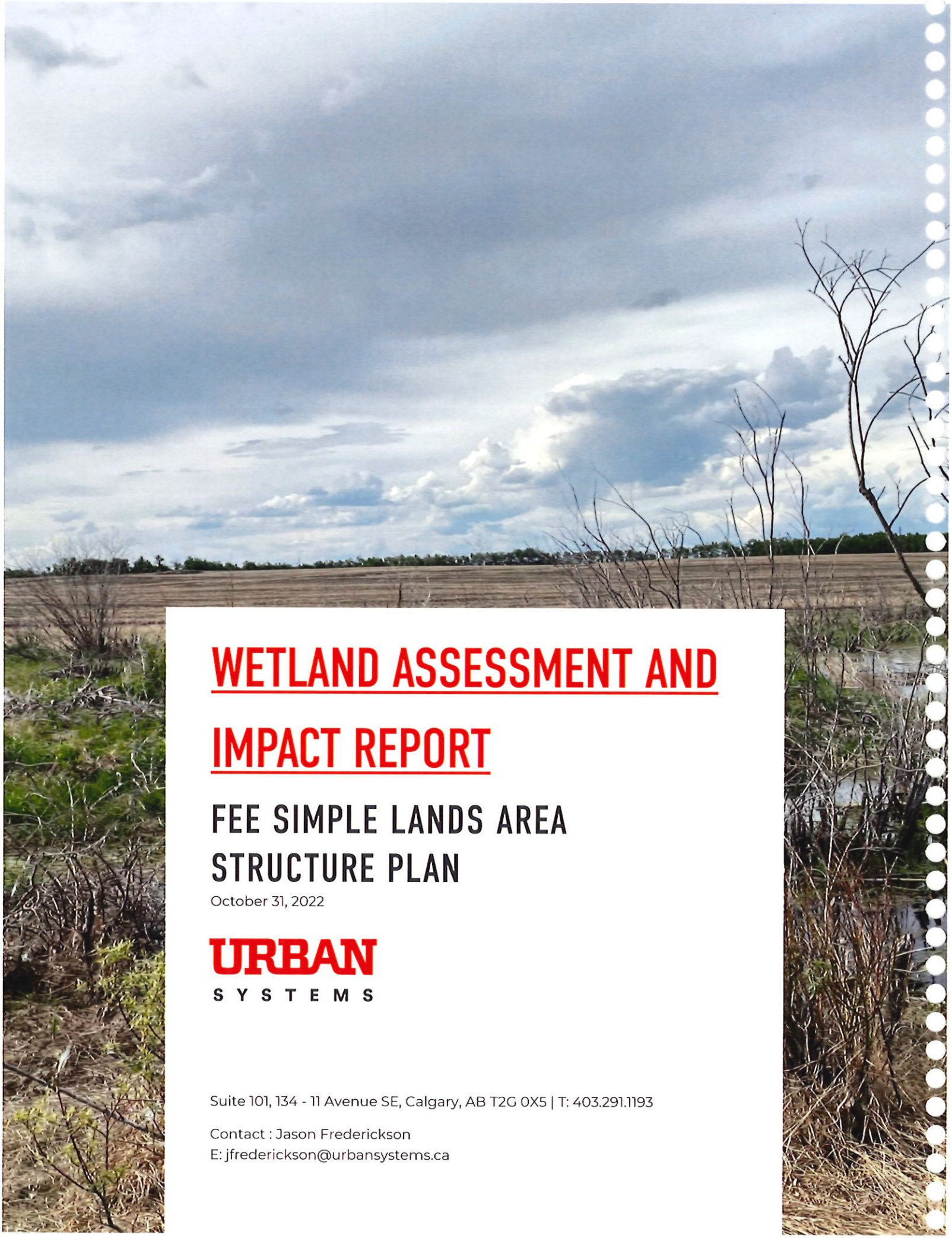

WETLAND ASSESSMENT AND IMPACT REPORT

FEE SIMPLE LANDS AREA STRUCTURE PLAN

October 31, 2022

URBAN SYSTEMS

Suite 101, 134 - 11 Avenue SE, Calgary, AB T2G 0X5 | T: 403.291.1193

Contact : Jason Frederickson
E: jfrederickson@urbansystems.ca

PREPARED FOR:

Saddle Lake Cree Nation
1010d 50 Street
Saddle Lake, AB T0A 3T0

Suite 101, 134 - 11 Avenue SE, Calgary, AB T2G 0X5 | T: 403.291.1193

File: 3518.0029.02

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EXECUTIVE SUMMARY

Urban Systems Ltd. (USL) has been retained by Saddle Lake Cree Nation (SLCN) to prepare a Wetland Impact Assessment and Impact Report (WAIR) for the proposed Area Structure Plan (ASP) and rezoning of fee simple lands within SE of 3-58-11-W4M. This report is intended to satisfy the County of St. Paul (the County) predevelopment biophysical assessment requirements for the approval of the ASP while adhering to the Alberta Wetland Assessment and Impact Report Directive 2017 under the 2013 Alberta Wetland Policy. This report will then be submitted to Alberta Environment and Parks for approval under the Water Act for the impact or removal of wetlands to support the development of the proposed Project.

SLCN purchased the agriculturally zoned fee simple lands within the municipal County of St. Paul. The property is located northwest of the intersection of Alberta Highway 29 and Alberta Highway 652. east of Saddle Lake Cree Nation (IR: 125). The Project Site has historically been managed under agricultural practices as cultivated land. The perimeter of the Project Site is approximately 50% manicured roadside, and 50% typical natural/windrow vegetation. The subdivided lot in the northeast corner of the section (outside of the Project Site includes a manicured residential/light commercial land use).

The ASP is anticipated to be developed in three phases. Current development plans for Phase 1 include a grocery store and a gas station to be built within the southeast corner of the ASP area.

The Project Site is located within the Boreal Forest Natural Region and the Dry Mixedwood Subregion of the province. Native vegetation consists of aspen forests with an understory of shrubby species such as rose, beaked hazelnut, and low-bush cranberry. The majority of the Project Site has been historically cultivated and presents very little natural vegetation outside of the wetland areas. The windrow along the north edge of the Project Site is vegetated with natural poplar/trembling aspen communities, while the west edge is vegetated with a mixed community of willows, aspen. The remainder of the perimeter is vegetated with a typical smooth brome/bluegrass community.

A review of the Alberta Soil Information Viewer indicates the Project Site is within two soil polygons and is predominately Eluviated Black Chernozem on medium textured till or on medium textured sediments deposited by wind and water.

Wetland boundaries and classifications were based on a combination of historical photographs, historical precipitation data, and field verification of current site conditions including changes in vegetation communities, topography, and/or hydric soil indictors as outlined in the Directive.

WETLAND ID	AREA (HA)	ALBERTA WETLAND CLASSIFICATION	ABWRET-A SCORE
WL02	0.09	Marsh-Graminoid-Temporary	D
WL03	0.17	Marsh-Graminoid-Temporary	D
WL05	0.35	Marsh-Graminoid-Seasonal	D
WL06	0.07	Marsh-Graminoid-Temporary	D
WL07	2.18	Marsh-Graminoid-Permanent or Semi-Permanent	D

Two (2) ephemeral wetlands have been identified on the Project Site, and a historical review indicated that they did not appear on the landscape until late 1990's to early 2000's following anthropogenic disturbances.

The Alberta Conservation Information Management System (ACIMS) search did not result in any sensitive element occurrences of rare or listed species. The Fish and Wildlife Information Management System (FWMIS) results indicated three (3) species historically recorded within 3 km of the Project Site, Canadian toad (*Anaxyrus hemiophrys)*, common yellowthroat (*Geothlypis trichas*), and short-eared owl (*Asio flammeus*). The Project Site has not been assigned a Historical Resource Value and does not require any further investigation.

Three (3) D value wetlands will be compensated for under the monetary in lieu replacement pathway through the 2013 Alberta Wetland Policy. The Project Site falls within RWVAU #17 (replacement rate $18,600/ha), with a total compensation value of $11,522.70 (including GST) for all wetlands proposed to be removed.

WETLAND ID	WETLAND CLASS (AWCS)	ABWRET VALUE	WETLAND AREA LOST (HA)	COMPENSATION RATIO	REPLACEMENT COST
WL03	Marsh-Graminoid-Temporary	D	0.17	1	$3,162
WL05	Marsh-Graminoid-Seasonal	D	0.36	1	$6,510
WL06	Marsh-Graminoid-Temporary	D	0.07	1	$1,302
TOTAL	-	-	**0.59**	-	$10,974.00 + GST
				Total Compensation	**$11,522.70**

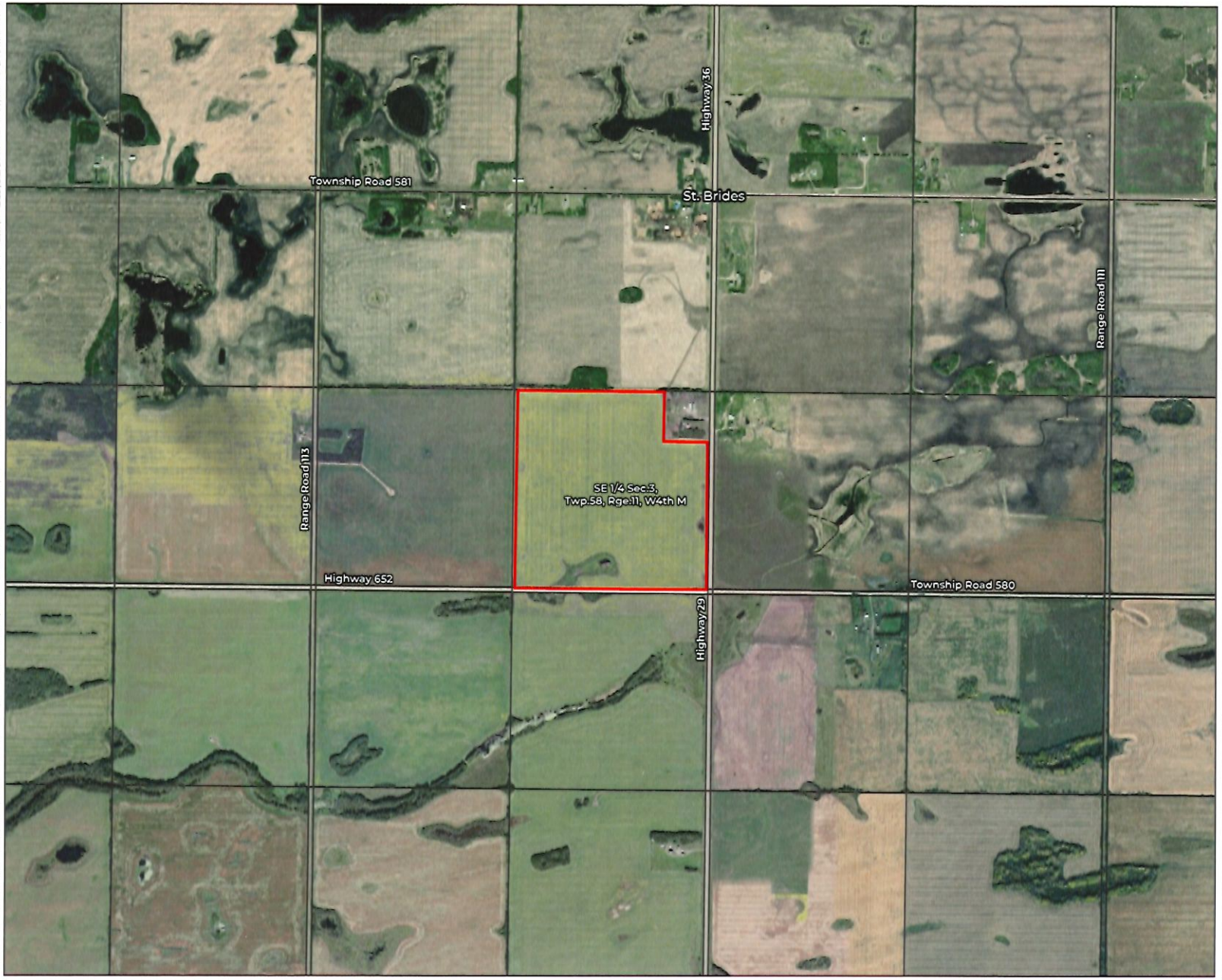
1.0 INTRODUCTION

Urban Systems Ltd. (USL) has been retained by Saddle Lake Cree Nation (SLCN) to prepare a Wetland Impact Assessment and Impact Report (WAIR) for the proposed Area Structure Plan (ASP) and rezoning of fee simple lands within SE of 3-58-11-W4M (the Project). This report is intended to satisfy the County of St. Paul (the County) predevelopment biophysical assessment requirements for the approval of the ASP while adhering to the Alberta Wetland Assessment and Impact Report Directive 2017 under the 2013 Alberta Wetland Policy (Government of Alberta, 2013). This report will then be submitted to Alberta Environment and Parks (AEP) for approval under the Water Act for the impact or removal of wetlands to support the development of the proposed Project.

The data collection, assessments and report were supervised, reviewed, and approved by Theresa (Terri) Duret, a professional biologist and qualified wetland science practitioner, registered with the Alberta Society of Professional Biologists.

1.1 PROJECT DESCRIPTION AND BACKGROUND

SLCN purchased the agriculturally zoned fee simple lands within the municipal County of St. Paul. The property is located northwest of the intersection of Alberta Highway 29 and Alberta Highway 652. east of Saddle Lake Cree Nation (IR: 125) (Project Site) **(Figure 1)**. The ASP is anticipated to be developed in three phases **(Figure 2)**. Current development plans for Phase 1 include a grocery store and a gas station to be built within the southeast corner of the ASP area.



