

Technical Memorandum

Terrane Geoscience, Inc • 2089 Maitland St. Halifax, NS B3K2Z8 • 902.407.5720

Via Email:	Joe Mitchell <jmitchell@summerland.ca>
To:	Joe Mitchell, Director of Works and Infrastructure, Deputy CAO
From:	Brittany Linnett, P.Eng., Senior Geotechnical Engineer
cc:	Bobby Williamson, Manager of Development Service
Date:	August 24, 2026
Re:	Preliminary Slope Hazard Assessment, Garnet Valley North Summerland, BC
Project No.	2605393

Introduction

Brittany Linnett, P.Eng. of Terrane Geoscience Inc (Terrane) was contacted by Bobby Williamson of the District of Summerland (DoS), on August 16, 2026 regarding slope hazard assessments for areas of Summerland impacted by the Bald Range Fire. From information discussed in a meeting on August 16, 2026 there are multiple areas of Summerland where the Bald Range Fire burnt slopes uphill of homes, potentially causing dangerous conditions. A consulting rate sheet was requested and provided by Terrane on August 16, 2026. Brittany Linnett, P.Eng., completed field assessments for Garnet Valley on August 18 and 19, 2026.

The Bald Range Fire started on August 7, 2026 and at the time of this memorandum had burned 24,096 Hectares including portions of the Hunters Hill, Cartwright, Garnet Valley, Deer Ridge, and outlying areas of the DoS. This memorandum focuses on the Garnet Valley north neighbourhood and the immediate surroundings, which is located west of downtown Summerland (See Figure 1).

