

APPENDIX E
Heritage Survey Results Summary

Technical Memorandum

To: Mr. Dan Chranowski
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121 Tiger Moth Road
Virden, MB
R0M 2C0

From: Mike Markowski
Atlheritage Services Corp.
#150-203 Packham Avenue
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S7N 4K5
o. (306) 370-9972

Date: November 5, 2021

Re.: Client: Tundra Oil & Gas Ltd.
Project: NW 24-010-29 W1M to SW 4-008-29 W1M to NW 10-009-28 W1M
Flowline

Heritage Permit No. A44-21 HRB File# AAS-21-16983

Atlheritage Services Corp. (Atlheritage) completed the Historic Resources Branch (HRB) Heritage Resources Impact Assessment (HRIA) requirements for Tundra Oil & Gas Ltd. (Tundra) proposed NW 24-010-29 W1M to SW 4-008-29 W1M to NW 10-009-28 W1M flowline under Heritage Permit# A44-21 (HRB File# AAS-21-16983). The HRIA was completed between June 15th to June 18th and October 4th, 2021 by a team of 5 archaeologists. The proposed flowline right-of-way (ROW) (30 m wide ROW) was assessed using a combination of pedestrian reconnaissance and the excavation of sub-surface shovel tests.

Most of the approximate 40 km long flowline crosses through cultivated terrain, except for 2 Pipestone Creek crossings, which will be directionally drilled. The areas with the highest potential to impact archaeological sites are within 1 km of the Pipestone Creek crossings, which is further supported by the number of known archaeological sites in these areas, specifically in NE 26-9-29 W1M. Archaeological site DkMh-019 is located on the south side of the Pipestone Creek (within the valley) in NE 26-9-29 W1M and is approximately 35 m east of the proposed ROW; DkMh-018 is located on the north side of Pipestone Creek (within the valley) and is approximately 25 m east of the ROW; and DkMh-041 is located along an upper terrace (cultivated field), south of Pipestone Creek in NE 26-9-29 W1M and is approximately 25 m east of the ROW.

Areas considered to have higher heritage potential were assessed in greater detail, including the amount of excavated shovel probes. These areas included areas within a 1 km of Pipestone Creek, areas adjacent to season water features/runs and near known archaeological sites including DkMh-019 and DkMh-018. In addition, a metal detector was used in NE 002-010-29 W1M as required by the HRB. This is due to the presence of the Fort Ellice Trail (1882), which reportedly crossed through this quarter-section. The purpose of the metal detector was to identify any historical artifacts that may be present on or near the surface (associated with the Fort Ellice Trail) along the proposed flowline ROW.

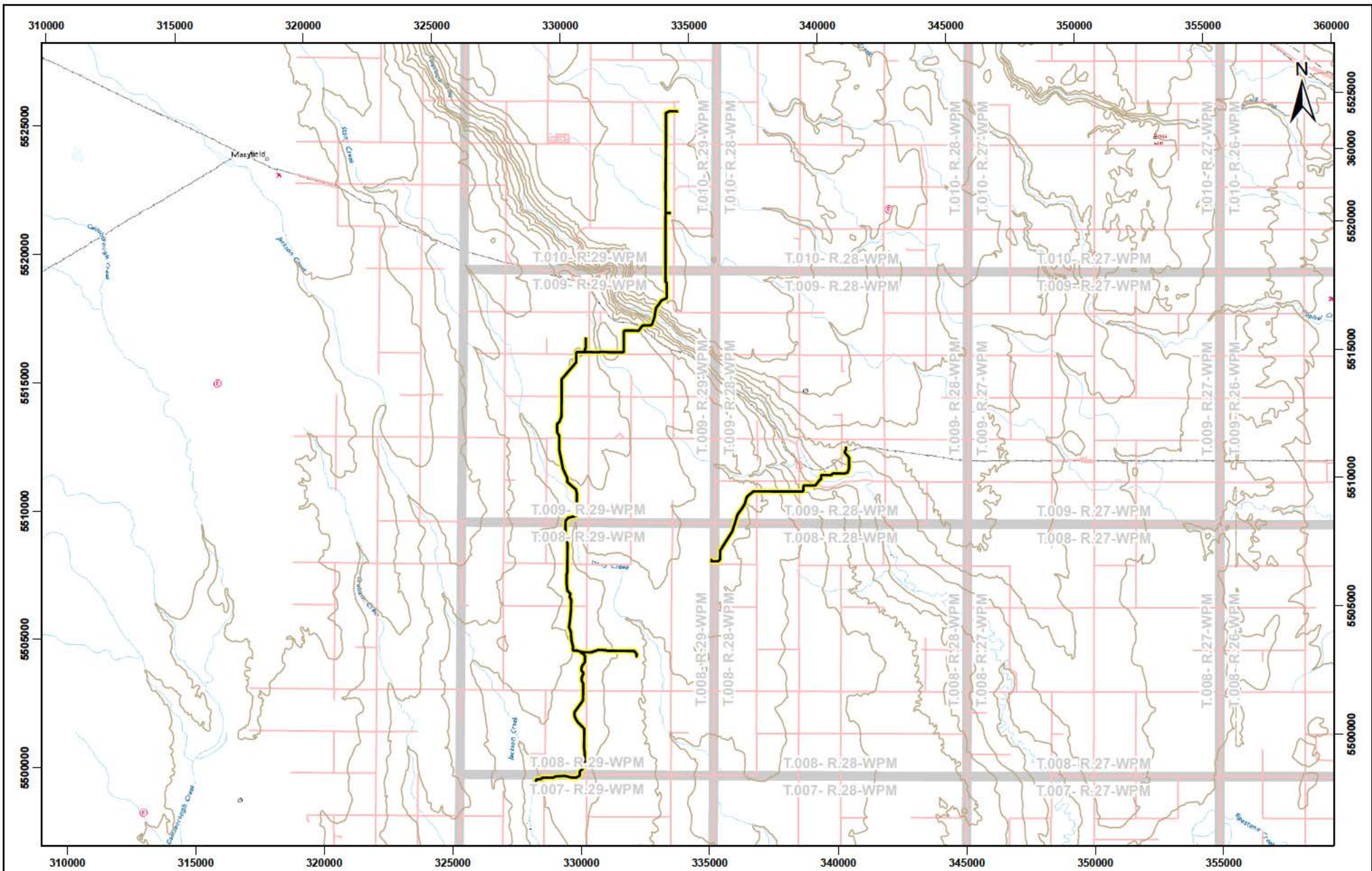
No artifacts, features or known archaeological sites were identified during the HRIA. Based on the results of the HRIA, AtIheritage is recommending that Tundra be provided with regulatory approval as per Section 12(2) of *The Heritage Property Act of Manitoba* for their proposed NW 24-010-29 W1M to SW 4-008-29 W1M to NW 10-009-28 W1M flowline.

