COUNTY OF BARRHEAD NO. 11
Province of Alberta

BYLAW NO. 4-2018

Kiel Industrial Park Area Structure Plan

A Bylaw of the County of Barrhead No. 11, in the province of Alberta, for the purpose of adopting the Kiel Industrial Park Area Structure Plan.

WHEREAS the Municipal Government Act, being Chapter M-26 of the Revised Statutes of Alberta, 2000, as amended, authorizes a municipality to adopt an Area Structure Plan; and

WHEREAS a new Area Structure Plan has been prepared for NE-27-59-3-W5, based on public input and studies of land use, development and other relevant data; and

WHEREAS the aforesaid Area Structure Plan describes the way in which the future development of NE 27-59-3-W5 within the County of Barrhead No. 11 may be carried out; and

WHEREAS, notice of a public hearing for this bylaw held on held on November 6, 2018 has been given in accordance with Section 692

NOW THEREFORE the Council of the County of Barrhead No. 11, duly assembled, and pursuant to the authority conferred upon it by the Municipal Government Act R.S.A. 2000, c. M-26 as amended, enacts as follows:

1. That this new Bylaw may be cited as "Kiel Industrial Park Area Structure Plan".
2. That the text and maps attached hereto as Schedule "A" be adopted as the Kiel Industrial Park Area Structure Plan.
3. That of any section or parts of this Bylaw are found in any court of law to be illegal or beyond the power of Council to enact, such Section or parts shall be deemed to be severable and all other Sections or parts of this Bylaw shall be deemed to be separate and independent there from and to be enacted as such.
4. That this Bylaw comes into force upon third and final reading and signing in accordance with the Municipal Government Act.

FIRST READING GIVEN the 18th day of September, 2018

SECOND READING GIVEN the 6th day of November, 2018.

THIRD READING GIVEN the 6th day of November, 2018.

[redacted]
Reeve

Seal

[redacted]
County Manager

ADVERTISED in the Barrhead Leader on:

October 23, 2018, and October 30, 2018.

PUBLIC HEARING held on November 6, 2018.

KIEL INDUSTRIAL PARK

Area Structure Plan | County of Barrhead No. 11

6 November 2018

PLAN CONTENTS

EXECUTIVE SUMMARY

In 2013, the Council of the County of Barrhead envisioned the future uses of NE-27-59-3-5 (east of the Town of Barrhead) for industrial purposes, in order to support the growth of economic opportunities in the region and to provide prospective business owners with planned and serviced lots ready for development.

In 2014, MPE Engineering Ltd. was contracted by the County to prepare a Preliminary Engineering Study for the entire quarter section. The purpose of the study was to "determine the feasibility of developing the land for industrial use, and to determine initial site servicing options for water, wastewater, stormwater management, and shallow utilities." To support the study, Thurber Engineering Ltd. was retained to conduct a preliminary geotechnical investigation. The Preliminary Engineering Study provided the County with a series of conclusions and recommendations regarding site development constraints, servicing options, the protection/mitigation of onsite environmental features, and conceptual layouts.

In September 2018, CPP Environmental prepared a Wetland Assessment for the plan area. The assessment included wetland delineation and field verification to delineate and classify wetlands.

From the Preliminary Engineering Study, Municipal Planning Services (MPS) was asked to prepare an area structure plan (ASP) for NE-27-59-3-5. This ASP is a statutory plan adopted by County Council that provides policies for subdivision and development, to ensure that the future use of this site is guided by the vision approved by Council, and supported by public consultation.

The content of the Kiel Industrial Park ASP is structured as follows:

SECTION	GENERAL DESCRIPTION
Section 1 - Purpose of the Plan	Describes the boundaries, intent, and objectives of the ASP
Section 2 – Site Conditions	Identifies key environmental and development site considerations
Section 3 – Development Concept	Establishes the future use of the site, as provides policies for subdivision and development
Section 4 – Site Servicing	Identifies requirements for future site servicing
Section 5 – Implementation	Provides guidance for development staging, subdivision, and amendments that may be required to support future development
Section 6 – Maps	Illustrates the Development Concept, and provides information about site considerations

1. PURPOSE OF THE PLAN

The purpose of the County of Barrhead's Kiel Industrial Park Area Structure Plan (the plan) is to describe how the plan area will be developed; in terms of land use, subdivision design, and service infrastructure. This plan follows the guidelines and policies set forth by the County of Barrhead for industrial development, as described in the County's Municipal Development Plan and Land Use Bylaw. This plan adheres to the requirements of the Province of Alberta's Municipal Government Act for area structure plans.

A INTENTION

The Council of the County of Barrhead initiated this plan to support the growth of economic opportunities in the Barrhead region and to provide prospective business owners with planned and serviced lots ready for development. It is the intent of this plan to establish a business park where a wide variety of industrial businesses can operate with water and sanitary services, thereby contributing positively to the economic sustainability of the County of Barrhead and residents of the Barrhead region.

B PLAN AREA

The Kiel Industrial Park Area Structure Plan consists of land located on NE-27-59-3-5 in the County of Barrhead, two miles east of the Town of Barrhead. The plan area is approximately 65.2 hectares (161 acres) in size. **Map 1: Regional Context** illustrates the location of the plan area in relation to the Town of Barrhead and other significant local features.

The plan is generally defined by the following boundaries:

- North Boundary – The southern boundary of SE-34-59-3-5
- West Boundary – The eastern boundary of NW-27-59-3-5
- East Boundary – Range Road 32
- South Boundary – SE-27-59-3-5

C OBJECTIVES

The objective of the Kiel Industrial Park Area Structure Plan is to provide a plan for the development of an industrial subdivision and business park that:

- Is complimentary to adjacent developments and rural land uses;
- Is supported by the County of Barrhead Municipal Development Plan and Land Use Bylaw;
- Adheres to municipal and provincial servicing and engineering standards;
- Provides a framework to deliver a high quality, comprehensively planned business park subdivision; and
- Allows for the feasible delivery of serviced industrial lots that respond to local market needs for business park uses.

The Kiel Industrial Park Area Structure Plan utilizes the plan objectives to create a development concept that addresses existing and planned development considerations such as:

- Anticipated business activities;
- Topography;
- Environmental features;
- Utility rights-of-ways;
- Storm water drainage;
- Local infrastructure; and
- The use and development of adjacent lands in the surrounding rural area.

D CONFORMANCE WITH COUNTY PLANNING DOCUMENTS

I Town of Barrhead and County of Barrhead Intermunicipal Development Plan

The Kiel Industrial Park Area Structure Plan is within the boundaries of the Town of Barrhead and County of Barrhead Intermunicipal Development Plan (IDP). The goals of the IDP are to:

1. Plan for the orderly, economic, and beneficial use of land in the Plan Area surrounding the Town of Barrhead.
2. Identify areas where the Town of Barrhead and the County of Barrhead can cooperatively plan for future development in a manner than is consistent with proper land use planning principles.
3. Establish land use planning standards which will allow for the safe and efficient movement of traffic through the Plan Area.
4. Establish land use planning standards which will minimize adverse impacts on the natural environment.
5. Encourage development which will be sustainable and benefit area residents.
6. Complement the goals, objectives, and policies of the County and Town's Municipal Development Plans.

Future to these goals, the IDP contains policies for Industrial development. These policies encourage rural industrial development to locate in planned industrial parks, and be sited east of Highway 33,

This Area Structure Plan is in conformance with the goals and policies of the IDP.

II County of Barrhead Municipal Development Plan

The County of Barrhead Municipal Development Plan (MDP) was adopted in 2010. The MDP Future Land Use Map identifies the ASP as within the Barrhead IDP Overlay, which reiterates the policies of the IDP. The Industrial objectives of the MDP are to:

1. Encourage appropriate industrial development in environmentally and socially appropriate locations, and at no cost to the County.
2. Ensure that industrial development requiring municipal services is located near serviced areas.
3. Minimize the impact of industrial development on non-industrial land uses on surrounding lands.

This ASP was prepared following a review of relevant policies contained in the MDP. This ASP is in conformance with these MDP policies.

III County of Barrhead Land Use Bylaw

The County of Barrhead Land Use Bylaw (LUB) was adopted in 2010. The ASP is currently districted Direct Control, to accommodate industrial development.

2. SITE CONDITIONS

A TOPOGRAPHY

The plan area is predominately flat with a slight undulating landscape, typical of the region.

B SOILS AND LANDFORM

The plan area is within the Dark Gray – Gray Soil Zone of central Alberta. The area is characterized as having Dark Gary Chernozemics and Luvisols soils with some Orthic Gray Luvisols. Gleysolic and occasionally organic soils within depression areas. The Canada Land Inventory Soil Capability for Agriculture classification system recognizes the plan area as having Class 2c soils. Class 2c soils have moderate limitations that restrict the range of crops.

C ENVIRONMENTAL FEATURES

I Environmentally Significant Areas

The Alberta Conservation Information Management System does not identify any Environmentally Significant Areas within the plan area.

D WETLANDS

Wetlands were identified by CPP Environmental in the 2018 Wetland Assessment for the plan area (see **Appendix A**).

Wetlands identified within the plan area include:

- 2 Marsh wetlands – Temporary Type (II)
- 4 Marsh wetlands – Seasonal Type (III)
- 1 Marsh wetland – Semi-Permanent Type (IV)

More information about these identified wetlands is included in **Appendix A**.

II Marsh Wetlands with a Temporary Type (II)

Temporary wetlands are defined as mineral wetlands with a hydro-period that is typically flooded every year for a short period of time after snowmelt or heavy rainfall, but otherwise lack surface water. Generally, temporary wetlands are flooded for approximately 1 to 14 weeks of the year.

The assessment area was tilled and cultivated except around Wetland 4 where a buffer of upland forest surrounds the wetland in the NE boundary. Both temporary wetlands are distinguishable from the uplands on the April 19, 1978 air photo and on Google Earth imagery from April 20, 2013.

WETLAND #	SOIL	WATER	VEGETATION	SIZE (HA)	CLASSIFICATION
1	Mineral soils with silty clay texture in top 40 cm. Mottling present at 20 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Slough grass (Beckmannia syzigachne), common reed grass (Phragmites australis), water smartweed (Persicaria amphibia), foxtail species (Alopecurus spp.), common cattail (Typha latifolia), common dandelion	0.05	M-G-II

WETLAND #	SOIL	WATER	VEGETATION	SIZE (HA)	CLASSIFICATION
			(Taraxacum officinale) & alsike clover (Trifolium hybridum).		
5	Mineral wetland with silty clay texture at top 40 cm. Mottling present at 25 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Slough grass (Beckmannia syzigachne), field sow thistle (Sonchus arvensis), aster species (Antennariar spp.), common dandelion (Taraxacum officinale), alsike clover (Trifolium hybridum) & creeping spike rush (Eleocharis palustris).	0.66	M-G-III

III Marsh Wetlands with a Seasonal Type (III)

Seasonal wetlands are defined as mineral wetlands with a hydroperiod that is typically flooded for most of the growing season but has little to no surface water remaining by the end of summer. Generally, seasonal wetlands are flooded for approximately 5 to 17 weeks of the year.

In total, 4 wetlands were classified as marshes (M) in the graminoid (G) form and a seasonal type (III). Seasonal wetlands were classified mainly with vegetation characteristics but soil characters were also considered.

WETLAND #	SOIL	WATER	VEGETATION	SIZE (HA)	CLASSIFICATION
2	Mineral soils with silty clay texture in top 40 cm. Mottling present at 20 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Creeping spike rush (Eleocharis palustris), beaked sedge (Carex brevior), slough grass (Beckmannia syzigachne), fowl manna grass (Glyceria striata), common dandelion (Taraxacum officinale) & alsike clover (Trifolium hybridum).	0.26	M-G-III
3	Mineral soils with silty clay texture in top 40 cm. Mottling present at 10 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Slough grass (Beckmannia syzigachne), great plantain (Plantago major), field sow thistle (Sonchus arvensis), common dandelion (Taraxacum officinale) & alsike clover (Trifolium hybridum).	0.66	M-G-III
6	Mineral soils with silty clay	Surface water or water table not	**Ground Stratum:** Slough grass (Beckmannia	0.3	M-G-III

WETLAND #	SOIL	WATER	VEGETATION	SIZE (HA)	CLASSIFICATION
	texture in top 40 cm. Mottling present at 10 cm.	documented within top 40 cm.	syzigachne), great plantain (Plantago major), field sow thistle (Sonchus arvensis), common dandelion (Taraxacum officinale) & alsike clover (Trifolium hybridum).		
7	Mineral soils with silty clay texture in top 40 cm. Mottling present at 10 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Slough grass (Beckmannia syzigachne), great plantain (Plantago major), field sow thistle (Sonchus arvensis), common dandelion (Taraxacum officinale), alsike clover (Trifolium hybridum) & Canadian thistle (Cirsium vulgare).	0.23	M-G-III

IV Marsh Wetlands with a Semi-Permanent Type (IV)

Semi-permanent wetlands are defined as mineral wetlands with a hydroperiod that is typically flooded year-round, except in years when drought conditions persist. Generally, semi-permanent wetlands are flooded for approximately 18 to 40 weeks of the year. In total, 1 wetland was classified as marsh (M) in the graminoid (G) form and a semi-permanent type (IV).

Vegetation characteristics were also used for the classification, which include the presence of a shallow open water zone, a submergent/emergent marsh plant zone, and a wet meadow zone. The plant community is dominated by robust, emergent graminoids that are tolerant of prolonged inundation and deeper water levels including common cattail. Historical photographs show the presence of Wetland 4 in all years.

