

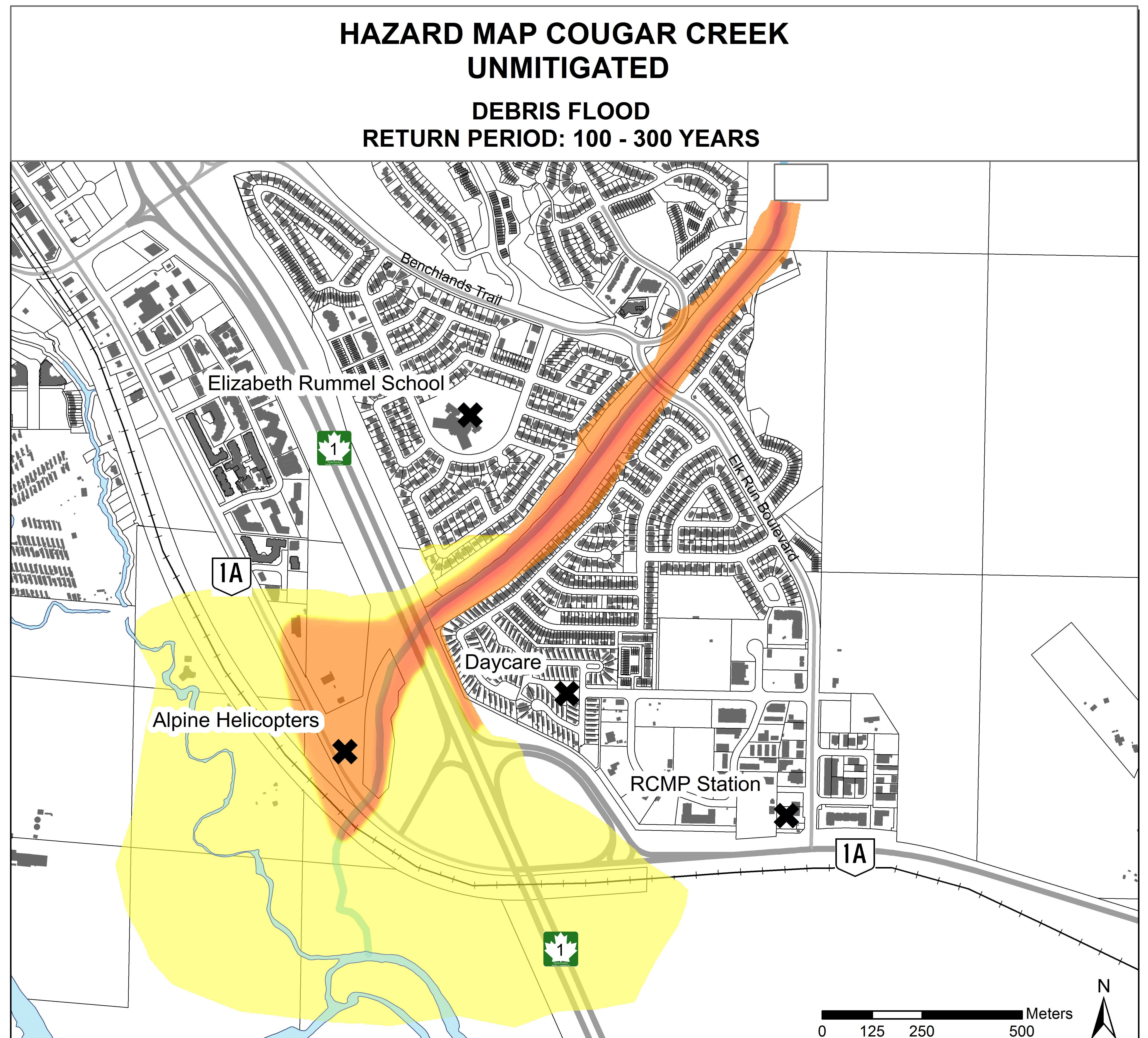
Hazard Map - Large Debris Flood Event

The 100 - 300 year return period debris floods result in avulsions at Trans Canada Highway, Highway 1A and CP Railway. Also several properties along the channel are affected.

There is a 55% chance of an event of this size occurring in an average lifetime.

