

SITE NUMBER AND NAME: NC079 – Wedgewood Ravine Slides	HIGHWAY AND KM: 216:06, km 12.849	PREVIOUS INSPECTION: June 15, 2022	CURRENT INSPECTION: June 1, 2023
LEGAL DESCRIPTION: SE 28-52-25-W4	NAD83 COORDINATES: UTM12U 5927932N, 324250E		RISK ASSESSMENT: PF: 9 CF: 10 Total: 90
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 67,340 (2022)		CONTRACTOR MAINTENANCE AREA (CMA): Anthony Henday Drive (AHD)	

SUMMARY OF INSTRUMENTATION: Two slope inclinometers installed during AHD Widening works and being monitored by others. LAST READING DATE: N/A	INSPECTED BY: Stantec: Leslie Cho and Sonja Pharand TEC: Rocky Wang, Amy Driessen, Pramaya Kannel, Brennan Evans and Dean Kokotyn
PRIMARY SITE ISSUE: Two slope failures south of the northwest approach of Anthony Henday Drive (AHD). Erosion above both outfalls north of AHD crossing over Wedgewood Creek. Slope failure below concrete pedestal for AHD north bound on east slope of Wedgewood Creek.	
APPROXIMATE DIMENSIONS: North slide: Approximately 12 m wide by 6 m high South Slide: Approximately 9.5 m wide by 4 m high with several successive scarps up to 3 m high.	
DATE OF ANY REMEDIAL ACTION: Riprap extended south under southbound lane (SBL) in Fall 2020 / Spring 2021. Summer/Fall 2022: two slope failures south of the northwest approach of AHD were repaired using soil nails.	

ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X			X
Slope Movement	X		Slumping in between concrete pedestals on west slope. Slope failure below north concrete pedestal of east bank.	X	
Erosion	X		Erosion behind both outfalls and along footpath.	X	
Seepage	X		2 m from southeast edge of riprap and 10 m northeast from new riprap edge (previous observations)		X
Bridge/Culvert Distress	X		Both outfalls are separated with water flowing under/around pipe. Increased settlement at northeast corner of the northern most pedestal.		X

COMMENTS
<ul style="list-style-type: none"> Both the north and south slides near the northwest approach of AHD are undergoing repair using soil nails. (Photos 1 and 2). The crest of the regraded slope is approximately 2.8 m south from SI20-01 and 3.3 m south from SI20-02 (Figure 1). No vegetation or erosion control was present on the soil nailed slope at the time of the site visit. It is assumed that vegetation and erosion control will be placed as part of the remediation design by others. Multiple erosion rills were present across the slope and one erosion gully approximately 0.1 m wide and 50 mm deep was observed near the west side of the regraded slope.

- Wedgewood Creek's water level was relatively low at time of inspection likely due to the relatively dry spring this year.
- Erosion/slumping of the footpath at the north corner of the riprap below the SBL appears to have been backfilled with riprap.
- A new erosion gully was observed across the trail, northwest of the previous erosion/slumping at the north corner of the riprap below the SBL. The gully is approximately 0.15 m wide, 1.2 m long and up to 50 mm deep (Photo 4).
- New erosion gullies were observed at the north corner of the northwest abutment down to the trail. The gullies were up to 0.1 m deep and 0.1 m wide. The slope near these gullies is poorly vegetated (Photo 5).
- Erosion was observed behind both outfalls located on the west and east sides of Wedgewood Creek north of AHD (Photo 6 and 7). Erosion above west outfall appears to be slightly worse with more tilting of the outfall.
- It is surmised that water is flowing out of the separated pipe upslope from the west outfall and eroding the west creekbank (Photo 6). A small channel appears to have developed leading from the outfall to Wedgewood Creek due to erosion.
- East outfall condition looked similar to the previous inspection (Photo 8).
- The gap (fill settlement) at the northeast corner of the northernmost pedestal remained the same with a total settlement of 240 mm.
- The south slump on the west slope between the concrete piers appears to have retrogressed approximately 1 m upslope, and the north slump appears to have also retrogressed slightly upslope (Photo 9). The scarp of the north slump was measured to be 0.7 m away from the concrete pedestal.
- The erosion mat below the north pedestal on the west bank has been further exposed.
- The slope below the northernmost pedestal on the east bank has failed, with debris piled at the edge of the creek (Photo 10). The erosion gully downslope from the south corner of the northernmost pedestal was observed to be well-vegetated. The slope below the southernmost pedestal on the east bank appears to be experiencing erosion and most of the vegetation appears dead.