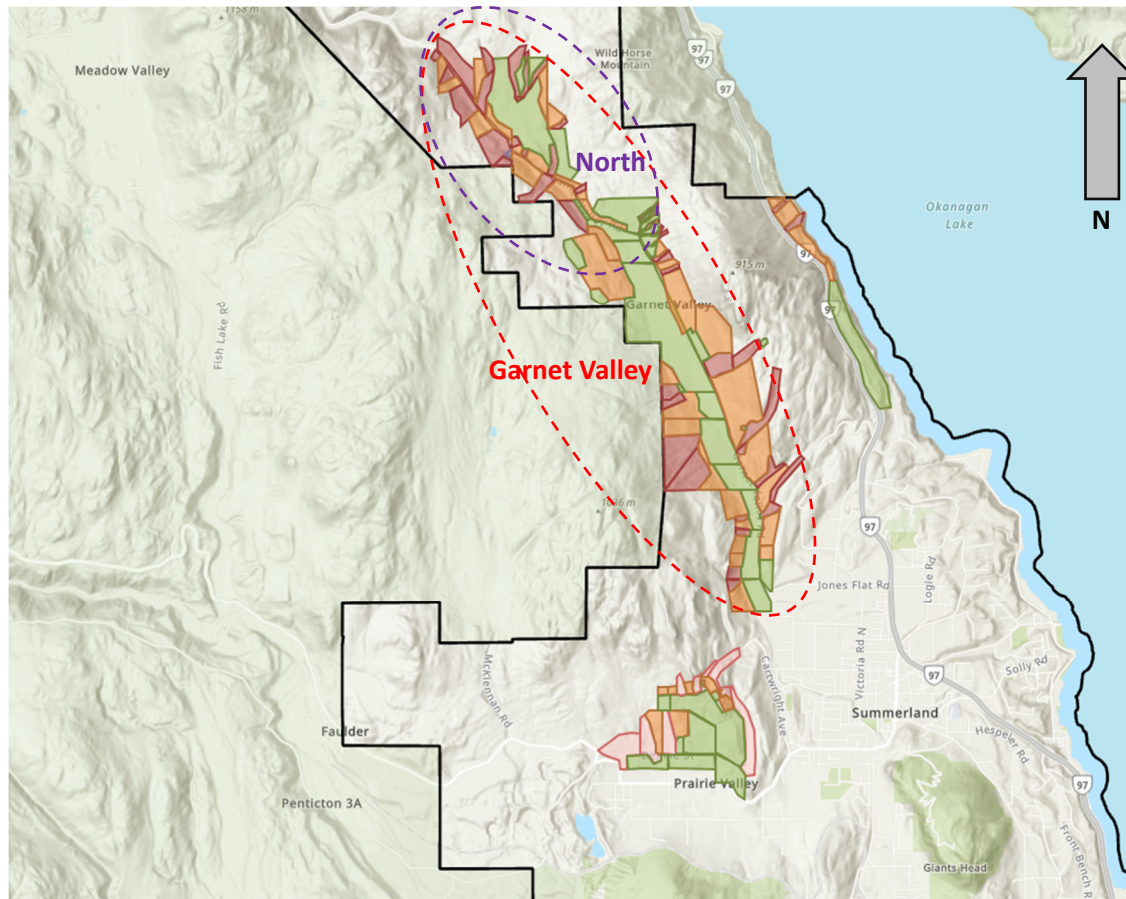


Figure 1 - Site Location (from DoS Spatial Viewer)

Scope of Work

The following scope of work was discussed on August 16, 2026:

- Site Visit - A senior geotechnical engineer site visit to observe the slope conditions, burn impacted areas, and slopes around potentially impacted homes.
- Develop initial *Re-entry Criteria* memorandum - Observations from the site visit summarized and hazard criteria applied as needed to the impacted areas for potential evacuations or other measures, as well as potential long-term recommendations.

Site Visit Observations

Brittany Linnett, P.Eng. completed a site reconnaissance of the Garnet Valley neighbourhood on August 18 and 19, 2026. This memo summarizes Garnet Valley north of Wildhorse Rd, and properties on Wildhorse Road.

The following observations were noted (Note – Photos are included in Appendix A attached):

- Two properties on Wildhorse Rd (25205 and 25208) were included in the assessment. Some potential hazard zones on slopes and in gullies were noted, but no homes or habituated buildings were observed within. The crush pad on 25205 Wildhorse Rd may be within a runout zone and multiple large retaining walls in the winery area should be subject to a more detailed post wildfire inspection (Photo 1).
- 25804 Wildhorse Rd was not accessible at the time of the site assessment as there were down power lines.
- Homes and buildings on Garnet Valley Rd north of Wildhorse Rd which are close to the base of the slope and/or situated within the potential runout zones of burnt gullies and/or heavily burn steep slopes are at risk of potential post wildfire impacts (Photo 2-3). Buildings in red potential runout zones (Figures 2-3) include but may not be limited to:
 - 25600 Garnet Valley Rd
 - 27088 Garnet Valley Rd
 - 27218 Garnet Valley Rd
 - 28000 Garnet Valley Rd
 - 28214 Garnet Valley Rd
 - 28412 Garnet Valley Rd
 - 28610 Garnet Valley Rd
 - 28818 Garnet Valley Rd
 - 28411 Garnet Valley Rd
 - 28808 Garnet Valley Rd
 - 28996 Garnet Valley Rd (trailer)
 - 28999 Garnet Valley Rd
- Buildings in orange potential slope hazard zones (Figures 2-3) include but may not be limited to:
 - 27413 Garnet Valley Rd
 - 28804 Garnet Valley Rd
 - 28996 Garnet Valley Rd



- The buildings at 27006 were damaged in the fire, however the slope immediately behind the building location appeared to have significant potential rockfall hazards, as well as having burned intensely. A detailed geotechnical slope stability assessment should be completed prior to reconstruction of any buildings (Photo 4).
- In other locations along Garnet Valley Rd burnt gullies may cause impacts to the road and properties in future, however no buildings are in the direct runout path (Photo 5)

Recommendations

In the meeting with DoS, rainfall triggers for post wildfire debris flows and slope instability were discussed. Generally, post wildfire slopes are vulnerable to debris flows and/or landslide hazards during high intensity and/or prolonged rainfall events.

Statlu Environmental Consulting developed rainfall trigger guidelines which are detailed in the report “*Wet Weather Shutdown Criteria*” for the MFLNRORD Southern Engineering Group, dated April 29, 2021. For the purposes of the initial hazard assessment these criteria developed for the southern interior of British Columbia are considered to be applicable.

