



June 18, 2026

Project 1880-005

Peace River Regional District
Box 810, 1981 Alaska Avenue
Dawson Creek, BC, V1G 4H8

Attention: Mike Watkins, General Manager of Protective Services

Old Fort Landslides – Opinion on Imminent Risk

1.0 INTRODUCTION

Old Fort is an unincorporated community located on the north bank of the Peace River, south of the City of Fort St John (FSJ) and within the jurisdiction of the Peace River Regional District (PRRD). Old Fort Road, maintained by the BC Ministry of Transportation and Transit (MoTT), is the only vehicle access into the community. Parts of Old Fort and Old Fort Road are situated on the deposits of landslides that originated from the valley wall to the north, and that predominantly pre-date the development of the community.

In September 2018, a large landslide (referred to herein as the Old Fort Slide) occurred immediately west of the main part of the community (Drawing 01 and 02). The landslide comprised many interconnected parts, including:

- A compound bedrock slide (Rockslide) originating at the top of the valley. This slide appeared to move along a weak, sub-horizontal layer in the bedrock and had an estimated volume of 4.6 million cubic metres
- An elongated earth flow (Earth Flow) that extended from the bedrock slide to a back channel of the Peace River
- A translational earth/bedrock slide within pre-existing landslide deposits located on the lower valley slope immediately west of the earth flow (West Slide).

The Earth Flow and West Slide destroyed Old Fort Road, severing access to the community and causing PRRD to issue an evacuation order that lasted for about a month. The West Slide also caused severe damage to two homes. While nobody was killed or injured, the 2018 Old Fort Slide caused significant hardship and financial impacts to residents and property owners, PRRD, MoTT and other affected parties.

Parts of the Old Fort Slide, including the Rockslide and the Earth Flow, reactivated in June 2020, coincident with a rainstorm. The Earth Flow movement destroyed Old Fort Road and resulted in another road closure and evacuation order that also lasted about a month.

Old Fort Road was destroyed for a third time by acceleration of the Rockslide and Earth Flow in April 2026, coincident with rapid snowmelt during a late-spring freshet. The PRRD issued an evacuation order on April 20, 2026, and an evacuation alert covering an expanded area on April 23, 2026 (Drawing 01 and 02). MoTT re-established temporary road access on May 21, 2026, at which time PRRD rescinded the pre-existing evacuation order and alert. Residents and service providers were advised that they could return to the area, but a new evacuation alert covering the prior alert and order area was issued as a precautionary measure due to the temporary nature of the access road surface.

The Minister of Emergency Management and Climate Readiness (EMCR) issued a Ministerial Order of Emergency Measures on May 21, 2026, specifying that the PRRD conduct a geotechnical assessment of the Assessment Area (the areas covered by the PRRD evacuation orders and alerts) to identify the risk to individuals and property from the landslide and to identify what actions, if any, may be needed to respond to or recover from the Landslide Emergency.

PRRD requested that BGC Engineering Inc. (BGC) prepare a scope of work to conduct a geotechnical assessment in accordance with the Ministerial Order.

BGC's proposal, dated May 26, 2026, recommended the assessment be conducted in phases. In Phase 1, BGC would conduct the investigations necessary to form an opinion on whether the Old Fort Slide or other landslides within the Assessment Area present an imminent risk to the safety of residents. If an imminent risk was not identified, BGC would advance to subsequent phases to assess the future risk to property and individuals from the Old Fort Slide and other landslides in the Assessment Area as set out in the Ministerial Order.

Funding for Phase 1 was approved by EMCR on May 27, 2026, at which time PRRD directed BGC to proceed with this phase of work. The assessment is being carried out under terms of an agreement between BGC and PRRD dated May 25, 2026.

This letter documents the results of Phase 1 and provides an opinion on imminent safety risk.

2.0 DEFINITION OF IMMINENT RISK

BGC recommended that an assessment of imminent risk be conducted in advance of addressing questions raised in the Ministerial Order about future risk to property and individuals because we understood that such an opinion would support a decision by PRRD to remove the evacuation alert, and by EMCR to terminate Emergency Support Services. Proper assessment of future landslide risk to property and individuals is expected to take several months to complete, while it was expected that an assessment of imminent safety risk could be completed more quickly.

