

Data Collection on Unstable Slopes

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Hwy 2 – Hay River, NWT

Challenges for Data Collection Around Unstable Slopes

- **Safety**
- **Acquiring Valuable Data**
- **Time/Cost**

Remote Collection Methods

- UAVs
- 3D Laser Scanning
- Non-Traditional Methods
 - Pole Mapping
 - Balloon Mapping

UAVs

- Inexpensive
- Allow frequent collection for small areas
- *Regulations*
- Deliverables Include:
 - Point Clouds, Orthomosaic, DEMs
 - Can derive topographic data, volumes

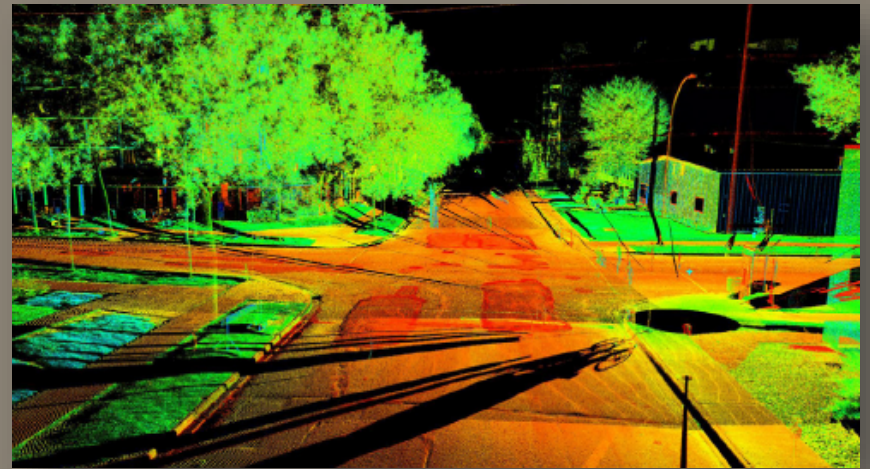