RECOMMENDATIONS

- The site should be regularly monitored by the MCI and/or current Southwest Anthony Henday Drive (SWAHD) Lane Widening team until remediation can be undertaken.
- Slope inclinometer data (SI20-01 and SI20-02) should be requested from the SWAHD geotechnical consultant for review and inclusion in the GRMP monitoring cycle.
- A concrete trough may be considered upslope of the footpath to direct surface water towards the riprap instead of into existing erosion channels.
- Stantec submitted a tender package for outfall remediation consisting of replacing the disjointed and broken pipe segments with new pipe and regrading the surrounding slopes. The existing outfalls will be removed and replaced with an energy dissipater consisting of Class 2 riprap. Construction was previously scheduled for 2024 but has been moved to 2025. The estimated cost for construction is approximately \$950,000 excluding engineering costs.
- Stantec completed remediation design of the new slump on the east bank. Remediation of the slump is expected to consist of removal and replace. The estimated cost of construction for removal and replace is in the order of \$80,000.
- Site inspections should continue annually.



NORTH CENTRAL REGION GRMP
EDSON / STONY PLAIN
SITE INSPECTION FORM



PREPARED BY: Sonja Pharand, P.Eng.	PREPARED BY: Leslie Cho, M.Eng., P.Eng.
	
REVIEWED BY: Xiteng Liu, M.Sc., P.Eng., PMP	PERMIT TO PRACTICE

2023 Site Inspection Photos at NC079



Photo 1: Soil nailed slope at north and south slides. Looking northwest.



Photo 2: Soil nailed slope at north and south slide area. Looking southeast.

2023 Site Inspection Photos at NC079



Photo 3: Debris chute below soil nailed area north slide area, repairs ongoing. Looking southwest.



Photo 4: Erosion on footpath near NW abutment for SBL. Looking northeast.

2023 Site Inspection Photos at NC079



Photo 5: Erosion gullies at the north corner of NW abutment. Looking northwest.



Photo 6: Water from separated pipe eroding the creekbank north of the west outfall. Looking northeast.

2023 Site Inspection Photos at NC079



Photo 7: Erosion above west outfall. Looking west.



Photo 8: East outfall. Looking southeast.

2023 Site Inspection Photos at NC079

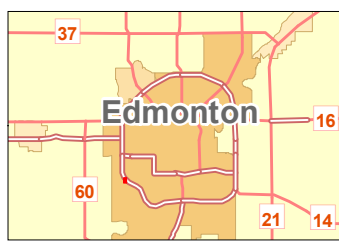
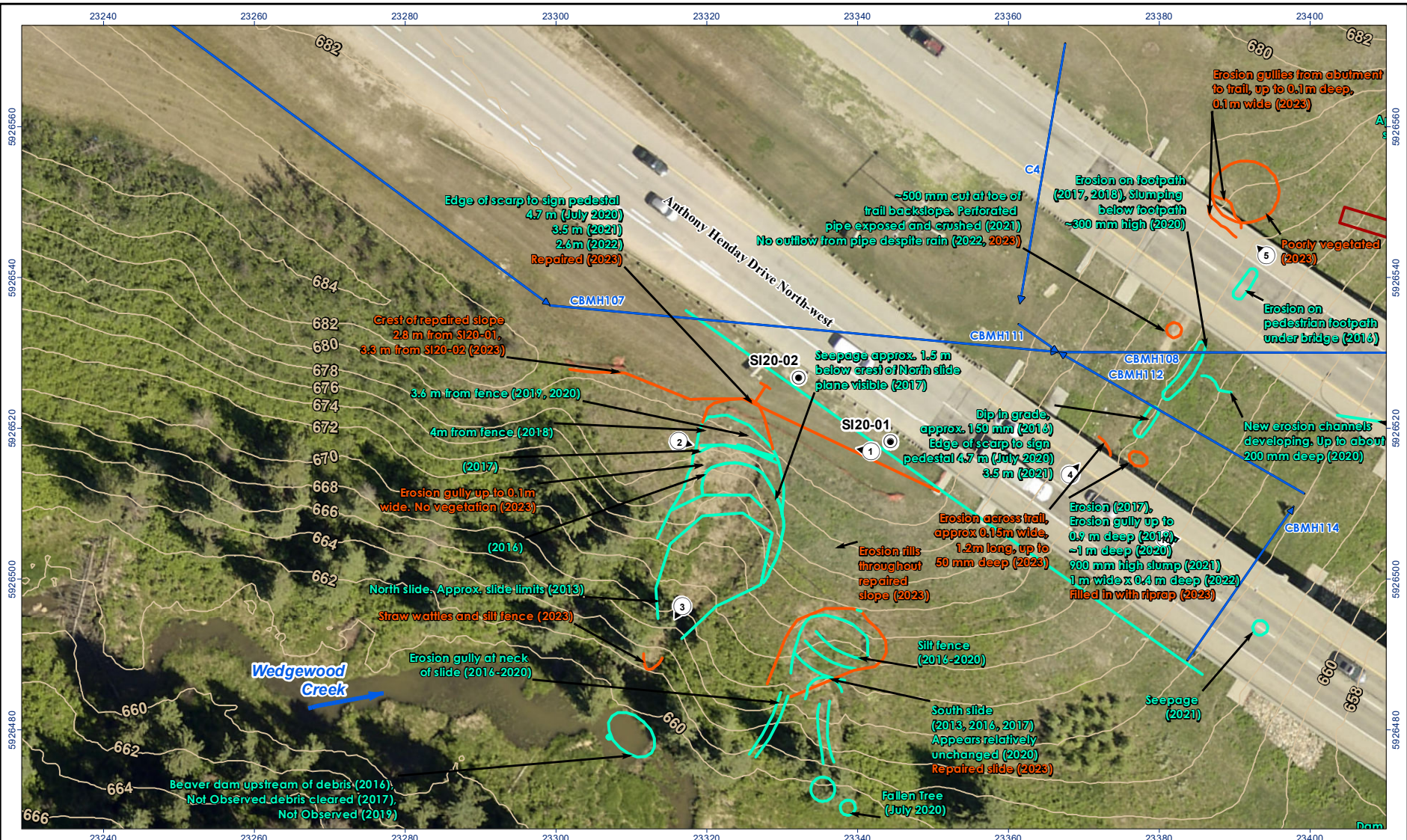


