South Aspelund
Wetland Assessment

1598768 Alberta Ltd.

Prepared by:
Stantec Consulting Ltd.
200, 325-25th Street S.E.
Calgary, AB T2A 7H8

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1 EXECUTIVE SUMMARY

A Wetland Assessment and a Wildlife Habitat Assessment were conducted on September 10 and Sept 17, 2012 (respectively) by Stantec Consulting Ltd for the proposed development of South Aspelund lands. The subject lands consist of approximately 53 ha of cultivated agricultural cropland and pastureland located west of Highway 2 and the Town of Blackfalds, Alberta. The site is located within the Highway 2 West Area Structure Plan (ASP).

The ASP was initiated in response to the continuing and increasing demand for commercial and light industrial development on the lands lying west of Highway 2, within the County of Lacombe. This was reinforced by the identification of these lands for commercial and industrial development in the County of Lacombe's Municipal Development Plan (MDP), the Economic Development Corridor Study and the Joint Economic Agreement Areas with the Town of Blackfalds and the City of Lacombe.

The area was identified for development due to its highway exposure and ease of access via the Highway 597/Aspelund Road and Highway 12 interchanges with Highway 2. Some development in the area has already proceeded under the guidance of the Highway 2 Corridor Economic Development Study which identified nodes of development at the above-mentioned interchanges along Highway 2. Anticipated development within the proposed commercial/light industrial business district will include businesses such as light manufacturing and processing, warehousing, contractor businesses, and heavy equipment sales, rental, and service.

A total of five wetlands were identified and assessed within the site. Wetlands include one (1) Class II Temporary Pond, three (3) Class III Seasonal Ponds, and one (1) Class IV Semi-permanent Pond. All wetlands within the site have been disturbed by varying degrees of cultivation and/or the presence of cattle within pasturelands. Wildlife habitat types available on site were rated as having nil, low, medium or high suitability for wildlife with an emphasis on species of management concern. Most of the subject lands are dominated by agricultural lands, which offer low suitability habitat for wildlife. Wetlands provide moderate and high suitability habitat, based on their degree of disturbance, vegetation cover, water levels, etc. Incidental wildlife observations were also recorded during the site visit.

The purpose of this Assessment is to provide an inventory, evaluation, and classification of wetlands and wildlife habitat within the proposed development lands. Wetland soil characteristics, surface hydrology, vegetation species and densities, as well as wildlife observations, usage and habitat suitability are included in the assessment.

2 BACKGROUND

2.1 Site Description and History

The subject lands are located within the County of Lacombe, directly west of the Town of Blackfalds. The site is located within the Highway 2 West Area Structure Plan which designates the area for future commercial and light industrial development. Lands within the site include cultivated cropland, pastureland and wetlands. The total study area consists of approximately 53 ha within the following lands;

NW ¼ Sec 21-39-27-W4M

The site location is illustrated on **Figure 1.0.** Subject property boundaries are located on **Figure 2.0.**

2.2 Investigative Methods

Information within this report is based on review of current and historical land use, soil surveys, historical aerial photos, provincial databases and field reconnaissance visits to the subject lands.

Vegetation plot data was recorded onto Assessment Plot Data Sheets located in **Appendix A.** Assessment plot locations are illustrated on **Figure 3.0**. Historical air photos are located in **Appendix B**.

A literature review was conducted to determine the conservation status, distribution and habitat associations of wildlife species of concern potentially found on the subject lands. A search of Alberta Environment and Sustainable Resource Development (AESRD) Fish and Wildlife Management Information System (FWMIS) was conducted to determine historical records of species of management concern within 5km of the proposed bridge crossing.

A review of ranges for species of management concern was conducted to determine a list of potential species of management concern that may be found in the study area.

An on-site assessment of wetlands within the subject lands was conducted by Stantec Consulting Ltd. on September 10, 2012 and a wildlife habitat assessment was conducted on Sept 17, 2012.

Soils and vegetation data was collected from assessment plots located within each wetland within the site. Incidental wildlife observations were also noted during the assessment.

A reconnaissance level field wildlife habitat assessment was conducted to assess the suitability of habitats within the subject lands for wildlife, with a focus on species of management concern (i.e. migratory birds, tree nesting raptors and species at risk). Habitats were ranked as nil, low, medium and high suitability based on overall value for key indicator species.

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SOUTH ASPELUND

WETLAND ASSESSMENT

Figure No.

1.0

Title

SITE LOCATION

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LEGEND:

SITE BOUNDARY

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SOUTH ASPELUND
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Figure No.

2.0

Title

SITE BOUNDARY

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3 STUDY AREA OVERVIEW AND INVENTORY

3.1 Natural Environment

The subject lands are located within the Central Parkland Natural Subregion, which is the most extensive Subregion of the Parkland Natural Region. It includes all or parts of Alberta's three largest cities, and arches north from Calgary through Edmonton and east to the Alberta-Saskatchewan border. Typical landscapes within this Subregion include undulating till plains and hummocky uplands. Temperature, precipitation and growing season characteristics within the Central Parkland Natural Subregion are intermediate between the dry, warm grasslands to the south and the cooler, moister boreal forests to the west and north.

Current information suggests that only about 5 percent of the Central Parkland Natural Subregion remains in native vegetation. The area has been intensively cultivated for over a century and the few remaining contiguous areas of parkland vegetation occur on sites that are unsuitable for agriculture because of topography or soil constraints. Plains rough fescue is the dominant grassland vegetation, with clumps of aspen present but restricted to moist areas. In the northern and western portions, aspen forest is dominant and grasslands are restricted to drier areas. Black Chernozems usually occur under grasslands, and Dark Gray Chernozems and Luvisols usually occur under aspen forests.

Wetlands cover about 10 percent of the Central Parkland Natural Subregion and are more common than in the Northern Fescue Natural Subregion because of the somewhat cooler and moister climate (Natural Regions Committee, 2006).

3.2 Soils and Terrain

Orthic Black Chernozems are typically associated with grasslands and open woodlands in the Central Parkland Natural Subregion and Orthic Dark Gray Chernozemic and Dark Gray Luvisolic soils with the forested areas. Humic and Orthic Gleysols are the most common soil types associated with wetlands (Natural Regions Committee, 2006).

