1555035.4565%2C5168598.6822%2C1573380.3433%2C5176624.5701%2C2193

Chapter 11 of the Canterbury Regional Policy Statement provides a framework for managing natural hazard risk in Canterbury. Policy 11.3.1 of this document seeks to avoid new subdivision, use, and development in 'High Hazard' areas. These are defined as areas where the water depth is greater than 1 m (or where the water depth (m) x velocity (m/sec) is greater than 1) in a 500 year ARI flood event. The primary aim of this policy is to minimise the risk to life associated with deep and/or fast moving floodwaters. Based on the information outlined above, proposed lot 5 would be considered a high hazard area while proposed lots 2, 3 and 4 are outside of high hazard areas.

Policy 11.3.2. of the Canterbury Regional Policy Statement states that development should be avoided in areas subject to inundation in a 200 year ARI flood event unless a range of conditions are met. These include the requirement for new buildings to have a floor level above the 200 year ARI design flood level.

Based on the information outlined above, **any new dwelling at proposed lot 2, 3 or 4 as shown on the enclosed LiDAR map with a floor level of at least 3.25 m LVD 37** would provide a standard of mitigation consistent with the Canterbury Regional Policy Statement.

Our Ref: HAZA/FLD/ASS/CHC/22512
Your Ref:
Contact: Callum Margetts

When using the information provided in this letter, it is important that the following points are understood:

- The information is limited to what Environment Canterbury currently has available. The District Council or local residents may have further information about flooding at the property.
- Environment Canterbury's understanding of flooding at the property may change in the future as further investigations are carried out and new information becomes available.
- It is assumed that flood protection works will be maintained to at least their current standard in the future.
- Stopbank failure can occur at flows less than the design standard, and the location of bank failure/overtopping may affect flood depths/levels at the property.
- Flood flow paths and depths/levels can be affected by changes on the floodplain such as:
  - Earthworks, road alterations, and irrigation structures
  - Property development including buildings, fencing, and hedges
  - Blockages in culverts, drains, and bridges
  - Seasonal vegetation growth
  - Antecedent soil conditions

The prediction of flood depths/levels requires many assumptions and is not an exact science.

Yours sincerely

Callum Margetts

Scientist (Natural Hazards)

Encl. Photograph No. 520 (24/08/1986)
Photograph No. 0140 (23/06/2013)
2017 LiDAR Map

0140 - Looking east across Ridge Road toward the Halswell River Canal - 23-06-2013