Photo 9: West slope with two slumps between pedestals and erosion mat exposed below northernmost pedestal. Looking northwest.

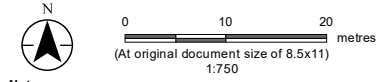


Photo 10: Slope failure on east bank below AHD NB pedestal. Looking southeast.

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- Construction Limit
- Instrument Location
- Photo Number and Direction
- Buried Pipe
- Previous Observation
- 2023 Observation
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)



- Notes**
1. Coordinate System: NAD 1983 3TM 114
 2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
 3. Imagery Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.

Project Location
Edmonton, Alberta

Client/Project
Transportation and Economic Corridors
Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

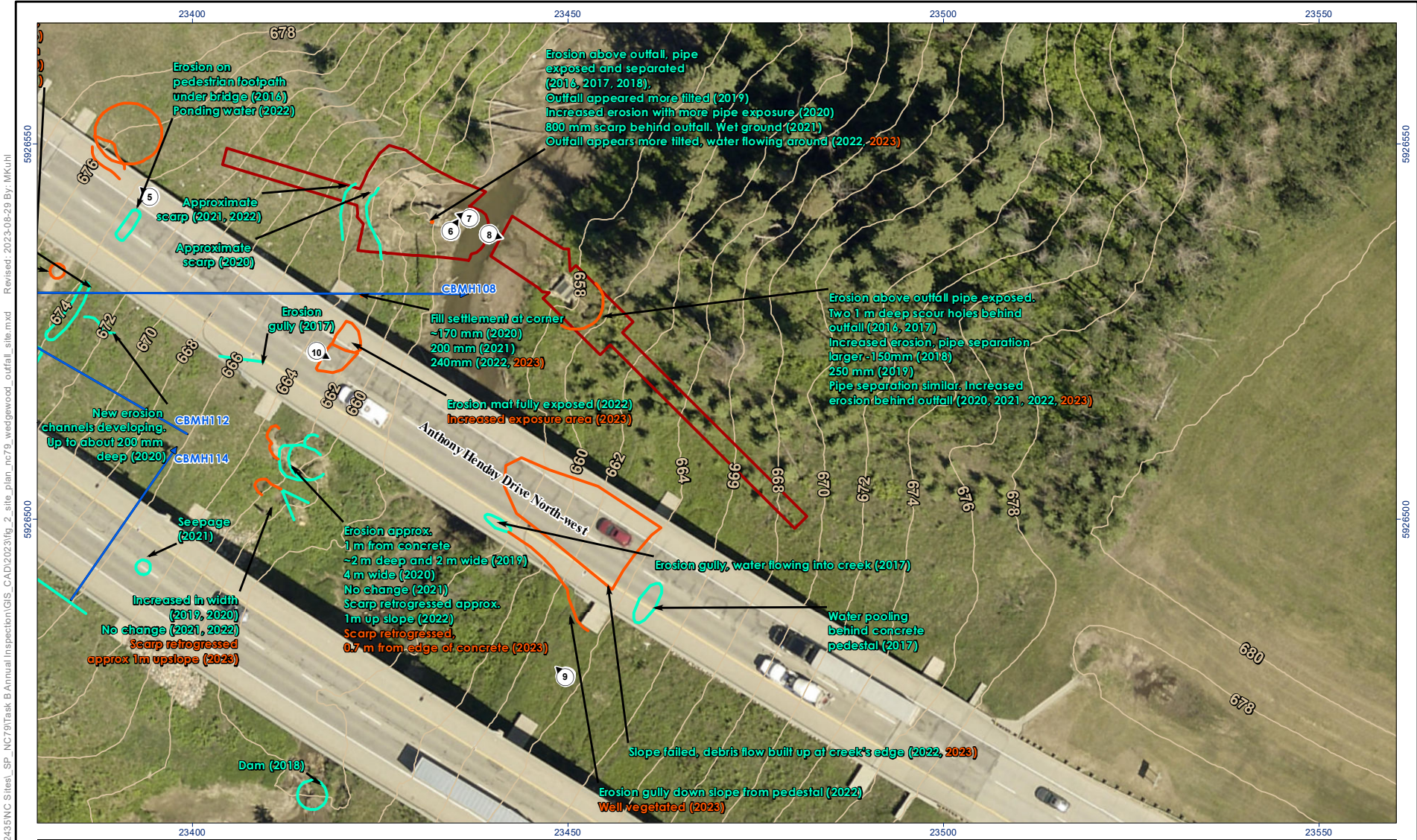
Figure No.
1

Title
Site Plan

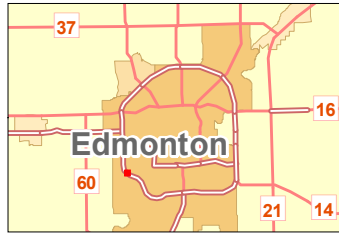
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OR by LC on 2023-08-25
IR by XL on 2023-08-25

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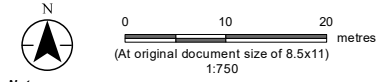
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- Construction Limit
- ▶ Buried Pipe
- Previous Observation
- 2023 Observation
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)
- Photo Number and Direction



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Edmonton, Alberta

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Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