Saddle Lake Cree Nation

Wetland Assessment and Impact Report

Project Location

Project Site

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 12N

Scale: 1:15,000
(When plotted at 11"x17")

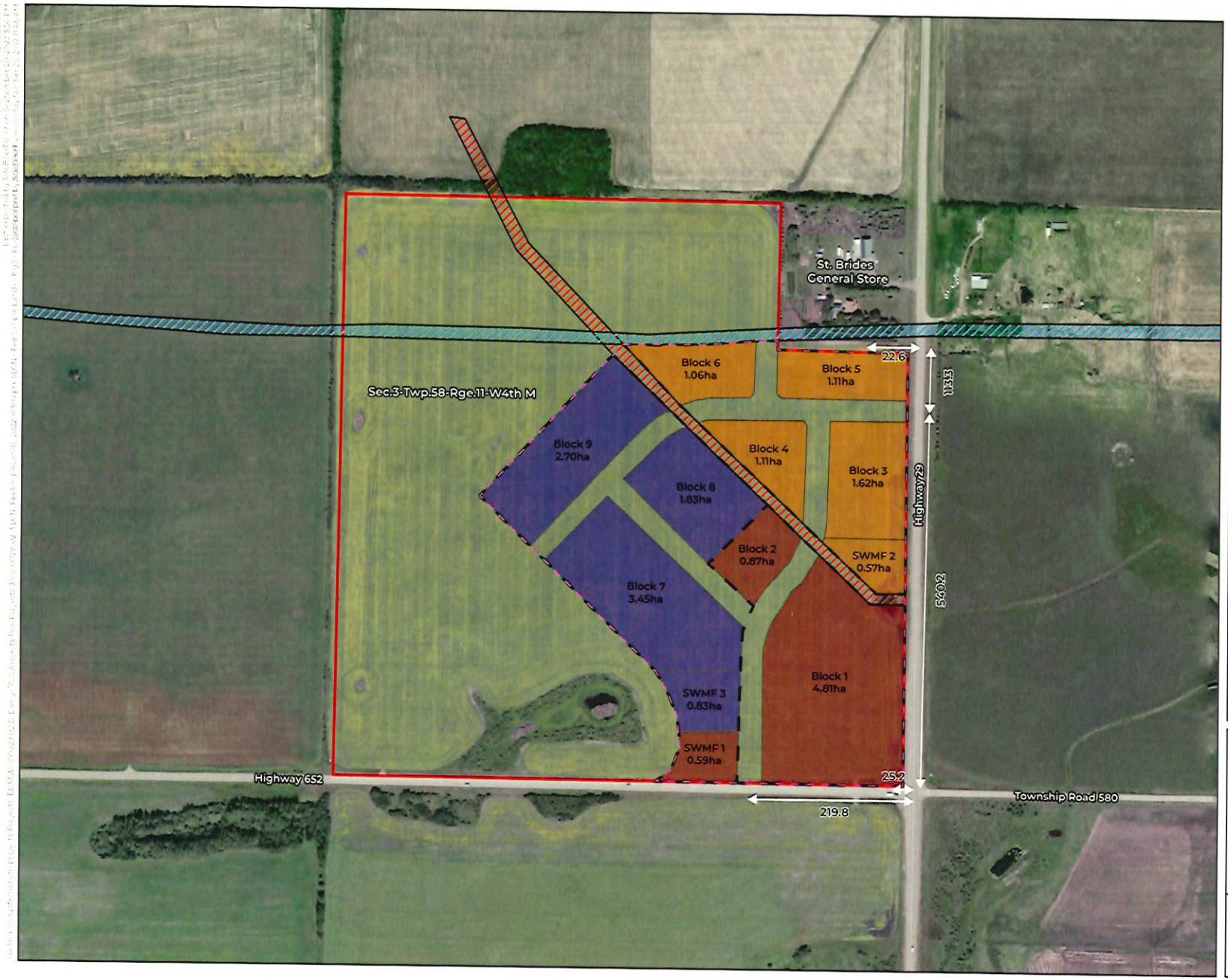
Data Sources:

- Esri Bae Map
- Government of Alberta

Project #:	3518.0029.02
Author:	CMP
Checked:	DH
Status:	Review
Revision:	A
Date:	2022 / 9 / 20

URBAN SYSTEMS

FIGURE 1



Saddle Lake Cree Nation

Wetland Assessment and Impact Report

Project Footprint

- Project Site
- Area Structure
- Phase Boundary
- Phase 1
- Phase 2
- Phase 3
- Low Pressure Gas Pipeline
- Oil and Gas Pipeline

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0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 12N

Scale: 1:5,000
(When plotted at 11"x17")

Data Sources:

- Esri Base Map, Government of Alberta

Project #:	3518.0029.02
Author:	CMR
Checked:	DH
Status:	Review
Revision:	A
Date:	2022 / 9 / 20

URBAN SYSTEMS

FIGURE 2

2.0 METHODS

2.1 HISTORICAL RESOURCES

Protection and management of historical and archeological resources in Alberta are governed under the *Alberta Historical Resources Act* (HRA) and associated regulations.

The *Listing of Historical Resources* (Alberta Government Historic Resources Managment Branch, 2022) was reviewed to determine if the Project Site has been assigned an Historical Resource Value (HRV). If the Project Site is located within an area that has been assigned an HRV an Historical Resources Impact Assessment (HRIA) is required, and an HRA approval must be issued prior to development. The absence of an HRV ranking means the project site does not require further assessment. However, In the event any archeological, paleontological and/or other historical resources are found on the site during development activities, it is to be immediately reported to the Heritage Division of Alberta Culture and Status of Women, under the Standard Requirements Under the Historical Resources Act: Reporting The Discovery Of Historic Resources.

2.2 HISTORICAL AERIAL PHOTOGRAPHS AND PRECIPITATION DATA

Historical aerial photographs were ordered from the Alberta Environment and Parks (AEP) Aerial Photographic Records System (APRS) to review changes in land use and to aid in the classification of wetlands. Additional images from Google Earth were also reviewed.

As part of the historical review process described in the Wetland Identification and Delineation Directive (the Directive), (Government of Alberta, 2015), precipitation data is required to correlate with the available historical photographs reviewed and aid in determining wetland class. Precipitation data was downloaded from the Alberta Agriculture and Forestry Interpolated Weather website (Alberta Agriculture and Forestry, 2022). Precipitation data was compiled from Alberta Agriculture and Forestry to document the total amount of precipitation relative to each day, month, and year that historical aerial photographs were available. To determine whether each year of historical photographs was either a dry, average, or wet year, the upper and lower 25% quartile was calculated. Average annual precipitation levels from 1955 to 2021 was calculated to be 431 mm. A dry year is precipitation levels below or at 376 mm and a wet year is levels at or above 481 mm.

2.3 ALBERTA CONSERVATION INFORMATION MANAGEMENT SYSTEMS AND FISH AND WILDLIFE INFORMATION MANAGEMENT SYSTEM

The Alberta Conservation Information Management Systems (ACIMS) is a resource that provides biodiversity information on Alberta species and ecological community sites. It provides the location, condition, and status of selected elements.

The Fish and Wildlife Information Management System (FWIMS) is a provincial database that provides information on fish and wildlife observations and can generate reports and maps of observed species within a specified area or polygon.

A database search was conducted for both management systems to reflect the most current recordings of vegetation and wildlife species of conservation concern. In addition, an eBird database search was conducted to look for any documented hotspots near the Project Site.

2.4 HYDROLOGY

The catchment areas for the wetlands were determined by using ArcGIS, Lidar and the ArcHydro data models. To delineate the watershed boundaries and major flow paths, existing surface data along with flow direction and flow accumulation grids were used. The data model is then used to define catchments for user specified areas or points.

2.5 WETLAND DELINIATION AND ASSESSMENT

Potential wetlands within the Project Site were identified and delineated prior to field work through assessment of historical aerial imagery, topography, and historical precipitation databases. The boundaries were then confirmed in the field on June 8, 2022 by assessment of soils and vegetation following the Wetland Identification and Delineation Directive 2015 (the Directive) (Government of Alberta, 2015).

The Project Site was traversed fully during site visits to confirm the presence or absence of additional wetlands areas or features that may have been overlooked during the historical aerial image review. Where possible, a transition from obligate and facultative wetland vegetation to upland vegetation was used to confirm or adjust wetland boundaries. When vegetation provided a clear boundary of transition from wetland to upland species, an Appendix 7 field form using a 1 m x 1 m vegetation plot at the wetland/upland boundary was recorded.

To confirm wetland boundaries where vegetation did not provide a clear transition, soil pit inspections were conducted by starting at the desktop delineated wetland boundary and confirming the presence of hydric soils. Then the boundary was confirmed by moving progressively up gradient in 5m intervals until evidence of hydric soils was absent and upland soils were observed. An Appendix 7 Field Form was completed for each wetland boundary documenting vegetation and/or soil data as per the Directive. Each wetland was then classified under the Alberta Wetland Classification System 2015 (Alberta Environment and Sustainable Resources Development, 2015).

As part of the 2013 Alberta Wetland Policy, the province created the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A) to assess the natural functions for all wetland types. This tool generates a wetland functional score. Once a score is generated, the province assigns a value category to the wetland (A, B, C, or D). (Government of Alberta, 2015). An ABWRET-A form was completed for Project Site wetlands based on recent and historical photographs, historical precipitation data, and site visits during the 2022 growing season and submitted the AEP Wetlands division for evaluation.

2.6 ADDITIONAL FIELD SURVEYS

To satisfy the biophysical assessment requirements for the County approval process additional field surveys outside of the WAIR outline are included documentation of weed species, upland vegetation, incidental wildlife observations and photographs.

2.7 LANDSCAPE ANALYSIS TOOL

The Landscape Analysis Tool (LAT) is a web enabled geospatial tool that allows proponents to plan land development activities (Government of Alberta, 2018). The current Project Site is owned by Saddle Lake Cree First Nation and meets the activities listed on the Activities Code Table for the LAT process. Therefore, a LAT search was generated for the Project Site on February 10, 2022.

3.0 CURRENT CONDITIONS

3.1 HISTORICAL RESOURCES

The Project Site has not been assigned a HRV and no further assessments are required.

3.2 HISTORICAL AERIAL PHOTOGRAPHS

From 1950 to present day the land use surrounding the Project Site appears to have been dominantly agricultural. Most wetlands identified within this report are not visible in the earliest images of this report and appear intermittently through the years. Below is a summary of the historical aerial photograph review. Historical aerial photographs are in **Appendix A.**

- **August 26, 1950** – Land use of the Project Site and the surrounding area is agricultural. One small homestead is present in the northeast corner of the Project Site. An additional homestead is present directly across Highway 35.
- **September 28, 1965** – Shrubby/forest vegetation surrounding wetland along the south boundary has been removed.
- **August 7, 1970** – All shrubby/forest vegetation has been removed from the Project Site.
- **October 10, 1982** – No significant changes.
- **June 6, 1991** – Highway 35 along the east project boundary appears to have been widened and paved. Highway 652 along the south project boundary appears to have been paved. Homestead on adjacent property to the east expands.
- **June 17, 2000** – Large wetland on adjacent property to the east has been trenched with a dugout in the center and now drains to the southwest.
- **July 1, 2007** – Shrubby vegetation re-establishing around large wetland along south boundary.
- **April 8, 2012** – No significant changes.
- **September 2, 2019** – No significant changes.

3.3 NATURAL REGION, LANDFORM AND SOILS

The Project Site is located within the Boreal Forest Natural Region and the Dry Mixedwood Subregion of the province. This Subregion is characterized by undulating plains with aspen-dominated forests and is the warmest subregions within the Boreal Forest Natural Region (Natural Regions Comittee, 2006). Native vegetation consists of aspen forests with an understory of shrubby species such as rose, beaked hazelnut, and low-bush cranberry.

The major soil groups represented in the Subregion are Gray and Dark Grey Luvisols on uplands with Gleysols and Organic soils in wetland areas (Natural Regions Comittee, 2006). A review of the Alberta Soil Information Viewer indicates the Project Site is within two soil polygons (Government of Alberta Agriculture and Forestry, 2022):

- **19776** – Eluviated Black Chernozem on medium textured till and Eluviated Black Chernozem on medium textured sediments deposited by wind and water. Undulating, high relief landform with a limiting slope of 4%. May contain soils that are not strongly contrasting.

- **19757** – Eluviated Black Chernozem on medium textured till and Orthic Black Chernozem on medium textured till. Hummocky, low relief landform with a limiting slope of 6%. May contain soils not strongly contrasting.

Soil plots conducted during the June 2022 field surveys (**Figure 3**) were consistent with the information obtained from the Alberta Soil Information Viewer (**Table 3-1**).

Table 3-1: Soil Pit Characteristics

SOIL PIT (LAT/LONG)	HORIZON	DEPTH (CM)	HUE	VALUE	CHROMA
SP01 (53°59'2.85"N 111°32'52.88"W)	AB_p	0-20	10YR	3	2
	C	20 +	10YR	6	3
SP02 (53°59'3.30"N 111°32'52.82"W)	-	0-5	Fibrous roots		
	A	5-15	10YR	2	1
	B	15-25	10YR	4	2
	C	25 +	10YR	6	4
SP03 (53°58'58.88"N 111°32'32.95"W)	A	0-30 +	10YR	2	1

3.4 VEGETATION

Vegetation of the Dry Mixedwood Natural Subregion is characterized by aspen forests and cultivated landscapes. When present, native vegetation consists of aspen forests, rose, beaked hazelnut, and low-bush cranberry (Natural Regions Comittee, 2006).

Vegetation cover of the Project Site is currently dominated by annual crop cover. One vegetation plot was conducted during the June 2022 field survey (**Figure 3**) within the natural landcover of the windrow along the north boundary, with vegetation dominated by aspen (**Table 3-2**).