Highway Imagery

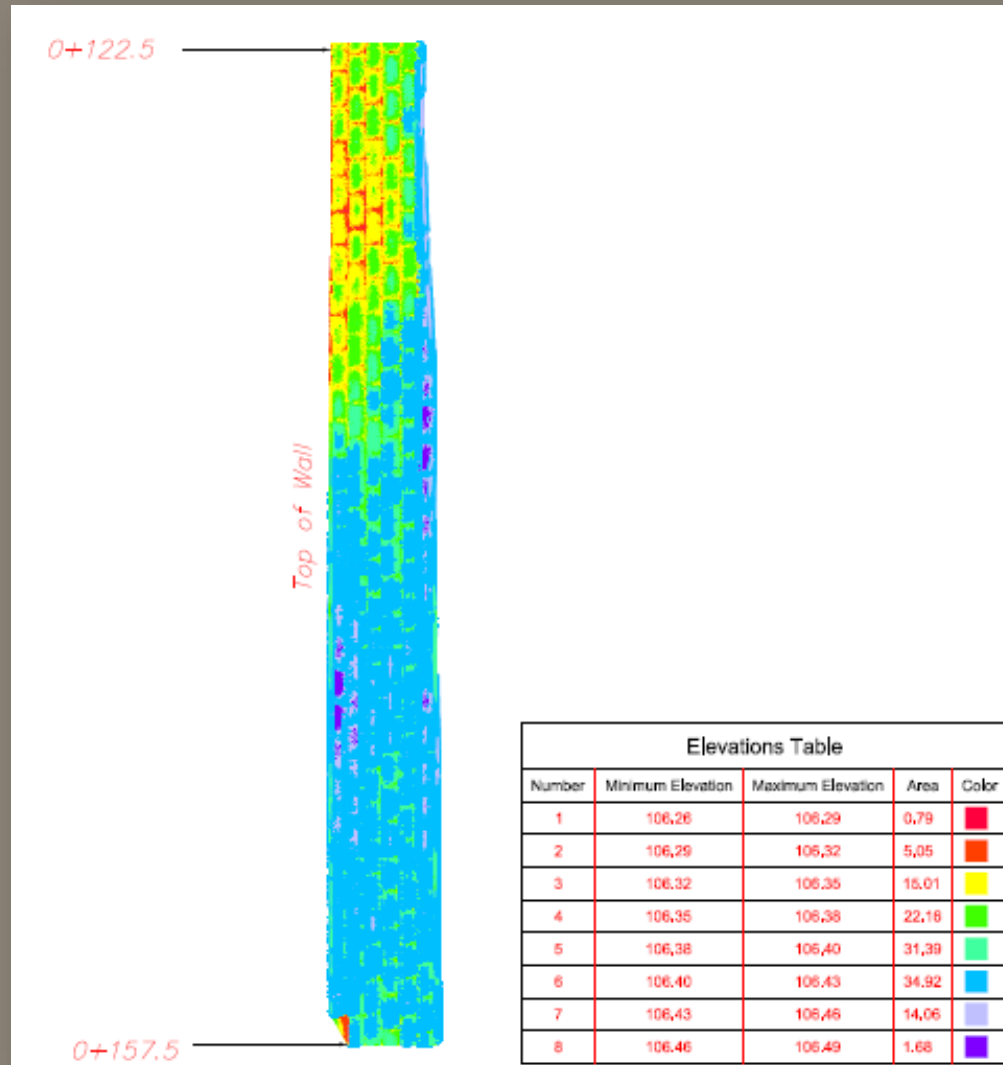


3D Laser Scanning

- Rapid data collection
- As-built record of conditions at time of survey
- Useful for monitoring unstable areas
- Limited to line of sight



Elevation Visualization



Non-Traditional Methods

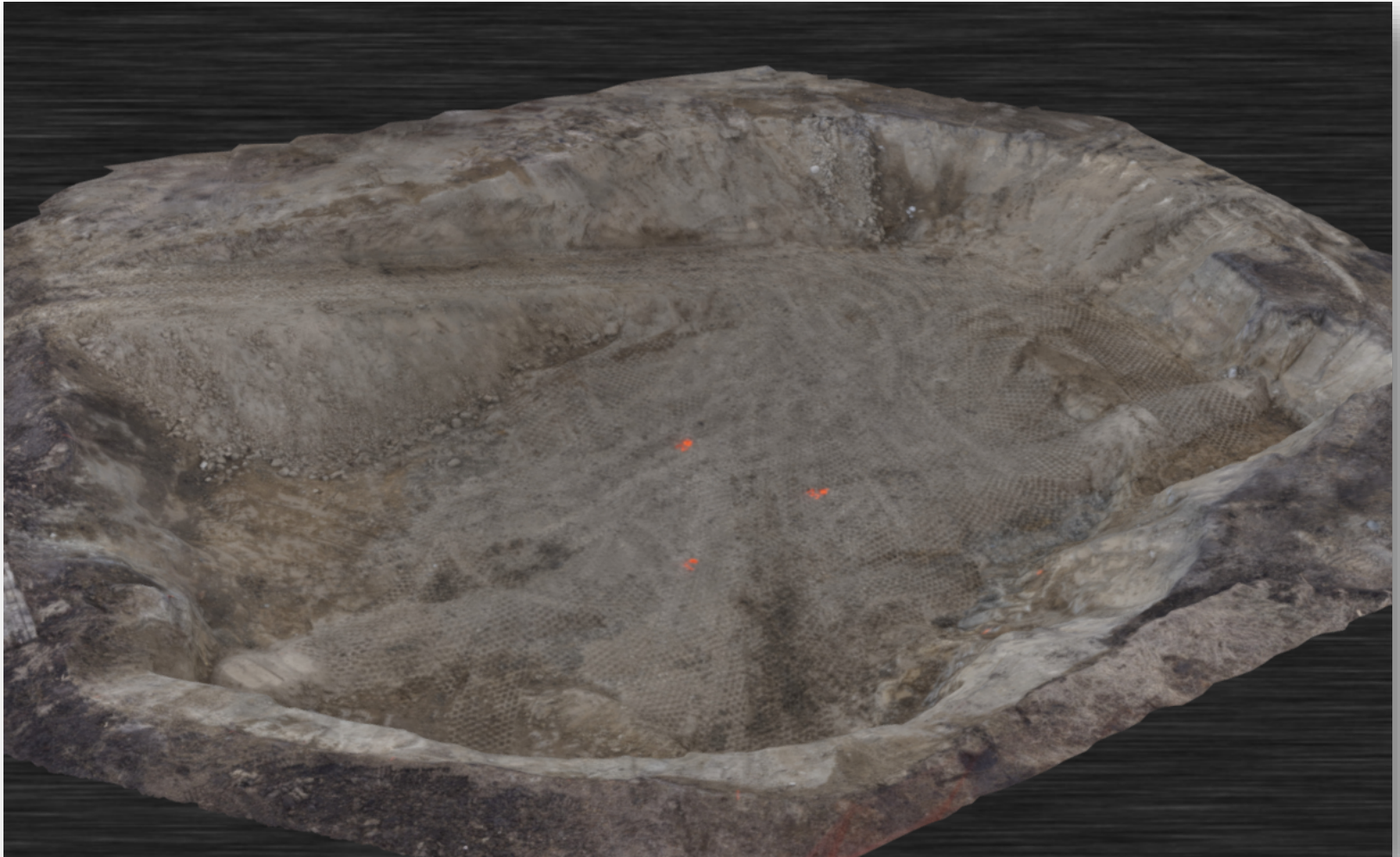


Pole Mapping



Balloon Mapping

Pole-Mapping



Hwy 2 – Case Study

Background

- Investigation of slope instability
- Edmonton Geomatics team retained to provide data collection
- Mixed UAV and conventional topographic surveying