Topography of the subject lands consist of undulating high relief till plains and hummocky low relief uplands. Upland areas within the subject lands have been utilized for the production of cereal crops. Wetlands occupy low-lying locations within the site. Soils within the proposed development site are Orthic Black Chernozem sediments deposited by wind and water. The area also has poorly drained and Solonetzic soils.

Table 1.0: Soil Characteristics Identified on the Site

Location	Substrate	Horizon	Color	Texture	Depth (cm)	Comments
Wetland 1	Topsoil	A	10YR2/1	Loam to organic layer	0-5 to 0-29+	Saturated, black organic layer
	Subsoil	B	Gley 4/10Y	Sand/silt mixed	5-29	
Wetland 2	Topsoil	A	10YR2/1	Silty clay loam	0-29	Saturated, small cobble
	Subsoil	No distinct b horizon observed				
Wetland 3	Topsoil	A	10YR2/1 and Gley1 4/5GY	Loam	0-29	Pockets of sand
	Subsoil	No distinct b horizon observed				
Wetland 4	Topsoil	A	10YR2/1	Clay loam	0-25	
	Subsoil	B	10YR5/2	Clay	25+	
Wetland 5	Topsoil	A	10YR2/1	Clay loam	0-29+	
	Subsoil	No distinct b horizon observed				

3.3 Geology and Geomorphology

The Central Parkland Region lies mainly within the Eastern Alberta Plains. Non-marine Upper Cretaceous sandstone and mudstone formations underlie the eastern portion of the Subregion while Tertiary sandstones and mudstones underlie the western portion. The dominant landform is undulating glacial till plains, with about thirty percent hummocky, rolling and undulating uplands (Natural Regions Committee, 2006).

Surficial material consists primarily of moderately fine textured, moderately calcareous glacial till. These till deposits can be quite thin in areas with steep slopes, and occasionally will have bedrock exposed. Glaciolacustrine and glaciofluvial sediments occur as inclusions within the till plain covering approximately fifteen percent of the Subregion (Natural Regions Committee, 2006).

The subject lands are mapped over the Buried Red Deer River Valley which is present in the central part of the County, and extends northeast from the County border through the towns of Blackfalds and Lacombe to

the northern County border. The valley is approximately 9 kilometers wide, with local bedrock relief being less than 80 meters deep. Sand and gravel deposits can be expected in association with this bedrock low, but the thickness of the sand and gravel deposits is expected to be mainly less than 15 meters (Hydrogeological Consultants, 2001).

3.4 Hydrology

Wetlands cover approximately ten percent of the Central Parkland Subregion. Marshes, willow shrublands and seasonal ponds are typical wetland types in southern areas, while treed fens are more common in the northern areas of the Subregion. Major watercourses include the Red Deer, Battle and North Saskatchewan Rivers (Natural Regions Committee, 2006).

The hydrogeologic environment can be a prominent factor in soil formation and land use. Water ponded at the surface or rising from below can result in the formation of Gleysolic soils. Solonetzic soils may form where groundwater has brought high concentrations of soluble salts to the surface (MacMillan, 1987).

3.4.1 Surface Water

Surface water within the subject lands drains toward low-lying basins (wetlands) within the site. Historical aerial photos (1991) indicate that an overland drainage once connected Wetlands 4 and 5 within the cultivated portion of the subject lands. This drainage extended to the western boundary of the site and may have continued westward. After years of repeated cultivation, this drainage is barely visible on aerial photos and was not visible during the on-site assessment. No other creeks, streams or overland drainages were observed within the site.

Five wetlands were identified and assessed onsite. Natural overland drainage has been altered by the cultivation of low-lying areas in the northern portion of the site. Wetlands include one (1) Class II Temporary Pond, three (3) Class III Seasonal Ponds and one (1) Class IV Semi-permanent Pond. Wetlands are described in further detail under **Section 3.7, Wetland Complexes.**

3.4.2 Groundwater

The subject lands are mapped on local soil surveys within a groundwater recharge area. Recharge to the bedrock aquifers within Lacombe County takes place from the overlying surficial deposits and from flow in the aquifer from outside the County. For most of the County, there is a downward hydraulic gradient from the surficial deposits to the bedrock, i.e. recharge to the bedrock aquifers (Hydrogeological Consultants, 2001).

One Class IV Semi-permanent Pond has been identified within the subject lands. Class IV and above wetlands within the subject lands are expected to contribute to groundwater recharge.

3.5 Natural Vegetation

The Central Parkland Subregion includes a southern grassland-dominated portion and a northern aspen-dominated portion, reflecting climate-related changes within the Subregion. The naturally occurring grasses and grass-like plants in the Central Parkland Natural Subregion are plains rough fescue (*Festuca hallii*), blue grama grass (*Bouteloua gracilis*), western porcupine grass (*Stipa curtiseta*) and June grass (*Koeleria macrantha*). Naturally occurring shrubs include beaked hazelnut (*Corylus cornuta)*, bunchberry (*Cornus canadensis),* and snowberry (*Symphoricarpos albus*). Trees that are naturally occurring include trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*) and white spruce (*Picea glauca*), (Natural Regions Committee, 2006).

3.6 Vegetation Communities

Vegetation communities include cultivated agricultural cropland, disturbed pasturelands, and wetlands. Agricultural croplands were being cultivated at the time of assessment and pasturelands were occupied by cattle. All wetlands have been affected by agricultural activities within the subject lands. Vegetation species identified within wetland communities are listed in **Table 2.0.** Plot locations are illustrated on **Figure 3.0.**

Table 2.0: Vegetation Identified on Site

Native Grasses and Grass-like Species
Agropyron smithii
Beckmannia syzigachne
Calamagrostis inexpansa
Carex aquatilis
Carex spp.
Carex viridula
Glyceria grandis
Juncus balticus
Scirpus sp.
Eleocharis acicularis
Phalaris arundinacea
Typha latifolia
Non-native Grasses and Grass-like Species
Phleum pratense
Poa pratensis
Native Forbs
Bidens cernua
Epilobium sp.
Lemna minor
Moss sp.
Polygonum lapathifolium
Potentilla anserina
Rumex crispus
Weed Species
Amaranthus graecizans
Capsella bursa-pastoris
Cirsium arvense
Sonchus arvensis
Urtica dioica
Native Trees and Shrubs
Populus balsamifera
Populus tremuloides
Salix bebbiana

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LEGEND:

SITE BOUNDARY

WETLAND OUTLINE

1 PLOT LOCATION

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Figure No.