WETLAND #	SOIL	WATER	VEGETATION	SIZE (HA)	CLASSIFICATION
4	Organic soils with a Von Post decomposition of 8 to 44 cm and with underlying mineral clay and gleying at 45 cm.	Present at surface in some areas.	**Ground Stratum:** Slough grass (Beckmannia syzigachne), common cattail (Typha latifolia), fowl manna grass (glyceria striata), common hook moss (Drepanocladus aduncus), wild mint (Mentha arvensis), bebbs sedge (Carex bebbii), foxtail species (Alopecurus spp.) & alsike clover (Trifolium	0.75	M-GIV

E EPHEMERAL DRAINAGE

CPP Environmental identified an ephemeral drainage channel within the plan area. The ephemeral drainage channel has identifiable soil and vegetation characteristics; however, there is no definable boundary to the channel. Overall, the landscape is sloped to promote drainage into the ephemeral drainage channel, which provides an important hydrogeological connection from Wetland 4 to a wetland on the adjacent property to the west. The ephemeral drainage channel is identified on **Maps 2, 3, and 6**.

F WILDLIFE

The Fisheries and Wildlife Management Information System (FWMIS) and the Alberta Conservation Information Management System (ACIMS) databases do not identify the presence of any threatened, rare, or endangered species of plants or animals within 2 KM of the Plan Area.

The wetlands within the Plan Area have the potential to contain migratory birds. Species observed within the Plan Area during site investigations for the Biophysical and Phase 1 Environmental Assessment are included in Appendix A of the Preliminary Engineering Study.

G HISTORIC RESOURCES

A Historical Resource Impact Assessment (HRIA) was carried out as part of the Preliminary Engineering Study. No historically significant features were discovered in the plan area. The findings of the HRIA were sent to Alberta Culture and Tourism, who did not note any historical concerns with the future development of the plan area.

H HISTORICAL AND EXISTING LAND USES

From 1968 to 2012 the Plan Area has been used as a cultivated field for agricultural purposes, with a surface lease for a well site in the north central portion of the site (according to site observations and historical aerial photography).

No permanent structures have been developed within the Plan Area.

I NEIGHBOURING LAND USES

The immediate area surrounding the Plan Area is developed for agricultural purposes. However, a few non-agricultural land uses are located adjacent to the Plan Area. These and other features are illustrated on **Map 2 – Local Features**.

DIRECTION (FROM PLAN AREA)	LAND USE(S)
NORTH	Modular home manufacturing facility, cultivated agricultural lands
NORTHEAST	Cultivated agricultural lands
EAST	Rural home/farm, cultivated agricultural lands
SOUTHEAST	Cultivated agricultural lands
SOUTH	Rural home/farm, cultivated agricultural lands
SOUTHWEST	Rural home/farm, cultivated agricultural lands
WEST	Rural home/farm, cultivated agricultural lands
NORTHWEST	Rural home/farm, cultivated agricultural lands

3. DEVELOPMENT CONCEPT

The development concept for the Kiel Industrial Park Area Structure Plan has been prepared to capitalize on local and regional advantages and establish lands for future small and large scale commercial and industrial development in the Barrhead region.

In preparing the development concept, factors such as environmental features, existing roads and accesses, wells and pipelines, setbacks, existing developments, parcel sizes, water and sanitary services were taken into account. After several reviews by County Administration and the County's planning and engineering consultants, a development concept plan (**Map 3 – Development Concept**) was prepared.

The development concept plan illustrates the general form of future industrial development in the plan area. Additionally, the development concept plan shows how the plan area may be serviced by future roads, municipal utilities and storm water management facilities, and how major environmental features will be protected.

A CONSTRAINTS

Within the plan area (and adjacent properties) constraints have been identified that will limit development in some areas. The approximate extents of these constraints are illustrated in **Map 2 – Local Features**. Future development within these areas must conform to all provincial and municipal land use regulations respecting health and safety.

B LAND USE

The Kiel Industrial Area Structure Plan covers an area of approximately 65.2 hectares. Although the majority of land within the plan area will be developed for commercial and industrial uses, other land uses are also identified in this plan. These land uses include roads, public utilities, and storm water management facilities. The areas of the land uses described in this plan are as follows:

FUTURE LAND USE ACTIVITY	AREA (HA)	% OF GROSS DEVELOPABLE AREA
INITIAL GROSS AREA	**64.6**	
PLANNED ROAD RIGHT-OF-WAYS	7.86	
WELL LEASE SITE	1.07	
GROSS DEVELOPABLE AREA	**56.74**	**100%**
COMMERCIAL & INDUSTRIAL	49.49	87.22%
PUBLIC UTILITIES, CORRIDORS, & RESERVES	6.15	10.88%

C MUNICIPAL AND ENVIRONMENTAL RESERVE

Municipal and environmental reserves shall be provided to establish natural areas that serve to buffer industrial uses from existing residential or agricultural uses. In the event that the proposed subdivision cannot reasonably further this objective, municipal reserves may also be required at the time of subdivision as money in lieu of land.

Environmental reserve shall be dedicated to protect and preserve significant wetlands within the Plan Area.

D DESIGN GUIDELINES

The subdivision and development authorities shall apply the following design guidelines when considering subdivision and development permit applications for commercial and industrial uses within the Plan Area. This will ensure compatibility between neighbouring uses proposed within the plan area and those uses which currently exists adjacent to the western plan boundary.

I Site Planning

1. Arrangement of buildings, open spaces, parking and circulation areas will consider the context of surrounding land uses (especially the interface between different uses), the location of major traffic generators, and the site's particular characteristics.
2. Commercial and industrial uses shall be buffered from incompatible residential development using site design techniques on both development sites. Landscaping, fencing, increased setbacks, and/or appropriate building orientation will be used as a means of providing adequate separation between such land uses.
3. CPTED (Crime Prevention Through Environmental Design) principles will be encouraged in the design public and private spaces and facilities, focusing on natural surveillance and access control.

II Parking and Circulation

1. Vehicle access and internal circulation will promote safety and be designed to mitigate potential off-site impacts of development within the plan area.
2. Heavy vehicle traffic resulting from increased development within the Plan area will be discouraged from travelling along Township Road 594. Rather, traffic will be encouraged to travel north to Highway 18, to reduce the potential of increased traffic hazard.
3. Within the Plan Area, parking or loading facilities will be setback, landscaped, and screened to the satisfaction of the Development Authority.
4. Within the Commercial and Industrial Area, parking or loading facilities will be setback, landscaped, and screened to the satisfaction of the Development Authority on parcels which are adjacent to existing residential developments.
5. Acceptable access and egress routes will be developed to the satisfaction of the County and the County's Subdivision Authority for each stage during the subdivision process.

E INDUSTRIAL USE

Anticipated industrial uses include: industrial operations that can operate on small to medium sized lots within the Plan Area, which can be serviced by piped water and sanitary services. These industrial uses would include uses that operate primarily indoor. However, unserviced industrial uses and industrial uses that involve outdoor storage may also be allowed.

F COMMERCIAL USE

Commercial uses include commercial, logistical and/or office uses requiring lots larger than normally found in an urban area. Commercial uses also include uses that operate primarily indoor and generate little off-site impacts related to dust, odour or noise, and that are compatible with (or provide service to) industrial developments.

4. SITE SERVICING

Piped water and sanitary sewer services will be constructed to service development within Phase 1 of the Plan Area. Piped water and sanitary services will also be required to service future subdivision and development within the balance of the Plan Area.

A WATER SERVICING

In developing a future water distribution system for the Plan Area, The County of Barrhead utilized the anticipated water demand rate of 0.2/L/s/ha identified in the Preliminary Engineering Study. The Preliminary Engineering Study estimates maximum future total daytime water demand in the Plan Area to be 20 L/s.

The County of Barrhead has received approved from the Barrhead Regional Water Commission (BRWC) in March 2018 to service the first phase of the proposed development with water from the regional waterline.

In order to accommodate Phase 1 of the proposed development, refurbishment of the existing station will be required. As additional phases are developed (and water usage increases) a reservoir may need to be constructed to provide water services to the Plan Area. The exact location of the reservoir will be determined prior to proceeding with subdivision in Phase II.

Piped water distribution systems in the Plan Area will consist of waterlines placed in the development's road right-of-ways at a minimum depth of 2.8 m.

The ultimate water distribution concept for the Plan Area shall be as shown on **Map 4 – Water Servicing** of this plan.

B FIRE PROTECTION

The Barrhead Regional Water Commission (BRWC) does not have capacity to provide fire protection flows to the Plan Area. As a result, a non-potable lagoon-based fire protection system shall be utilized to service future developments in the Plan Area, and the Northplex development immediately to the north. The reservoir that will service the plan area is located on the quarter section immediately to the north.

Within the Plan Area, fire protection systems shall include firemain tie in(s) and meter vaults, along with a 250 mm firemain and flushpoints. Future businesses within the Plan Area will be required to tie into the 250 mm fire protection system, which includes option for hydrants. **Map 4 – Water Servicing** illustrates the potential location for future fire hydrants in the Plan Area.

C SANITARY SERVICING

Sanitary (or wastewater) servicing for the Plan Area shall be ultimately provided via a piped low pressure collection system.

The existing lift station to the north of Plan Area shall be utilized for developments in the Plan Area; wastewater shall be collected locally via 100 mm mains constructed in the Plan Area's road right-of-ways (paralleling water distribution lines), and transferred to the Town of Barrhead's sewage lagoons. Capacity for this plan has been confirmed by the County of Barrhead.

Should improvements or upgrades be required for existing sanitary infrastructure to service the Plan Area, the County of Barrhead will work collaboratively with the Town of Barrhead to ensure that these improvements/upgrades are made.

Individual property owners in the Plan Area will be required to construct and maintain holding tanks and pump systems to transfer wastewater to the low pressure system.

D STORMWATER MANAGEMENT

Overland stormwater flows in the Plan Area will be controlled via surface drainage methods. Existing site drainage patterns, road ditches, lot grading, wetland areas, and stormwater management facilities shall be used to ensure stormwater runoff is

controlled and released in accordance with municipal and provincial requirements, and that stormwater runoff does not have a negative effect on adjacent properties.

Stormwater flows in the Plan Area will ultimately be directed to the planned Stormwater Management Facility in the northwest portion of the Plan Area. Stormwater flows on individual lots will be directed to onsite drainage ditches, and directed to the Stormwater Management Facility through road/lot grading.

Individual lot owners will be responsible for avoiding onsite wetlands and providing lot grading and drainage that complies with the stormwater management concept for the Plan Area, to the satisfaction of the County of Barrhead and Alberta Environment and Parks.

The stormwater management concept for the Plan Area is illustrated on **Map 6 – Stormwater Management**.

E TRANSPORTATION

The road network plan for the Plan Area is illustrated on **Map 3 – Development Concept**. Roads within the Plan Area shall be developed to a rural cross section, with a granular sub-base and base, with an 11 metre base and a 9 metre top. Drainage ditches shall be developed on either side of the roads to provide stormwater management.

Access to the Plan Area shall be from Range Road 32. The Town of Barrhead, Town of Westlock, and other significant local destinations can be accessed via the intersection of Highway 18 and Range Road 32. The County shall discourage heavy vehicle traffic to access the Plan Area via Township Road 594/Range Road 32 to the south, unless suitable upgrades to these roads/intersections are made.

As a part of Phase 1, a temporary loop shall be constructed at the end of the first phase of road for the Plan Area, to accommodate vehicle turning.

For Phase 2, an emergency access/egress road will required to be constructed to provide a secondary route out of the Plan Area, until such time as the entire road network plan for the Plan Area is constructed to County standards.

Following Phase 1 of this Plan, a Traffic Impact Assessment may need to be prepared by a qualified professional to identify potential impacts of the development on Highway 18 to the North, to the satisfaction of Alberta Transportation. Subsequent phases of subdivision and development in the Plan Area may be required to implement the findings of the Traffic Impact Assessment prior to receiving approvals from the County of Barrhead and Alberta Transportation.

F UTILITIES

Franchise utilities (e.g. natural gas, electricity, and telecommunications) can be extended into the Plan Area via the planned road network and the proposed subdivision configuration.

The County of Barrhead shall work utility providers to develop a phased approach to provide gas and electrical services to the Plan Area.

5. IMPLEMENTATION

A DEVELOPMENT STAGING

The Kiel Industrial Park ASP area will be developed in three unique phases (as illustrated on **Map 7 – Development Staging**). The sequence of these phases has been determined based on the efficient extension of existing water, sanitary, and roadway infrastructure.

Portions of the plan area identified for later development phases may be developed first if the proposed developments represent temporary uses, or if the proposed subdivision(s) accommodate the development concept plan of this ASP. At the time of subdivision, easements, right-of-ways and caveats may be required so that future roads, utilities, and stormwater management facilities may be provided for in the future.

B SUBDIVISION

Subdivision within the plan area will occur separately for each stage of development, and will be undertaken by the respective landowners/development proponents.

C AMENDMENTS

All costs associated with amendments to this Area Structure Plan (including technical studies and reports prepared by qualified professionals) requested by the County and applicable provincial agencies will be borne by the proponent.