Table 3-2: Vegetation Plot

PLOT ID: VP01	COORDINANTS: 53°59'3.30"N 111°32'52.82"W	
COMMON NAME	SCIENTIFIC NAME	PERCENT COVER (%)
aspen	*Populus tremuloides*	40
red-osier dogwood	*Cornus stolonifera*	5
saskatoon	*Amelanchier alnifolia*	5
common wild rose	*Rosa woodsii*	5
wild strawberry	*Fragaria virginiana*	5
small bedstraw	*Galium trifidum*	10
tall meadow rue	*Thalictrum dasycarpum*	incidental
goldenrod	*Solidago spp.*	incidental
smooth brome	*Bromus inermis*	25
bunchberry	*Cornus canadensis*	5
star-flowered solomon's-seal	*Maianthemum stellatum*	10
LFH	-	50

3.5 HYDROLOGY

The catchment areas for each wetland have been identified as contributing to areas within the Project Site **(Figure 4)**.

Catchments for each wetland were reviewed to determine if the project footprint removes or impacts the catchment area. **Table 3: 1** provides the catchment information and anticipated impact.

Table 3: 1: Wetland Catchment Areas

WETLAND ID	TOTAL CATCHMENT AREA (HA)	IMPACT TO WETLAND
WL02	6.18	**None**
WL03	1.86	**Permanent**
WL05	7.64	**Permanent**
WL06	35.06	**Permanent**
WL07	22.31	**None**

3.6 LANDSCAPE ANALYSIS TOOL RESULTS

The landscape analysis tool (LAT) provided information on the existing utilities and land features for planning purposes. The proposed activities will meet all applicable conditions and will implement appropriate mitigation methods where appropriate (**Appendix B**).

Saddle Lake Cree Nation

Wetland Assessment and Impact Report

Wetlands and Field Survey Plots

- Vegetation Survey Plots
- Project Site

Wetland Class

- Ephemeral
- Marsh - Graminoid - Seasonal
- Marsh - Graminoid - Temporary
- Marsh - Graminoid - Semi-Permanent or Permanent

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

0 100 200
Meters

Coordinate System:
NAD 1983 UTM Zone 12N

Scale: 1:4,000
(When plotted at 11"x17")

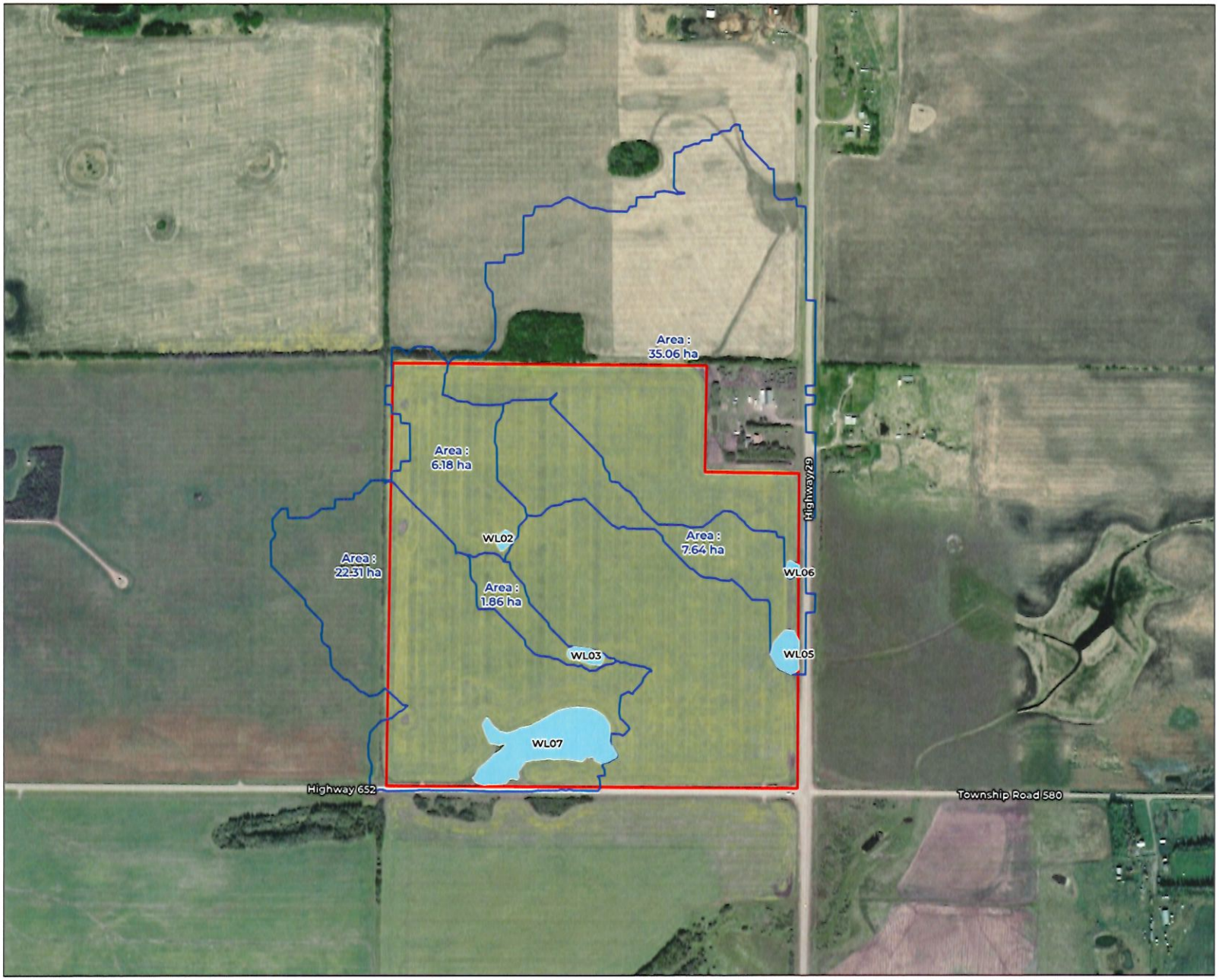
Data Sources:

- Esri Base Map
- Government of Alberta

Project #:	3518.0029.02
Author:	CMR
Checked:	DH
Status:	Review
Revision:	A
Date:	2022 / 10 / 26

URBAN SYSTEMS

FIGURE 3



Saddle Lake Cree Nation

Wetland Assessment and Impact Report

Wetland and Catchments

- Project Site
- Wetland
- Catchments

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0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 12N

Scale: 1:7,000
(When plotted at 11"x17")

Data Sources:

- Esri Base Map
-Government of Alberta

Project #:	3518.0029.02
Author:	CMR
Checked:	DH
Status:	Review
Revision:	A
Date:	2022 / 10 / 26

URBAN SYSTEMS

FIGURE 4

3.7 WETLANDS AND WATERBODIES

Within the current Project Site boundary there are five (5) wetlands with a total area of 2.86 ha (**Figure 3**). **Table 3: 2** provides the class, functional value, and area in hectares of the identified wetlands.

Table 3: 2: Wetland Areas and Alberta Classification

WETLAND ID	AREA (HA)	ALBERTA WETLAND CLASSIFICATION	ABWRET-A SCORE
WL02	0.09	Marsh-Graminoid-Temporary	D
WL03	0.17	Marsh-Graminoid-Temporary	D
WL05	0.35	Marsh-Graminoid-Seasonal	D
WL06	0.07	Marsh-Graminoid-Temporary	D
WL07	2.18	Marsh-Graminoid-Permanent or Semi-Permanent	D

3.7.1 IDENTIFICATION, DELINEATION AND CLASSIFICATION

During the field surveys in June 2022, the previously defined desktop wetland boundaries were verified or adjusted based on the delineation process described in **Section 2.5**. Using field data and desktop analysis of historical and precipitation data, the wetland classifications were determined using the Alberta Wetland Classification System. Adjustments to wetland boundaries and classifications were based on historical photographs, historical precipitation data, changes in vegetation communities, topography, and/or hydric soil indictors as outlined in the Directive.

Appendix C provides tables of the historical precipitation information and the Appendix 7 Field Form data for each wetland as per the Directive. ABWRET-A results were received on September 15, 2022.

3.7.1 EPHEMERAL WATERBODIES

Two (2) ephemeral wetlands have been identified on the Project Site, **Table 3:3** provides the area in hectares of the identified waterbodies (**Figure 4**).

Table 3-3: Ephemeral Wetlands

EPHEMERAL ID	AREA (HA)
EP01	0.02
EP04	0.03

Historical review indicated that EP01 and EP04 did not appear on the landscape until late 1990's to early 2000's following anthropogenic disturbances. Photograph 1 and Photograph 2 show the present-day conditions of EP01 and EP04, respectively. EP01 contains no wetland vegetation with mottling only present in one sample with a high chroma value (6/2). EP04 is only visible following the development of the road (1982) and falls within the Right of Way (ROW).

Photograph 1: Ephemeral 01 Looking East.

Photograph 2: Ephemeral 04 Looking East.

3.7.2 PUBLIC LANDS

The bed and shore of Wetland 07 may be crown claimed under the Public Lands Act, however, is not currently planned to be impacted by ASP development. A review for permanency on semi-permanent and permanent wetlands by Public Lands within the Project Site will be completed prior to the Water

Act application. Result of Public Lands review for permanency will be updated and submitted along with the anticipated Water Act application to AEP..

4.0 WILDLIFE AND WILDLIFE HABITAT

The ACMIS search did not result in any sensitive element occurrences of rare or listed species. FWMIS results indicated three (3) species historically recorded within 3 km of the Project Site. A search of the eBird (The Cornell Lab of Orthinology, 2022) database indicated one (1) hot spot (Pakan Lake) approximately 5 km south of the Project Site. Of the species identified, eight (8) are listed as a species of management concern either federally under *Species at Risk Act* (SARA) (Government of Canada, 2022) and/or provincially under the Alberta Wild Species Status (Alberta Environment and Parks, 2022) (**Table 4-1**).

Table 4-1: Historically Observed Wildlife and Conservation Status

COMMON NAME	SCIENTIFIC NAME	SARA	AEP
American avocet	*Recurvirostra americana*	-	Secure
American coot	*Fulica americana*	-	Secure
American robin	*Turdus migratorius*	-	Secure
barn swallow	*Hirundo rustica*	Threatened	May Be at Risk
black tern	*Chlidonias niger*	-	Sensitive
black-billed magpie	*Pica hudsonia*	-	Secure
blue-winged teal	*Anas discors*	-	-
broad-winged hawk	*Buteo platypterus*	-	Sensitive
Canada goose	*Branta canadensis*	-	Secure
Canadian toad	*Anaxyrus hemiophrys*	-	May Be at Risk
common grackle	*Quiscalus quiscula*	-	Secure
common yellowthroat	*Geothlypis trichas*	-	Sensitive
eared grebe	*Podiceps nigricollis*	-	Sensitive
Franklin's gull	*Leucophaeus pipixcan*	-	Secure
gadwall	*Anas strepera*	-	-
green-winged teal	*Anas crecca*	-	Secure
killdeer	*Charadrius vociferus*	-	Secure
LeConte's sparrow	*Ammodramus leconteii*	-	-
lesser scaup	*Aythya affinis*	-	Secure
lesser yellowlegs	*Tringa flavipes*	-	Secure
mallard	*Anas platyrhynchos*	-	Secure
mourning dove	*Zenaida macroura*	-	Secure
northern shoveler	*Anas clypeata*	-	-
pied-billed grebe	*Podilymbus podiceps*	-	Sensitive
red-tailed hawk	*Buteo jamaicensis*	-	Secure
red-winged blackbird	*Agelaius phoeniceus*	-	Secure
ring-billed gull	*Larus delawarensis*	-	Secure
ring-necked duck	*Aythya collaris*	-	Secure
ruddy duck	*Oxyura jamaicensis*	-	Secure

COMMON NAME	SCIENTIFIC NAME	SARA	AEP
Savannah sparrow	*Passerculus sandwichensis*	-	Secure
semipalmated sandpiper	*Calidris pusilla*	-	Secure
short-billed dowitcher	*Limnodromus griseus*	-	Undetermined
short-eared owl	*Asio flammeus*	Special Concern	May Be at Risk
snow goose	*Chen caerulescens*	-	-
stilt sandpiper	*Calidris himantopus*	-	Secure
tree swallow	*Tachycineta bicolor*	-	Secure
tundra swan	*Cygnus columbianus*	-	Secure
western meadowlark	*Sturnella neglecta*	-	Secure
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	-	Secure

A description of the species listed on FWMIS and eBird that are either listed under Schedule 1 of SARA (Government of Canada, 2022) and/or are listed as Sensitive in Alberta under the Species at Risk General Status (Alberta Environment and Parks, 2022) are provided below.

barn swallow (*Hirundo rustica*) is listed as May Be at Risk in Alberta and Threatened under SARA Schedule 1, and commonly nests on steep banks and man-made structures along beams and eaves (Cornell Lab of Orthinology, 2022). Foraging habitat includes open grassland areas where they feed primarily on insects (Cornell Lab of Orthinology, 2022). The Project Site provides habitat for barn swallows.

black tern *(Chlidonias niger)* is listed as Sensitive in Alberta. Nesting in freshwater marshes and spotted in almost any type of wetland while migrating (The Cornell Lab of Orthinology, 2022), the Project Site provides potential habitat for black terns.

broad-winged hawk (*Buteo platypterus*) is listed as Sensitive in Alberta. Breeding in deciduous/mixed forests and nesting near forest openings and bodies of water away from human disturbances (The Cornell Lab of Orthinology, 2022), the Project Site does not provide significant habitat for broad-winged hawks.