24/08/1986

520. Halswell Canal. Christchurch/Akaroa Road lower left. (South)

606 Ridge Road, Motukarara - 2017 LiDAR map - Lyttelton 1937 Datum

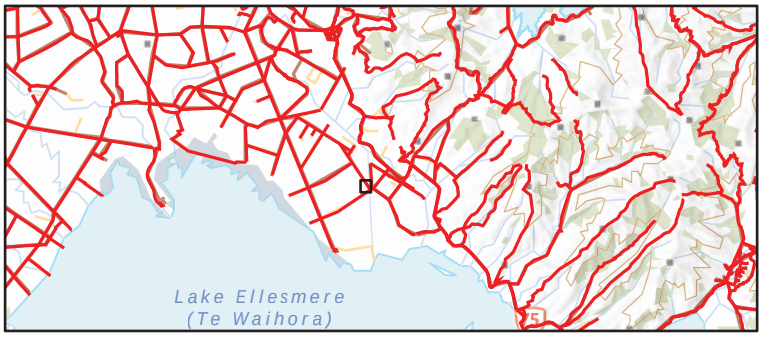
Legend

Roads

0 25 50 100

Metres

N



Lot 4

Lot 3

Lot 2

Lot 1

Ridge Road

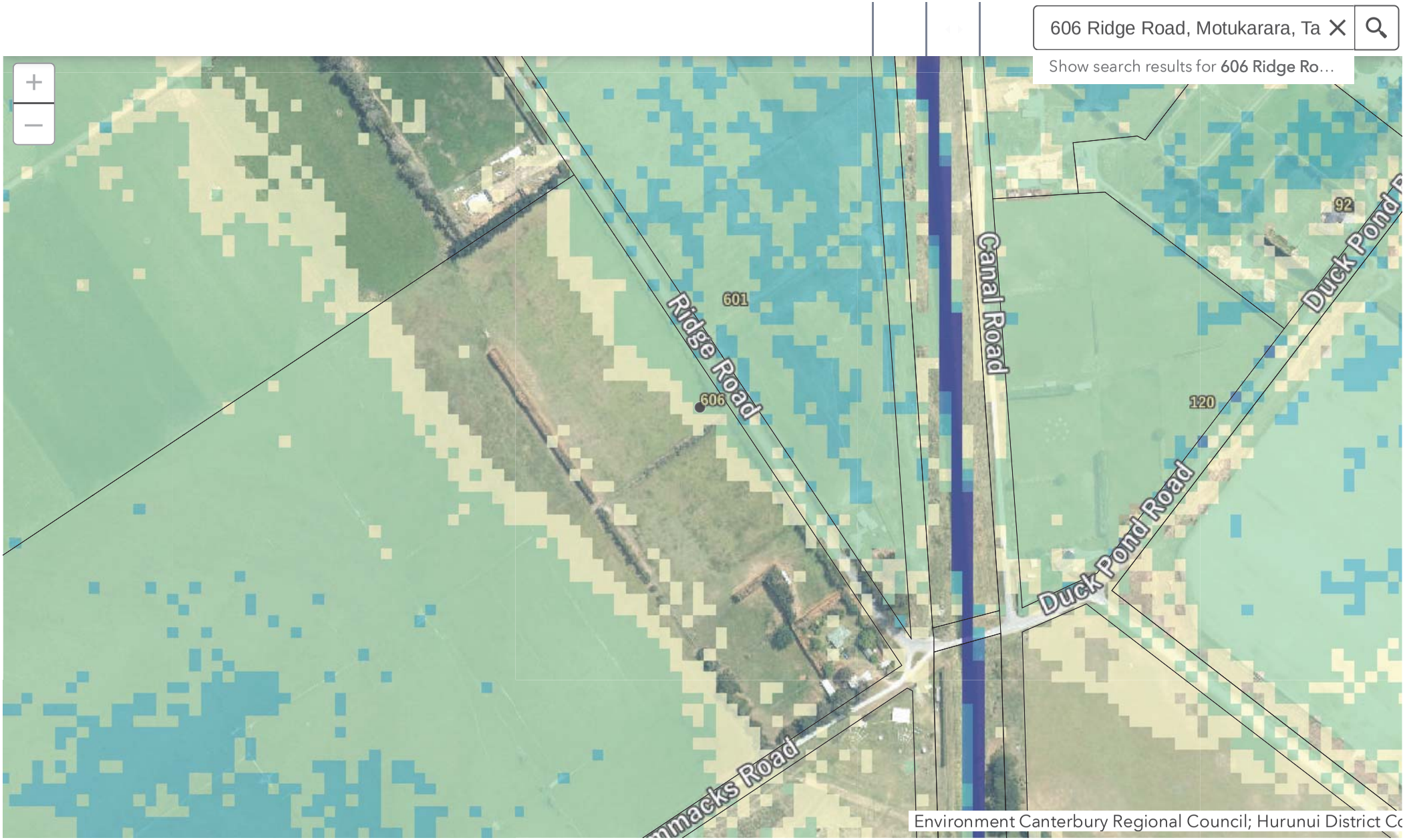
Gammacks Road

Legend

2017 LiDAR map

Value

- **< 1.8**
- **1.8 - 2.0**
- **2.0 - 2.2**
- **2.2 - 2.4**
- **2.4 - 2.6**
- **2.6 - 2.8**
- **2.8 - 3.0**
- **3.0 - 3.2**
- **> 3.2**


606 Ridge Road, Motukarara, Ta
Show search results for 606 Ridge Ro...
Ridge Road
Canal Road
Duck Pond Road
601
606
92
120
Environment Canterbury Regional Council; Hurunui District Co
100m