3.0

Title

PLOT LOCATIONS

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3.7 Rare Plants and Rare Plant Communities

Rare plants are indigenous plants existing either in small quantities or in very specific habitats. Rare plant communities are defined as unusual, uncommon, of limited extent or encountered infrequently, or described by vegetation experts as in decline or threatened (Allen, 2006). A rare plant community may or may not include individual plant species of conservation concern. It is the grouping, or community itself, which is the element of interest. Surveys help to identify the presence of rare plants and rare plant communities both locally and worldwide. The identification of these plants and their ecological communities' aid in both planning and determining mitigation measures necessary for their protection.

A search of the subject lands on the Alberta Conservation Information Management System (ACIMS) indicated that two non-sensitive environmental occurrences have been previously documented at the Township level. Documented occurrences include *Muhlenbergia racemosa,* (1943) and *Caloptery x. acquabilis,* (1982). No rare plants or rare plant communities were identified during the site assessment.

3.8 Weeds

Weeds are aggressive and invasive plant species categorized by the Alberta Agriculture, Food and Rural Development into three distinct classes: Prohibited Noxious, Noxious, and Nuisance. Weeds are pioneer species to disturbed areas and are generally competitive and adaptive. They are difficult to manage and therefore cause economic damage to affected lands. Legislation is in place to keep weed introduction and spread in Alberta to a minimum.

Prohibited Noxious weeds are not as commonly occurring in regions of Alberta. Often, low populations are present at a specific location. They are designated 'Prohibited Noxious' to prevent their establishment. Where found, destruction of Prohibited Noxious weeds is required. Noxious weeds are already established in many regions of the province. Control of Noxious weeds is required where they are identified as problematic. Nuisance weeds are common and well adapted to Alberta, making eradication improbable (Alberta Agriculture, Food and Rural Development, 2006).

No Prohibited Noxious weeds were found within the subject lands. Noxious and other weeds present on site are identified in **Table 3.0**.

Table 3.0 – Noxious and Other Weed Species Identified During Assessment

Noxious Weed Species
Cirsium arvense *Sonchus arvensis*
Other Weed Species found on site
Amaranthus graecizans *Capsella bursa-pastoris* *Urtica dioica*

3.9 Wetland Complexes

There are seven major classes of wetlands found in natural basins of the Prairie Pothole Region. Classification of wetlands is based on ecological differentiation and distinguished by the vegetation zone occurring in the central or deepest part of the wetland and occupying five percent or more of the wetland area being classified. Various indicator species are associated with each wetland zone (Stewart and Kantrud, 1971).

Vegetation communities are subject to seasonal changes in precipitation as well as disturbances resulting from agricultural and other anthropogenic activities. The wetland conditions resulting from these circumstances are described as phases. Occasionally, the presence or lack of vegetation may be affected by the wetland phase. Wetland phases are affected by changes in precipitation throughout the season and by agricultural practices (Stewart and Kantrud, 1971).

Wetlands within the subject lands were in the Natural Drawdown Emergent Phase at the time of assessment. In some cases perimeter areas of the wetland had been cultivated (Wetlands 3, 4, and 5) and cattle had accessed wetlands in pasture areas (Wetlands 1 and 2) causing disturbance. However, native wetland vegetation communities remain within the wetland basins.

Five wetlands within the subject lands were assessed and inventoried by Stantec Consulting Ltd on September 10, 2012. Wetlands include one (1) Class II Temporary Pond, three (3) Class III Seasonal Ponds, and one (1) Class IV Semi-permanent Pond. Historical air photos, hydrology, existing vegetation communities and densities, soil surveys, and existing soil characteristics were evaluated during the assessment and classification of the wetlands.

All wetlands within the proposed area of development have been influenced by surrounding cultivation and/or by cattle having access to the wetlands. Wetland locations, areas and classifications are illustrated on **Figure 4.0**.

Wetland 1		**Class IV Semi-permanent Pond (1.52 ha)**
Wetland zones observed:	Shallow Marsh Deep Marsh	**Wetland hydrology:** Standing water, Open water

Vegetation species observed:

Native			**Non-native**
Agropyron smithii	*Epilobium sp.*	*Populus tremuloides*	*Cirsium arvense*
Beckmannia syzigachne	*Juncus balticus*	*Potentilla anserina*	*Phleum pratense*
Bidens cernua	*Glyceria grandis*	*Salix bebbiana*	*Poa pratensis*
Carex aquatilis	*Lemna minor*	*Typha latifolia*	*Sonchus arvensis*
	Phalaris arundinacea		
	Populus balsamifera		

Photo 1: West view of Wetland 1

Photo 2: Open water in Wetland 1

Photo 3: Deadfall around Wetland 1

Photo 4: Cattle disturbance at edge of Wetland 1

Photo 5: Ducks observed in Wetland 1

Photo 6: *Populus balsamifera* in Wetland 1

Wetland 1 Details:

Wetland 1 is a Class IV Semi-permanent Pond located within active cattle pasture. The wetland is surrounded by mature stands of *Populus balsamifera* and *Populus tremuloides.* There is abundant deadwood in the understory surrounding the wetland and disturbance resulting from cattle in the wetland is apparent around the wetland perimeter. Areas of standing and open water were present within the wetland at the time of assessment.

The central deep marsh zone is vegetated with mature *Salix bebbiana, Typha latifolia* and *Lemna minor,* which covers the water surface in the photos above. *Glyceria grandis, Beckmannia syzigachne, Agropyron smithii,* and *Phalaris arundinacea* are among the dominant grasses in the understory surrounding the wetland. *Bidens cernua* and *Cirsium arvense* are present in transitional areas. Lands bordering the north edge of the wetland are cultivated and fenced. Cattle access is limited to the south, east, and west edges of the wetland.

Soils within the wetland range from a Black organic layer overlying mixed silt and sand to deep Black loam with no B horizon observed. Soils were saturated in plot locations and gleying was observed in one plot location.

One falcon (species unconfirmed) was observed flying over the west side of the wetland and numerous ducks were observed on the open water.

Wetland 2		**Class III Seasonal Pond (0.39 ha)**
Wetland zones observed:	Wet Meadow Shallow Marsh	**Wetland hydrology:** Standing water
Vegetation species observed:		
Native *Beckmannia syzigachne* *Bidens cernua* *Carex aquatilis* *Epilobium sp.* *Juncus balticus* *Glyceria grandis* *Typha latifolia*		**Non-native** *None observed*
 Photo 7: Standing water in Wetland 2		 Photo 8: East view of Wetland 2

Wetland 2 Details:

Wetland 2 is a disturbed Class III Seasonal Pond located within cattle pasture. The wetland is accessed by cattle and farm equipment/machinery is stored in the area. Areas of standing water were present within the wetland at the time of assessment.