Opinions from engineers and geoscientists are often sought by local governments to support decisions about declaring and rescinding local states of emergency related to landslides, floods and other hazards. The need to declare a state of emergency, as outlined by the Emergency and Disaster Management Act (EDMA) requires both a 'potential cause' and a 'threshold for action' to be met (Ministry of Emergency Management and Climate Readiness (EMCR), May

2026). In relation to geohazards, the former relates to an event that has occurred, is ongoing, or appears to be ‘imminent’ while the latter relates to the requirement for prompt coordination of action or the special regulation of persons or property to protect the health, safety, and well-being of persons, property, objects, or sites of heritage value.

The conditions to declare a state of emergency are often easily demonstrated with the two requirements outlined above. In contrast, rescinding a state of emergency can be significantly more challenging because there is often an awareness that residual hazard and risk remain and these often exceed levels that would be considered tolerable, over the long-term, for new and existing development. Some local governments in British Columbia have defined hazard and risk tolerance criteria for new and existing development, but to our knowledge there is no agreement on what constitutes “imminent risk.”

Recently, EMCR outlined that while EDMA does not define ‘imminent’ – a situation is generally not considered imminent where “there is only a long-term risk, or where a harmful event could occur at some point but there is no credible near-term indication that it will occur soon.” With this, and for the purposes of this assessment focused on life-safety risks to people in existing residences in the study area, BGC proposes the following definition of imminent safety risk:

An imminent safety risk is a situation where the probability of injury or fatality appears intolerable and significantly greater than it was prior to the events that triggered the state of emergency.

We propose that “intolerable” means higher than would normally be tolerated for existing development, and “significantly greater” means more than ten times greater, recognizing that the risk prior to and following the event will often not have been quantified.

In plain language terms, if the level of landslide safety risk at Old Fort appears to have returned to a level similar to what it was after the evacuation orders and alerts were rescinded following the events in 2018 and 2020, the risk can no longer be considered imminent. This does not mean that the risk is low or within levels considered tolerable in other Canadian jurisdictions; it just means that the risk appears similar to what residents and service providers have been living with for the past several years.

3.0 ASSESSMENT METHOD

Based on the definition of imminent safety risk outlined above, BGC completed its assessment and formed its opinions by conducting the following activities.

- We identified landslide scenarios that could lead to injury or loss of life (beyond closure of Old Fort Road and resulting restrictions to access to emergency services). These included:
 - The occurrence of a large, Very Rapid (>3 metre per minute) to Extremely Rapid (>5 metre per second) landslide causing structural collapse of homes, or a sudden and un-detected loss of Old Fort Road. Such an event would typically be preceded by days to months of slower movements.

- Prolonged exposure of gas service lines to Extremely Slow (<16 millimetre per year) or faster movement within new or pre-existing landslide deposits, causing a leak that could lead to an explosion or fire. Landslide displacement could also damage electrical services, which could result in fire or electrical hazard. Such an event would typically require several tens of centimetres of differential landslide movement which, proximal to homes, would typically also cause cracking in home foundations or walls and make it difficult to open windows and doors.
 - The presence of deep tension cracks that could be a source of harm if people fell into them.
- We reviewed the recent PRRD evacuation orders and alerts, and technical reports prepared by BGC and others during and following prior events, including:
 - Emergency Landslide Assessment, Old Fort, BC (Westrek Engineering Services Ltd., October 2018)
 - Peer Review of Westrek Geotechnical Services' Emergency Assessment of Old Fort Landslide (BGC Engineering Inc., November 2018)
 - Old Fort Road Landslide Airborne Lidar Scanning Change Detection (BGC Engineering Inc., August 2020)
 - Geohazard Assessment of the Old Fort Area (Tetra Tech Canada Inc., June 2021)
- We held discussions with PRRD and MoTT about the events that occurred during the most recent landslide event, and actions taken to restore road access and monitor ongoing movement. BGC did not conduct an independent assessment of the stability of Old Fort Road.
- We reviewed historical lidar topography from 2012, 2019, 2021, 2023 and 2025, and acquired a new lidar survey on June 2, 2026.
- We conducted lidar change detection analysis using the available topographic data to look for evidence of recent large slope displacement outside the obvious extents of the 2026 Old Fort Slide. Results of this analysis were made accessible to PRRD via our Cambio integrated site monitoring platform and some of the results are shown on Drawing 02.
- Michael Porter, P.Eng., and Lisa Tauskela completed a brief field reconnaissance on June 15 and 16, 2026, to confirm evidence of change identified in the lidar change detection, and to look for additional evidence of slope deformation outside the obvious extents of the 2026 Old Fort Slide.