Legend

- Very fast flowing and deep water and debris. High likelihood of severe building structure damage and severe sediment and water damage. Extremely dangerous to people in buildings, on-foot or in vehicles.
- Fast flowing and deep water and debris. High likelihood of moderate to major building structure damage and severe sediment and water damage. Very dangerous to people in buildings, on-foot or in vehicles.
- Potentially fast flowing but mostly shallow water with debris. Moderate likelihood of major sediment and/or water damage. Potentially dangerous to people on the first floor or in basements of buildings, on-foot or in vehicles.
- Slow flowing shallow and deep water with little or no debris. High likelihood of water damage. Potentially dangerous to people in buildings, on-foot or in vehicles in areas with higher water depths.



Hazard Map - Landslide Dam Outbreak Flood





A number of debris flood return period classes were assessed as part of the detailed studies, the largest of which is a 1,000 to 3,000 year return period class.

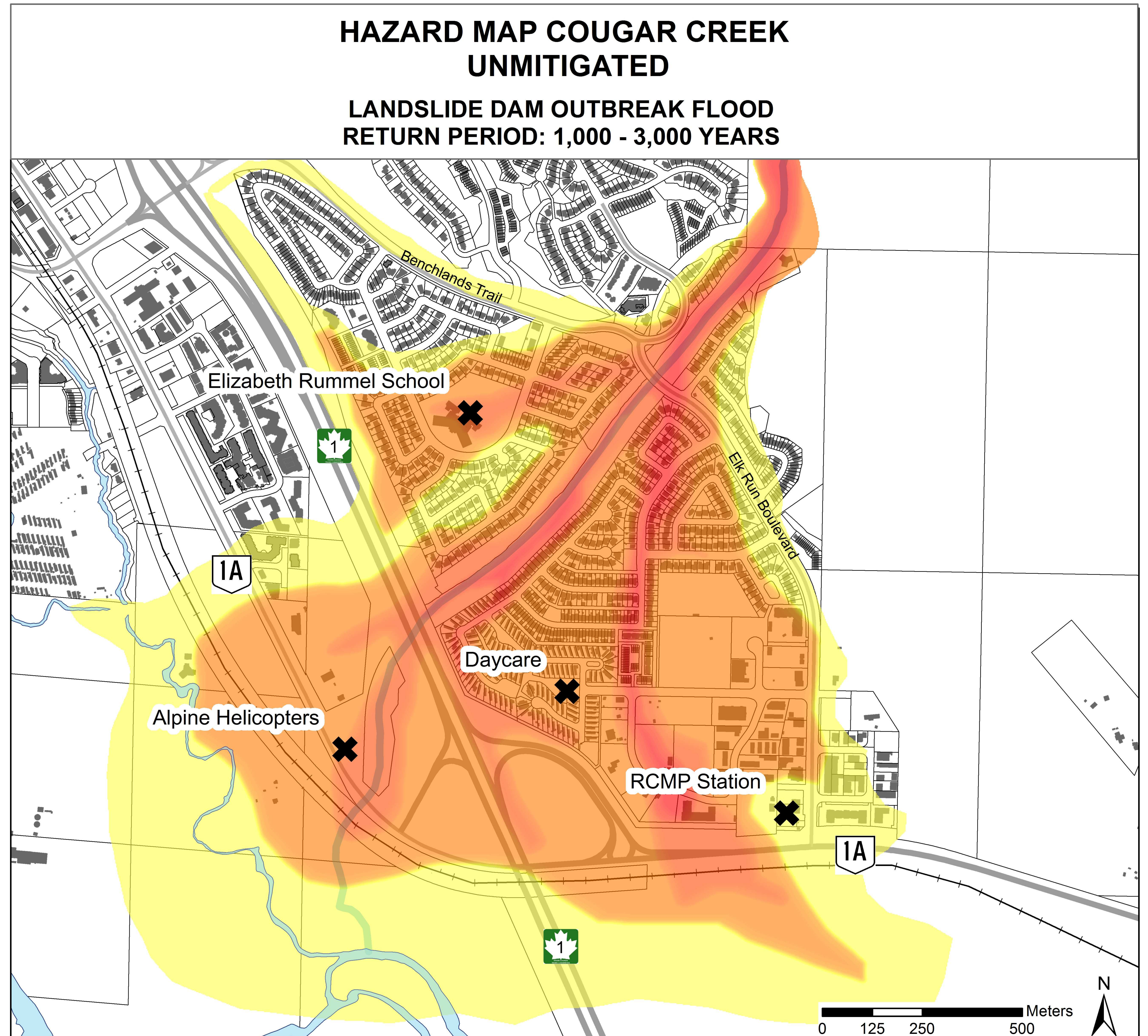
This size of event is associated with a Landslide Dam Outbreak Flood (see Landslide Dam Outbreak Flood board for more information)

There is a 5% chance of an event of this size occurring in an average lifetime.