D SUPPORTING INFORMATION

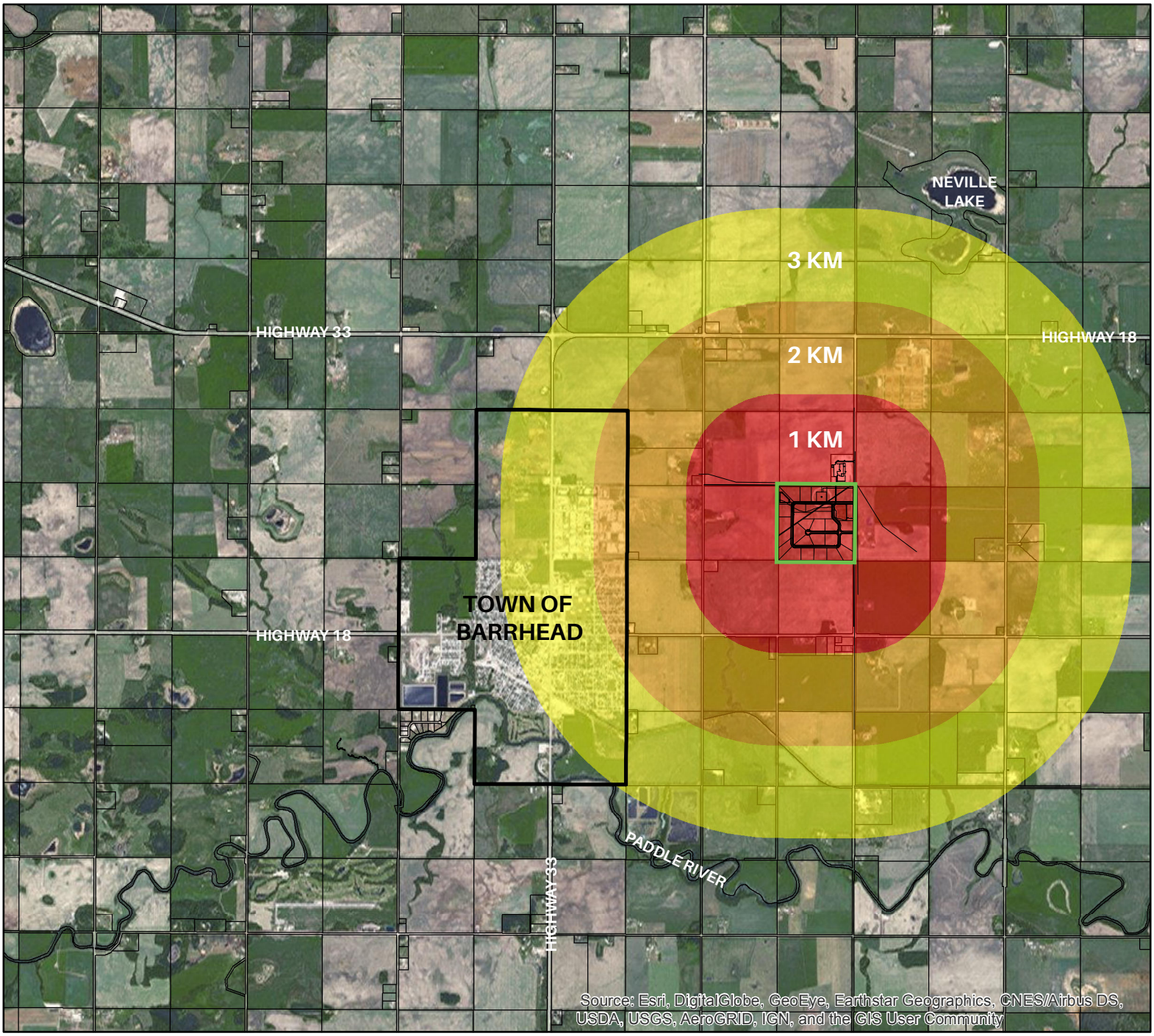
Prior to subdivision and/or redistricting, the County of Barrhead may require the submission of technical reports and studies prepared by qualified professionals to support proposed developments. These reports and studies may include: Geotechnical Analysis, Traffic/Transportation Impact Assessment, or other information as requested by the County of Barrhead.

E PUBLIC CONSULTATION

Following the development of the Preliminary Engineering Study, a Direct Control District was prepared by the County of Barrhead with the intention of applying it to lands within the plan area. In preparing the Direct Control District, adjacent landowners were contacted by Barrhead County for their input on the proposed future development of the plan area, as identified in the Preliminary Engineering Study. Feedback from adjacent landowners was used to refine the proposed road network plan (as illustrated in **Map 3 – Future Land Use Concept**) to avoid conflicts with nearby residential and agricultural developments.

A public hearing for the Kiel Industrial Park Area Structure Plan was held on November 7, 2018. Adjacent landowners were mail notified of the public hearing. No objections to the Kiel Industrial Park Area Structure Plan were presented at the public hearing.

6. MAPS



MAP 1
REGIONAL CONTEXT

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

LEGEND

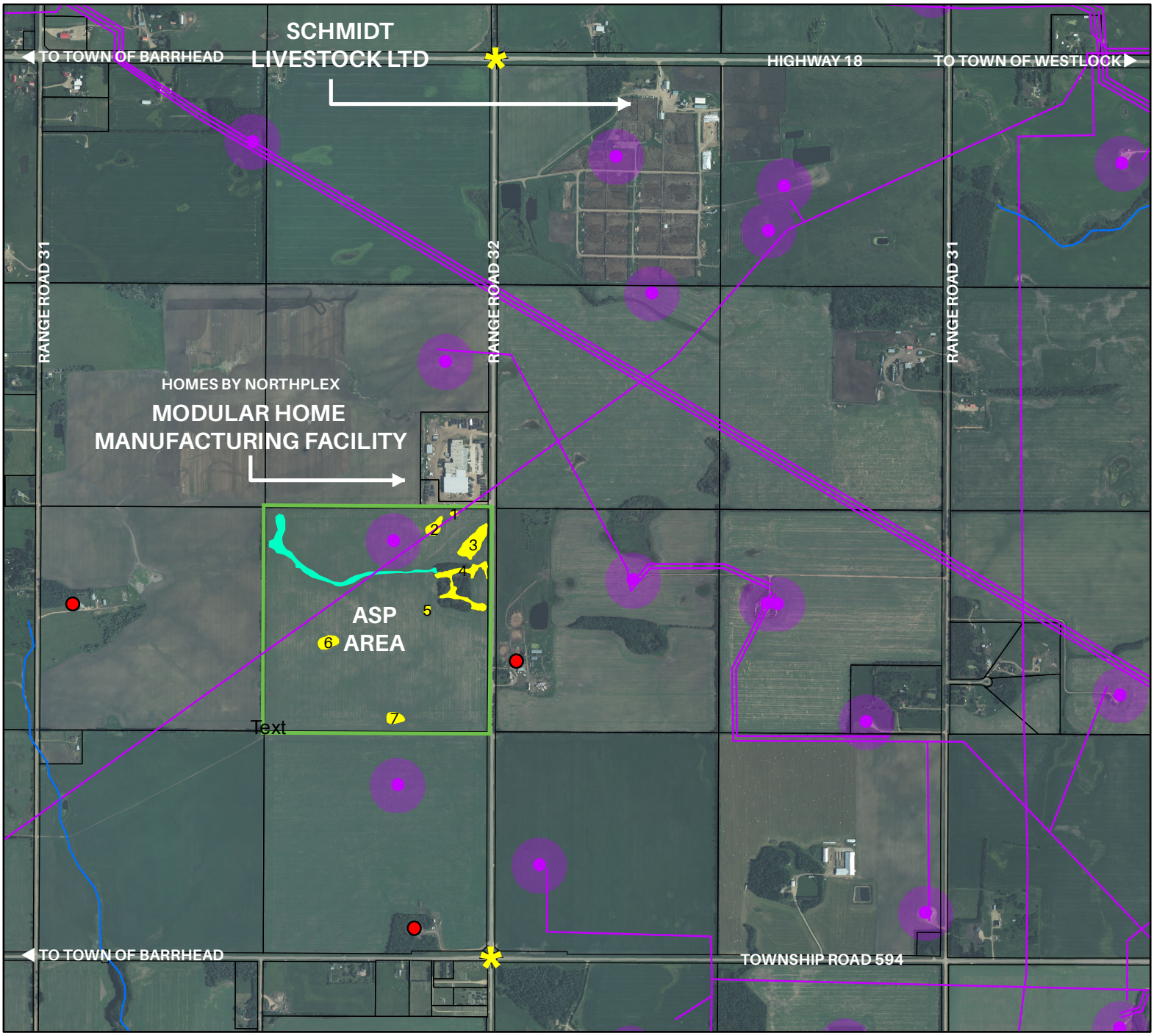
- Kiel Industrial Park ASP
- Town of Barrhead

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 1 2 KM

COUNTY OF Barrhead

MUNICIPAL PLANNING SERVICES



MAP 2
LOCAL FEATURES

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

LEGEND

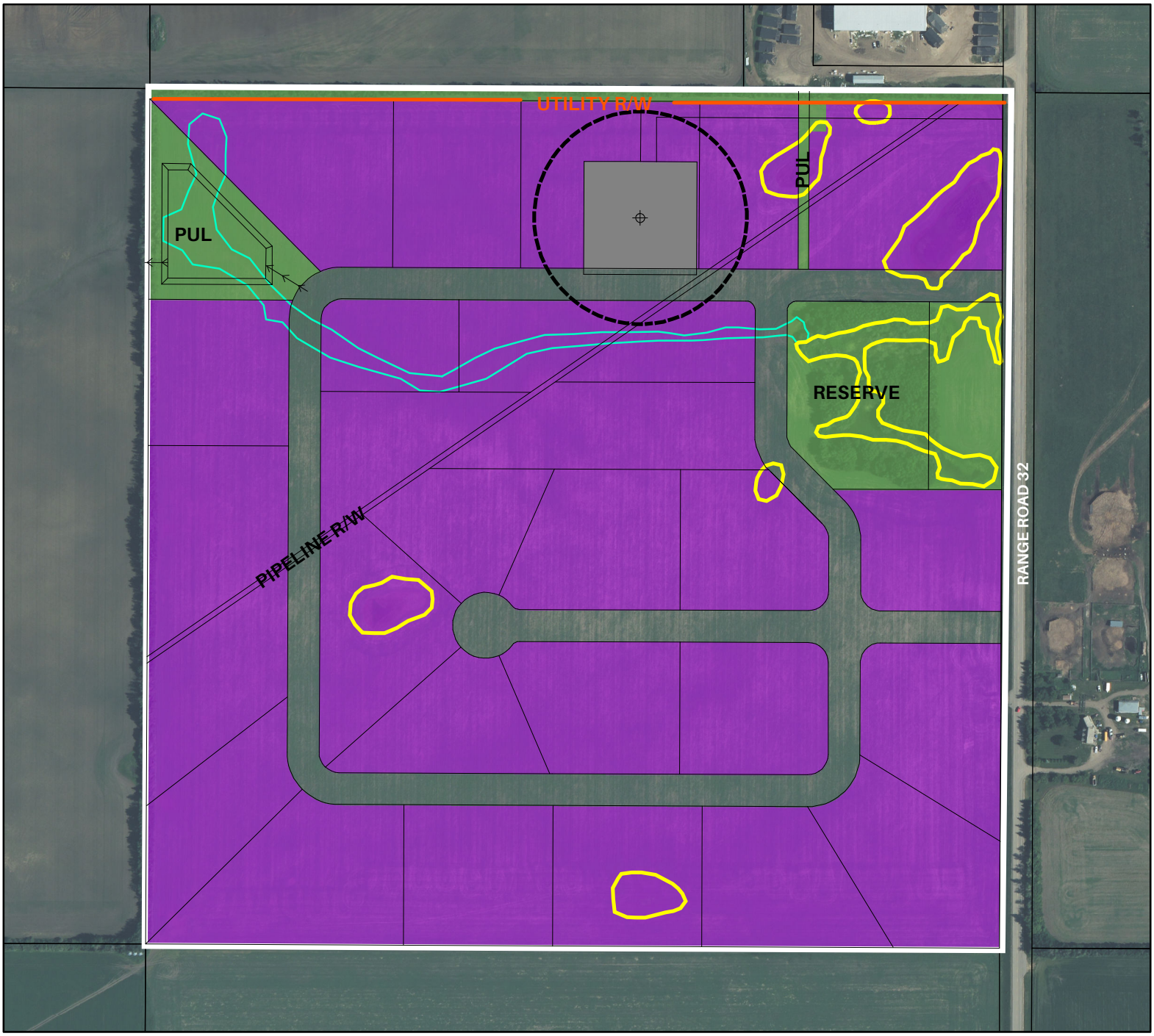
- Kiel Industrial Park ASP
- Watercourse
- Rural Home/Farm
- Ephemeral Drainage Area
- Important Intersection
- Resource Pipeline
- Resource Well (With 100 Metre Setback Area)
- Wetland (Approximate Boundaries)

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 250 500 750 M

COUNTY OF Barrhead

MUNICIPAL PLANNING SERVICES



MAP 3
DEVELOPMENT CONCEPT

*Lot configuration is conceptual only

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

LEGEND

- Commercial/Industrial Development
- Public Utility Lots, Corridors, & Reserves
- Wetland (Approximate Boundaries)
- Ephemeral Drainage Channel
- Resource Well Lease Site
- Resource Well Setback (100 M)