4.0 OPINIONS AND RECOMMENDATIONS

Based on the proposed definition of imminent safety risk, and the assessment described above, it is BGC's opinion that the residual landslide hazard and risk within the Assessment Area does not meet the definition of imminent risk at the time of this assessment. Supporting evidence for our opinion is outlined below.

MoTT restored a temporary road access across Old Fort Slide on May 21, 2026. The Old Fort Road was functional at the time of BGC's field reconnaissance on June 15 and 16, 2026. Based

on discussion with MoTT (Gordon Hunter, personal communication, June 10, 2026), their assessment and opinion are that the likelihood of an Extremely Rapid failure impacting the road is low. They intend to conduct ongoing monitoring of select GNSS (GPS) monitoring hubs and the MoTT maintenance contractor will continue to conduct visual patrols to detect changes in roadway condition that would warrant further response. While the potential for future closures remains high from slow Earth Flow movements, the current situation is not consistent with the proposed definition of imminent risk.

MoTT's assessment that the likelihood of Extremely Rapid failure impacting the road is low is consistent with international experience with landslides in flat-lying clay shales like those present at Old Fort – there is very little precedent for these landslides to move Extremely Rapidly (BGC Engineering Inc., November 2018).

The June 2, 2026 lidar and comparison against 2025 lidar showed limited evidence of topographic change outside the extents of the Old Fort Slide (Drawing 02). There is subtle evidence of potential deformation on the upper parts of the landslide complex east of the Old Fort Slide, but this could also reflect noise in the data and the amount of apparent change is less than what was observed at these locations during the 2018 and 2020 landslide events. Subtle topographic change consistent with landslide movement below the north-east corner of the Old Fort Lookout near the intersection of 265 Road and 100th Street was also evident, but recent movement does not appear to have impacted fences or signage at the lookout. Based on the lidar and LCD, the landslide hazard and risk appear similar to that following the 2018 and 2020 landslide events.

The June 15 and 16, 2026 field reconnaissance found no visual evidence of recent (post-2025) landslide displacement outside of the areas noted in the LCD. Photographs documenting site conditions at the time of BGC's field reconnaissance are accessible through PRRD's Cambio site.

As noted in Tetra Tech's 2021 geohazard assessment, much of the Assessment Area was assigned a qualitative Moderate to High landslide hazard. The 2026 reactivation of the Old Fort Slide, and BGC's lidar and field reconnaissance observations are consistent with Tetra Tech's assessment. While landslide risk to property and individuals has not been quantified by Tetra Tech or BGC, the current level of hazard and risk appear similar to what residents and service providers have been tolerating since the Tetra Tech report was issued.

Despite BGC's opinion that conditions do not currently meet the definition of imminent risk, the potential for the Old Fort Slide and other landslides within the Assessment Area to reactivate or accelerate appears high. This could be triggered by rainstorms this summer, snowmelt during the next spring freshet, a gradual rise in groundwater levels if the region experiences multiple years of above-average precipitation, site grading activities, progressive weakening of the soil and bedrock that might not be associated with any obvious trigger, or a combination of these factors.

In the near-term BGC recommends the appropriate authorities continue with active monitoring, including monitoring of the MoTT instrumentation, visual inspection, and completion of

additional lidar acquisition and change detection analysis in the fall to help manage risk from the elevated landslide hazard present within the Assessment Area. Residents should be advised to notify PRRD if they detect any signs of landslide displacement impacting their homes, such as the formation of cracks in foundations or walls, or challenges with opening doors or windows. A copy of this report ought to be provided to gas and other service providers to the community.