Table 1 details rainfall intensity and total shutdown criteria for different zones. In the case of wildfire experienced within the last 3 years the “Identified Unstable Conditions” triggers are recommended.

Table 1 - Proposed Shutdown Criteria (from Statlu, 2021)

Zone	Zone (annual precipitation)	Time Period			
		One hour	12 hour	24 hour	48 hour
1	Very wet (1,500 mm to 3,000 mm)	N/A	28 mm	35 mm	60 mm
2	Wet (1,100 mm to 1,500 mm)	N/A	25 mm	30 mm	50 mm
3	Average (600 mm to 1,100 mm)	10 mm	22 mm	25 mm	40 mm
4	Dry (100 mm to 600 mm)	8 mm	18 mm	20 mm	30 mm
5	Identified Unstable Conditions	6 mm	10 mm	15 mm	20 mm

For the purposes of the initial assessment and re-entry criteria development it is Terrane’s recommendation that homes immediately downhill of fire impacted slopes, or downslope of fire impacted drainages, are evacuated if the Zone 5 precipitation criteria are met (Table 1). Impacted properties in the Garnet Valley neighbourhood are shown in Figures 2, 3, and 4, below. Red areas have a higher risk of long term impacts due to slope height and or/grade, runoff channels, or known historic drainages.

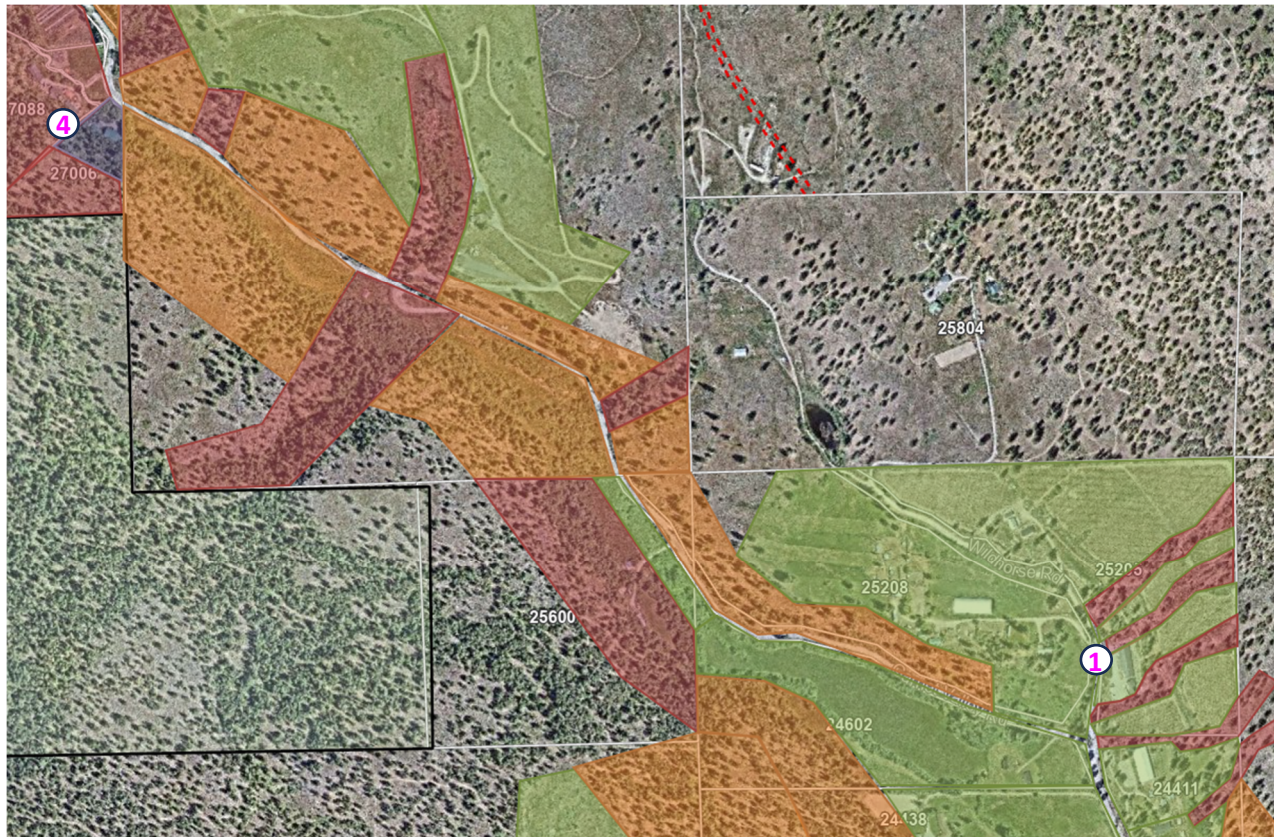


Figure 2 – Garnet Valley Properties Potentially Impacted by Post-Wildfire Slope Hazards (Red and Orange). Property unsafe prior to detailed geotechnical assessment (Purple). Areas not considered at increased risk from slope hazards (Green). Approximate Photo locations in pink. Imagery from DoS Spatial Viewer August 20, 2026.

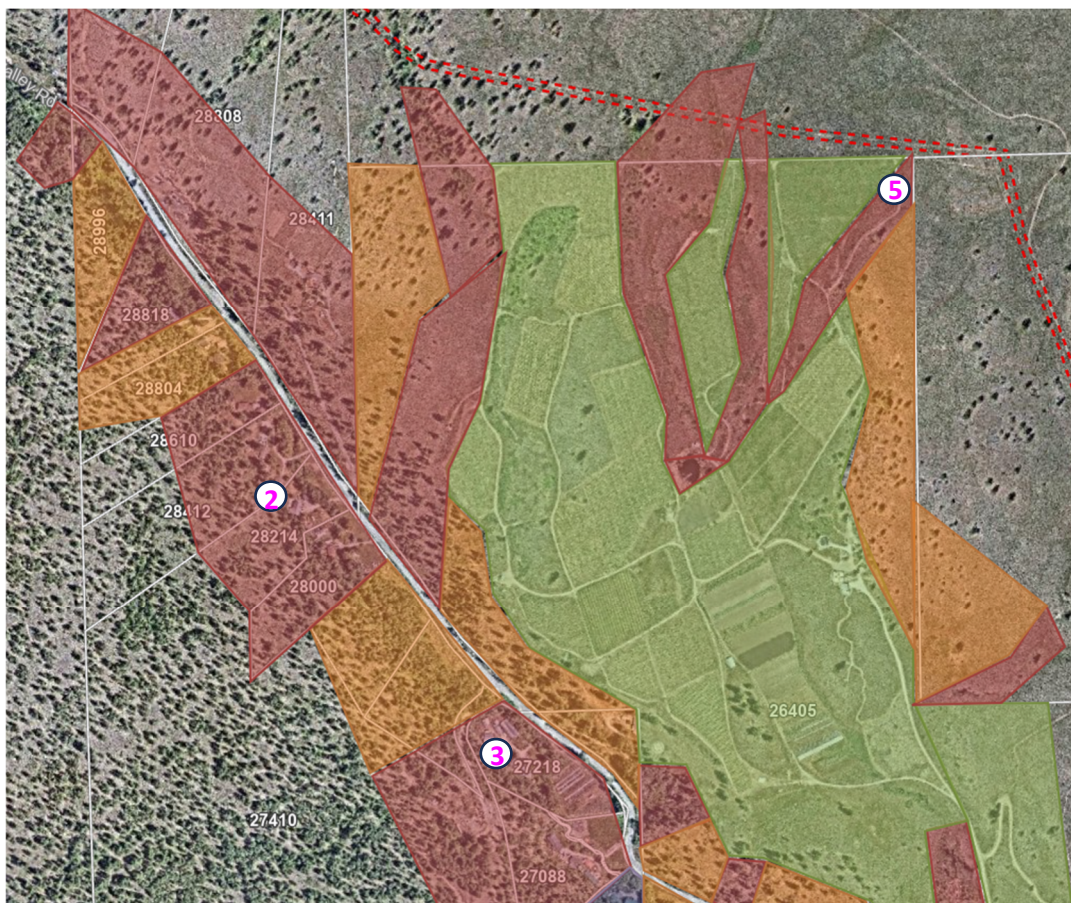


Figure 3 – Garnet Valley Properties Potentially Impacted by Post-Wildfire Slope Hazards (Red and Orange). Properties not considered at increased risk from slope hazards (green). Approximate Photo locations in pink. Imagery from DoS Spatial Viewer August 20, 2026.