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 100 200 M

COUNTY OF Barrhead
MUNICIPAL PLANNING SERVICES

MAP 4
WATER SERVICING

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

LEGEND

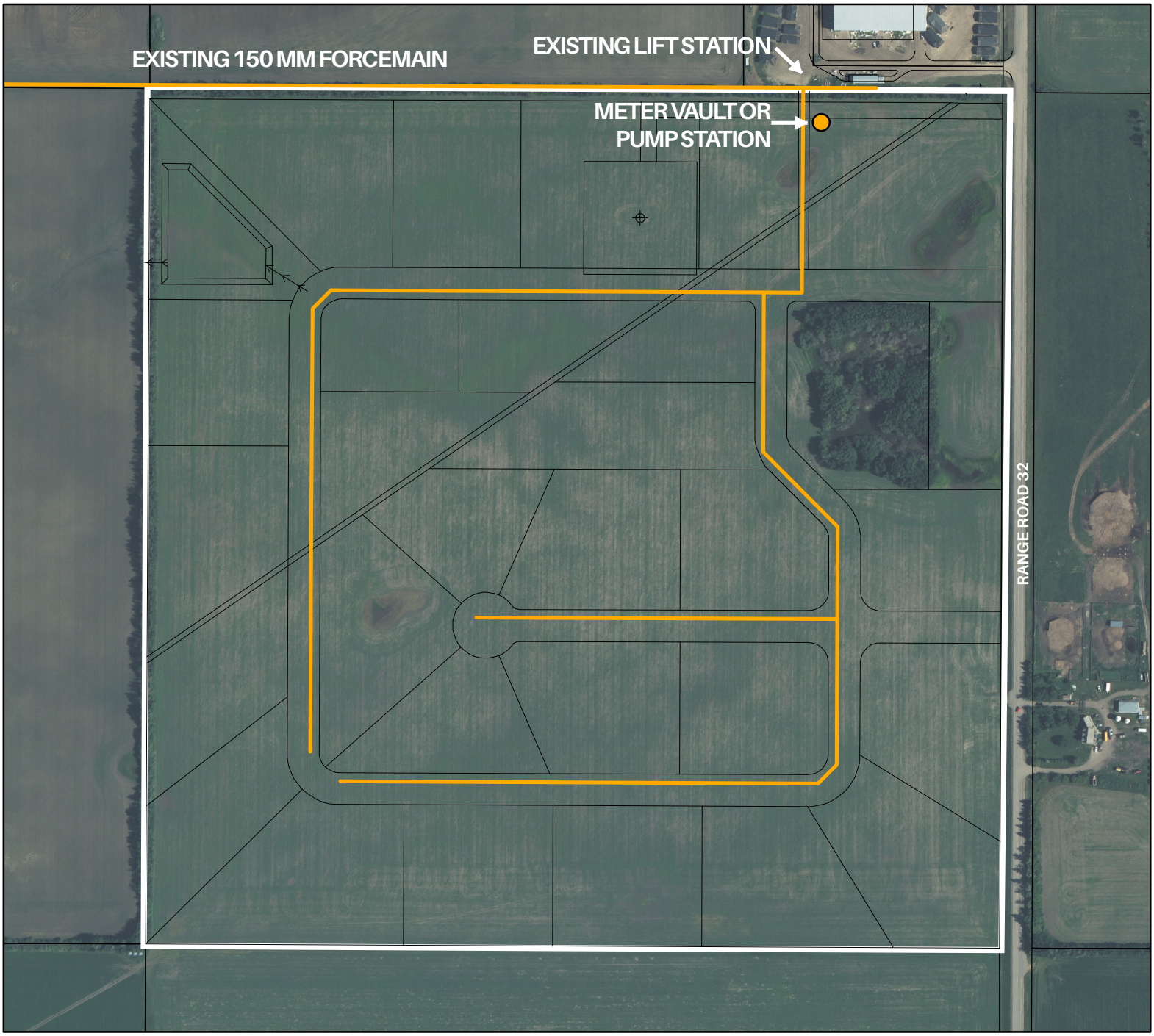
- Proposed Fire Hydrant Location
- Piped Water Distribution System

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 100 200 M

COUNTY OF Barrhead

MUNICIPAL PLANNING SERVICES



MAP 5
WASTEWATER SERVICING

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

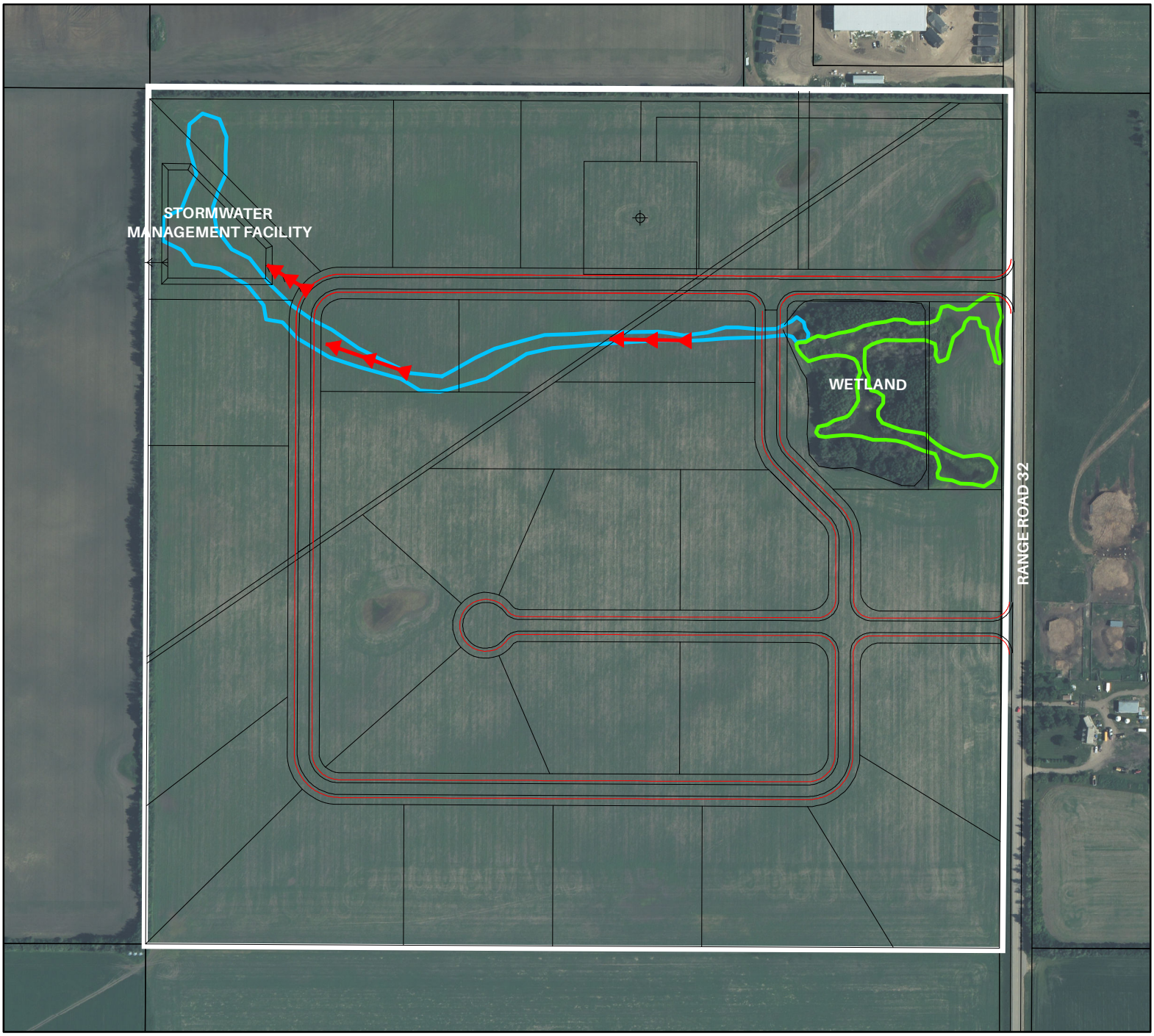
LEGEND

Sanitary Forcemain

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 100 200 M

COUNTY OF Barrhead
MUNICIPAL PLANNING SERVICES



MAP 6
STORMWATER MANAGEMENT

KIEL INDUSTRIAL PARK
AREA STRUCTURE PLAN

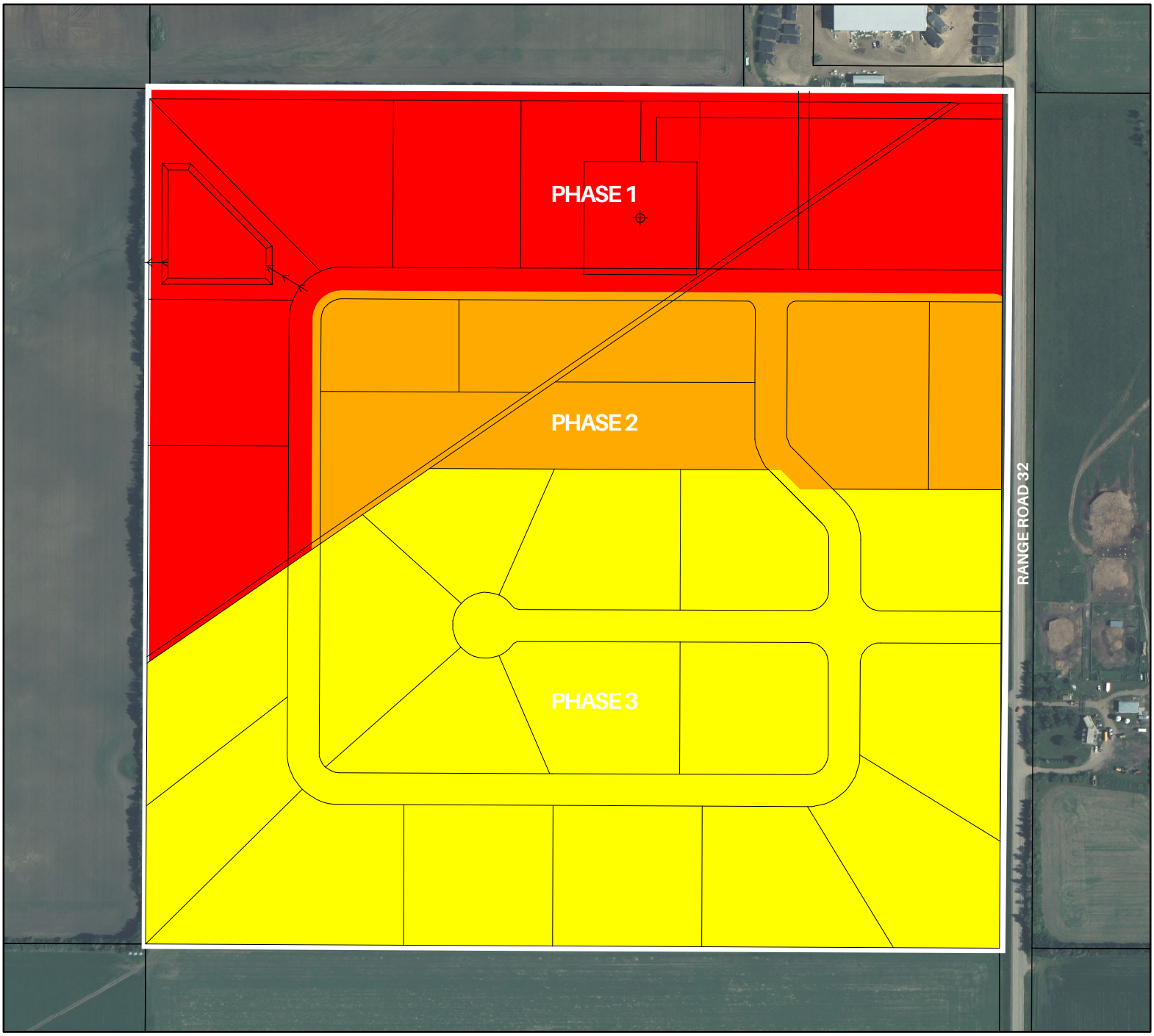
LEGEND

- Wetland (Approximate Boundaries)
- Ephemeral Drainage Area (Approximate Boundaries)
- Flow to Stormwater Management Facility
- Drainage Ditch

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 100 200 M

COUNTY OF Barrhead
MUNICIPAL PLANNING SERVICES



MAP 7
DEVELOPMENT STAGING

KIEL INDUSTRIAL PARK AREA STRUCTURE PLAN

LEGEND

Phase 1 Phase 2 Phase 3

Digital Information: Geogratis, Geodiscover, and Altalis
Projection: UTM NAD 83 12N

0 100 200 M

COUNTY OF Barrhead
MUNICIPAL PLANNING SERVICES

APPENDIX A – 2018 CPP WETLAND ASSESSMENT

Wetland Assessment Report

County of Barrhead
NE-27-59-3-W5M

September 26, 2018

Prepared by: Michelle Desaulniers, B.Sc., P.Biol.
Théo Charette, M.Sc., P.Biol.

CPP ENVIRONMENTAL | Charette Pell Poscente

- This page intentionally left blank -

Contents

1. Introduction

CPP Environmental completed a wetland assessment for quarter section (NE-27-59-3-W5M) near Barrhead, Alberta on September 11, 2018. The assessment included wetland delineation and field verification to delineate and classify wetlands. It is the Town's intent to avoid all wetlands, thus we have recommended avoidance buffers herein.

The wetland assessment of the project area included the identification, delineation and classification of wetlands, which was completed using the following Alberta Government Directives:

- *Alberta Wetland Identification and Delineation Directive,*
- *Alberta Wetland Classification System (AWCS),* and
- *Guide for Assessing Permanence of Wetland Basins.*

Wetland identification refers to the preliminary detection of wetlands within project boundaries prior to delineation and classification. Preliminary wetlands were identified using current satellite imagery and wetland information from the 2013 Biophysical Report by Enviromak report, which contained historical photos of the project area in 1968, 1978, 1987, and 2007. Current satellite imagery and historical photos were reviewed and preliminary wetland polygons were created for field verification. Due to the shutdown of the provincial air photo library, other air photos were not available for this assessment.

2. Regulatory Requirements

Table 1 identifies the regulations that apply to the project.

Table 1. Regulations applicable to the project.

Legislation	Jurisdiction	Description	Response
Fisheries Act	Federal	The federal Fisheries Act protects fish and fish habitat under Section 35, which is administered by the Department of Fisheries and Oceans (DFO).	Fish habitat within the wetlands affected by the project is of low quality. Project activities do not require any stream crossings. A Request for Review is not required from DFO.
Migratory Birds Convention Act	Federal	Provides best management practices to preserve and protect habitat necessary for the conservation of migratory birds, including their nest within Canada.	Barrhead County will adhere to the *Migratory Birds Convention Act* timing restrictions. No timber or woody vegetation clearing will occur between April 20 and August 20.