The central shallow marsh zone is vegetated with *Glyceria grandis, Beckmannia syzigachne,* and *Carex sp. Bidens cernua* is abundant in transitional areas surrounding the wetland.

Soils within the wetland are Black silty clay loam with no B horizon observed. Soils were saturated at the time of assessment.

No wildlife was observed within the wetland at the time of assessment.

Wetland 3		**Class II Temporary Pond (0.09 ha)**
Wetland zones observed:	Wet Meadow	**Wetland hydrology:** Standing water
Vegetation species observed:		
Native *Calamagrostis inexpansa* *Lemna minor*		**Non-native** *None observed*

Photo 9: Standing water within Wetland 3

Photo 10: Disturbed vegetation in Wetland 3

Wetland 3 Details:

Wetland 3 is a disturbed Class II Temporary Pond located within cattle pasture. The wetland is accessed by cattle. Standing water was present within the wetland at the time of assessment.

The central shallow marsh zone is vegetated with *Calamagrostis inexpansa. Lemna minor* was observed on the water surface and has likely spread from the larger Wetland 1, nearby. Transitional areas are heavily disturbed by cattle.

Soils within the wetland are Black loam with pockets of sand and no B horizon observed. Soils were saturated at the time of assessment. Gleying was observed in soil samples.

Several shorebirds were observed in the wetland at the time of assessment.

Wetland 4		**Class III Seasonal Pond (0.48 ha)**
Wetland zones observed:	Shallow Marsh	**Wetland hydrology:** No standing water
Vegetation species observed:		
Native *Beckmannia syzigachne* *Carex viridula* *Eleocharis acicularis* *Juncus balticus* *Polygonum lapathifolium* *Rumex crispus* *Typha latifolia*		**Non-native** *Amaranthus graecizans*
 Photo 11: Cultivation around Wetland 4		 Photo 12: Vegetation in Wetland 4

Wetland 4 Details:

Wetland 4 is a disturbed Class III Seasonal Pond located within a cultivated agricultural field. The wetland perimeter has been cultivated but the basin remains. No standing water was present within the wetland at the time of assessment.

Vegetation within the central shallow marsh zone is dominated with *Carex viridula* and *Beckmannia syzigachne.*

Soils within the wetland are Black clay loam overlying Brownish-Grey clay. Soils were moderately moist at the time of assessment

No wildlife was observed in the wetland at the time of assessment.

Wetland 5		**Class III Seasonal Pond (0.77 ha)**
Wetland zones observed:	Shallow Marsh	**Wetland hydrology:** No standing water
Vegetation species observed:		
Native *Beckmannia syzigachne* *Carex viridula* *Elymus canadensis* *Polygonum lapathifolium* *Rumex crispus*		**Non-native** *Capsella bursa-pastoris*
 Photo 13: Overview of Wetland 5		 Photo 14*:* Perimeter of Wetland 5

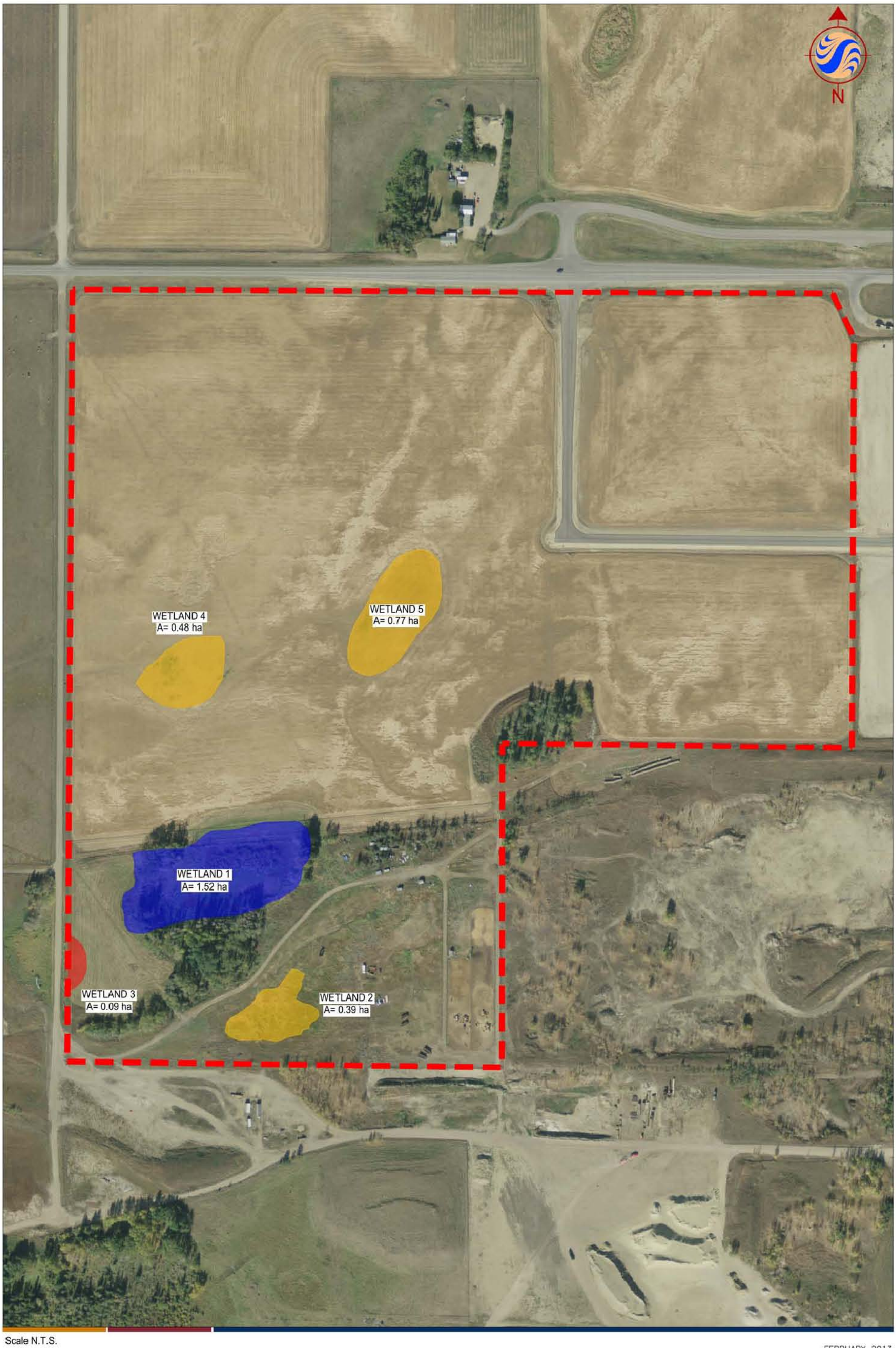
Wetland 5 Details:

Wetland 5 is a disturbed Class III Seasonal Pond located within a cultivated agricultural field. The wetland perimeter has been cultivated. Standing water was present within the basin at the time of assessment.

