

Buckler Burn flood hazard assessments - Summary of technical report findings

Glenorchy township is developed on the alluvial fan formed by the Buckler Burn and therefore may be exposed to flooding, debris-flooding, or debris flow hazards from this catchment.

A flood hazard investigation has been undertaken to understand in more detail the flooding characteristics (e.g., floodwater extent, depth, velocity) and potential impacts of the flooding hazard from the Buckler Burn for the Glenorchy township.



Overview of the Buckler Burn stream and alluvial fan, with Glenorchy township located the northern side of stream's active channel. Photograph dated May 2018.

The study

The flood hazard investigation was completed by Land River Sea Consulting Ltd. The report was peer reviewed by an independent expert, and review comments have been addressed in the finalised report.

The new investigation uses computer modelling to simulate a range of large flood event scenarios for the Buckler Burn, ranging from flows of 100 to 300 m³/s. For comparison, the Buckler Burn flood with a 1% chance of occurring in any one year (sometimes called the '100-year' flood) has been estimated to have a flow of 80-170 m³/s.

Modelled scenarios also looked at the effects of sediment deposition in the stream channel (aggradation), to examine the effects of these changes to the channel on flooding hazard.

Flooding hazard findings

The investigation confirmed that there is a potential flood hazard to Glenorchy from the Buckler Burn.

In the larger modelled scenarios, some floodwaters spill northwards from the Buckler Burn channel, and then run along Oban Street into Glenorchy township.

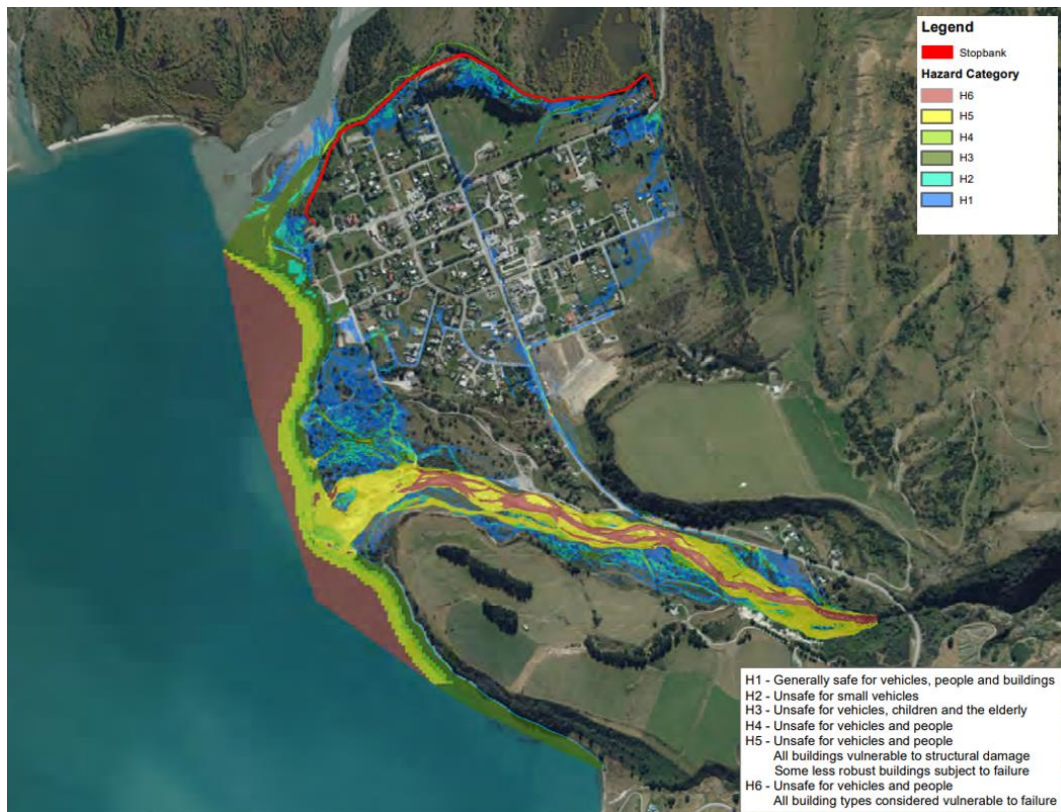
The assessment shows that most flooding into the township area would be relatively shallow (less than 0.3 metre depth), but some floodwaters are modelled to be deeper and faster, particularly along the roads.

The severity of the flooding hazard is assessed by the combination of the depth and speed of the floodwaters. Where floodwaters are relatively shallow, the hazard is classed as '*generally safe*', however there are localised areas of the higher hazard classes where floodwater impacts may be more damaging.

The images below show maps of modelled floodwater depth and hazard classification for a Buckler Burn flooding scenario with a 300 m³/s peak flow. Results for the full range of modelled scenarios can be viewed in the technical report, and a selection of model results will also be displayed on the ORC Natural Hazards Portal.



Model results showing floodwater depths for a Buckler Burn flooding scenario with a 300 m³/s peak flow. In this scenario minor floodwaters flow into the township area, mainly flowing northwards along Oban Street and around the eastern margin of the township.



Model results showing flood hazard category for a Buckler Burn flooding scenario with a 300 m³/s peak flow.

What's next?

The Buckler Burn flood hazard assessment results will be used in the natural hazard risk assessment project which is currently being undertaken.

ORC is reviewing report findings and assessing prioritisation for any next steps for further hazard assessment or hazard management activities.

For more details on the flood hazard study

- The technical report by Land River Sea Consulting Ltd:
<https://www.orc.govt.nz/media/15511/buckler-burn-flood-hazard-report.pdf>
- A summary of report findings was included in the November 2023 update paper for ORC Councillors (Paragraphs 50-55 of the paper, and in Section 2 of Appendix 1). The peer reviewer's comments on the technical report are also included as an appendix (from page 191). <https://www.orc.govt.nz/media/15510/updates-presented-to-council-november-2023.pdf>.