Legislation	Jurisdiction	Description	Response
Species at Risk Act	Federal	SARA helps to prevent Canadian indigenous species from becoming extirpated or extinct. It also aids in the recovery of threatened and endangered species through species lists.	Searches were conducted using the provincial Alberta Conservation Information Management System (ACIMS), the Fish and Wildlife Internet Mapping Tool (FWIMT), and the Landscape Analysis Tool (LAT) for features within the Project area. See **Section 4** of results of these searches.
Public Lands Act	Provincial	Authorization under the *Public Lands Act* must be applied to by persons who are undertaking an activity on Crown land – to obtain approval to carry out activities on public land.	The Project is located on private lands, except for where permanent water bodies exist. A disposition would be required for any activity conducted in semi-permanent and permanent wetlands.
Water Act	Provincial	Authorization under the Water Act must be applied for by persons who are undertaking an activity or commencing/ continuing a diversion of water in Alberta.	According to the *Guide to Water Act Authorizations Required for Dugouts, Borrow Pits and other types of Pits/Excavations*, where excavations into the ground are proposed and may collect and hold water or where this impounded water is used, an authorization under the *Water Act* is required. Authorization under the *Water Act* is also required if a project will affect water bodies, including streams, wetlands, lakes, and groundwater.
Historical Resources Act	Provincial	The process to obtain an approval can vary depending on the project type. Alberta Culture and Tourism has produced industry-specific Land Use Procedures Bulletins to assist proponents in determining the correct procedure.	No Historical Resources are listed in the project boundary.
Weed Control Act	Provincial	Weeds refer to plants identified in Part 2, S. 8 of the *Weed Control Regulation*. The holder of this area is legally responsible to control weeds within the Project area.	Barrhead County will adhere to best management practices and controls for the management and spread of weeds.

Legislation	Jurisdiction	Description	Response
Wildlife Act and Wildlife Regulations	Provincial	The *Wildlife Act* prohibits the disturbance of wildlife habitation. Wildlife types and classifications, regions, and timings are identified within the Wildlife Regulations.	All operations will be in accordance with the *Wildlife Act* and the *Wildlife Regulations*. AEP will be contacted if the houses, nests and dens of prescribed wildlife are encountered during sweeps.

3. Wetland Identification, Delineation, and Classification

Desktop Delineation and Air Photo Review

As per the *Alberta Wetland Identification and Delineation Directive*, a preliminary desktop assessment was conducted to identify any wetlands within the project area. Identification of potential wetlands and desktop delineation was performed using several sources of remotely sensed data, including historical air photographs. These potential wetlands were visited in the field to confirm their presence and support detailed ground-level assessments and delineation (Pathway 5 under the Alberta Wetland Identification and Delineation Directive).

Field Reconnaissance

Field reconnaissance was necessary to validate wetland boundaries. Generally, wetland-upland boundaries were delineated as areas where wetland-obligate or -facultative plants comprised ≤ 50% of the total community composition, as per the *Alberta Wetland Identification and Delineation Directive*. Where vegetation indicators were ambiguous, wetland soil indicators and topography were used to support field delineation.

Wetland Classification

In total, 7 marshes and 1 ephemeral drainage were classified within the project area. Marshes are defined as mineral wetlands with water levels near, at, or above the ground surface for variable periods during the year and which support graminoid (grass) vegetation in the deepest portion of the wetland in the majority of years.[1] Ephemeral areas are defined as terrain affected by the water table near, at or above the ground surface for a short period of days, but not long enough to promote the formation of water altered soils within 30 cm of the ground surface or a dominance of water tolerant vegetation.

Figure 1 shows all classified wetlands, non-wetlands, permanency types and sizes. All field photographs are included in **Appendix A**. Historical photographs and the wetland permanency

[1] Government of Alberta. 2015. Alberta Wetland Classification System. Water Policy Branch, Alberta Environment and Parks. Edmonton. Alberta.

table are included in **Appendix B**. The sections below summarize each delineated area and classification.

Marsh Wetlands with a Temporary Type (II)

Temporary wetlands are defined as mineral wetlands with a hydroperiod that is typically flooded every year for a short period of time after snowmelt or heavy rainfall, but otherwise lack surface water. Generally, temporary wetlands are flooded for approximately 1 to 14 weeks of the year. In total, 2 marshes (M) in graminoid form (G) were documented as a temporary type (II) due to soil and vegetation characteristics. Generally, soil characters of temporary marshes include the following components:

- Evidence of soil redox features within approximately 20 cm of ground surface
- No evidence of organic soil development

Vegetation characteristics were also used for the classification of temporary marshes, which included the dominance of a wet meadow zone. The plant community of a wet meadow zone within a tilled landscape often includes a dominance of invasive species such as:

- Great plantain (*Plantago major*)
- Field sow thistle (*Sonchus arvensis*)
- Common dandelion (*Taraxacum officinale*)
- Alsike clover (*Trifolium hybridum*)
- Canadian thistle (*Cirsium vulgare*)

The assessment area was tilled and cultivated except around Wetland 4 where a buffer of upland forest surrounds the wetland in the NE boundary. Hence, if an overall dominance of invasive plants (non-crop species) was documented with mottling or gleying within 20 to 30 cm of the ground surface, the wetland was classified as temporary (**Table 2**). Both temporary wetlands are distinguishable from the uplands on the April 19, 1978 air photo and on Google Earth imagery from April 20, 2013.

Table 2: Temporary marsh characteristics including size and classification (AWCS).

Wetland #	Soil	Water	Vegetation	Size (ha)	AWCS
1	Mineral soils with silty clay texture in top 40 cm. Mottling present at 20 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Slough grass (*Beckmannia syzigachne),* common reed grass (*Phragmites australis),* water smartweed (*Persicaria amphibia),* foxtail species *(Alopecurus spp.),* common cattail (*Typha latifolia*), common dandelion (*Taraxacum officinale*) & alsike clover (*Trifolium hybridum*)**.**	0.05	M-G-II
5	Mineral wetland with	Surface water or water table	**Ground Stratum:** Slough grass (*Beckmannia syzigachne),* field	0.07	M-G-II

		silty clay texture at top 40 cm. Mottling present at 25 cm.	not documented within top 40 cm.	sow thistle (*Sonchus arvensis*), aster species (*Antennariar spp*.), common dandelion (*Taraxacum officinale*), alsike clover (*Trifolium hybridum*) & creeping spike rush (*Eleocharis palustris*).	

Marsh Wetlands with a Seasonal Type (III)

Seasonal wetlands are defined as mineral wetlands with a hydroperiod that is typically flooded for most of the growing season but has little to no surface water remaining by the end of summer. Generally, seasonal wetlands are flooded for approximately 5 to 17 weeks of the year. In total, 4 wetlands were classified as marshes (M) in the graminoid (G) form and a seasonal type (III). Seasonal wetlands were classified mainly with vegetation characteristics but soil characters were also considered. Soil characteristics of seasonal marshes generally include the following components:

- Evidence of soil redox features within 10 cm of ground surface
- Organic soils with Von Post of > 6

Vegetation characteristics were also used for the classification of seasonal types, which include the presence of a shallow wetland zone and a wet meadow zone. The plant community of a shallow wetland zone is dominated by narrow-leaved graminoids, such as sedges and grasses that typically only tolerate periodic inundation and prolonged root saturation. The historical photographs show the presence of seasonal wetlands in the majority of years, although water is typical not present but the area of the wetland is distinguishable from surrounding upland. **Table 3** summarizes all seasonal mineral wetland characteristics, including the wetland delineation size and classification.

Table 3: Seasonal marsh characteristics including size and classification (AWCS).

Wetland #	Soils	Water	Vegetation	Size (ha)	AWCS
2	Mineral soils with silty clay texture in top 40 cm. Mottling present at 20 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum:** Creeping spike rush (*Eleocharis palustris*), beaked sedge (*Carex brevior*), slough grass (*Beckmannia syzigachne),* fowl manna grass *(Glyceria striata)*, common dandelion (*Taraxacum officinale*) & alsike clover (*Trifolium hybridum*).	0.26	M-G-III
3	Mineral soils with silty clay	Surface water or water table	**Ground Stratum**: Slough grass (*Beckmannia syzigachne),* common cattail	0.66	M-G-III

Wetland #	Soils	Water	Vegetation	Size (ha)	AWCS
	texture in top 40 cm. Mottling present at 10 cm.	not documented within top 40 cm.	(*Typha latifolia*), fowl manna grass *(Glyceria striata)*, common hook moss (*Drepanocladus aduncus),* wild mint (*Mentha arvensis)*, bebbs sedge *(Carex* bebbii), foxtail species *(Alopecurus spp.)* & alsike clover (*Trifolium hybridum*).		
6	Mineral soils with silty clay texture in top 40 cm. Mottling present at 10 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum**: Slough grass (*Beckmannia syzigachne),* great plantain (*Plantago major*), field sow thistle (*Sonchus arvensis*), common dandelion (*Taraxacum officinale*) & alsike clover (*Trifolium hybridum*).	0.3	M-G-III
7	Mineral soils with silty clay texture in top 40 cm. Mottling present at 10 cm.	Surface water or water table not documented within top 40 cm.	**Ground Stratum**: Slough grass (*Beckmannia syzigachne),* great plantain (*Plantago major*), field sow thistle (*Sonchus arvensis*), common dandelion (*Taraxacum officinale*), alsike clover (*Trifolium hybridum*) & Canadian thistle (*Cirsium vulgare)*.	0.23	M-G-III

Marsh Wetlands with a Semi-Permanent Type (IV)

Semi-permanent wetlands are defined as mineral wetlands with a hydroperiod that is typically flooded year-round, except in years when drought conditions persist. Generally, semi-permanent wetlands are flooded for approximately 18 to 40 weeks of the year. In total, 1 wetland was classified as marsh (M) in the graminoid (G) form and a semi-permanent type (IV). Soil characteristics of semi-permanent marshes generally include the following components:

- Evidence of soil redox features at the ground surface
- Organic soils with Von Post of > 6

Vegetation characteristics were also used for the classification, which include the presence of a shallow open water zone, a submergent/emergent marsh plant zone, and a wet meadow zone. The plant community is dominated by robust, emergent graminoids that are tolerant of prolonged inundation and deeper water levels including common cattail. Historical photographs show the presence of Wetland 4 in all years. **Table 4** summarizes all seasonal mineral wetland characteristics, including the wetland delineation size and classification.

Table 4: Semi-permanent marsh characteristics including size and classification (AWCS).

Wetland #	Soil	Water	Vegetation	Size (ha)	AWCS
4	Organic soils with a Von Post decomposition of 8 to 44 cm and with underlying mineral clay and gleying at 45 cm.	Present at surface in some areas.	**Ground Stratum**: Slough grass (*Beckmannia syzigachne),* common cattail (*Typha latifolia*), fowl manna grass *(glyceria striata)*, common hook moss (*Drepanocladus aduncus),* wild mint (*Mentha arvensis)*, bebbs sedge *(Carex bebbii*), foxtail species *(Alopecurus spp.)* & alsike clover (*Trifolium hybridum*).	0.75	M-G-IV

Non-wetland Types including Ephemeral Drainage

In total, 1 area has been classified as ephemeral drainage due to soil and vegetation characteristics. Water altered soils were not documented within the top 40 cm of the ground surface and vegetation was dominated by weeds and crops. In some areas, slough grass was present, however there was no definable boundary. Overall, the landscape is sloped to promote drainage into the ephemeral drainage, which is an important hydrological connection from Wetland 4 to a wetland on the adjacent property to the west.

4. Species Surveys

Prior to commencing field work, we consulted multiple provincial databases to identify areas of potential ecological or historical importance within the project area. Briefly, the Alberta Conservation Information Management System (ACIMS), the Fish and Wildlife Internet Mapping Tool (FWIMT), and the Landscape Analysis Tool (LAT) were queried for biodiversity, vertebrate, and historical occurrences, and habitat locations of sensitive species which may influence our sampling approach. Results from these queries are presented in **Appendices C-E**. Grizzly bear was listed on FWMIT searches, however, the site does not provide suitable natural habitat for this species. Rose moss (*Rhodobryum ontariense*) was listed on ACIMS as a non-sensitive element occurrence dating from 1966. This moss was not seen during field assessments. If it occurs onsite, its habitat would be moist wooded sites, which are in and around wetland #4 and being preserved by the County. The LAT report did not identify any sensitive features within Project boundaries.

5. Mitigation

Project construction is anticipated to commence in the fall of 2018, during which time soils will be stripped and stockpiled. The wetlands will be avoided (**Figure 2**). No permanent changes to wetland area are anticipated from project operations.

Barrhead County proposes the following mitigation strategy to ensure wetlands within the project area will not be adversely impacted by project operations.

Avoidance

Barrhead County intends to avoid all wetlands in the project area - there is no overlap between wetland areas and project operations. The County will establish and maintain a minimum setback distance of 30 m around wetland areas to ensure any activity associated with construction of the naturalized stormwater pond complex do not encroach upon the wetland. We also recommend the preservation of the ephemeral drainage to maintain natural drainage patterns feeding Wetland 4, as the drainage pathway is a main source of water input. **Figure 2** shows the ephemeral drainage area, the wetlands and the wetland buffers.

Minimization

In addition to avoiding wetland areas, the County will implement additional practices to further minimize the possibility of adverse impacts to wetlands. Temporary erosion and sedimentation control devices such as silt fences will be installed to intercept excess sediment and prevent it from accumulating in wetlands downslope. Equipment laydown areas (as well as locations used for equipment refueling, maintenance and storage) will be a minimum of 100 m away from the wetland to limit the possibility of fluid leaks entering wetlands.

Environmental impact to wetlands will be minimized by adhering to the best management practices listed in **Table 5**.

Table 5: Mitigation measures to minimize impact to wetlands and associated features.

Environmental Sensitivity	Potential Impact Statement	Mitigation
Contaminants migrating offsite	Contaminants mobilized during construction or accidentally released may migrate to adjacent waterbodies.	• Best practices and guidelines will be followed to minimize any potential for contaminants migrating offsite. See mitigations measures in **Table 6**.
Disturbance of bird nests and young	Project clearing operations during breeding season may destroy bird nests and young	• Vegetation will be cleared outside of the breeding season.
Establishment of weeds	Noxious and Prohibited noxious could establish in the construction areas	• Barrhead County is legally responsible to control weeds within the Project area. The site will be monitored for weeds throughout the duration of project activities.

Table 6: Mitigation measures to prevent contamination to the environment.