Sincerely,

A large black rectangular redaction box covering the signature area.

Mike Markowski, B.A. (hon.), M.A.
Heritage Division Manager
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A large black rectangular redaction box covering the footer area.



OCTOBER 2021

AH21050

SCALE: 1:200,000

0 1 2 3 4 5
Kilometres
(ALL LOCATIONS APPROXIMATE)



- Road
- Proposed Flowline
- Area Assessed

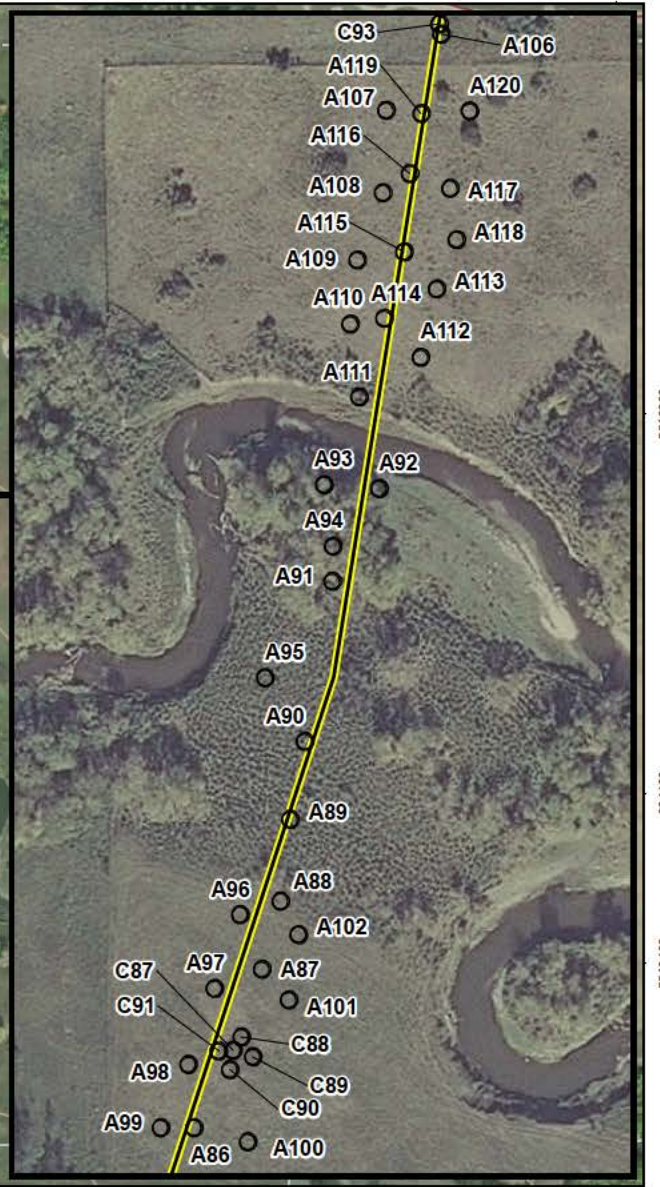


OVERVIEW MAP

**TUNDRA OIL & GAS HRIA
(PERMIT NO. A44-21)**

Projection: NAD 1983 UTM Zone 14N . NTS Map Sheet 62 K/06.
Data Sources: Toporama, 2020. Manitoba Government Conservation and Water Stewardship, 2020, Canvec, 2020, Geobase, 2019.

FIGURE 1



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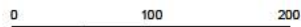
SCALE: 1:5,500



- Shovel Probe (Negative)
- Flowline
- Area Assessed

DETAIL MAP

**TUNDRA OIL & GAS HRIA
(PERMIT NO. A44-21)**



Meters
(ALL LOCATIONS APPROXIMATE)

Projection: NAD 1983 UTM Zone 14N
 Data Sources: CANVEC, 2020. Information Services Corporation, 2020. Image Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

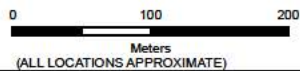
FIGURE 2



OCTOBER 2021
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SCALE: 1:5,500



- Shovel Probe (Negative)
- Flowline
- Area Assessed



Projection: NAD 1983 UTM Zone 14N
Data Sources: CANVEC, 2020. Information Services Corporation, 2020. Image Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

DETAIL MAP

**TUNDRA OIL & GAS HRIA
(PERMIT NO. A44-21)**