Vegetation within the central shallow marsh zone is dominated with *Carex viridula. Agropyron smithii* and *Polygonum lapathifolium* dominate the sparsely vegetated wet-meadow perimeter zone

Soils within the wetland are Black clay loam with no distinct B horizon. Soils were moderately moist at the time of assessment.

No wildlife was observed in the wetland at the time of assessment.



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LEGEND:

- SITE BOUNDARY
- CLASS III TEMPORARY POND
- CLASS III SEASONAL POND
- CLASS IV SEMI-PERMANENT POND

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Figure No.
4.0

Title
WETLANDS

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3.10 Wildlife and Wildlife Habitat

3.10.1 Wildlife Species of Management Concern

A search of the AESRD FWMIS database (Government of Alberta 2012a) yielded records of two species of management concern within 5 km of the subject lands (Figure 5.0). Canadian toad (*Anaxyrus hemiophrys*) is listed as “May be at Risk” provincially and “Not at Risk” federally while the purple martin (*Progne subis*) is listed as “Sensitive” provincially. A list of species of management concern (provincially or federally listed species at risk) potentially found in the area was compiled (Table 4.0).

Table 4.0 - Wildlife Species of Management Concern Potentially Found in the Study Area

Species Name	Scientific Name	AESRD Status 2010	COSEWIC
Northern Leopard Frog	*Lithobates pipiens*	At Risk	Special Concern
Canadian Toad	*Anaxyrus hemiophrys*	May Be At Risk	Not at Risk
Peregrine Falcon	*Falco peregrinus*	At Risk	Special Concern
Olive-sided Flycatcher	*Contopus cooperi*	May Be At Risk	Threatened
Short-eared Owl	*Asio flammeus*	May Be At Risk	Special Concern
American Bittern	*Botaurus lentiginosus*	Sensitive	-
American Green-winged Teal	*Anas crecca*	Sensitive	-
American Kestrel	*Falco sparverius*	Sensitive	-
American White Pelican	*Pelecanus erythrorhynchos*	Sensitive	Not at Risk
Bald Eagle	*Haliaeetus leucocephalus*	Sensitive	Not at Risk
Baltimore Oriole	*Icterus galbula*	Sensitive	-
Black Tern	*Chlidonias niger*	Sensitive	Not at Risk
Black-backed Woodpecker	*Picoides arcticus*	Sensitive	-
Bobolink	*Dolichonyx oryzivorus*	Sensitive	Threatened
Brewer's Sparrow	*Spizella breweri*	Sensitive	-
Broad-winged Hawk	*Buteo platypterus*	Sensitive	-
Brown Creeper	*Certhia americana*	Sensitive	-
Canada Warbler	*Wilsonia canadensis*	Sensitive	Threatened
Cape May Warbler	*Dendroica tigrina*	Sensitive	-
Common Nighthawk	*Chordeiles minor*	Sensitive	Threatened
Common Yellowthroat	*Geothlypis trichas*	Sensitive	-
Eastern Phoebe	*Sayornis phoebe*	Sensitive	-
Forster's Tern	*Sterna forsteri*	Sensitive	-
Golden Eagle	*Aquila chrysaetos*	Sensitive	Not at Risk
Great Blue Heron	*Ardea herodias*	Sensitive	-
Horned Grebe	*Podiceps auritus*	Sensitive	Special Concern
Least Flycatcher	*Empidonax minimus*	Sensitive	-

Species Name	Scientific Name	AESRD Status 2010	COSEWIC
Lesser Scaup	*Aythya affinis*	Sensitive	-
Loggerhead Shrike	*Lanius ludovicianus*	Sensitive	Threatened
Long-billed Curlew	*Numenius americanus*	Sensitive	Special Concern
Northern Goshawk	*Accipiter gentilis*	Sensitive	Not at Risk
Northern Harrier	*Circus cyaneus*	Sensitive	Not at Risk
Northern Pintail	*Anas acuta*	Sensitive	-
Osprey	*Pandion haliaetus*	Sensitive	-
Pied-billed Grebe*	*Podilymbus podiceps*	Sensitive	-
Pileated Woodpecker	*Dryocopus pileatus*	Sensitive	-
Prairie Falcon	*Falco mexicanus*	Sensitive	Not at Risk
Purple Martin	*Progne subis*	Sensitive	-
Rusty Blackbird	*Euphagus carolinus*	Sensitive	Special Concern
Sandhill Crane	*Grus canadensis*	Sensitive	-
Sharp-tailed Grouse	*Tympanuchus phasianellus*	Sensitive	-
Sora	*Porzana carolina*	Sensitive	-
Sprague's Pipit	*Anthus spragueii*	Sensitive	Threatened
Swainson's Hawk	*Buteo swainsoni*	Sensitive	-
Upland Sandpiper	*Bartramia longicauda*	Sensitive	-
Western Wood-pewee	*Contopus sordidulus*	Sensitive	-
White-winged Scoter	*Melanitta fusca*	Sensitive	-
Long-tailed Weasel	*Mustela frenata*	May Be At Risk	Not at Risk
American Badger	*Taxidea taxus*	Sensitive	Not at Risk
Silver-haired Bat	*Lasionycteris noctivagans*	Sensitive	-
Red-sided Garter Snake	*Thamnophis sirtalis*	Sensitive	-

* observed during site visit; - not assessed

3.10.2 Wildlife Habitat

The majority of the property consists of crop fields with little vegetation or litter cover. Active agricultural fields generally provide little cover for nesting birds and low forage value for wildlife. This habitat was ranked as low suitability for wildlife (see **Figure 5.0**). Two adult killdeer (*Charadrius vociferous*) and seven black-billed magpies (*Pica hudsonia*) were observed flying through this habitat. Moose tracks were also observed in the cultivated area between Wetlands 3 and 4.