Activity	Potential Impact	Control Measure
Operational waste generation	Loose debris enters open water, residue from waste enters water table	• Domestic garbage will be managed using covered containers • Disposal arranged at approved landfill site • Existing waste (pre-activity) will be cleaned and disposed as above
Construction activities	Sediment enters adjacent waterbodies	• Erosion and sediment control will follow standard practices. Physical barriers such as straw bales and silt fences will be utilized to minimize erosion when necessary. Sediment and erosion control will be consistent with the Government of Alberta's *Field Guide for Erosion and Sediment Control* • Erosion control will be set up prior to construction and will be cleaned out and maintained regularly until slopes are stabilized. • The County will monitor the performance of the erosion control system and adjust as appropriate. • Any disturbed upland open ground or soil stockpile areas will be covered with a native seed mix that is certified weed free or planted with native shrubs.
Use of Hazardous Materials	Spills percolate into the water table, or migrate into local waterbodies	• Hazardous materials requiring disposal will be removed from site in accordance to applicable laws and regulations • Storage sites located away from high traffic areas or areas exposed to winds or rains • Storage sites will be away from environmentally sensitive areas and a minimum of 100 m from any watercourse or waterbody • Storage sites will have impermeable surface with a containment feature (i.e., dyke) • Drip pans or pails will be used under machinery • Visual inspections of storage containers will be conducted • Employees will be trained regarding material safety, storage, handling, disposal
Use of fuels and oils	Fuel or oil spills or leaks enter reservoir, percolate into the water table, or migrate into local waterbodies/watercourses	• Regular maintenance on machinery used during operations • Use of portable fuel tanks and slip tanks on trucks • Equipment will be maintained away from wetlands • Drip pans or pails will be used under machinery

Activity	Potential Impact	Control Measure
Use of equipment	Equipment in poor condition could result in fuel, oil and fluid spills. Dirty equipment can spread weeds and contamination.	• Prior to bringing equipment onto site, the operator must conduct an inspection of the equipment to ensure equipment is clean (free of mud, dirt and oil) and that it is in good working order

Replacement

Barrhead County will not be operating within wetlands. No wetland area will be permanently lost due to project operations; therefore, no replacement strategy is necessary.

6. Closure and Signoff

This Professional Report was prepared exclusively for the client by CPP Environmental. The quality of the information, conclusions, and any estimates are based on information available at the time of the preparation of the report. This includes any data supplied by 3rd party sources. This report is to be used by the client for its identified intention, subject to any terms or agreements with CPP Environmental.

To the best of my knowledge and the best of my professional ability, recognizing the standard of care expected of a reasonable professional doing this work, it is my professional opinion that all the information contained in this Professional Report is accurate and complete, and contains all the relevant information for the purposes of this project or application. This Professional Report, including all attachments, data and supplemental information, were prepared by me or under my direct supervision and has been reviewed and accepted by me. All the information submitted is, to the best of my knowledge, true, accurate, and complete.

As per the *Professional Practice Standard: Professional Responsibilities in Completion and Assurance of Wetland Science, Design and Engineering Work in Alberta*, a Professional Biologist with at least 5 years of professional experience and a minimum of three years of professional wetland experience was responsible for preparation of this report. We trust this information meets your current requirements. Should you have any questions or comments, please contact the undersigned.

Théo Charette, M.Sc., P.Biol.,
Operations Manager, CPP Environmental
154 - 150 Chippewa Road, Sherwood Park, AB T8A 6A2
Phone: 780-570-5818
Email: theo.charette@cppenv.ca.

Figures

County of Barrhead

Wetland Assessment

Figure 1
Overview

- Assessment Area
- Ephemeral Drainage Area (1.36 Ha)

Wetland Class

- Seasonal
- Semi-Permanent
- Temporary

Source: Contains information licensed under the Open Government Licences – Canada, Alberta, Valtus Imagery.
Imagery Acquisition Date: May 24, 2014 - October 5, 2014.
Coordinates system: NAD 1983 UTM Zone 11N

N
W E
S

1:4,500

0 50 100 150 200 250 m

Date: September 26, 2018

Prepared by: G. Couture

CPP ENVIRONMENTAL

County of Barrhead

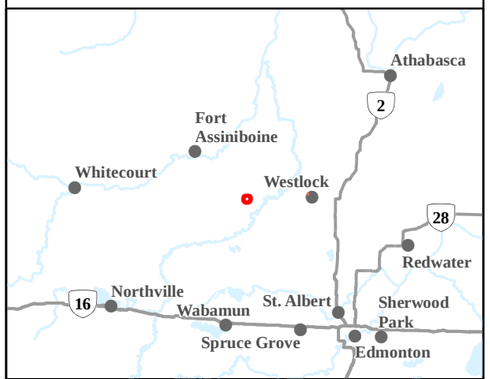
Wetland Assessment

Figure 2
Avoidance Buffers

- Assessment Area
- Avoidance Buffer (30 m)
- Ephemeral Drainage Area (1.36 Ha)

Wetland Class

- Seasonal
- Semi-Permanent
- Temporary



Source: Contains information licensed under the Open Government Licences – Canada, Alberta, Valtus Imagery.
Imagery Acquisition Date: May 24, 2014 - October 5, 2014.
Coordinates system: NAD 1983 UTM Zone 11N

N
W E
S

1:4,500

0 50 100 150 200 250 m

Date: September 26, 2018

Prepared by: G. Couture

CPP ENVIRONMENTAL

Appendices

Appendix A: Field Photos

Temporary Wetlands 1 & 5 (M-G-II)

Photo 1: **W5** facing NE towards small depression area where wet meadow zone was dominated with grasses and weeds.

Photo 2: **W5** showing mottling within the top 30 cm indicating a temporary type.

Photo 3: **W1** facing N towards wet meadow wetland zone.

Photo 4: **W1** shallow wetland zone showing common cattail and overall dominance of native water tolerant grasses.

Seasonal Wetlands 2, 3, 6 & 7 (M-G-III)

Photo 5: **W2** facing W.

Photo 6: **W2** wetland zone dominated by sedges.

Photo 7: **W3** facing N towards wet meadow dominated by grasses.

Photo 8: **W3** shallow wetland zone dominated by common cattail and slough grasses.

Photo 9: **W6** facing N towards wet meadow and shallow wetland zones.

Photo 10: **W6** surficial soils with mottling in top 10 cm indicting seasonal type.

Photo 11: **W6** ground stratum.

Photo 12: **W7** wetland zone dominated by sedges.

Wetland 4 (M-G-IV)

Photo 13: **W4** facing E towards semi-permanent marsh showing ephemeral drainage pathway from wetland.

Photo 14: **W4** shallow wetland zone surrounded by dead shrubs.

Photo 15: **W4** shallow wetland zone facing S.

Photo 16: **W4** at center of wetland area facing E.

Photo 17: **W4** soil characteristics showing wet organic and gleying materials.

Photo 18: **W4** eastern boundary.

Non-wetland (Ephemeral Drainage)

Photo 19: **Ephemeral** drainage facing E towards semi-permanent marsh.

Photo 20: **Ephemeral** drainage facing W towards project boundary.

Photo 21: **Ephemeral** drainage at the NW corner of project boundaries.

Photo 22: **Ephemeral** drainage where slough grass was documented but overall the area was dominated by weeds with no water altered soils in top 40 cm.

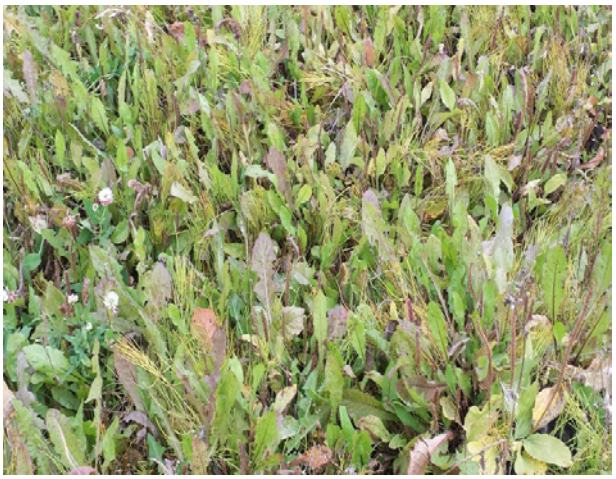


Photo 23: **Ephemeral** drainage in an area dominated by common dandelion.

Photo 24: **Ephemeral** drainage in an area dominated by field sow thistle.

Surrounding Area

Photo 25: NE boundary area facing S towards upland area surrounding W4.

Photo 26: NE boundary area facing SW towards ephemeral drainage.

Photo 27: Center N area facing N towards project boundary where canola crops were common.

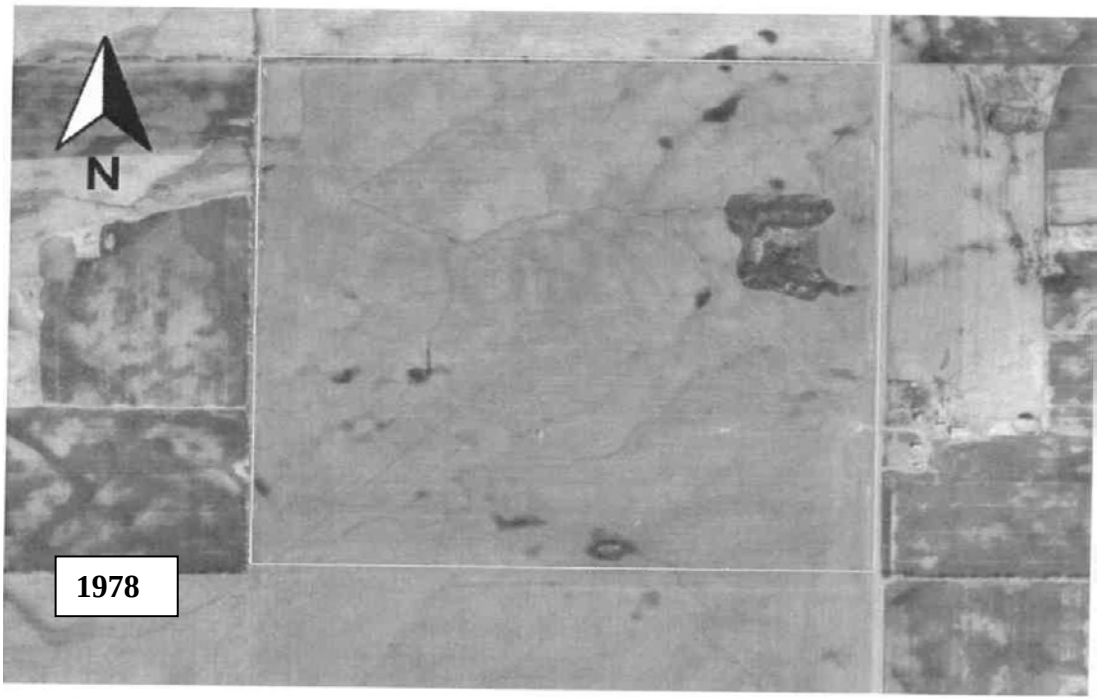
Photo 28: NW boundary facing S towards 2 deer that were utilizing the area and many lay down sites were noted.

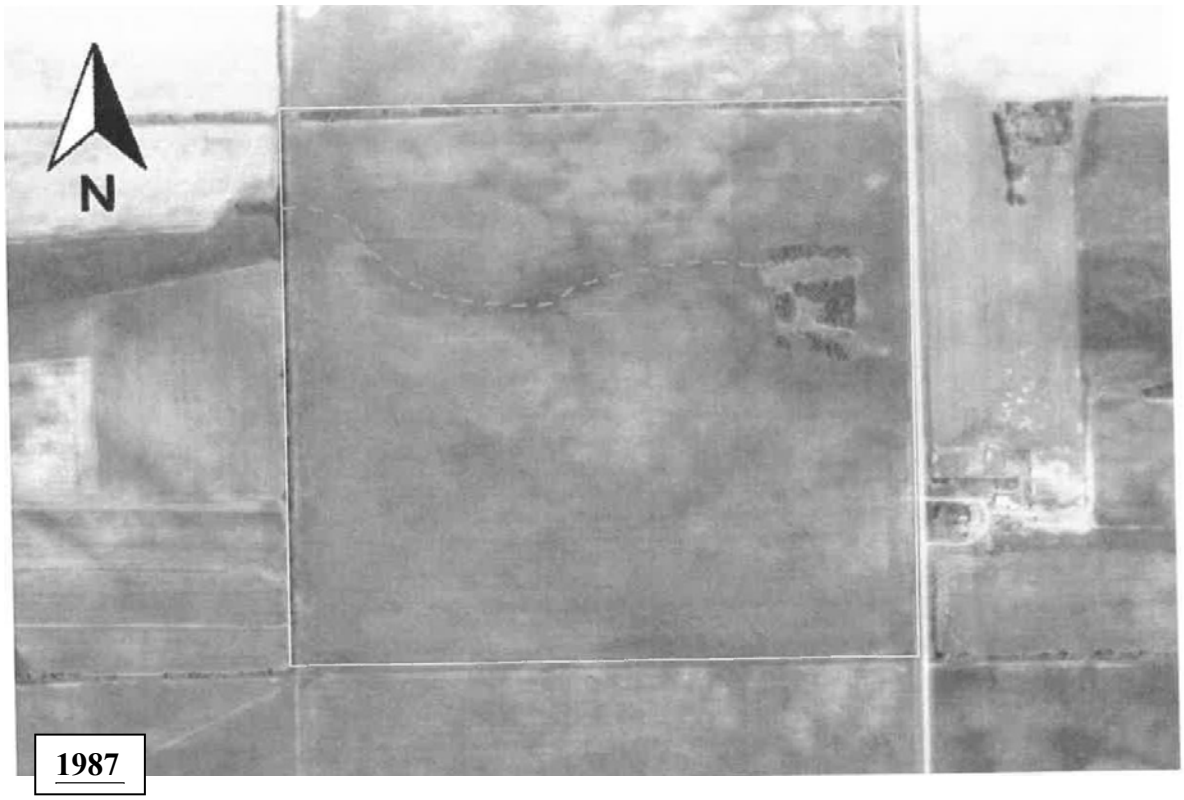
Photo 29: SE area facing W into crop field.