Based on investigations on the fan, the last event of this size occurred roughly 800 years ago.

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Landslide Dam Outbreak Floods

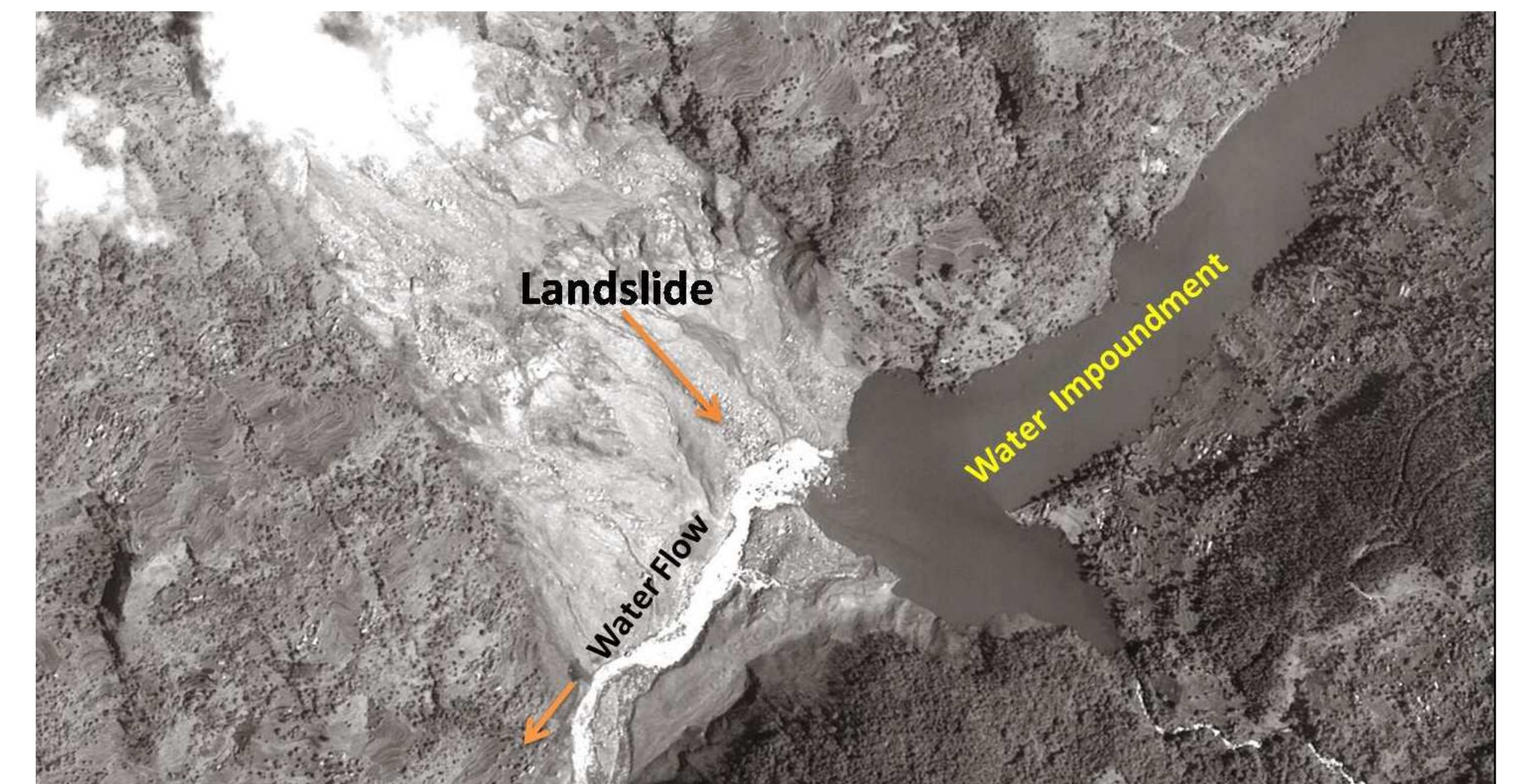
The Cougar Creek watershed has a geology and topography that is prone to the development of landslide dams in the main creek channel.

Landslide dams can impound significant volumes of water that eventually result in outbreak floods, sending a large surge of water and debris downstream.

This failure typically occurs within 24 hours, leaving little time for detection and emergency response.