To support an understanding of future risk and identification of appropriate options to manage risk, BGC recommends that EMCR approve proceeding with the second phase of work outlined in our May 2026 proposal.

5.0 CLOSURE

We trust the above satisfies your requirements. Should you have any questions or comments, please do not hesitate to contact us.

Yours sincerely,

BGC Engineering Inc.
per:



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EGBC Permit to Practice, BGC Engineering Inc. 1000944

LT/AM/LH/md

Attachment(s): Limitations
References
Drawings

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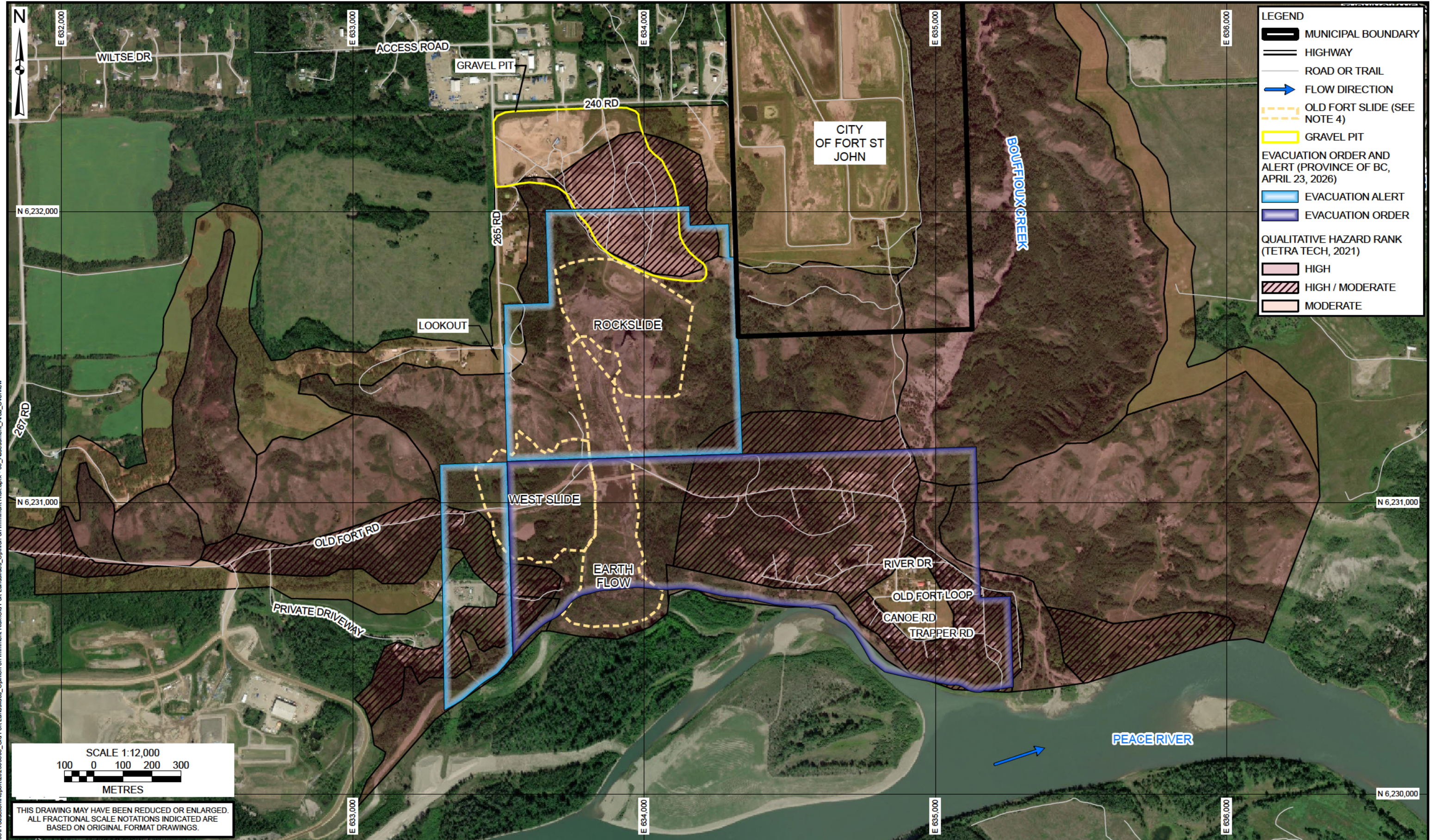
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REFERENCES