Much of the southern portion of the property is composed of tame pasture, some of which is actively grazed. The area is dominated by gramminoid species, tall shrub (*Artemisia sp*.) and weedy vegetation (primarily *Cirsium arvense*). This vegetation may provide some cover for generalist ground nesting birds and possibly forage for raptors but is overall of low suitability to wildlife (see **Figure 5.0**).

Mature balsam poplar stands exist in the southern portion of the subject lands; which provide moderate suitability wildlife habitat and potential nesting habitat for raptors and cavity nesters (see **Figure 5.0**). No stick nests were observed but tree cavities were present in many of the snags within the subject lands. A female downy woodpecker (*Picoides pubescens*) and a red-breasted nuthatch (*Sitta canadensis*) were both observed in the trees surrounding Wetland 1. Both of these species are tree cavity nesters.

Wetland areas were surveyed on the site. All wetlands on site could provide seasonal or permanent breeding habitat for amphibians. Six mallards (*Anas platyrhynchos*) and a pair of pied-billed grebes (*Podilymbus podiceps*) were observed in Wetland 1. This wetland provides high suitability waterbird nesting habitat as there is a variety of shoreline cover types (shrub, grass, coarse woody debris) and sufficient surface area to provide cover (see **Figure 5.0**). The mature balsam poplar trees surrounding the wetland may provide some nesting opportunities (although the area is actively grazed). Deer tracks were incidentally observed in Wetland 4 and Canada goose feathers and scat were observed on the edge of Wetland 2.

Table 5.0 - Prairie/Parkland Sensitive Species Recommended Restricted Activity Dates and Setback Distances[1]

Species	Location	Time of Year	Level of Disturbance		
			High	Moderate	Low
Northern Leopard Frog	Breeding ponds	Year round	100 m	100 m	100 m
Sharp-tailed Grouse	Leks	March 15th – June 15th	500 m	500 m	500 m
		June 16th – March 14th	100 m	100 m	500 m
Peregrine Falcon, Bald Eagle, Golden Eagle, Prairie Falcon, Ferruginous Hawk	Nesting sites	March 15th – July 15th	1000 m	1000 m	1000 m
		July 16th – March 14th	50 m	100 m	1000 m
Colonial Nesting Birds: American White Pelican, Great Blue Heron*	Nesting sites	April 1st – August 31st	1000 m	1000 m	1000 m
		September 1st – March 31st	100 m	100 m	1000 m
Long-billed Curlew, Upland Sandpiper, Mountain Plover, Short-eared Owl, Sprague's Pipit	Active nest and surrounding habitat	April 1st - July 15th	100 m	100 m	100 m

[1] Taken from Government of Alberta 2012b

Scale N.T.S.

LEGEND:

- SITE BOUNDARY
- LOW SUITABILITY
- MODERATE SUITABILITY
- HIGH SUITABILITY

FEBRUARY 2013

Client/Project
1598768 ALBERTA LTD.
SOUTH ASPELUND
WETLAND ASSESSMENT

Figure No.
5.0

Title
WILDLIFE HABITAT SUITABILITY

Stantec

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2/6/2013 2:09 PM By: dlougheed

4 LEGISLATION AND REGULATIONS

The following legislation may be applicable to development within the subject lands.

4.1 Canada Wildlife Act

The *Canada Wildlife Act*, as administered by the Federal Minister of the Environment, establishes statutes regarding wildlife within Canada, all Provinces, and the Territories located therein. The Act defines the powers, duties and functions of the Minister with respect to all wildlife that is wild by nature and the habitat of any such animal, plant, or organism, including any waters on or flowing through the lands.

The *Canada Wildlife Act* governs the management and protection of endangered wildlife and habitat. The Act stipulates that the Minister may take such measures as deemed necessary for the protection of any species of wildlife in danger of extinction, including the acquisition of lands for the purpose of research, conservation, and interpretation. Any wildlife or habitat categorized as endangered within the development area would be subject to the *Canada Wildlife Act.*

4.2 Alberta Wildlife Act

The Alberta *Wildlife Act* is administered by the provincial Minister of Environment and Sustainable Resource Development. The act provides for the establishment of an Endangered Species Conservation Committee which functions to advise the minister (through the establishment of scientific subcommittees) on the status of endangered species and to develop recovery plans for endangered species.

The act prohibits the disturbance or destruction of the house, nest or den of certain wildlife species.

4.3 Species at Risk Act

The *Species at Risk Act,* is administered by the Federal Minister of the Environment, the Minister of Fisheries and Oceans, and the Minister of Canadian Heritage.

The Act legislates protection for threatened species and any identified critical habitats through agreements and permits, enforcement measures, and a public registry. Stewardship action plans and recovery strategies are also outlined within the Act.

Also detailed within the *Species at Risk Act* is a wildlife species listing process. Assessment and classification of wildlife species and habitats is conducted by the *Committee on the Status of Endangered Wildlife in Canada* (COSEWIC), in conjunction with the Canadian Endangered Species Conservation Council. The Act dictates measures to manage and protect listed wildlife species and critical habitats that may exist within the proposed development site.

4.4 Migratory Birds Convention Act

The *Migratory Birds Convention Act*, as administered by the Federal Minister of the Environment, designates that all migratory birds within Canada, including territorial waters of Canada, are protected by the authority of the Minister. Regulations pertaining to the capture, kill, commercial trade, and disturbance of nesting sites are also included within the Act. Endangered, threatened, or rare bird species are also addressed under the *Canada Wildlife Act* and the *Species at Risk Act.*

4.5 Public Lands Act

The *Public Lands Act*, as administered by the Provincial Minister of the Environment, claims title to beds and shores of all permanent and naturally occurring bodies of water and all naturally occurring rivers, streams, watercourses and lakes. The province reserves the right to claim any waterbodies Class III and above. Under the Act, works affecting public land must be granted approval by the Minister.

