

LEGEND

GEOLOGICAL FEATURES:

- limit of mapping
- escarpment
- gully
- landslide escarpment
- direction of landslide movement

TOPOGRAPHIC FEATURES:

- road
- trail
- transmission line
- stream
- contour
- airstrip
- waterbody, intermittent
- wetland

HAZARD SUSCEPTIBILITY CLASSIFICATION

Low susceptibility: Characterized by flat to gently-sloped terrain, devoid of ice-rich permafrost, and distant from watercourses prone to flooding or erosion. This terrain typically comprises well-drained eolian, glaciofluvial, till, bedrock, or anthropogenic materials.

Moderate susceptibility: Characterized by moderately sloping materials and inactive fluvial terraces susceptible to only rare extreme flood events. Fluvial erosion is not expected. Landslide initiation and gully erosion are unlikely. Where permafrost is probable, materials are coarse and susceptibility to thermokarst is low.

Moderately high susceptibility: Characterized by moderately steep to steep slopes where landslide initiation is rare. Permafrost is common but with low to moderate susceptibility to thermokarst. Inactive fluvial plains and active fluvial fans susceptible to uncommon flood events.

High susceptibility: Characterized by steep slopes, landslide initiation, fluvial erosion or frequent flood activity, and permafrost in fine-grained or organic materials. Active fluvial plains or areas of seasonal inundation are included in this category, includes areas that may be susceptible to fluvial erosion within a 50-year forecast period. Areas of permafrost may be susceptible to thermokarst.

METHODS

Landscape hazard susceptibility was modelled through the combination of three separate models examining the susceptibility of landscape "units" (defined by 10 m x 10 m pixels) to hazard arising from fluvial, hillslope, and/or permafrost processes.

The individual process models classified hazard susceptibility on a semi-quantitative 0-9 scale where zero represents the lowest susceptibility and nine represents the highest susceptibility. The models were then reclassified into qualitative hazard susceptibility ratings (Low, Moderate, Moderately High, or High) and combined, with the highest qualitative rating for each landscape unit assigned to the final landscape hazard susceptibility model.

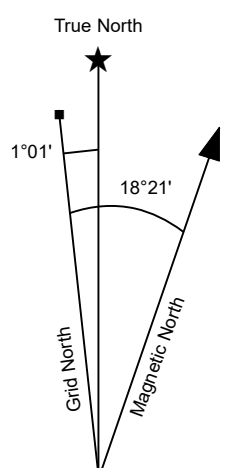
LIMITATIONS

The Carmacks Landscape Hazard Susceptibility map is intended to be used as a tool for preliminary assessment of ground conditions and is not a replacement for detailed on-site investigations. Data collected for the production of this model was validated by limited field checking. Other relied-upon data including permafrost probability modelling (Bonnaventure et al. 2012) and elevation models (Arctic DEM (Porter et al., 2018), Yukon Government LiDAR) were assumed to be accurate for the purposes of this assessment. Flood hazard susceptibility is based on interpretation of the relative susceptibility of landforms. Detailed flood modelling and mapping using hydrologic parameters does not yet exist for the study area.

MR-20
Landscape hazard susceptibility of the Carmacks area, Yukon
Parts of NTS 115/1
1:15 000 scale

by
D.C. Cronmiller

0 0.5 1 1.5 2
Kilometres



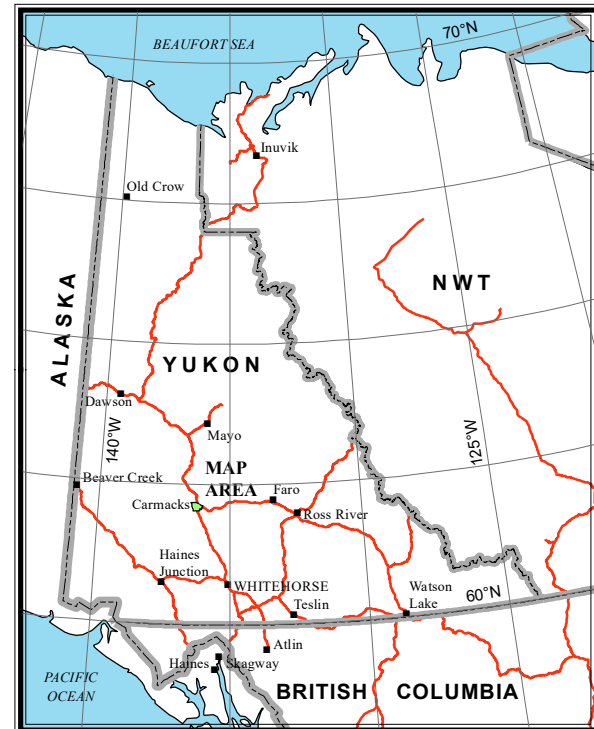
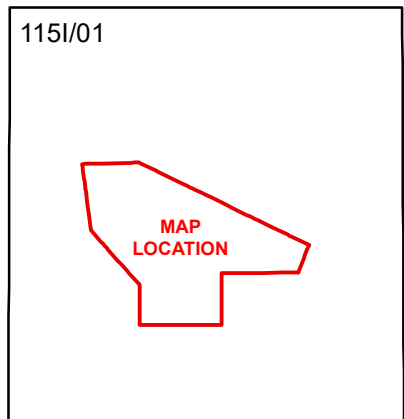
1:15 000 scale topographic base data provided by
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ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 8

CONTOUR INTERVAL: 10 METRES
Elevations in metres above Mean Sea Level

November 2020

Use diagram only to obtain numerical values
APPROXIMATE MEAN SOLAR POSITION NOVEMBER 2020
FOR CENTRE OF MAP



Any reliance on additional geographical information shown in this map should
be obtained from the Yukon Geological Survey.

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A digital PDF (Portable Document Format) file of this map may be
downloaded from the website of the Yukon Geological Survey website:
http://www.geomatics.ca/yukon

Yukon

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Cartography was completed by Brodie Elder.

RECOMMENDED CITATION

Cronmiller, D., 2020. Landscape hazard susceptibility of the Carmacks
area, Yukon (part of NTS 115/1), scale 1:15 000. In: Carmacks surficial
geology and community hazard susceptibility mapping. Yukon Geological
Survey, Miscellaneous Report MR-20.