- BGC Engineering Inc. (2018, November 29). Peer Review of Westrek’s Emergency Assessment of Old Fort Landslide [Letter]. Prepared for Peace River Regional District.
- BGC Engineering Inc. (2020, August 6). Old Fort Road Landslide Airborne Lidar Scanning Change Detection [Final Report]. Prepared for BC Ministry of Transportation and Infrastructure.
- Ministry of Emergency Management and Climate Readiness (2026, May 21). Order of the Minister of Emergency Management and Climate Readiness. Prepared for Peace River Regional District.
- Tetra Tech Canada Inc. (2021, June 24). Geohazard Assessment of the Old Fort Area. Prepared for Peace River Regional District.
- Westrek Engineering Services Ltd. (2018, October 29). Emergency Landslide Assessment, Old Fort, BC [Draft Report]. Prepared for Peace River Regional District.

DRAWINGS





LEGEND

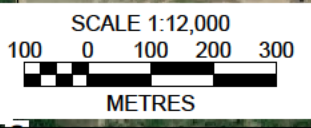
- MUNICIPAL BOUNDARY
- HIGHWAY
- ROAD OR TRAIL
- FLOW DIRECTION
- OLD FORT SLIDE (SEE NOTE 4)
- GRAVEL PIT

EVACUATION ORDER AND ALERT (PROVINCE OF BC, APRIL 23, 2026)

- EVACUATION ALERT
- EVACUATION ORDER

QUALITATIVE HAZARD RANK (TETRA TECH, 2021)

- HIGH
- HIGH / MODERATE
- MODERATE



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NOTES:

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- BASE IMAGERY FROM ESRI WORLD_IMAGERY_BASEMAP, DATED JULY 2024.
- OLD FORT SLIDE EXTENTS DELINEATED FROM BGC'S REPORT TITLED "PEER REVIEW OF WESTREK GEOTECHNICAL SERVICES' EMERGENCY ASSESSMENT OF OLD FORT LANDSLIDE" DATED NOVEMBER 29, 2018.
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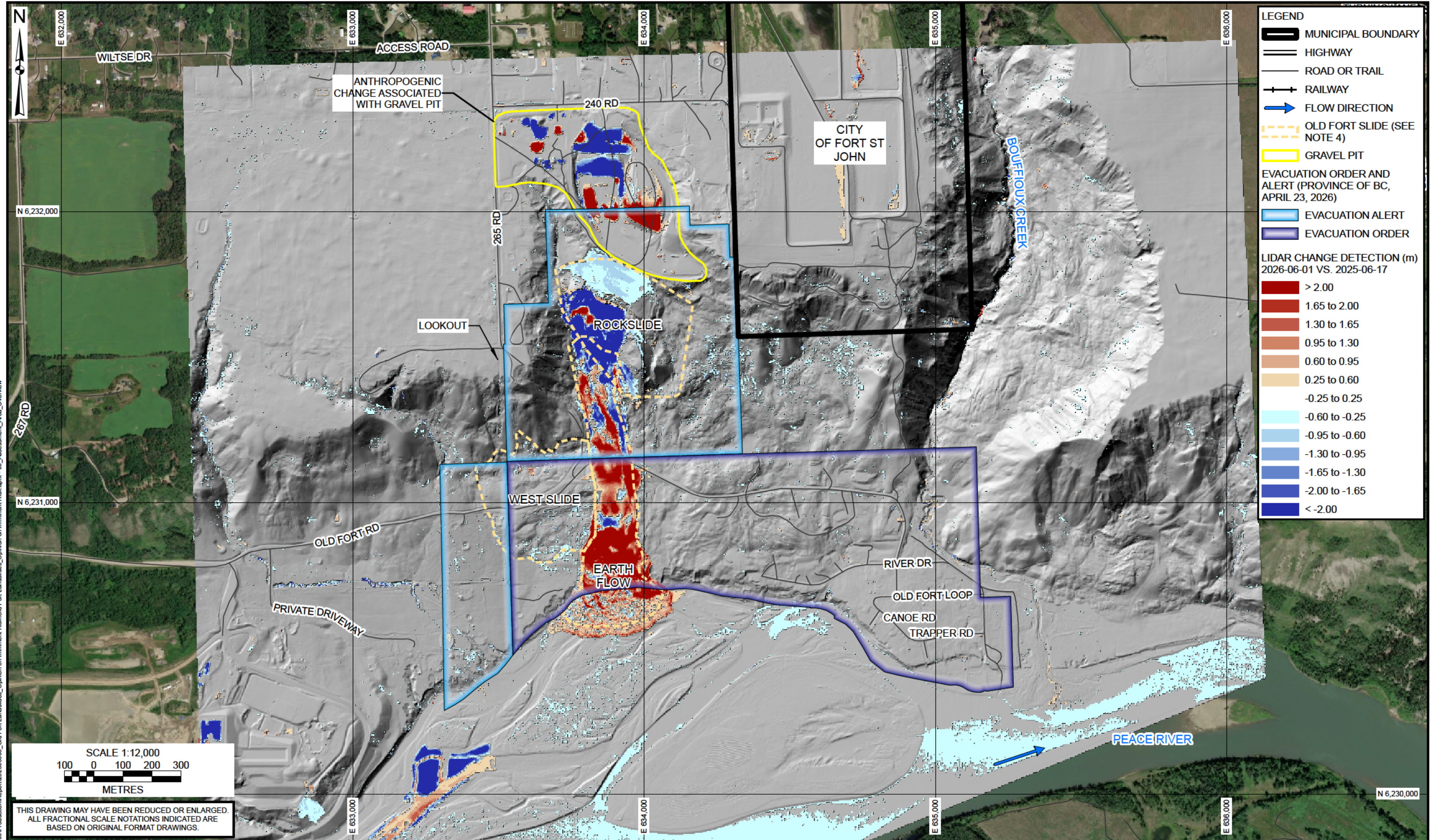
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| OLD FORT LANDSLIDES - OPINION ON IMMINENT RISK | |
| TITLE: | |
| ASSESSMENT AREA OVERVIEW | |
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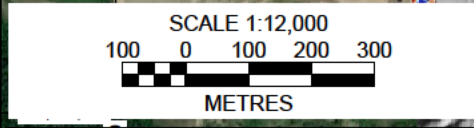
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- ROAD OR TRAIL
- RAILWAY
- FLOW DIRECTION
- OLD FORT SLIDE (SEE NOTE 4)
- GRAVEL PIT

EVACUATION ORDER AND ALERT (PROVINCE OF BC, APRIL 23, 2026)

- EVACUATION ALERT
- EVACUATION ORDER

**LIDAR CHANGE DETECTION (m)
2026-06-01 VS. 2025-06-17**

- > 2.00
- 1.65 to 2.00
- 1.30 to 1.65
- 0.95 to 1.30
- 0.60 to 0.95
- 0.25 to 0.60
- 0.25 to 0.25
- 0.60 to -0.25
- 0.95 to -0.60
- 1.30 to -0.95
- 1.65 to -1.30
- < -2.00



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 - THIS DRAWING MUST BE READ IN CONJUNCTION WITH BGC'S REPORT TITLED "OLD FORT LANDSLIDES - OPINION ON IMMINENT RISK", AND DATED JUNE 2026.
 - BASE TOPOGRAPHIC DATA BASED ON LIDAR COLLECTED BY AIRBORNE IMAGING, DATED 2025, AND TERRA REMOTE SENSING, DATED 2026. BASE IMAGERY FROM ESRI WORLD_IMAGERY_BASEMAP, DATED JULY 2024.
 - OLD FORT SLIDE EXTENTS DELINEATED FROM BGC'S REPORT TITLED "PEER REVIEW OF WESTREK GEOTECHNICAL SERVICES' EMERGENCY ASSESSMENT OF OLD FORT LANDSLIDE" DATED NOVEMBER 29, 2018.
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| TITLE: AERIAL LIDAR CHANGE DETECTION JUNE 2025 VS JUNE 2026 | |
| PROJECT No.: | DWG No.: |
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