4.6 Water Act

The *Water Act,* as administered by Government of Alberta, identifies all water bodies within the Province of Alberta as Crown Property and defines regulations pertaining to rights, restrictions, and resource management in relation to all water resources within provincial boundaries. The Act also addresses the disposition, diversion, or alteration of any water body within Alberta, which may or may not impact water flows, wetlands, and the aquatic environment. Any activities or alterations to the land, either temporary or permanent, including stream diversions which influence or interfere with water quantity and quality within the Province of Alberta require statutory authorization.

Any impacts to wetlands that are shared with adjacent lands will require adjacent landowner consent. The introduction of stormwater to any wetlands within the site will require *Water Act* approval.

5 POLICIES AND PLANS

5.1 Provincial Wetland Restoration / Compensation Guide

Alberta Environment's *Provincial Wetland Restoration / Compensation Guide* outlines applications under the *Water Act* will be reviewed when loss of wetland area will occur. The Guide also explains wetland compensation. Compensation for the loss of naturally occurring wetlands is required when an approval to impact a wetland is issued under the *Water Act*. Wetland compensation under the guidelines requires the restoration of drained or altered naturally occurring wetlands by a qualified wetland restoration agency.

Under the Guide, wetland loss is deferred as including infilling, altering, or physically draining any wetland, any impact to riparian area and buffer strips, and any type of interference with the hydrology to and from a wetland.

6 CONCLUSION

This Assessment details wetlands and wildlife habitat within the proposed South Aspelund lands as assessed on September 10 (wetland) and September 17 (wildlife habitat), 2012.

A total of five wetlands were identified and assessed within the 53 ha site. Wetlands include one (1) Class II Temporary Pond, three (3) Class III Seasonal Ponds and one (1) Class IV Semi-permanent Pond. All wetlands within the site have been disturbed by varying degrees of cultivation and/or the presence of cattle within pasturelands.

Given the potential for breeding bird activities in the area it is recommended that any tree removal or habitat disturbance take place outside of the general breeding bird activity period of March 15th to August 31st (Environment Canada 2012). Disruption of high or moderate quality habitat should be avoided if possible. AESRD has developed recommendations for restricted activity dates and setback distances for various species and habitat features that may be relevant to the subject lands (Government of Alberta 2012b; see **Table 5.0**).

The purpose of this Assessment is to provide an inventory, evaluation, and classification of wetlands and wildlife habitat within the proposed subject lands. Wetland soil characteristics, surface hydrology, vegetation species and densities, as well as wildlife observations, usage and habitat have been addressed.

Any assessments that are required to any areas other than the area mentioned within this report will require a separate field assessment.

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APPENDIX A

Plot Data Sheets

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 1 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 1 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:	Cattle in wetland	
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ☒	Standing Water ❑	No Surface Water ❑	
Wetland Phase:	Normal Emergent: ❑		Open Water: ❑	Drawdown Bare-soil: ❑	
	Normal Draw-down Emergent: ☒		Cropland Drawdown: ❑		Cropland Tillage: ❑

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	A	0-29	**Loam**	fine granular	10YR2/1		
	B						

Organic Matter Content :	Low: ❑	Moderate: ❑	High: ☒	Cobble: ❑	
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ❑	Saturated: ☒
Soil Conditions:	Gleyed: ❑	Anaerobic: ☒	Cultivated: ❑	Depth to Saturation (cm):	

Primary Wetland Hydrological Indicators:	Inundated ☒	Sediment deposits ❑	Salt crust ❑	Invert. shells ❑	True aquatics ❑
	Saturated upper 30cm ☒	Algal mat or crust ❑	Inundated on aerials ☒	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ❑	Thin organic (muck) surface layer ❑		
	Surace soil cracks ❑	Drainage patterns ☒	Frost heave hummocks ❑		

Vegetation: % Vascular Cover: 100% | % Non-vascular Cover: | % Litter Cover: | % Unvegetated Area: | % Water:

Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:

Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:
Lemna minor	100				

Trees/ Shrubs:	Canopy Cover%:	Trees/ Shrubs:		Trees/ Shrubs:	Canopy Cover%:
Populus balsamifera	50				

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ❑	Class III Seasonal Pond ❑
	Class IV Semi-permanent Pond ☒	Class V Permanent Pond ❑	Class VI Alkali Pond ❑

Wildlife Observations: 1 hawk in area, several ducks in the wetland

General Observations: *Cirsium arvense, P. balsamifera, P. tremuloides, Epilobium sp., Potentilla anserina, Typha latifolia, Urtica dioica, Agropyron smithii, Poa pratensis, Sonchus arvense, Bidens cernua, Salix bebbianna*

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 1 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 2 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:	cattle in wetland	
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ☒	Standing Water ❑	No Surface Water ❑	
Wetland Phase:	Normal Emergent: ❑		Open Water: ❑	Drawdown Bare-soil: ❑	
	Normal Draw-down Emergent: ☒		Cropland Drawdown: ❑		Cropland Tillage: ❑

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	Ah	0-5	**organic**		10YR2/1		
	B	5-29	**sand/silt (mixed)**	granular	Gley 4 10Y		

Organic Matter Content :	Low: ❑	Moderate: ❑	High: ❑	Cobble: ❑		
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ❑	Saturated: ❑	
Soil Conditions:	Gleyed: ❑	Anaerobic: ❑	Cultivated: ❑	Depth to Saturation (cm):		

Primary Wetland Hydrological Indicators:	Inundated ❑	Sediment deposits ❑	Salt crust ❑	Invert. shells ❑	True aquatics ❑
	Saturated upper 30cm ❑	Algal mat or crust ❑	Inundated on aerials ❑	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ❑	Thin organic (muck) surface layer ❑		
	Surace soil cracks ❑	Drainage patterns ❑	Frost heave hummocks ❑		

Vegetation: % Vascular Cover:	% Non-vascular Cover:	% Litter Cover:	% Unvegetated Area:	% Water:

Grasses:	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**
Glyceria grandis	45				
Beckmannia syzigachne	20				
Phalaris arundinacea	15				
Forbs:	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**
Moss	25				
Lemna minor	10				
Trees/ Shrubs:	**Canopy Cover%:**	**Trees/ Shrubs:**		**Trees/ Shrubs:**	**Canopy Cover%:**

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ❑	Class III Seasonal Pond ❑
	Class IV Semi-permanent Pond ☒	Class V Permanent Pond ❑	Class VI Alkali Pond ❑