Figure No.
2

Title
Site Plan

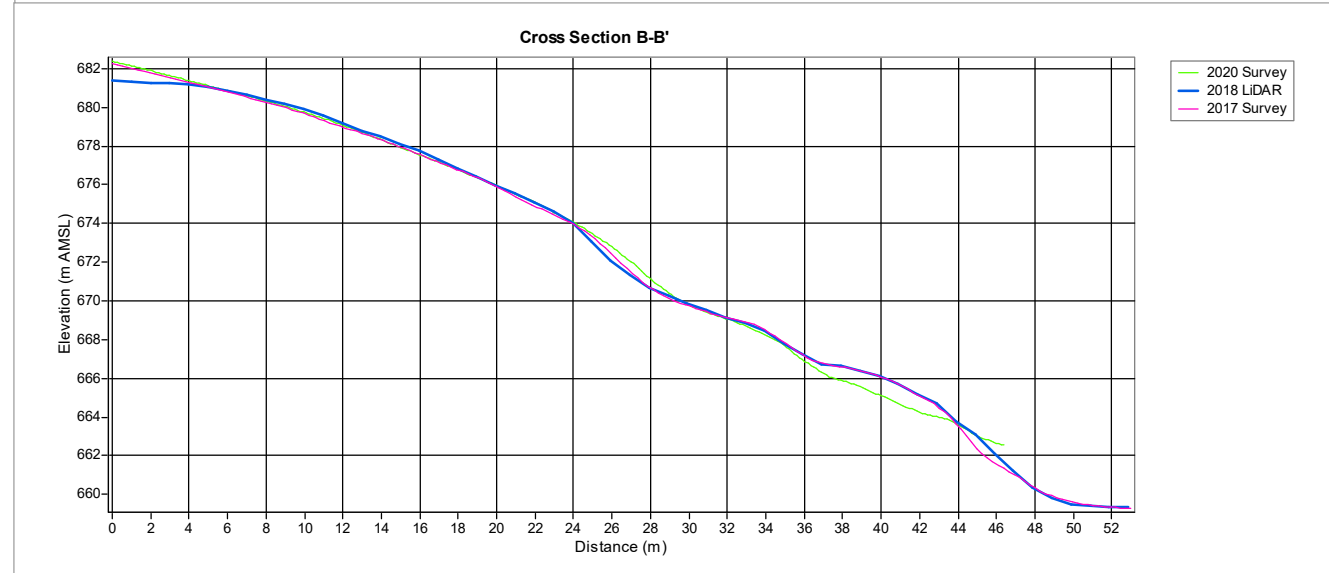
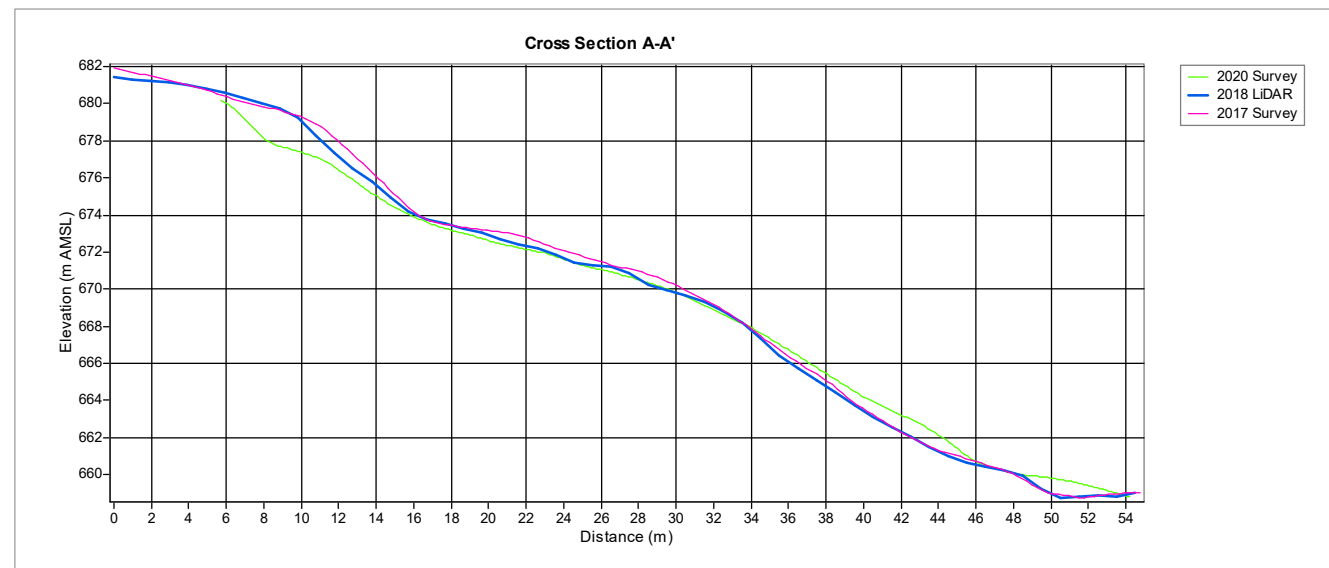
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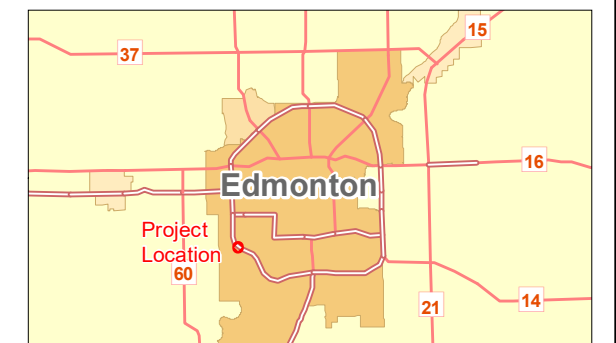
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↕ ↗ Cross Section Location
 — Ground Elevation Contours (m AMSL, LiDAR April-May 2018)



0 2 4 6 metres
 (At original document size of 11x17)
 1:400

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 3. Imagery Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
 4. Survey data obtained on July 21, 2020 by CIMA+



Project Location
 Edmonton, Alberta

Prepared by SM on 2023-07-26
 QR by LC on 2023-08-25
 IR by XL on 2023-08-25

Client/Project
 Transportation and Economic Corridors
 Geohazard Monitoring Program
 NC79 Wedgewood Ravine Slides

Figure No.
3

Title
Ground Profile of Section A and B