Canadian toad (*A. hemiophrys*) is listed as May Be at Risk in Alberta. Canadian toads are generally found in river valleys or along lakes in areas with sandy soils and breed in wetlands (Alberta Conservation Association, 2002). The Project Site has the potential to provide habitat for Canadian toad.

common yellowthroat *(Geothlypis trichas)* is listed as Sensitive in Alberta. Occupying a wide range of habitat, common yellowthroat can be found in areas with low, dense vegetation, upland pine forests, river edges and disturbed sites (The Cornell Lab of Orthinology, 2022). The Project Site has the potential to provide habitat for common yellowthroats.

eared grebe (*Podiceps nigricollis*) is listed as Sensitive in Alberta. Breeding in shallow lakes and ponds (The Cornell Lab of Orthinology, 2022), the Project Site does not provide abundant habitat for earned grebe.

pied-billed grebe (*Podilymbus podiceps*) is listed as Sensitive in Alberta. Habitat includes freshwater wetlands, wet fields, sloughs, marshes, slow moving rivers and ponds and will nest in heavily populated

areas (The Cornell Lab of Orthinology, 2022). The Project Site has the potential to provide habitat for pied-billed grebe.

short-eared owl (*Asio flammeus*) is listed as May Be at Risk in Alberta and Special Concern under SARA Schedule 1. Found in grassland habitat and open areas (The Cornell Lab of Orthinology, 2022), the Project Site provides suitable habitat for short eared owls.

5.0 IDENTIFICATION OF IMPACTS AND MITIGATION MEASURES

Based on the proposed development of the Project Site, impacts on the ecological characteristics have been identified. To help reduce or eliminate residual and cumulative impacts, mitigation measures shall be or each identified impact.

Table 5-1 identifies potential impacts and associated mitigation measures that will be implemented prior to and during construction of the development.

Table 5-1: Mitigation Measures

RESOURCE-SPECIFIC COMPONENT	PROJECT PHASE	POTENTIAL IMPACT	MITIGATION RECOMMENDATIONS
Terrain and Soils			
Terrain and Soils	*Construction; Operation*	Soil compaction from heavy equipment. Soil loss Soil contamination from heavy equipment fuelling and maintenance and historical deposition of debris.	• Prepare and implement an Erosion and Sediment Control Plan. • Place appropriate erosion and sediment control fencing along ecological setbacks from the retained wetlands and restrict operation of machinery to designated areas to minimize impact on surrounding areas. • Establish a dedicated refueling and equipment maintenance area at least 100m from any waterbodies. • Ensure equipment is clean and leak-free prior to construction. • Have a spill response plan and ensure adequate spill kits in place prior to project initiation and during operation. • Debris and construction waste should be screened out from the disturbed fill area and properly disposed. • Stockpile soil horizons separately, label/mark, protect and replace in proper order. • Stabilize stockpiles in place longer than 30 days. • Avoid or phase removal of existing vegetation when possible.

RESOURCE-SPECIFIC COMPONENT	PROJECT PHASE	POTENTIAL IMPACT	MITIGATION RECOMMENDATIONS
			• Implement Best Management Practices for equipment maintenance, storage, refueling, and concrete washout stations. • Use designated access, roads, and trails.
Vegetation			
Weeds	*Construction; Operation*	Increase in weeds in disturbed areas	• Implement controls to prevent spread of noxious or prohibited noxious weeds during growing season (e.g., mowing, spraying). • Where appropriate, re-seed disturbed areas with native species (certified weed-free) to deter noxious weed invasion and capture overland flow during rain events or snowmelt. • Use mechanical (pulling and mowing) and chemical methods to control weed species identified in vegetation surveys. A multi-year management approach should be used since weed species generally have high seed production and vegetative reproduction, contributing to their success and difficulty of eradication. • Ensure all equipment and vehicles are clean and free of soil prior to arrival on the Project Site. • Minimize the spread of weeds by establishing designated access and pathways.
Wetlands	Construction; Operation	Decrease in wetland function due to wetland disturbance. Loss of wetlands. Change in local hydrology due to grading and on-site stormwater storage.	• Avoid disturbance to retained wetlands by establishing and implementing appropriate development buffers. • Obtain approval under the Alberta Water Act for alteration and/or removal of wetland area. • Execute a Wetland Restoration Plan for retained wetlands where temporary impacts are anticipated. • Ensure all equipment is well maintained, clean and leak-free prior to project initiation. Implement Best Management Practices for equipment maintenance, storage, refueling, and concrete washout stations. • Prepare an ESC plan to protect adjacent wetlands and downstream
Wildlife			

RESOURCE-SPECIFIC COMPONENT	PROJECT PHASE	POTENTIAL IMPACT	MITIGATION RECOMMENDATIONS
Wildlife (excluding migratory birds – see below)	*Construction; Operation*	Decrease in ecological function due to wetland disturbance.	• Avoid disturbance to retained wetlands by establishing and implementing appropriate development buffers. • Obtain approval under the Alberta Water Act for alteration and/or impacts to wetlands. • Conduct a wildlife sweep prior to construction for non-migratory birds (i.e: owls, raptors) and other potential species such as fox, coyote and badger dens. • Do not feed or approach wildlife. Predetermine wildlife deterrent garbage receptacles and locations prior to construction. • If a nest/den is found during construction, immediately stop all works in the area and consult a qualified biologist. If required, notify the appropriate authorities, and implement all required mitigation measures before resuming work in the area.
Migratory Birds	*Construction; Operation*	Decrease in breeding habitat potential due to wetland disturbance. Disturbance during breeding period (April 15 to August 20).	• Avoid disturbance to retained wetlands by establishing and implementing appropriate development buffers. • Conduct clearing of vegetation between August 21 and April 14 to avoid incidental take of migratory birds, nests, or eggs and to maintain compliance with the Migratory Birds Convention Act, the Species-at-Risk Act, and the Alberta Wildlife Act. • If clearing is required within general nesting periods, migratory bird breeding surveys should be completed by a qualified avian specialist; if breeding activity is observed appropriate disturbance buffers should be implemented until young have fledged and left the nesting area.
Hydrology			
Hydrology	*Construction; Operation*	Change in local hydrology due to change in grading and stormwater storage on site	• Maintain existing drainage pathways and pre-development runoff volumes. • Avoid disturbance to retained wetlands by establishing and implementing appropriate development buffers. • Obtain approval under the Alberta Water Act for alteration of wetland area.

RESOURCE-SPECIFIC COMPONENT	PROJECT PHASE	POTENTIAL IMPACT	MITIGATION RECOMMENDATIONS
Historical Resources			
Historical Resources	*Construction; Operation*	No historical resources have been identified and impacts are not anticipated	• If historical resources are discovered during excavation/construction stop work and notify the Alberta Historical Resources Management Branch subject to Section 31 of the Historical Resources Act.

6.0 REGULATORY FRAMEWORK

Impacts to and removal of all or part of a wetlands requires approval under the Alberta Water Act. There are various other environmental Acts and regulations that may be triggered throughout the development process. A list of the anticipated regulations but not limited to, is provided in **Table 6-1** below.

Table 6-1: Environmental Regulatory Considerations

LEGISLATION	DESCRIPTION	TRIGGER
Alberta Wildlife Act	Provides for the protection and conservation of wild animals in Alberta.	Disturbance or destruction of an animal, or its active residence.
Species at Risk Act (SARA)	Provides for the protection and conservation of wild animals in Canada.	Disturbance or destruction of an animal, its active residence, or its critical habitat.
Migratory Birds Convention Act	Provides for the protection of migratory birds, their nests or their habitats.	Development within areas of suitable nesting habitat during the Restricted Activity Period.
Alberta Water Act	The diversion and use of water in Alberta are controlled under provisions of the *Water Act* with approvals required for disturbance of water and the bed and shore of waterbodies/water courses. Unless exempt, any disturbance of rivers requires prior approval by Alberta Environment and Parks.	Any disturbance or activity within a waterbody/water course. This includes the diversion from or discharge of water and or sediment into a waterbody.
Alberta Public Lands Act	Prohibits the unauthorized use of Alberta's public lands, including the beds and shores of all-natural water courses and permanent and naturally occurring bodies of water.	An approval process may be triggered when development of public lands is proposed. Section 3 of the Public Lands Act indicates that all permanent and naturally occurring bodies of water are claimable by the Crown (Province of Alberta, 2020).

LEGISLATION	DESCRIPTION	TRIGGER
Alberta Soil Conservation Act	Discourages practices that cause soil degradation.	Must actively prevent soil loss or deterioration throughout the life of the project.
Alberta Culture and Tourism (Historical Resources Act)	Outlines the responsibilities of protection for archaeological, palaeontological, traditional aboriginal or historic sites.	Where historic resources are identified by the Listing of Historic Resources.
Environmental Protection and Enhancement Act (EPEA)	Promotes the protection, enhancement, and wise use of the environment.	The diversion, discharge, or retention of surface waters will require EPEA approval. Any contamination release into/onto the environment will trigger EPEA.

6.1 WATER ACT APPLICATION

Three (3) D value wetlands will be compensated for under the monetary in lieu replacement pathway through the 2013 Alberta Wetland Policy. The Project Site falls within RWVAU #17 (replacement rate $18,600/ha), with a total compensation value of $11,522.70 (including GST) for all wetlands proposed to be removed (**Table 6-2**).

Table 6-2: Wetland Compensation Values

WETLAND ID	WETLAND CLASS (AWCS)	ABWRET VALUE	WETLAND AREA LOST (HA)	COMPENSATION RATIO	REPLACEMENT COST
WL03	Marsh-Graminoid-Temporary	D	0.17	1	$3,162
WL05	Marsh-Graminoid-Seasonal	D	0.36	1	$6,510
WL06	Marsh-Graminoid-Temporary	D	0.07	1	$1,302
TOTAL	-	-	**0.59**	-	$10,974.00 + GST
				Total Compensation	**$11,522.70**

7.0 CORPORATE AUTHORIZATION

This document, entitled Wetland Assessment and Impact Report for the Saddle Lake Cree Nation Fee Simple Lands Area Structure Plan is prepared by Urban Systems Ltd. for SLCN. The material in this report reflects the best judgment of Urban Systems based on the information available at the time of preparation. Any use, which a third party makes of this report, or reliance on or decisions made based on it, is the responsibilities of the third party. Urban Systems Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Author:

Danielle Hauser
Environmental Technician

Review:

Jason Frederickson, A.I.T
Environmental Consultant

Senior Review:

Terri Duret, P.Biol, Q.W.S.P
Senior Environmental Consultant

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APPENDIX A:
HISTORICAL AERIAL PHOTOGRAPHS

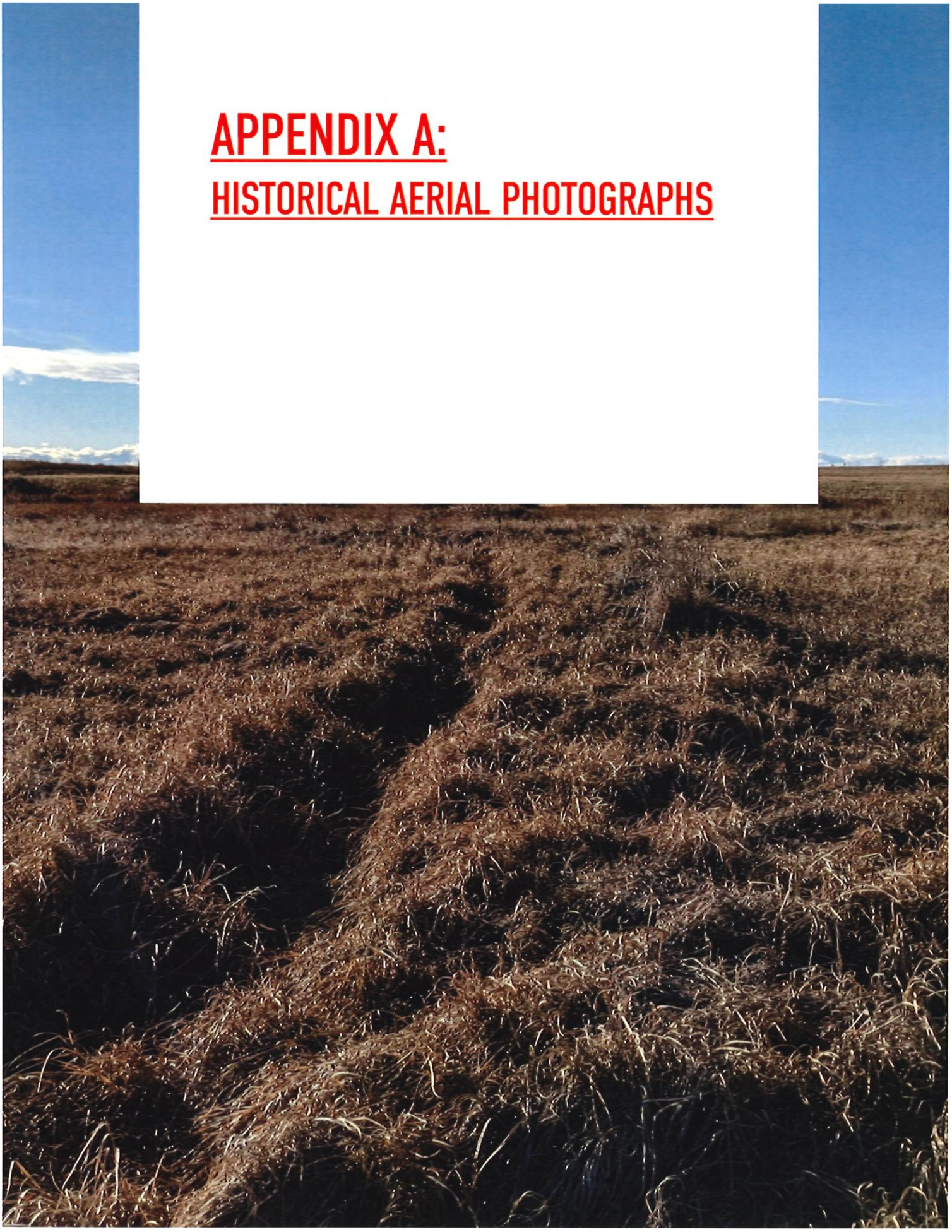


Figure 1: 1950.8.26

Figure 2: 1965.9.28

Figure 3:1970.8.7

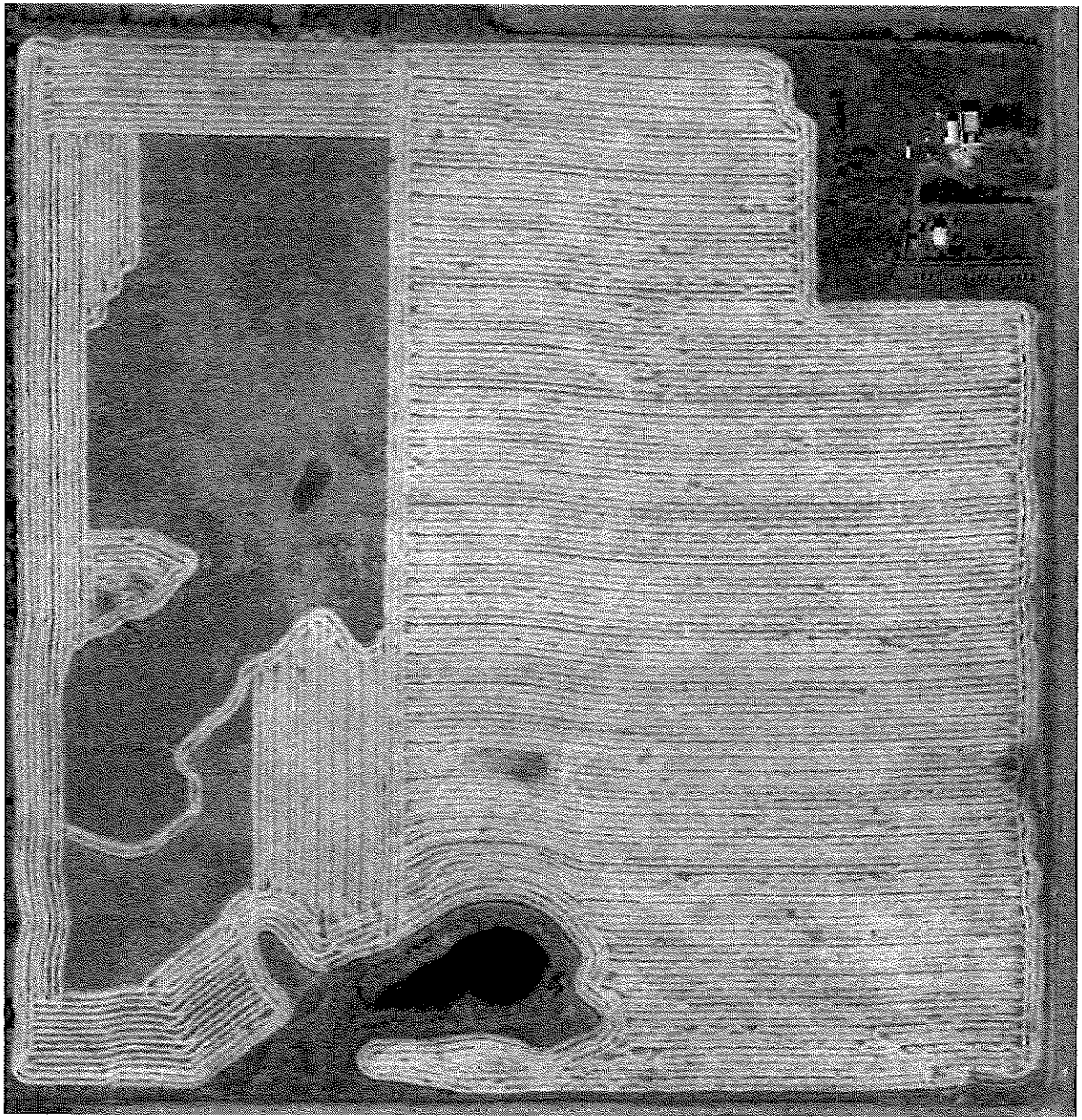
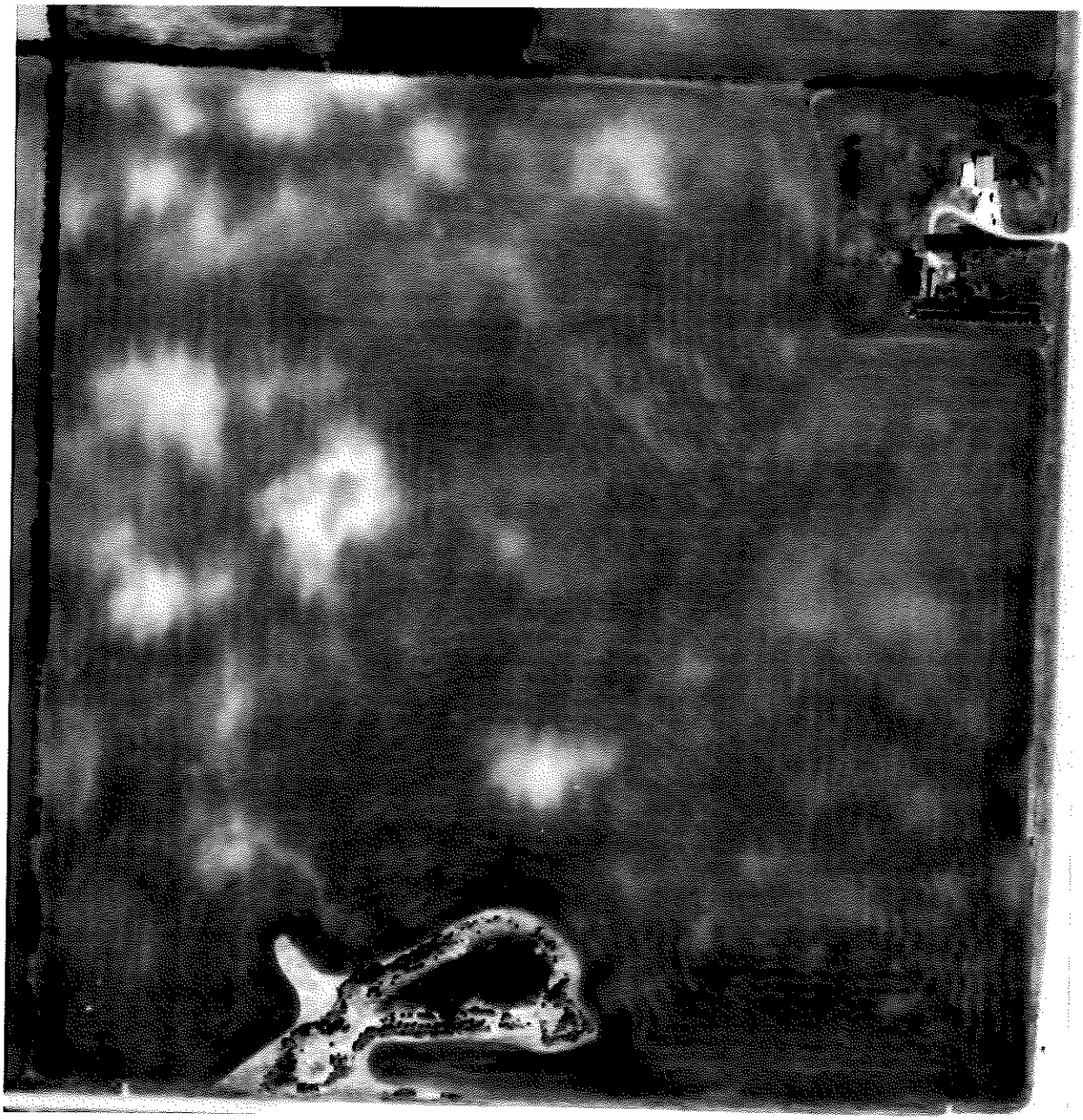


Figure 4:1982.10.10



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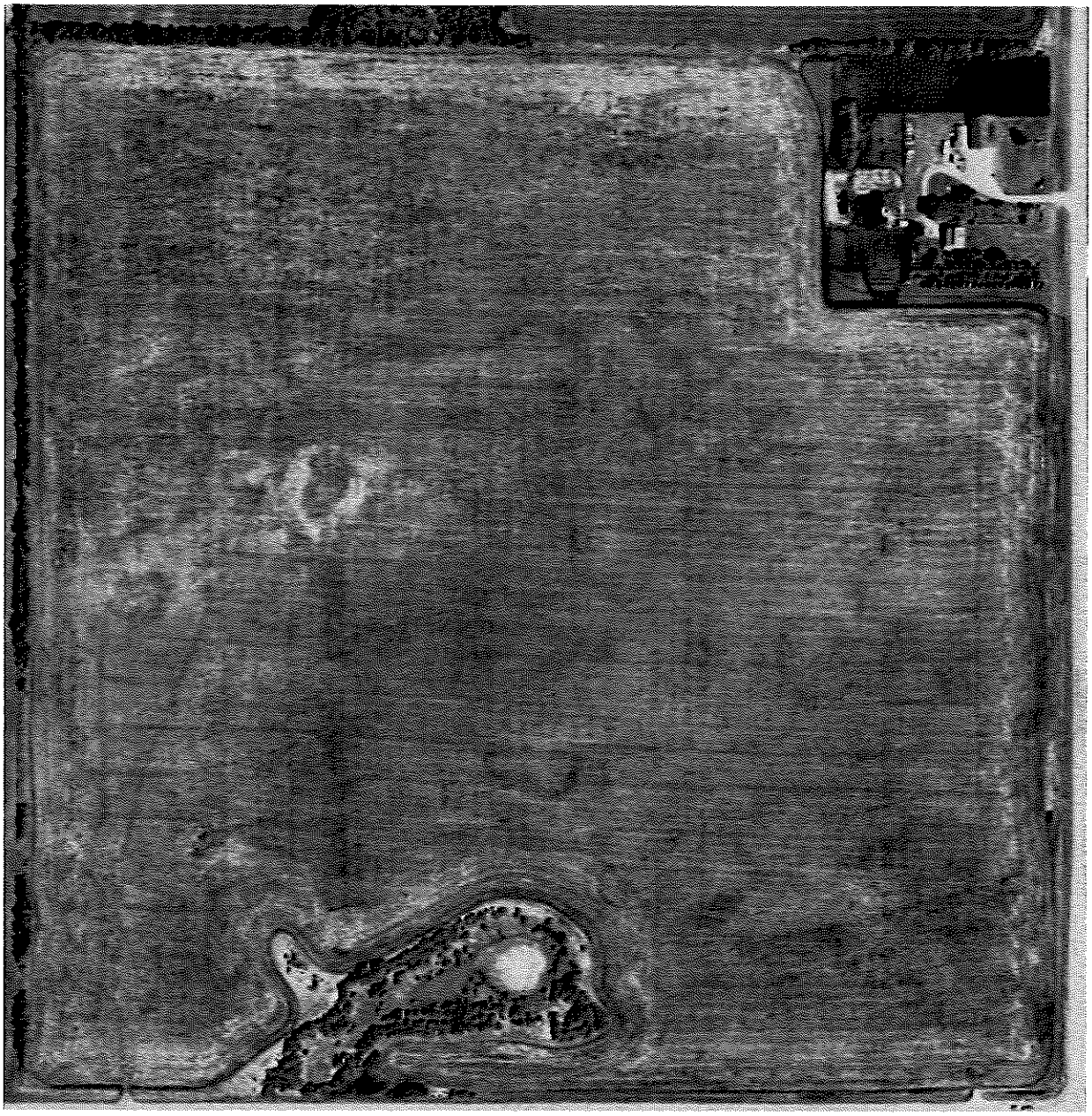