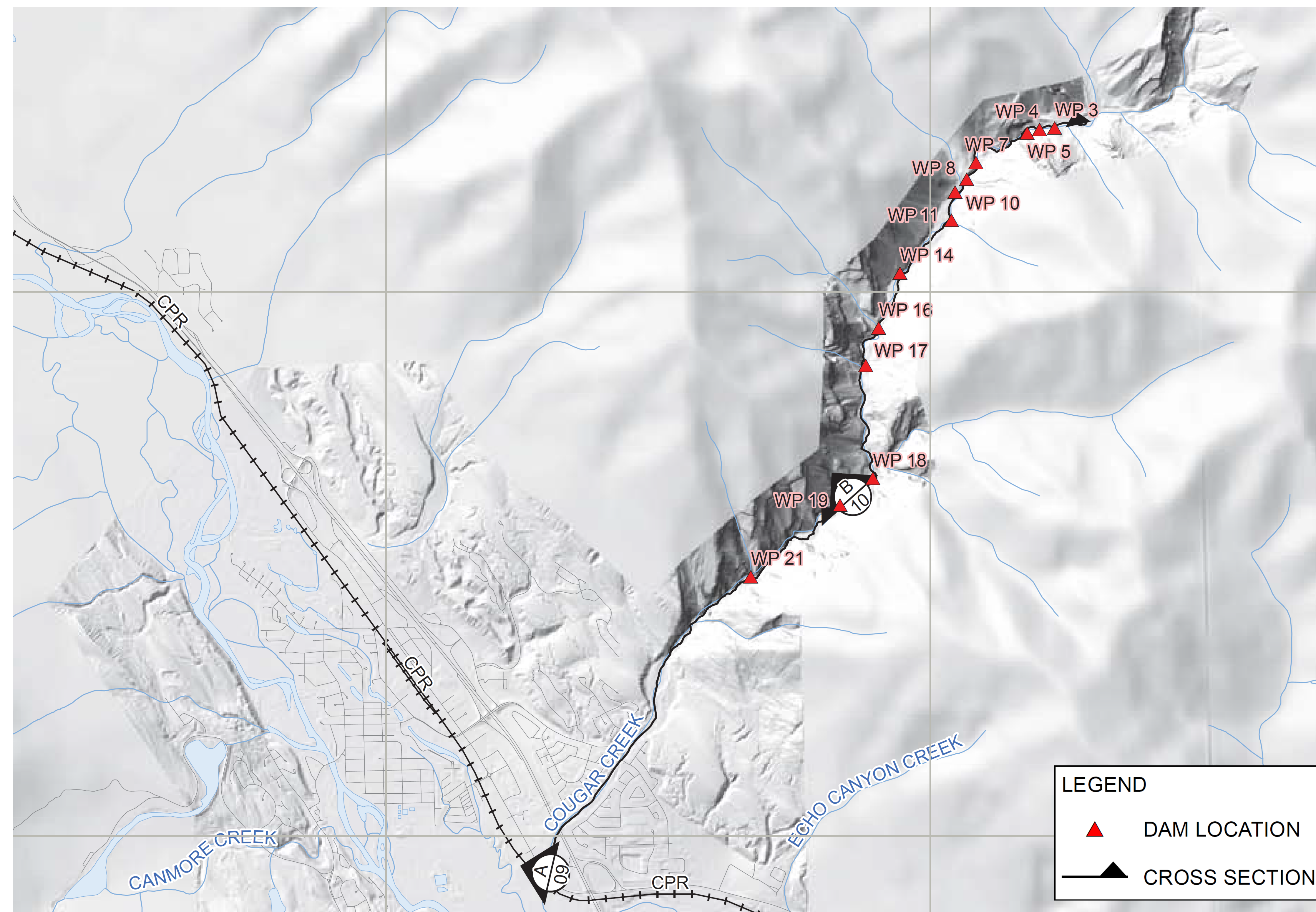
Landslide Dam Outbreak Flood at McAuley Creek Slide near Vernon, BC



Sun Koshi landslide dam in Nepal



Landslide Dam Outbreak Flood at Meager Creek, BC



Locations of identified historical landslide dams in Cougar Creek watershed

Hazards with Recommended Long-Term Mitigation Installed

With the recommended debris flood retention structure in place the hazard of a 1,000 - 3,000 year event is significantly reduced as shown in the map.

The Elk Run Boulevard bridge and culvert will have enough capacity to convey the peak flow associated with this event.

There will be some avulsions at Trans Canada Highway, Highway 1A and CP Railway, as there are no current plans to upgrade existing culverts at these crossings.

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