

**Title:** Carmacks Flood Mapping Study  
Composite Flood Hazard Extents  
5% Annual Exceedance Probability (AEP) with Factor of Safety for Climate Change

**Client/Project:**  
Government of Yukon  
Department of Environment  
Water Resources Branch

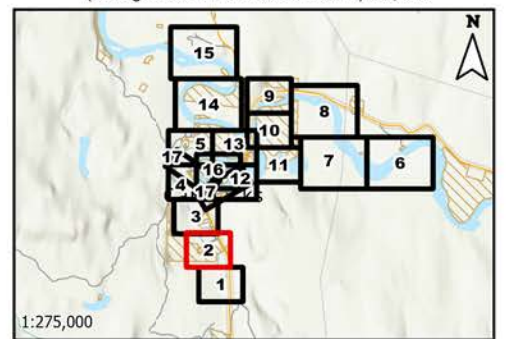
**Project:** 123222320

**Project Location:** Carmacks, Yukon

Prepared by MANDERSON on 2024-05-21  
Requested by JMUIRHEAD on 2024-01-07  
Review by JMUIRHEAD on 2024-05-21

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|---|---|
| Flow Direction  | Hydraulic Model Cross-Sections                                      |
| Point of Interest                                     | Inundation under Modelled Ice Jam Runs                              |
| Bridge  | Inundation under Modelled Open Water Runs                           |
| Highway   | Composite Flood Hazard Extent                                       |
| Local Road  | Ice Jam Location (toe of jam)                                       |
| Little Salmon / Carmacks First Nation Settlement Land | 50 % AEP Extent   |
| Land Parcels  | Hydraulic Model Cross-Sections                                      |
| Municipal Boundary                                    | Cross-Section Number<br>WSE (m) in Main Channel<br>of Cross-Section |
| Study Area  |   |

Map Publication Date: May 21, 2024  
0 40 80 120 160 200 m  
(At original document size of 11x 17) 1:5,000



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 8N  
Vertical Datum: CGVD2013, Geoid: CGG2013a
  2. Data Sources: GeoYukon, Canada Lands Survey (CLS) CCM 982, Carvec.
  3. Background: World Topographic Map: Northwest Territories, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCAN, Parks Canada  
World Hillshade: Esri, USGS
  4. Nordenskiöld River Climate Change Factor of Safety = 1.2 and Yukon River Climate Change Factor of Safety = 1.1 as identified during meetings with YG, NRCAN, ECCO on September 8, 2023 and November 6, 2023
  5. Flood hazard extents shown on these maps are based on LIDAR collected on June 8 - 10 of 2019, and bathymetric/topographic survey collected in July and August of 2023.