Figure 6:2000.06.17

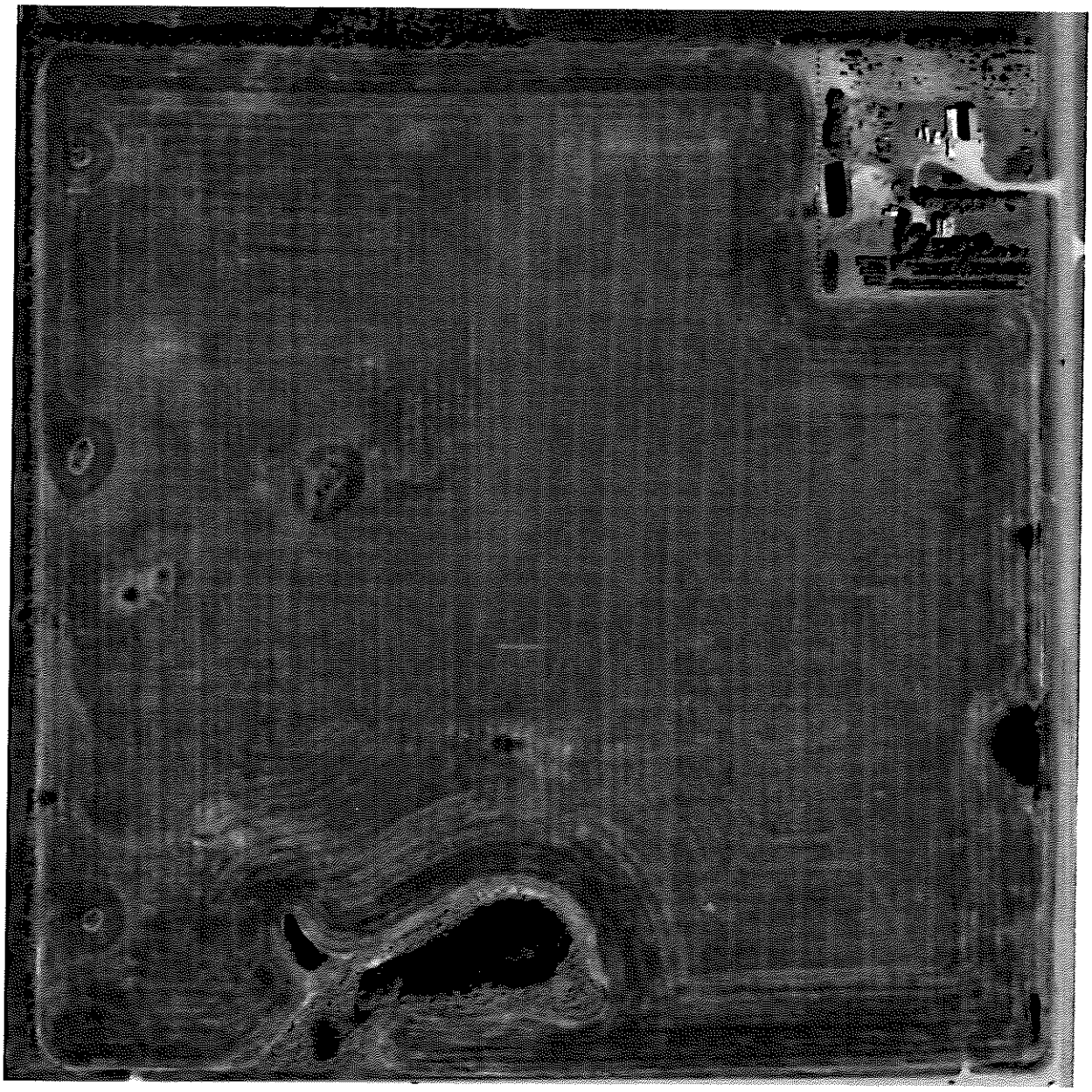
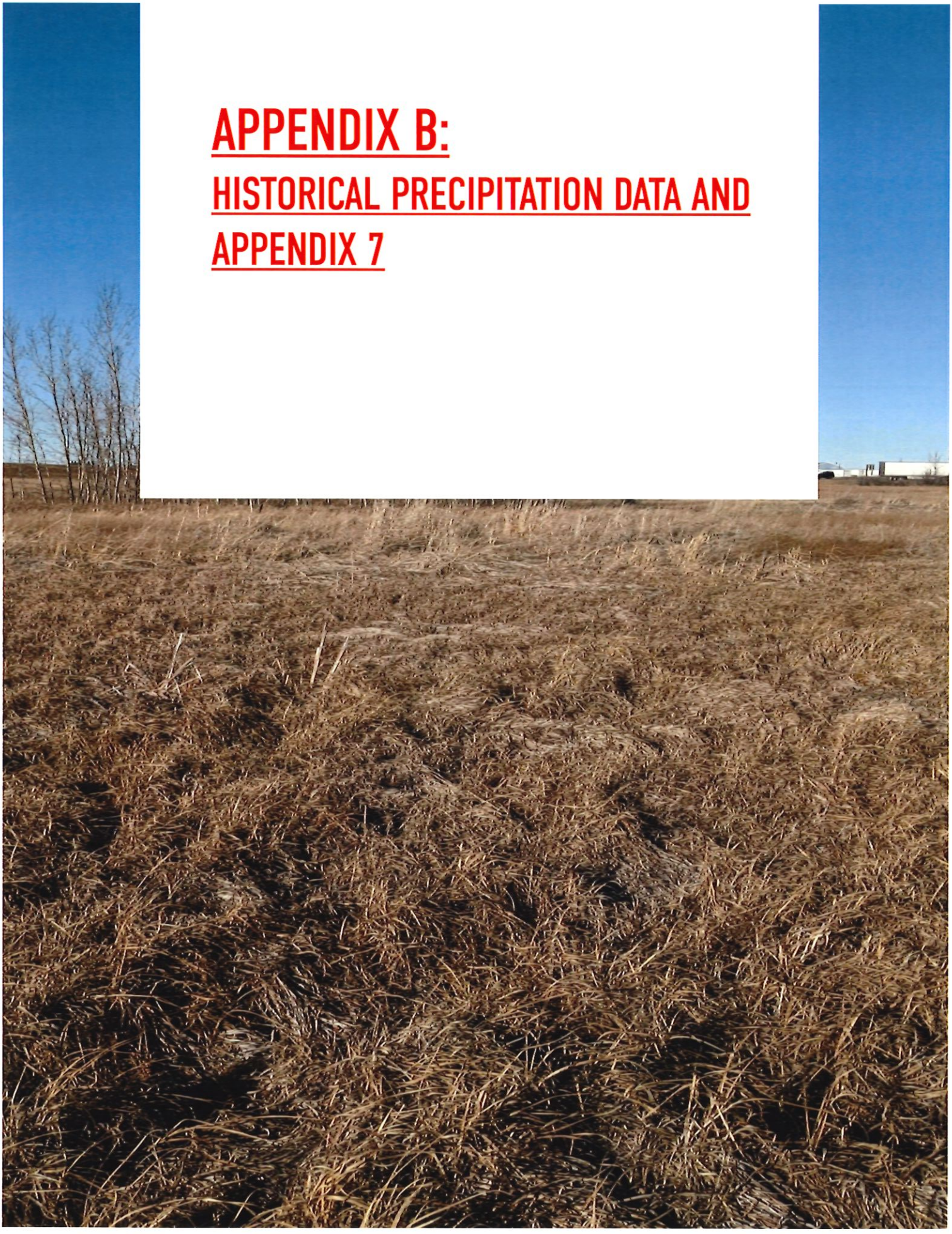


Figure 7:2007.07.01

APPENDIX B:

HISTORICAL PRECIPITATION DATA AND APPENDIX 7



Wetland 02

Wetland 02 Precipitation Data

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
08/26/1950	AS127	1:40,000	Sum	Marsh-Graminoid-Temporary	N/A	N/A	N/A	DV
09/28/1965	AS916	1:31,860	F	Marsh-Graminoid-Temporary	W 514.06	40.44	0 (9.79 in previous 10 days)	DVI
08/07/1970	AS1111	1:80,000	Sum	Marsh-Graminoid-Temporary	W 566.78	94.72	0 (19.55 in previous 10 days)	DVI
10/10/1982	AS2651	1:30,000	F	Marsh-Graminoid-Temporary	N 461.99	13.63	0 (5.65 in previous 10 days)	DV
06/06/1991	AS4075	1:20,000	Sum	Marsh-Graminoid-Temporary	N 351.8	65.63	1.58 (16.9 in previous 10 days)	DV
06/17/2000	AS5110	1:30,000	Sum	Marsh-Graminoid-Temporary	W 520.14	90.87	0 (49.63 in previous 10 days)	DV
07/01/2007	TRS G0702	1:30,000	Sum	Marsh-Graminoid-Temporary	N 397.49	83.72	0 (39.09 in previous 10 days)	DV
04/08/2012	Google Earth	-	S	Marsh-Graminoid-Temporary	N 449.7	17.92	0 (2.84 in previous 10 days)	W
09/02/2019	Google Earth	-	Sum	Marsh-Graminoid-Temporary	N 395.01	22.22	12.76 (3.39 in previous 10 days)	DV

*	S= Spring (April to June); Sum=Mid to Late Summer (June to September); F=Fall (Sept-Nov)
**	D=Dryer; N-Normal; W=Wetter; N/A= Not Available
***	W=Water Present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands)

Wetland 02 Appendix 7 Soil Data (53°58'52.17"N 111°32'54.48"W)

Plot ID: WL02W1		
Question	**Soil Indicators of Wetlands**	**Y/N**
S1	Organic Soils (except folists) present	N
S2	Presence of peat accumulation determined by Von Post test	N
S3	Of, Om, Oh horizons (organic surface layer 20-40 cm thick) present	N
S4	Sulfidic material present	N
S5	Gleying or mottling present immediately below the surface layer and within 30 cm	Y
S6	Native prairie soils with a low chroma matrix within 30 cm of the soil surface and the following present:	N
S7	Nonsandy soils with a low chroma matrix within 40 cm of the soil surface and one of the following present within 30 cm of the surface	N
S8	Sandy soils with one of the following present:	N
S9	Remains of aquatic invertebrates are present within 30 cm of the soil surface in pothole-like depressions	N
S10	Other regionally applicable, field-verifiable soil properties associated with prolonged seasonal high water?	N

Munsel Soil Color				
Soil Horizon	**Depth (cm)**	**Hue**	**Value**	**Chroma**
AB_p	0-20	10YR	4	2
C	20 +	10YR	4	2

Incidental Plant Species Within Wetland			
Canola crop			

WL02 East Boundary Looking West (53°58'52.16"N 111°32'52.70"W). Image Date: June 8, 2022.

Wetland 03

Wetland 03 Precipitation Data

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
08/26/1950	AS127	1:40,000	Sum	Marsh-Graminoid-Seasonal	N/A	N/A	N/A	DV
09/28/1965	AS916	1:31,860	F	Marsh-Graminoid-Seasonal	W 514.06	40.44	0 (9.79 in previous 10 days)	DV
08/07/1970	AS1111	1:80,000	Sum	Marsh-Graminoid-Seasonal	W 566.78	94.72	0 (19.55 in previous 10 days)	DVI
10/10/1982	AS2651	1:30,000	F	Marsh-Graminoid-Seasonal	N 461.99	13.63	0 (5.65 in previous 10 days)	DV
06/06/1991	AS4075	1:20,000	Sum	Marsh-Graminoid-Seasonal	N 351.8	65.63	1.58 (16.9 in previous 10 days)	DVI
06/17/2000	AS5110	1:30,000	Sum	Marsh-Graminoid-Seasonal	W 520.14	90.87	0 (49.63 in previous 10 days)	DV
07/01/2007	TRS G0702	1:30,000	Sum	Marsh-Graminoid-Seasonal	N 397.49	83.72	0 (39.09 in previous 10 days)	DV
04/08/2012	Google Earth	-	S	Marsh-Graminoid-Seasonal	N 449.7	17.92	0 (2.84 in previous 10 days)	DVI
09/02/2019	Google Earth	-	Sum	Marsh-Graminoid-Seasonal	N 395.01	22.22	12.76 (3.39 in previous 10 days)	DVI

*	S= Spring (April to June); Sum=Mid to Late Summer (June to September); F=Fall (Sept-Nov)
**	D=Dryer; N-Normal; W=Wetter; N/A= Not Available
***	W=Water Present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands)

WL03 Appendix 7 Vegetation Data

Plot ID: WL03W1		
Question	**Soil Indicators of Wetlands**	**Y/N**
S1	Organic Soils (except folists) present	N
S2	Presence of peat accumulation determined by Von Post test	N
S3	Of, Om, Oh horizons (organic surface layer 20-40 cm thick) present	N
S4	Sulfidic material present	N
S5	Gleying or mottling present immediately below the surface layer and within 30 cm	Y
S6	Native prairie soils with a low chroma matrix within 30 cm of the soil surface and the following present:	N
S7	Nonsandy soils with a low chroma matrix within 40 cm of the soil surface and one of the following present within 30 cm of the surface	N
S8	Sandy soils with one of the following present:	N
S9	Remains of aquatic invertebrates are present within 30 cm of the soil surface in pothole-like depressions	N
S10	Other regionally applicable, field-verifiable soil properties associated with prolonged seasonal high water?	N

Munsel Soil Color				
Soil Horizon	**Depth (cm)**	**Hue**	**Value**	**Chroma**
AB_p	0-15	10YR	2	1
C	15 +	10YR	4	2

Incidental Plant Species Within Wetland			
Canola crop			

WL03 East Boundary Looking West (53°58'44.74"N 111°32'43.18"W). Image Date: June 8, 2022.

Wetland 05

Wetland 05 Precipitation Data

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
08/26/1950	AS127	1:40,000	Sum	Marsh-Graminoid-Temporary	N/A	N/A	N/A	DVI
09/28/1965	AS916	1:31,860	F	Marsh-Graminoid-Temporary	W 514.06	40.44	0 (9.79 in previous 10 days)	W
08/07/1970	AS1111	1:80,000	Sum	Marsh-Graminoid-Temporary	W 566.78	94.72	0 (19.55 in previous 10 days)	DVI
10/10/1982	AS2651	1:30,000	F	Marsh-Graminoid-Temporary	N 461.99	13.63	0 (5.65 in previous 10 days)	DV
06/06/1991	AS4075	1:20,000	Sum	Marsh-Graminoid-Temporary	N 351.8	65.63	1.58 (16.9 in previous 10 days)	DVI
06/17/2000	AS5110	1:30,000	Sum	Marsh-Graminoid-Temporary	W 520.14	90.87	0 (49.63 in previous 10 days)	DVI
07/01/2007	TRS G0702	1:30,000	Sum	Marsh-Graminoid-Temporary	N 397.49	83.72	0 (39.09 in previous 10 days)	W
04/08/2012	Google Earth	-	S	Marsh-Graminoid-Temporary	N 449.7	17.92	0 (2.84 in previous 10 days)	W
09/02/2019	Google Earth	-	Sum	Marsh-Graminoid-Temporary	N 395.01	22.22	12.76 (3.39 in previous 10 days)	W

*	S= Spring (April to June); Sum=Mid to Late Summer (June to September); F=Fall (Sept-Nov)
**	D=Dryer; N-Normal; W=Wetter; N/A= Not Available
***	W=Water Present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands)

Wetland 05 Appendix 7 Vegetation Data

Plot # A7WL14	Common Name	Scientific Name	Facultative or Obligate Wetland sp. (Y/N)	Percent Cover (round to nearest 5)
Upland Vegetation 51° 3'57.72"N 113°53'48.27"W	common dandelion	*Taraxacum officinale*	N	5
	Kentucky bluegrass	*Poa pratensis*	N	30
	smooth brome	*Bromus inermis*	N	30
	Baltic rush	*Juncus balticus*	Y	10
	aster species	*aster spp.*	N	10
	yarrow	*Achillea millefolium*	N	Inc.
	LFH	-	-	30
Wetland Vegetation 51° 3'57.92"N 113°53'48.31"W	common cattail	*Typha latifolia*	Y	80
	sedge species	*carex spp.*	Y	10
	Baltic rush	*Juncus balticus*	Y	10
	foxtail barley	*Hordeum jubatum*	Y	30
	willow species	*Salix spp.*	Y	Inc.
	moss species	*Moss spp.*	Y	5
Incidental Vegetation Within Wetland				
Willow species (*salix* spp.)				