Photo 30: SE boundary area facing N towards upland area surrounding W4.

Appendix B: Historical Photos and Permanency Assessment

Historical Photos




N
1987


N
2007

2017 Bing Maps

Wetland Ownership Assessment using Air Photo Interpretation and Climatic Conditions

Photo Date (M/D/Y)	Project #	Resolution	Season*	Precipitation			Wetland 1			Wetland 2			Wetland 3			Photo Notes
				Year **	Month **	Day/ Week **	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	
1968-00-00	68-83J	1:31680	-	N	-	-	DV	N	M-G	DV	N	M-G	DV	N	M-G	
1978-04-19	S78-193	1:25000	S	W	D	D	W	N	M-G	W	N	M-G	W	N	M-G	6.14 MM of rain in past 7 days. Snow melt present.
1987-00-00	87-089 83J	1:30000	-	N	-	-	DVI	N	N/A	DVI	N	N/A	DVI	N	N/A	
2007-00-00	01-200Tr83J	1:40000	-	N	-	-	DV	N	M-G	DV	N	M-G	DV	N	M-G	
2013-04-20	Google Earth	-	S	N	-	-	W	N	M-G	W	N	M-G	W	N	M-G	
2017	Bing Maps	-	-	-	-	-	DV	N	M-G	DV	N	M-G	DV	N	M-G	
Number of Years Dry Over Photo Record:							4			4			4			

*	S=Spring (April to June); Sum =Mid-Late Summer (June to Sept; 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)
****	Y= Reasonably Permanent (Sec 3 *public Lands Act* body of water), N=No (Not permanent, a wetland regulated under the *Water Act)*
*****	M = Marsh, SS=Shrubby Swamp

Photo Date (M/D/Y)	Project #	Resolution	Season*	Precipitation			Wetland 4			Wetland 5			Wetland 6			Photo Notes
				Year **	Month **	Day/ Week **	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	
1968-00-00	68-83J	1:31680	-	N	-	-	W	Y	M-G	DV	N	M-G	DV	N	M-G	
1978-04-19	S78-193	1:25000	S	W	D	D	W	Y	M-G	W	N	M-G	W	N	M-G	
1987-00-00	87-089 83J	1:30000	-	N	-	-	W	Y	M-G	DVI	N	N/A	DVI	N	N/A	
2007-00-00	01-200Tr83J	1:40000	-	N	-	-	DV	N	M-G	DV	N	M-G	DV	N	M-G	
2013-04-20	Google Earth	-	S	N	-	-	W	Y	M-G	W	N	M-G	W	N	M-G	
2018	Bing Maps	-	-	-	-	-	DV	N	M-G	DV	N	M-G	DV	N	M-G	
Number of Years Dry Over Photo Record:							2			4			4			

*	S=Spring (April to June); Sum =Mid-Late Summer (June to Sept; 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)
****	Y= Reasonably Permanent (Sec 3 *public Lands Act* body of water), N=No (Not permanent, a wetland regulated under the *Water Act)*
*****	M = Marsh, SS=Shrubby Swamp

Photo Date (M/D/Y)	Project #	Resolution	Season*	Precipitation			Wetland 7			Photo Notes
				Year **	Month **	Day/ Week **	Open Water or Wetland Vegetation ***	Assessment of Permanence ****	Class *****	
1968-00-00	68-83J	1:31680	-	N	-	-	DV	N	M-G	
1978-04-19	S78-193	1:25000	S	W	D	D	W	N	M-G	
1987-00-00	87-089 83J	1:30000	-	N	-	-	DVI	N	N/A	
2007-00-00	01-200Tr83J	1:40000	-	N	-	-	DVI	N	N/A	
2013-04-20	Google Earth	-	S	N	-	-	W	N	M-G	
2018	Bing Maps	-	-	-	-	-	DV	N	M-G	
Number of Years Dry Over Photo Record:							4			
*	S=Spring (April to June); Sum =Mid-Late Summer (June to Sept; 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)									
****	Y= Reasonably Permanent (Sec 3 *public Lands Act* body of water), N=No (Not permanent, a wetland regulated under the *Water Act)*									
*****	M = Marsh, SS=Shrubby Swamp									

Appendix C: FWMIT Report

Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

Species Summary Report

Report Created: 1-Aug-2018 13:07

Species present within the current extent :

Fish Inventory	Wildlife Inventory	Stocked Inventory
No Species Found in Search Extent	GRIZZLY BEAR	No Species Found in Search Extent

Buffer Extent

Centroid (X,Y):	Projection	Centroid: (Qtr Sec Twp Rng Mer)	Radius or Dimensions
541109, 5996225	10-TM AEP Forest	NW 27 59 3 5	3 kilometers

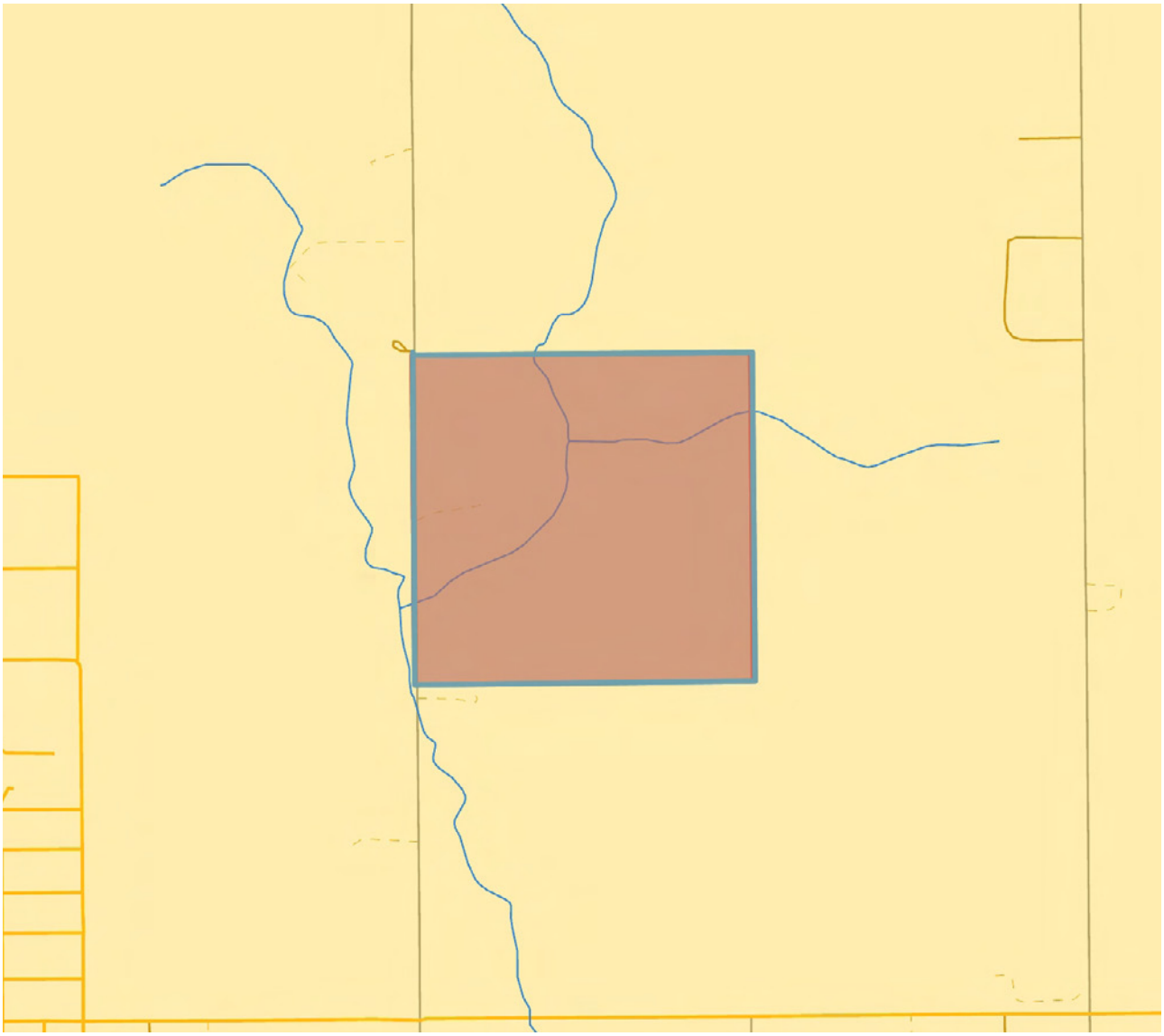
Contact Information

For contact information, please visit:

http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx

1-Aug-2018 13:07

Map Results



Appendix D: ACIMS Report

Search ACIMS Data

Date: 7/8/2018
Requestor: Consultant
Reason for Request: Environmental Assessment
SEC: 27 **TWP:** 059 **RGE:** 03 **MER:** 5

Alberta Parks

Non-sensitive EOs: 1 (*Data Updated:October 2017*)

M-RR-TTT-SS	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D
5-03-059-27	4449	NBMUS6F020	S1S2	Rhodobryum ontariense	Ontario Rhodobryum moss	1966-08-03

Next Steps: See FAQ

Sensitive EOs: 0 (*Data Updated:October 2017*)

M-RR-TTT	EO_ID	ECODE	S_RANK	SNAME	SCOMNAME	LAST_OBS_D

No Sensitive EOs Found: Next Steps - See FAQ

Protected Areas: 0 (*Data Updated:October 2017*)

M-RR-TTT-SS	PROTECTED AREA NAME	TYPE	IUCN

No Protected Areas Found

Crown Reservations/Notations: 0 (*Data Updated:October 2017*)

M-RR-TTT-SS	NAME	TYPE

No Crown Reservations/Notations Found

Appendix E: Landscape Analysis Tool Report

Landscape Analysis Tool (LAT) Report

LAT Number:	0000052658	**LAT Date:** 2018-08-02	11:11:29
Project Name:	Wetland Assessment		
Project Description:	Barrhead County - Wetland Assessment NW 27-59-03 W5M		
Disposition Type:	DLO	Licence of Occupation	
Purpose Type:	RMEM	Research, Monitoring and Education (M/NP)	
Activity Type:	RMEM01DLOP	Education / Research Activity	

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 infer 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 Barrhead No. 11
FMA	
FMU	WO2
Provincial Grazing Reserve	
Rocky Mountain Forest Reserve	
PLUZ Areas	

Provincial Sanctuaries

Wildlife Corridors	
Restricted Area	
Game Bird	Zone 4
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		Intersected
Burrowing Owl Range		Piping Plover Waterbodies	
Caribou Range		Sensitive Amphibians Ranges	
Colonial Nesting Birds		Sensitive Raptor Range	
Eastern Short-horned Lizard Range		Sensitive Snake Species Range	
Endangered and Threatened Plants Ranges		Sharp-tailed Grouse Leks and Buffer	
Greater Sage Grouse Range		Sharp-tailed Grouse Survey	
Greater Sage Grouse Leks and Buffer		Special Access Zone	
Grizzly Bear Zone		Swift Fox Range	
Key Wildlife and Biodiversity Areas		Trumpeter Swan Buffer	
Mountain Goat and Sheep Areas		Trumpeter Swan Waterbodies/Watercourse	
Ord’s Kangaroo Rat Range			
Other Sensitive and Endangered Species			

Federal Orders:

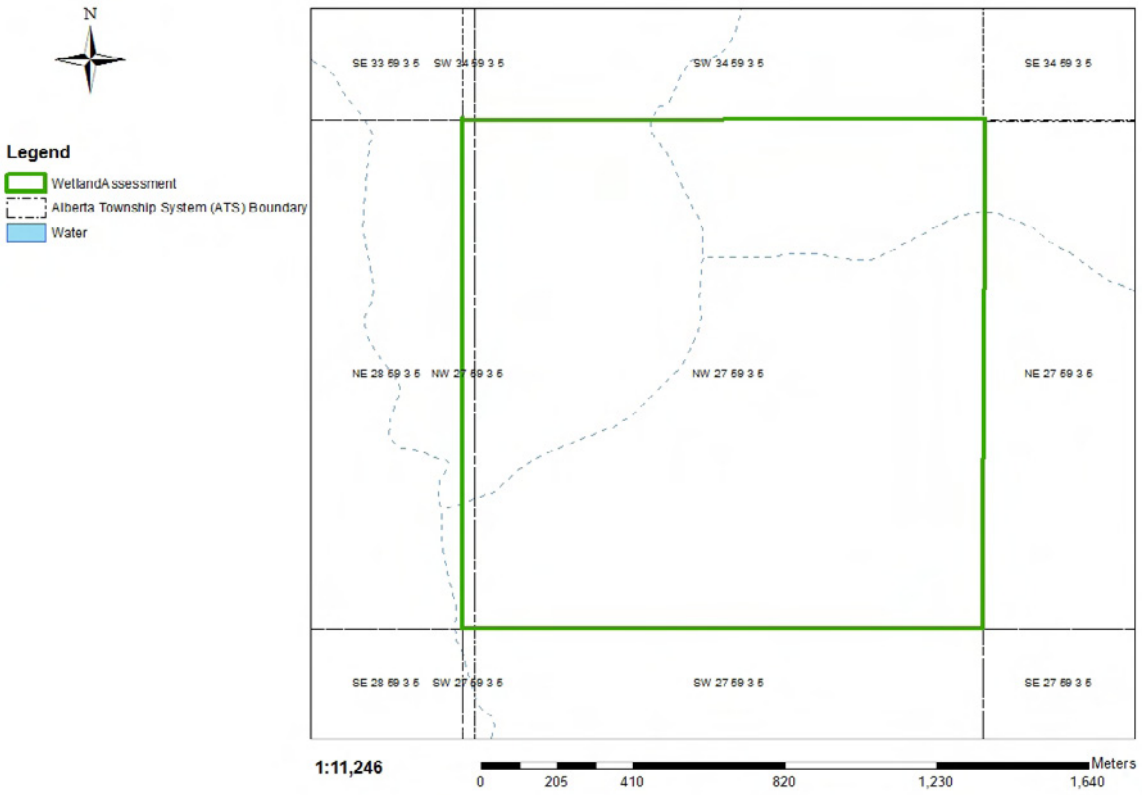
	Intersected
Greater Sage Grouse	

Grassland and Parkland Natural Region:

	Intersected
Grassland and Parkland Natural Region	

Alberta Township System (ATS) Land List

Quarter	Section	Township	Range	Meridian	Road Allow.	Sensitive Features Identified
SE	34	59	3	5		
SW	34	59	3	5	RW	
NE	27	59	3	5		
NW	27	59	3	5		
NE	28	59	3	5		
NW	27	59	3	5	RW	
SW	34	59	3	5		


N
Legend
WetlandAssessment
Alberta Township System (ATS) Boundary
Water
SE 33 69 3 5
SW 34 69 3 5
SW 34 69 3 5
SE 34 69 3 5
NE 28 69 3 5
NW 27 69 3 5
NW 27 69 3 5
NE 27 69 3 5
SE 28 69 3 5
SW 27 69 3 5
SW 27 69 3 5
SE 27 69 3 5
1:11,246
0
205
410
820
1,230
1,640
Meters

Land Management

Report ID	Approval	Condition
1	1011-AS	Incidental Activities as referenced on the associated supplement that fall within the sizing parameters, as defined within the PLAR Approvals and Authorizations Administrative Procedure's as amended, identified at the time of application are subject to the conditions of the associated disposition and shall be available for use for a term of four years from date of disposition approval.
2	1013-AS	Where an Integrated Resource Plan or a Reservation/Protective Notation identifies a greater set back, the greater set back shall prevail.
3	1014-AS	Additional applications for access will not be permitted if access under disposition already exists.
4	1015-AS	Where a Higher Level Plan exists, the direction provided within that plan shall be followed.
5	1017-AS	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 (i.e., Provincial settled lands), all construction activities shall be built and occur within lands developed as range improvement. Where no range improvement exists, activities shall occur within 100 metres of the perimeter (i.e., outside boundary), with the following exceptions: • pipeline construction activities
6	1023	The disposition holder shall repair or replace any identified improvements (e.g., fences, water control structures, and signage) that were damaged as a result of industry activities on the land to pre-existing condition within 30 days of entry or immediately if occupied by livestock.
7	1024	The disposition holder shall maintain all activities for proper drainage of surface water.
8	1026	For activities that occur on Canadian Forces Bases, the disposition holder shall coordinate all activities through Energy Industry Control at (780) 842-5850 for activity on Canadian Forces Base/Area Support Unit, Wainwright, and (780) 573-7206 for activity on Canadian Forces Base/Area Support Unit, Cold Lake.
9	1028	The disposition holder shall comply with all requirements and direction as defined within the Pre-Application Requirements for Formal Dispositions as amended.
10	1030	The disposition holder shall not cause surface disturbance in coulees or through river benchland areas-excluding access, pipelines and linear easements crossing the watercourse feature..
11	1032	In addition to complying with Federal, provincial and local laws and regulations respecting the environment, including release of substances, the disposition holder shall, to the regulatory body's satisfaction, take necessary precautions to prevent contamination of land, water bodies and the air with particulate and gaseous matter, which, in the opinion of the regulatory body in its sole discretion, is or may be harmful.

12	1033	The disposition holder shall remove all garbage and waste material from this site to the satisfaction of the regulatory body, in its sole discretion.
13	1037	Entry is not allowed within the boundaries of any research or sample plot.
14	1038	When planned activities cross designated or recreation trail(s) or when operations encroach on those trail(s), the disposition holder shall ensure that: • Lines crossing trail(s) are constructed in a manner that will not remove snow from the trail(s), produce ruts in the trail(s), or otherwise adversely affect travel. • No mechanical equipment is permitted to travel along the trail(s), unless approved in writing by an officer of the regulatory body. • Warning signs are posted along trail(s) during construction and reclamation activities advising trail users of the upcoming crossing location. • Any recording devices or equipment laid along the trail(s) are placed off of the travel portion so that the geophones do not interfere with travel.
15	1046	Where a Wildfire Prevention Plan and/or FireSmart Plan is required for review and approval by the Wildfire Management Branch, the disposition holder shall ensure any proposed clearing on public land has been agreed to by the regulatory body.

Vegetation

Report ID	Approval	Condition
16	1101	Manage all weeds as per the Weed Control Act.
17	1105	Chemical application for the purpose of vegetation control, shall occur in accordance with the Pesticide Regulation and Environmental Code of Practice for Pesticides.
18	1106	The disposition holder shall salvage all merchantable timber and haul to the location of end use unless a request for waiver is approved under the Forests Act.
19	1107	The disposition holder shall salvage timber according to the utilization standards for the overlapping timber disposition(s) (i.e., FMA, CTL, DTL) or, where no overlapping timber disposition exists, as per the approved forest management plan.
20	1108	The disposition holder must slash, limb and buck flat to the ground all woody debris and leaning trees created by the activity. The length of slashed woody debris shall not exceed 2.4 metres.
21	1109	On forested lands, the disposition holder shall dispose of excess coarse woody debris remaining after rollback or stockpiling for interim/final reclamation.
22	1110	The disposition holder shall dispose of coarse woody debris within FireSmart Community Zones by burning unless a Debris Management Plan has been approved under the Forest and Prairie Protection Act.
23	1112	The disposition holder shall not allow timber storage piles or windrows to encroach into standing timber.

Soil

Report ID	Approval	Condition
24	1130-AS	Permafrost degradation is not permitted. Onsite permafrost depth must be maintained to the same depth as offsite control.
25	1131-AS	In permafrost areas, surface stripping shall not occur.
26	1133	The Disposition holder shall suspend all activities during adverse ground conditions.
27	1134	The disposition holder shall prevent and control erosion (surface and subsurface) and sedimentation on all disturbed lands.
28	1135	The disposition holder must install and maintain erosion control measures (e.g., silt fences, matting, gravel, and check dams).
29	1136	The disposition holder shall not remove soil from the disposition unless authorized. This includes all soil horizons and all soil types (e.g. leaf litter, organic soils such as muskeg, and clay fill material are all included).
30	1137	The Disposition holder must not bury topsoil.
31	1138	Where soil disturbance occurs from site construction or linear trenching of a minimum of 12 inches or greater, the disposition holder must salvage all topsoil if present (topsoil includes the leaf litter layer (LFH) and the A horizon) as follows; • Where two-lift stripping occurs, topsoil and part or all of the upper subsoil (B horizon) must be stripped and stored separately. • Where topsoil is less than 15 centimetres, conservation shall include the topsoil plus part of the upper subsoil (B horizon) up to a total depth of 15 centimetres (unless the B horizon is considered chemically unsuitable as outlined in the May 2001 Salt Contamination Assessment Guidelines, as amended).
32	1139	The disposition holder shall store reclamation materials separately (topsoil, subsoil,) on the disposition, such that it can be distributed evenly over the disturbed area for progressive (interim) and/or final reclamation. LFH and coarse woody debris are suitable for storage with topsoil. Reclamation materials must not be buried.
33	1140	Wood chips shall not be mixed with forest floor and/or surface soil. It cannot be spread to a depth greater than 5 cm as defined in the directive ID 2009-01 Management of Wood Chips on Public Land.
34	1141	Storage piles/windrows of reclamation material shall not encroach into standing timber.
35	1142	Soil sterilants are prohibited.
36	1144	In permafrost areas, the disposition holder shall utilize snow (natural or man-made) to establish a level surface.

Watercourse / Waterbody

Report ID	Approval	Condition
37	1171-AS	The disposition holder shall not interrupt natural drainage (including ephemeral and fens), block water flow or alter the water table.
38	1173-AS	The disposition holder shall construct activities outside the appropriate watercourse setbacks , except for vehicle or pipeline crossings: a) Intermittent watercourses and springs shall have a setback of at least 45 metres from the top of the break. b) Small Permanent watercourses shall have a setback of at least 45 metres from the top of the break. c) Large Permanent watercourses shall have a setback of at least 100 metres from the top of the break.
39	1174-AS	The disposition holder shall maintain the following waterbody setbacks from the disposition edge for all site activities, or paralleling linear dispositions, or pipeline bore site: a) A minimum setback of 45 metres of undisturbed vegetation shall be maintained from non-permanent seasonal wetlands. b) A minimum setback of 100 metres from the bed and shore of semi-permanent and permanent ponds/wetlands, shallow open water ponds and lakes.
40	1179	The disposition holder shall not deposit or place debris, soil or other deleterious materials into or through any watercourse and/or waterbody, or on the ice of any watercourse and/or waterbody.
41	1184	Access (off-disposition) for water withdrawal requires an Approval or Authorization from the regulatory body.
42	1186	Where surface disturbance will occur and a risk of surface erosion exists, the disposition holder shall install and maintain sediment control structures to dissipate the flow of water and capture sediment prior to it entering a watercourse or waterbody.
43	1194	The disposition holder shall not remove or use water from dugouts, surface ponds, springs, or water wells within the grazing disposition unless an approval is issued from the Environment and Parks (GoA) agrologist.
44	1196	All licences, authorizations and approvals issued under the Alberta Environmental Protection and Enhancement Act, Water Act or Public Lands Act should not be taken to mean the proponent (applicant) has complied with federal legislation. Proponents should contact Habitat Management, Fisheries and Oceans in relation to the application of federal laws relating to the Fisheries Act (Canada). Fisheries Protection Program, Fisheries and Oceans Canada 867 Lakeshore Road, Burlington, Ontario, L7R 4A6 Telephone: 1-855-852-8320 Email: Fisheriesprotection@dfo-mpo.gc.ca Web address: www.dfo-mpo.gc.ca Proponents should also contact the Navigation Protection Program, Canadian Coast Guard, 4253-97 Street, Edmonton, Alberta, T6E 5Y7, phone: (780) 495-4220, relating to the Navigation Protection Act.

Reclamation

Report ID	Approval	Condition
45	1202	The disposition holder shall utilize natural recovery, on all native landscapes (forested, wetlands, riparian, and peatlands) for all areas of the site, not required for operations or padded with clay. Natural recovery is to be implemented within 1 growing season of completions (post-drill) or for sites that are not drilled within 1 growing season of construction. Assisted natural recovery is allowed on high erosion sites, sites prone to weeds, agronomic invasion, or padded sites (forested and peatland). a) During assisted natural recovery when reseeding with herbaceous seed native to the Natural Subregion or agronomic annuals and seed mixes as approved by the regulatory body, shall be free of the species listed in the Weed Control Act. A seed certificate (under the rules and regulation of the Canada Seeds Act) for each species shall be provided to the regulatory body upon request. b) Assisted natural recovery can be used for planting woody species for the purpose of accelerated reclamation. The woody species must be native to the Natural Subregion and follow the Alberta Forest Genetic Resource Management and Conservation Standards as amended.
46	1203	The disposition holder shall when seeding pasture or cultivated lands, use agronomic or forage seed that meets or exceeds Certified #1 as outlined in the Canada Seeds Act and Seeds Regulations. Seed mixes are to be free of species listed in the Weed Control Act. A seed certificate (under the rules and regulation of the Canada Seeds Act) for each species shall be provided to the regulatory body upon request.
47	1204	Revegetation with trees or shrubs within the Green Area shall be consistent with the Alberta Forest Genetic Resource Management and Conservation Standards document.
48	1206	Coarse woody debris that is stored for final reclamation for greater than 12 months must be mixed with the top soil (LFH/Ae).
49	1207	Slash and rollback accumulations are not permitted within 5 meters of the perimeter of the disposition boundary greater than what is already occurring on the surrounding undisturbed forest floor.
50	1210	Upon cancellation and abandonment, the disposition holder shall contour the disturbed land to an acceptable land form using chemically suitable overburden and/or subsoil. The disposition holder shall replace topsoil and restore the natural drainage by removing any culverts and fills.
51	1211	Upon abandonment or as directed by the regulatory body, the disposition holder shall reclaim the disposition to the pre-disturbance land use (forested, grassland, cultivated, mineral wetland and peatlands) unless a change in land use is approved in writing by the regulatory body.

Wildlife

Report ID	Approval	Condition
52	1280	The disposition holder is required to conduct a wildlife sweep of the immediate area (site plus 100 metres) prior to entry and construction to identify wildlife features. All observations must be reported to the regional AEP Wildlife Biologist, the issuing regulatory body, and entered into the Fisheries and Wildlife Management Information System (FWMIS).
53	1281-AS	Where the presence of an important wildlife feature including; mineral licks, raptor nests, active den sites, and hibernacula, is known or identified through a Wildlife Sweep, the disposition holder shall leave a buffer zone of a minimum width of 100m undisturbed vegetation, where an established buffer does not already exist (e.g. Species at Risk). If species are identified during the wildlife sweep, the disposition holder must produce the Wildlife Sweep to the regulatory body for review before continuing with the approved activity. Results from Wildlife Sweeps must be provided to the regulatory body upon request.
54	1286	All licences, authorizations and approvals issued under the Alberta Environmental Protection and Enhancement Act, Water Act or Public Lands Act should not be taken to mean the proponent (applicant) has complied with federal legislation. Proponents should contact Environment Canada, Canadian Wildlife Service in relation to the application of federal laws relating to the Migratory Birds Convention Act (protection of eggs and nests) and the Species at Risk Act. Environmental Stewardship Branch | Prairie & Northern Region Environment Canada Eastgate Offices, 9250 – 49th Street Edmonton, Alberta T6B 1K5 Telephone: 1-780-951-8600 Email: Enviroinfo@ec.gc.ca Web address: http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=AB36A082-1 Web address: http://www.sararegistry.gc.ca/