Deliverables Produced

- Digital surface (DEM)
- Orthomosaic
- Topographic site plan

Results

- **Faster data collection**
- **Safety**
- **Cost Savings**



Orthomosaic overlaid on point cloud

Hwy 2 – Case Study



Hwy 2 – KM 28



Hwy 2 – KM 11

Hwy 2 – Case Study

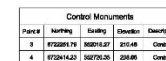


Hwy 2 – KM 28

Hwy 2 – KM 11

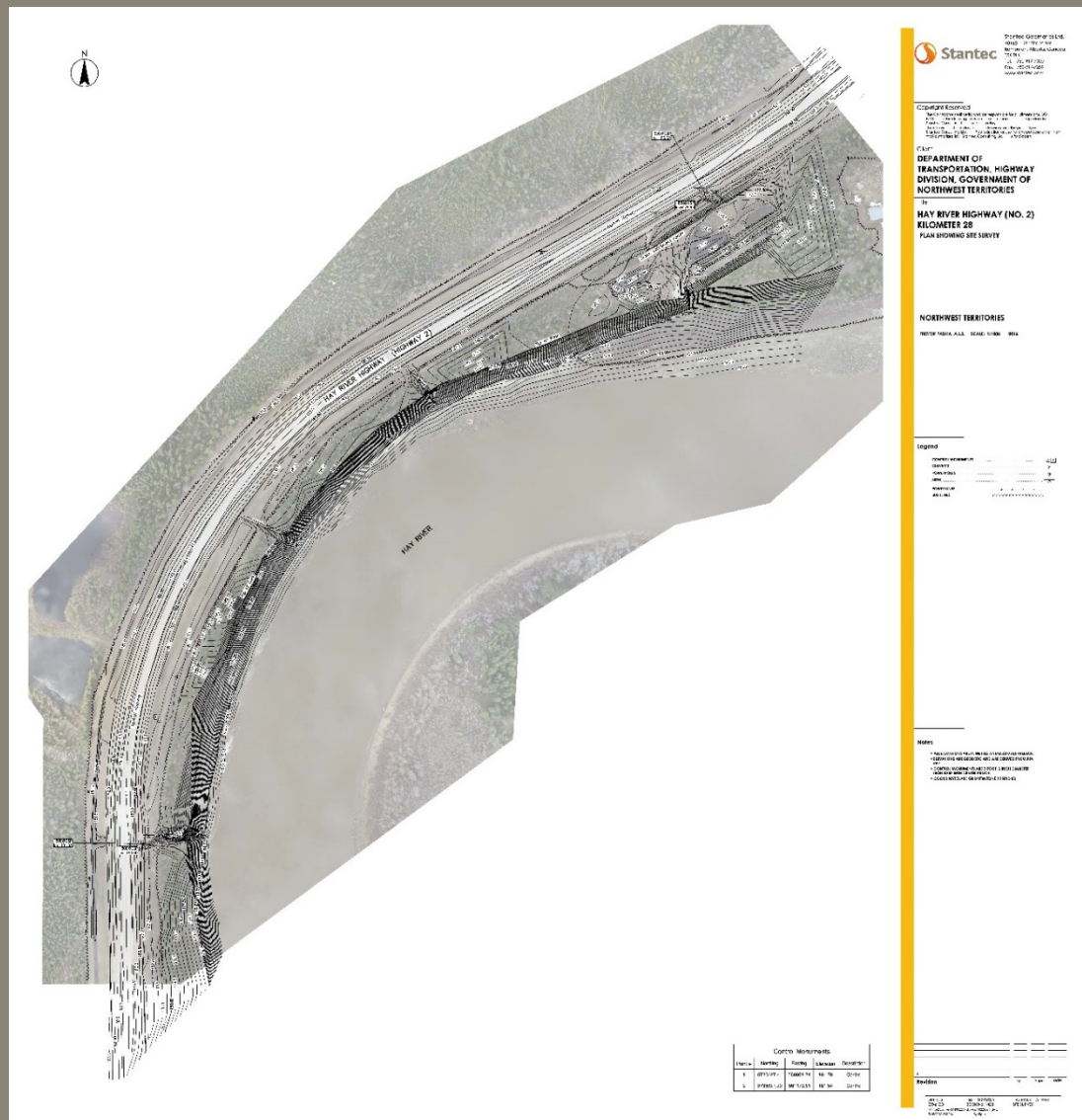
Map of Hay River area showing the Hay River Highway, Highway 2, and the Hay River. The map includes contour lines, a north arrow, and a scale bar. A table of Control Monuments is located in the bottom right corner.

Control Monuments				
Point	Northing	Easting	Elevation	Description
3	8723861.75	568015.27	215.48	Corner
4	872414.23	568795.26	236.68	Corner

[illegible]

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Hwy 2 – Case Study



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