C

WL05 North Boundary Looking South (53°58'46.73"N 111°32'23.57"W). Image Date: June 8, 2022

Wetland 06

Wetland 06 Precipitation Data

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
08/26/1950	AS127	1:40,000	Sum	Marsh-Graminoid-Temporary	N/A	N/A	N/A	DVI
09/28/1965	AS916	1:31,860	F	Marsh-Graminoid-Temporary	W 514.06	40.44	0 (9.79 in previous 10 days)	DVI
08/07/1970	AS1111	1:80,000	Sum	Marsh-Graminoid-Temporary	W 566.78	94.72	0 (19.55 in previous 10 days)	DVI
10/10/1982	AS2651	1:30,000	F	Marsh-Graminoid-Temporary	N 461.99	13.63	0 (5.65 in previous 10 days)	DVI
06/06/1991	AS4075	1:20,000	Sum	Marsh-Graminoid-Temporary	N 351.8	65.63	1.58 (16.9 in previous 10 days)	DVI
06/17/2000	AS5110	1:30,000	Sum	Marsh-Graminoid-Temporary	W 520.14	90.87	0 (49.63 in previous 10 days)	DVI
07/01/2007	TRS G0702	1:30,000	Sum	Marsh-Graminoid-Temporary	N 397.49	83.72	0 (39.09 in previous 10 days)	W
04/08/2012	Google Earth	-	S	Marsh-Graminoid-Temporary	N 449.7	17.92	0 (2.84 in previous 10 days)	W
09/02/2019	Google Earth	-	Sum	Marsh-Graminoid-Temporary	N 395.01	22.22	12.76 (3.39 in previous 10 days)	DV

*	S= Spring (April to June); Sum=Mid to Late Summer (June to September); F=Fall (Sept-Nov)
**	D=Dryer; N-Normal; W=Wetter; N/A= Not Available
***	W=Water Present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands)

Wetland 06 Appendix 7 Vegetation Data

Plot # A7WL06	Common Name	Scientific Name	Facultative or Obligate Wetland sp. (Y/N)	Percent Cover (round to nearest 5)
Upland Vegetation 53°58'50.44"N 111°32'22.58"W	Kentucky bluegrass	*Poa pratensis*	N	50
	smooth brome	*Bromus inermis*	N	20
	wire rush	*Juncus balticus*	Y	10
	stinkweed	*Thlaspi arvense*	N	5
	common dandelion	*Taraxacum officinale*	N	5
	quackgrass	*Elymus repens*	N	10
	LFH	-	-	20
Wetland Vegetation 53°58'50.45"N 111°32'22.74"W	Kentucky bluegrass	*Poa pratensis*	N	50
	stinkweed	*Thlaspi arvense*	N	5
	wire rush	*Juncus balticus*	Y	5

Incidental Vegetation Within Wetland			
dock species (*Rumex spp.*)	common cattail (*Typha latifolia*)	foxtail barley (*Hordeum jubatum*)	common plantain (*Plantago major*)
cinquefoil species (*Potentilla spp.*)			

WL06 Looking West (53°58'50.40"N 111°32'24.43"W). Image Date: June 8, 2022.

WL06 Looking North (53°58'50.40"N 111°32'24.43"W). Image Date: June 8, 2022.

Wetland 07 Precipitation Data

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
08/26/1950	AS127	1:40,000	Sum	Marsh-Graminoid-Semi-Permanent or Permanent	N/A	N/A	N/A	DV
09/28/1965	AS916	1:31,860	F	Marsh-Graminoid-Semi-Permanent or Permanent	W 514.06	40.44	0 (9.79 in previous 10 days)	W
08/07/1970	AS1111	1:80,000	Sum	Marsh-Graminoid-Semi-Permanent or Permanent	W 566.78	94.72	0 (19.55 in previous 10 days)	W
10/10/1982	AS2651	1:30,000	F	Marsh-Graminoid-Semi-Permanent or Permanent	N 461.99	13.63	0 (5.65 in previous 10 days)	W
06/06/1991	AS4075	1:20,000	Sum	Marsh-Graminoid-Semi-Permanent or Permanent	N 351.8	65.63	1.58 (16.9 in previous 10 days)	W
06/17/2000	AS5110	1:30,000	Sum	Marsh-Graminoid-Semi-Permanent or Permanent	W 520.14	90.87	0 (49.63 in previous 10 days)	DV
07/01/2007	TRS G0702	1:30,000	Sum	Marsh-Graminoid-Semi-	N 397.49	83.72	0 (39.09 in previous 10 days)	W

Photo Date (MM/DD/YYYY)	Photo ID (roll, AS#, Photo#)	Resolution	* Season	AWCS Wetland Class	** Annual Precipitation Data (mm)	Precipitation 30 Days Prior to Image (mm)	Daily Precipitation and 10 Days Previous (mm)	*** Open Water Visible (OW), Consistent Wetland Vegetation (WV)
				Permanent or Permanent				
04/08/2012	Google Earth	-	S	Marsh-Graminoid-Semi-Permanent or Permanent	N 449.7	17.92	0 (2.84 in previous 10 days)	W
09/02/2019	Google Earth	-	Sum	Marsh-Graminoid-Semi-Permanent or Permanent	N 395.01	22.22	12.76 (3.39 in previous 10 days)	W

*	S= Spring (April to June); Sum=Mid to Late Summer (June to September); F=Fall (Sept-Nov)
**	D=Dryer; N-Normal; W=Wetter; N/A= Not Available
***	W=Water Present/inundated; D=Dry; DV=Dry, vegetated (consistent with wetland class); DVI=Dry, vegetated (indistinguishable from surrounding uplands)

Wetland 07 Appendix 7 vegetation data

Plot # A7WL07	Common Name	Scientific Name	Facultative or Obligate Wetland sp. (Y/N)	Percent Cover (round to nearest 5)
Upland Vegetation 53°58'37.84"N 111°32'52.05"W	Balsam poplar	*Populus balsamifera*	Y	10
	Aspen	*Populus tremuloides*	N	10
	Prickly rose	*Rosa acicularis*	N	10
	Kentucky bluegrass	*Poa pratensis*	N	20
	Smooth brome	*Bromus inermis*	N	20
	Sweet grass	*Anthoxanthum hirtum*	Y	5
	Common dandelion	*Taraxacum officinale*	N	5
	LFH	-	-	40
Wetland Vegetation 53°58'38.00"N 111°32'52.29"W	Sedge species	*Carex ssp.*	-	80
	Willow species	*Salix spp.*	-	20
	Kentucky bluegrass	*Poa pratensis*	N	5

Incidental Vegetation Within Wetland			
Horsetail species (*Equisetum spp.*)	Creeping spikerush (*Eleocharis macrostachya*)	Sandbar willow (*Salix interior*)	Aster species
Creeping thistle (*Cirsium arvense*)			

WL07 Southside looking East (53° 58.618'N 111° 32.943'W)

APPENDIX C:
LAT REPORT

Landscape Analysis Tool (LAT) Report

LAT Number:	000005D366	**LAT Date:** 2022-02-10	16:58:49
Project Name:	Fee Simple Lands Development		
Project Description:	Development Project		
Disposition Type:	DML	Miscellaneous Lease	
Purpose Type:	CMDV	Commercial Development	
Activity Type:	CMDV05DMLP	Service Station	

Responsibility of Applicants:

It is the applicant's responsibility to conduct a full review of the generated LAT Report, ensuring that you are aware and have a full understanding of the identified standards and conditions, and any additional limitations that may also be imposed by an approved higher level plan, reservation or notation or any other law or Order of the Province or the Government of Canada that may impact the placement, construction or operation of the proposed disposition, purpose and activity.

The applicant must assess if the proposed disposition, purpose and activity can meet the applicable standards, conditions and any limitations which will subsequently determine if the application can be submitted to the regulatory body. Applicants should complete a thorough review of regulatory and application processes including supporting procedural documents and the generated LAT Reports prior to making this determination.

Where the applicant chooses not to meet, or is not able to meet, one or more Approval Standards or higher level plans within the generated LAT Report as submitted as part of the application, or any affected reservations as identified within the land status report, the applicant is required to complete the appropriate mitigation as part of their supplement submission that addresses individually each of the items not being met.

The information provided within the LAT Tool is a spatial representation of features provided to the applicant for activity and land use planning. The accuracy of these layers varies depending on the resource value being represented. The regulatory body insists that site visits, wildlife surveys and groundtruthing efforts are completed to ensure that you, the applicant can meet the procedures detailed within the *Pre-Application Requirements for Formal Dispositions*, the identified approval standards, operating conditions and *Best Management Practices* as represented within the *Master Schedule of Standards and Conditions*.

Proximity to Watercourse/Waterbodies:

Applicants will ensure that standards or conditions for Watercourse/Waterbody features as identified within the generated LAT Report are followed. It is the responsibility of the applicant to ensure the identified setbacks and buffers are properly established through a pre-site assessment and maintained.

NOTE: Be aware that the submission of a LAT Report as part of an application submission does not imply approval of the activity. The standards and conditions identified within the LAT Report may be subject to change based on regulatory review.

Base Features

Green/White Area	White Area
Municipality	County of St. Paul No. 19
FMA	
FMU	LO1
Provincial Grazing Reserve	
Rocky Mountain Forest Reserve	
PLUZ Areas	
Protected Areas	

Provincial Sanctuaries

Wildlife Corridors	
Restricted Area	
Game Bird	Zone 3
Seasonal	

Higher Level Plans

Integrated Resource Plan (Local)	
Integrated Resource Plan (Subregional)	
Access Management Plan	
Landscape Management Plan	

Additional Application Requirements

Wildlife Survey		DND Area	

Historical Resources

HRV Rating	Category

Historic Resources Application Required: No

While no specific historic resource concerns have been identified within the proposed activity area, Section 31 of the *Historical Resources Act* states that "a person who discovers a historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the Minister of the discovery." Should a historic resource be encountered with the construction or operation of this disposition, information on who to contact can be found on the Ministry of Culture and Tourism's website in; Standard Requirements under the Historical Resources Act: Reporting the Discovery of Historic Resources.

Sensitive Features

Wildlife and Other Sensitive Species

	Intersected
Burrowing Owl Range	
Caribou Range	
Caribou Range - Zone A	
Caribou Range - Zone B	
Colonial Nesting Birds	
Critical Habitat of Aquatic Species at Risk	
Endangered and Threatened Plants Ranges	
Greater Short-horned Lizard Habitat	
Greater Short-horned Lizard Range	
Greater Sage Grouse Core Area	
Greater Sage Grouse Recovery Area	
Greater Sage Grouse Leks and Buffer	
Grizzly Bear Zone	
High Risk Watersheds	
Key Wildlife and Biodiversity Areas	
Mountain Goat and Sheep Zone	

	Intersected
Mountain Goat and Sheep Areas Disease Buffer	
Ord's Kangaroo Rat Range	
Ord's Kangaroo Rat Key Habitat Area	
Piping Plover Waterbodies	
Provincial Hibernacula Buffer	
Sensitive Amphibian Ranges	
Sensitive Raptor Range	
Sensitive Snake Habitat	
Sensitive Snake Hibernacula Range	
Sharp-tailed Grouse Leks and Buffer	
Sharp-tailed Grouse Survey	
Special Access Area	
Swift Fox Range	
Trumpeter Swan Waterbodies/Watercourse	
Trumpeter Swan Watercourse Buffer	

Federal Orders:

	Intersected
Greater Sage Grouse	

Grassland and Natural Regions:

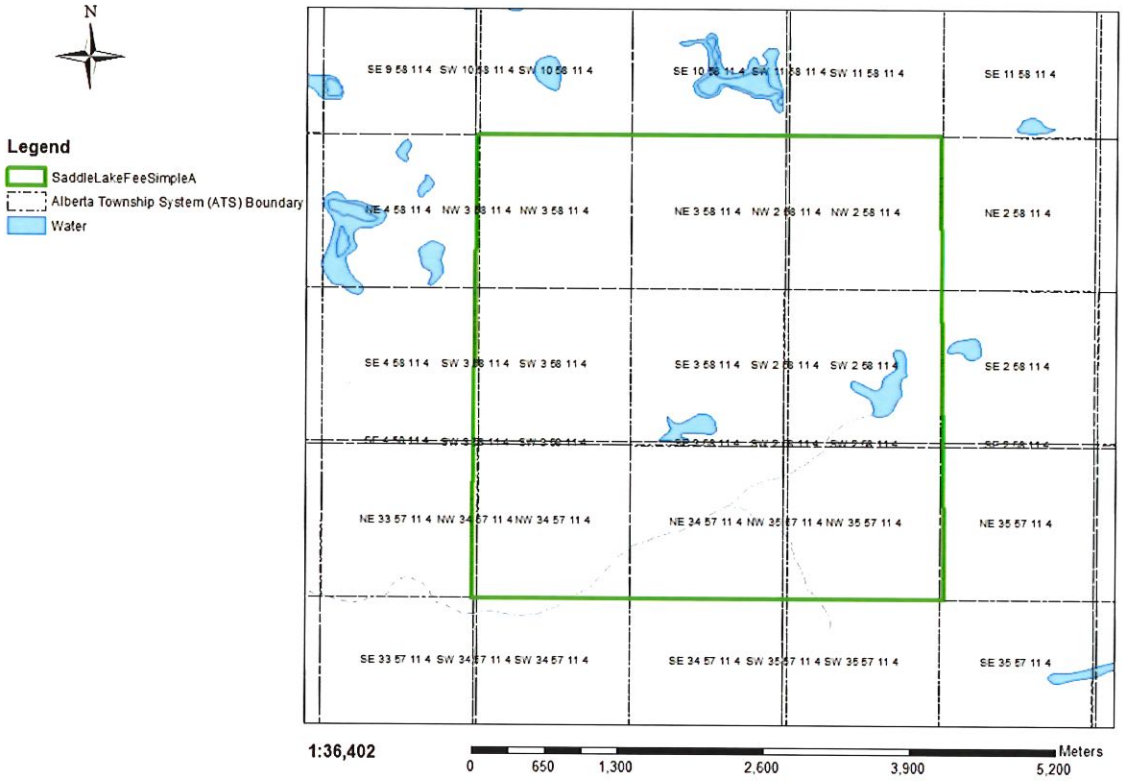
	Intersected
Central Parkland	
Central Parkland and Northern Fescue	
Chinook Grasslands	
Dry Mixed Grass	
Foothills Fescue	
Foothills Parkland Grasslands	
Grassland and Parkland Natural Region	

	Intersected
Mixed Grass Sub-region layer	
Montane	
Northern Fescue	
Peace River Parkland	
Permafrost	
Rough Fescue PNT	
Subalpine or Alpine	

Alberta Township System (ATS) Land List

Quarter	Section	Township	Range	Meridian	Road Allow.	Sensitive Features Identified
SW	2	58	11	4	RS	Green / White Area
SE	2	58	11	4		Green / White Area
NW	3	58	11	4		Green / White Area
SW	3	58	11	4	RS	Green / White Area
SW	2	58	11	4	RI	Green / White Area
SE	33	57	11	4		Green / White Area
NW	2	58	11	4	RW	Green / White Area
NW	34	57	11	4	RW	Green / White Area
SW	35	57	11	4		Green / White Area
SW	35	57	11	4	RW	Green / White Area
NW	3	58	11	4	RW	Green / White Area
SW	34	57	11	4		Green / White Area
NE	35	57	11	4		Green / White Area
NW	35	57	11	4		Green / White Area
NE	3	58	11	4		Green / White Area
SE	4	58	11	4		Green / White Area
NE	34	57	11	4		Green / White Area
SW	3	58	11	4		Green / White Area
SE	10	58	11	4		Green / White Area
SW	11	58	11	4	RW	Green / White Area
SW	2	58	11	4		Green / White Area
SE	4	58	11	4	RS	Green / White Area
SE	2	58	11	4	RS	Green / White Area
SW	34	57	11	4	RW	Green / White Area
SE	3	58	11	4		Green / White Area
NW	34	57	11	4		Green / White Area
NE	33	57	11	4		Green / White Area

NW	2	58	11	4		Green / White Area
NW	35	57	11	4	RW	Green / White Area
SE	34	57	11	4		Green / White Area
SE	3	58	11	4	RS	Green / White Area
SW	3	58	11	4	RI	Green / White Area
SW	11	58	11	4		Green / White Area
SW	3	58	11	4	RW	Green / White Area
SE	35	57	11	4		Green / White Area
SW	2	58	11	4	RW	Green / White Area


N
Legend
SaddleLakeFeeSimpleA
Alberta Township System (ATS) Boundary
Water
SE 9 58 11 4 SW 10 58 11 4 SW 10 58 11 4
SE 10 58 11 4 SW 11 58 11 4 SW 11 58 11 4
SE 11 58 11 4
NE 4 58 11 4 NW 3 58 11 4 NW 3 58 11 4
NE 3 58 11 4 NW 2 58 11 4 NW 2 58 11 4
NE 2 58 11 4
SE 4 58 11 4 SW 3 58 11 4 SW 3 58 11 4
SE 3 58 11 4 SW 2 58 11 4 SW 2 58 11 4
SE 2 58 11 4
NE 33 57 11 4 NW 34 57 11 4 NW 34 57 11 4
NE 34 57 11 4 NW 35 57 11 4 NW 35 57 11 4
NE 35 57 11 4
SE 33 57 11 4 SW 34 57 11 4 SW 34 57 11 4
SE 34 57 11 4 SW 35 57 11 4 SW 35 57 11 4
SE 35 57 11 4
1:36,402
0 650 1,300 2,600 3,900 5,200 Meters

Land Management

Report ID	Approval	Condition
1	1030-AS	Where an Integrated Resource Plan or a Reservation/Protective Notation identifies a greater set back, the greater set back will prevail.
2	1031-AS	Where a Higher Level Plan* exists, the Disposition Holder must follow any direction provided within that plan.
3	1033-AS	With the exception of pipelines, for activities that fall within any Protective Notation (PNT) lands with a purpose code 400 Series encompassing a section of land (259 hectares) or less, located in the Provincial White Area, the Disposition Holder must construct all activities within lands previously disturbed or cleared. Where no previous disturbance exists, activities must occur within 100 metres of the PNT.
4	1041	The Disposition Holder must maintain proper drainage of surface water.
5	1044-AS	The Disposition Holder must not locate activities within 45 metres from the top of any coulees* with the exception of activities such as; access, pipelines and linear easements crossing those features.
6	1049	The Disposition Holder must remove all garbage and waste material from this site.
7	1053	The Disposition Holder must not enter the boundaries of any research or sample plot unless consent is received from the reservation holder.
8	1061	Where FireSmart activities are considered, the Disposition Holder must follow Information Letter- "Authorization of FireSmart Activities on Public Land" as amended from time to time.

Vegetation

Report ID	Approval	Condition
9	1300	The disposition holder must manage all regulated weeds to the satisfaction of the regulatory body.
10	1302	"The Disposition Holder must remove all deciduous or coniferous merchantable timber from the Activity as per the following utilization standards; - Deciduous Timber: 15 cm Base/10 cm Top - Coniferous Timber: 15 cm Base/11cm Top and haul said timber to the location of end use."
11	1304	For fire control purposes on forested lands, the Disposition Holder must dispose of excess coarse woody debris* not utilized for rollback* or stockpiled for reclamation*.
12	1305	Within FireSmart Community Zones*, the Disposition Holder must dispose of coarse woody debris* by burning unless a Debris Management Plan has been approved under the Forest and Prairie Protection Act.

Soil

Report ID	Approval	Condition
13	1356	The Disposition Holder must not conduct the Activity during adverse ground conditions*.
14	1357	The Disposition Holder must prevent erosion* and sedimentation on to adjacent* Lands or Water bodies * that results from the activity.
15	1359-AS	The Disposition Holder must not remove from the Lands topsoil* or subsoil* unless approved in writing by the Regulatory Body.
16	1360	"Where activities have occurred on the Lands that do not involve minimal disturbance* construction, the Disposition Holder must salvage topsoil* for land reclamation as follows: a. Salvage all topsoil* from: i. Mineral soils ii. Shallow organic soils* iii. Reclaimed soils b. Where the depth of the topsoil* is less than 15 cm, the topsoil* and part of the subsoil* to a total depth of 15 centimetres must be salvaged, unless the upper subsoil* is considered chemically unsuitable*."
17	1363	All reclamation material* must be considered suitable as defined in the May 2001 Salt Contamination Assessment Guidelines and meet the February 2016 Alberta Tier 1 Soil and Groundwater Remediation Guidelines, as amended or replaced from time to time.
18	1365	"The Disposition Holder must store reclamation material* in accordance with all of the following: a. reclamation material* must not be placed beneath the ground surface or buried in any way; b. coarse woody debris* stored for reclamation purposes for greater than 12 months must be mixed with topsoil*; and c. topsoil* and subsoil* must be stored separately."
19	1367	The Disposition Holder must not mix wood chips with any reclamation material*.
20	1368	The Disposition Holder must not apply wood chips to the lands at a depth greater than five (5) centimeters.
21	1369	The Disposition Holder must manage wood chips in accordance with the directive ID 2009-01 Management of Wood Chips on Public Land as amended from time to time.
22	1370	The Disposition Holder must not store piles or windrows of reclamation material* within standing timber.
23	1371	The Disposition Holder must not use soil sterilant on the Lands.

Watercourse / Waterbody

Report ID	Approval	Condition
24	1402-AS	The Disposition Holder must not conduct the Activity within the following watercourse* setbacks from the top of the breaks: a. Intermittent watercourses* including springs must have a setback of at least 45 metres. b. Small Permanent watercourses* must have a setback of at least 45 metres. c. Large Permanent watercourses* must have a setback of at least 100 metres.
25	1412	The Disposition Holder must acquire an authorization for access (off-disposition) for water withdrawal activities.
26	1419	For use of equipment within the bed of a water body*, the Disposition Holder must prior to operations follow the "Decontamination Protocol for Work in or Near Water", as amended from time to time.
27	1420	The Disposition Holder must provide a completed Record of Decontamination form as proof of decontamination to the Regulatory Body upon request.

Reclamation

Report ID	Approval	Condition
28	1451	For progressive reclamation* on forested lands*, the Disposition Holder must replace all reclamation materials* that have been salvaged in accordance with all of the following: a. all salvaged subsoil* must be replaced, then all salvaged topsoil*; and b. reclamation materials* must be replaced over the entire progressive reclamation area*; unless otherwise approved in writing by the Regulatory Body.
29	1453	The Disposition Holder must complete temporary reclamation* on the Lands within 1 growing season of construction phase* for all topsoil* and subsoil* stockpiles required for final reclamation*.
30	1454	The Disposition Holder must prior to seeding herbaceous seed in forested* or peatlands* submit a Request for Seeding in writing to the Regulatory Body that contains all of the following: a. rationale for conducting seeding of herbaceous species*; b. a description of the proposed site for seeding including information with respect to the following: i. whether the Lands are subject to high erosion* and; ii. whether the Lands are prone to invasion from agronomic or weed species. c. a proposed seed mix composition for re-vegetation of the Lands in accordance with the Native Plant Revegetation Guidelines for Alberta, 2001 as amended or replaced from time to time or a rationale for alternate species; d. provide a seed certificate in accordance with the Seed Act for the seed mixed mix to be used for re-vegetation* and; any other information requested by the Regulatory Body.

31	1455	The Disposition Holder must only conduct seeding in accordance with the written authorization of the Regulatory Body.
32	1456	The Disposition Holder must when seeding cultivated lands*; a. use agronomic or forage seed that meets or exceeds Certified #1 as outlined in the Seeds Act and Seeds Regulations; b. use seed mixes that are free of species listed in the Weed Control Act and; c. provide a seed certificate to the Regulatory Body within 30 days of request.
33	1457	Within the Green Area* of the Province, the Disposition Holder must re-vegetate the Lands with trees or shrubs that meet the requirements of the December 2016 Alberta Forest Genetic Resource Management and Conservation Standards document, as amended or replaced from time to time.
34	1459	The Disposition Holder must not have slash and rollback* accumulations within five (5) metres of the perimeter of the disposition boundary, greater than the percent ground cover on the surrounding undisturbed forest floor.
35	1461	The Disposition Holder must complete progressive reclamation* on forested lands* for all associated and incidental disturbances to the Disposition.
36	1462	The following activities are excluded from progressive reclamation* requirement on forested lands*: a) Lands that have received authorization for clay pad construction; and b) Lands with a 4:1 or steeper slopes where a cut and fill has been constructed to level the ground surface.
37	1463	For final reclamation*, the Disposition Holder must complete all of the following: a. contour the disturbed land to the pre-disturbance landform or to the landform approved by the Regulatory body; b. replace all stockpiled subsoil*, then replace all stockpiled topsoil*; c. spread all coarse woody debris* on forested lands* and; d. reclamation materials* must be replaced over the entire area from which they were removed unless otherwise approved in writing by the Regulatory Body.
38	1464	The Disposition Holder must reclaim the Lands to the pre-disturbance land use type* unless otherwise authorized in writing by the Regulatory Body.

Wildlife

Report ID	Approval	Condition
39	1600	The Disposition Holder must conduct a complete and immediate Wildlife Sweep* of the Lands subject to the disposition prior to any activity, as per the "Wildlife Sweep Protocol".
40	1601	The Disposition Holder must submit observations from a Wildlife Sweep* to the Fisheries and Wildlife Management Information System (FWMIS) and notify the issuing Regulatory Body in writing upon request that the Wildlife Sweep* was completed.

41	1602-AS	The Disposition Holder must incorporate a buffer* zone of a minimum width of 100m undisturbed vegetation, where an established buffer* does not already exist for any and all key habitat features including, but not limited to leks*, nests, dens and houses identified in the Wildlife Sweep*.
42	1603	When Wildlife Surveys* are required, the Disposition Holder must submit results as defined by the sensitive species inventory guidelines from Wildlife Survey* to the Fisheries and Wildlife Management Information System (FWMIS).
43	1608	The Disposition Holder must incorporate buffers*, setbacks and activity timing restrictions for any and all key habitat features including, but not limited to leks*, nests, dens and houses identified in the wildlife survey*.

APPENDIX E. TRANSPORTATION IMPACT ASSESSMENT