The following recommendations apply to the rainfall and evacuation criteria:

- Impacted properties should remain evacuated until 24 hours after the end of the rain event for 1 hour, 12 hour, and 24 hour criteria, or 48 hours after the end of the rainfall event if the 48 hour criteria is exceeded (see Table 1), or after an assessment by a qualified professional engineer.
- A rainfall gauge with remote monitoring and alarm capabilities should be placed within 2.5 km and 150 m of elevation of the impacted areas. If remote monitoring is not available, then the gauge should be checked hourly during significant rainfall. Snowmelt is not included in the criteria detailed in this memo.

In addition to measures resulting from the exceedance of rainfall criteria, the public and DoS should remain aware of other indicators of geotechnical instability. These can include but are not limited to:

- Pulses of sediment-laden (turbid) water in streams, especially in gullies,
- Streams suddenly drying up when conditions are otherwise wet,
- Constant small rock falls,

- Cutslope slumps that block ditches and/or roads,
- Tension cracks appearing in road fills or slopes,
- Recent avalanches, landslides, or debris flows or their deposits observed that were not present during the previous day; and,
- Diverted streams with flow appearing in new stream courses that were previously dry.

If any of these indicators of instability are observed, potentially impacted properties should be evacuated until a qualified professional engineer has assessed the site.

Properties not highlighted were not included in the site reconnaissance at the time of this memorandum. Potentially dangerous tree assessment, fire hazard, and other non-geotechnical hazard assessments are not included within the scope of this memo.

Long term slope stability and potential debris flow/debris flood hazards should be assessed by a Qualified Geotechnical Engineer prior to removal of the rainfall evacuation criteria noted above. Long term hazards should also be evaluated for potential impacts to roads and infrastructure. Terrane would be happy to provide these services if requested.

Closure

Please contact us with any questions, comments or concerns.

Regards,

Terrane Geoscience Inc.



Brittany Linnett, P. Eng.

Senior Geological Engineer
Phone: 778-829-3433
blinnett@terranegeoscience.com

EGBC PTP No. 1000608

Appendices

Appendix A Photo Log

A handwritten signature in black ink, appearing to read "T. Gilman".

Tony L Gilman, M.Sc., P.Eng, P.Geo

VP / Senior Geotechnical Engineer
Phone: 902-210-5182
tgilman@terranegeoscience.com





Photo 1. Burnt slope and gully above the crush pad on 25205 Wildhorse Rd looking east.



Photo 2. Heavily burnt slope and gully above 28214 Garnet Valley Rd looking south.

Client:

District of Summerland

Project:

Garnet Valley North Preliminary Slope
Hazard Assessment



YY/MM/DD 2026-08-21

Prepared BL

Design

Reviewed TLG

Approved

Title:

Photographs – TGI 1-5

Project #:

2605393

Page 1 of 3



Photo 3. Burned slopes uphill of remaining buildings looking southwest.



Photo 4. Heavily burned steep slope above 27006 Garnet Valley Rd looking south.

Client:

District of Summerland

Project:

Garnet Valley North Preliminary Slope
Hazard Assessment



YY/MM/DD 2026-08-21

Prepared BL

Design

Reviewed TLG

Approved

Title:

Photographs – TGI 1-5

Project #:

2605393

Page 2 of 3



Photo 5. Burned slopes and drainages within 26405 Garnet Valley Rd looking west.

Client:
District of Summerland

Project:
Garnet Valley North Preliminary Slope
Hazard Assessment



YY/MM/DD 2026-08-21

Prepared BL

Design

Reviewed TLG

Approved

Title:

Photographs – TGI 1-5

Project #:

2605393

Page 3 of 3