Wildlife Observations: 1 falcon observed in the area

General Observations: *Phleum pratense, Carex sp., Typha latifolia nearby*

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 2 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 3 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:	Cattle in the area	
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ❑	Standing Water ☒	No Surface Water ❑	
Wetland Phase:	Normal Emergent: ❑		Open Water: ❑	Drawdown Bare-soil: ❑	
	Normal Draw-down Emergent: ☒		Cropland Drawdown: ❑		Cropland Tillage: ❑

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	A	0-29	**silty clay loam**	fine granular	10YR2/1		
	B						

Organic Matter Content :	Low: ❑	Moderate: ☒	High: ❑	Cobble: ☒	
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ❑	Saturated: ☒
Soil Conditions:	Gleyed: ❑	Anaerobic: ❑	Cultivated: ❑	Depth to Saturation (cm):	surface

Primary Wetland Hydrological Indicators:	Inundated ❑	Sediment deposits ❑	Salt crust ❑	Invert. shells ❑	True aquatics ❑
	Saturated upper 30cm ☒	Algal mat or crust ❑	Inundated on aerials ❑	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ❑	Thin organic (muck) surface layer ❑		
	Surace soil cracks ❑	Drainage patterns ☒	Frost heave hummocks ❑		

Vegetation: % Vascular Cover: 95	% Non-vascular Cover:	% Litter Cover:	% Unvegetated Area:	% Water: 5

Grasses:	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**
Glyceria grandis	50				
Carex aquatilis	60				

Forbs:	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**
Bidens cernua	20				
Epilobium sp.	5				

Trees/ Shrubs:	**Canopy Cover%:**	**Trees/ Shrubs:**		**Trees/ Shrubs:**	**Canopy Cover%:**

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ❑	Class III Seasonal Pond ☒
	Class IV Semi-permanent Pond ❑	Class V Permanent Pond ❑	Class VI Alkali Pond ❑

Wildlife Observations:

General Observations:

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 3 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 4 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:		
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ❑	Standing Water ☒	No Surface Water ❑	
Wetland Phase:	Normal Emergent: ❑		Open Water: ❑	Drawdown Bare-soil: ❑	
	Normal Draw-down Emergent: ☒		Cropland Drawdown: ❑		Cropland Tillage: ❑

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	A	0-29	**loam**	granular	10YR2/1		
	B				Gley 4/5 GY		

Organic Matter Content :	Low: ❑	Moderate: ❑	High: ☒	Cobble: ❑	Pockets of sand
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ☒	Saturated: ❑
Soil Conditions:	Gleyed: ❑	Anaerobic: ❑	Cultivated: ❑	Depth to Saturation (cm):	

Primary Wetland Hydrological Indicators:	Inundated ❑	Sediment deposits ❑	Salt crust ❑	Invert. shells ❑	True aquatics ❑
	Saturated upper 30cm ❑	Algal mat or crust ❑	Inundated on aerials ❑	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ☒	Thin organic (muck) surface layer ❑		
	Surace soil cracks ❑	Drainage patterns ❑	Frost heave hummocks ❑		

Vegetation: % Vascular Cover: 30 | % Non-vascular Cover: | % Litter Cover: 20 | % Unvegetated Area: | % Water: 50

Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:
Calamagrostis inexpansa	15				

Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:
Lemna minor	20				

Trees/ Shrubs:	Canopy Cover%:	Trees/ Shrubs:		Trees/ Shrubs:	Canopy Cover%:

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ☒	Class III Seasonal Pond ❑
	Class IV Semi-permanent Pond ❑	Class V Permanent Pond ❑	Class VI Alkali Pond ❑

Wildlife Observations:

General Observations: shorebirds in the area

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 4 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 5 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:		
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ❑	Standing Water ❑	No Surface Water ☒	
Wetland Phase:	Normal Emergent: ❑	Open Water: ❑	Drawdown Bare-soil: ❑		
	Normal Draw-down Emergent: ☒	Cropland Drawdown: ❑	Cropland Tillage: ❑		

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	A	0-25	**Clay loam**	granular	10YR2/1		
	B	25+	**Clay**		10Yr5/2		

Organic Matter Content :	Low: ❑	Moderate: ☒	High: ❑	Cobble: ❑	
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ☒	Saturated: ❑
Soil Conditions:	Gleyed: ❑	Anaerobic: ❑	Cultivated: ❑	Depth to Saturation (cm):	

Primary Wetland Hydrological Indicators:	Inundated ❑	Sediment deposits ❑	Salt crust ❑	Invert. shells ☒	True aquatics ❑
	Saturated upper 30cm ❑	Algal mat or crust ☒	Inundated on aerials ❑	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ❑	Thin organic (muck) surface layer ❑		
	Surace soil cracks ☒	Drainage patterns ☒	Frost heave hummocks ❑		

Vegetation: % Vascular Cover: 50 | % Non-vascular Cover: 20 | % Litter Cover: | % Unvegetated Area: 30 | % Water:

Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:	Grasses:	Canopy Cover%:
Beckmannia syzigachne	20				
Carex viridula	50				

Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:	Forbs:	Canopy Cover%:
Moss	5	*Polygonum lapathifolium*	25		
Amaranthus graecizans	15				
Rumex crispus	3				

Trees/ Shrubs:	Canopy Cover%:	Trees/ Shrubs:		Trees/ Shrubs:	Canopy Cover%:

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ❑	Class III Seasonal Pond ☒
	Class IV Semi-permanent Pond ❑	Class V Permanent Pond ❑	Class VI Alkali Pond ❑

Wildlife Observations:

General Observations: *Juncus balticus, Typha latifolia, a few scattered Scirpus, Eleocharis acicularis*

Wetland and Riparian Pre-Post-Disturbance Assessment: Plot Data Collection Form

Client: 1598768 Alberta Ltd. **Project/Area:** South Aspelund

Assessment Area: Wetland 5 **Assessor:** C.Kelly/ R. Witty **Date:** 10-Sep-12 **Photo:**

Plot Number: 6 **UTM:**

Plot Location:	Wetland ☒	Riparian ❑	Drainage ❑		
Plot is within the following wetland zone:	Low Prairie ❑	Wet Meadow ❑	Shallow Marsh ☒	Deep Marsh ❑	Open Water ❑ Alkali: □
Landscape Condition:	Disturbed ☒	Undisturbed ❑	Comments:		
Plot Drainage:	Off ❑	Temporary Ponding ☒	Permanent Ponding ❑		
Plot Topography:	Aspect:	Position on Slope:	Concave ❑	Convex ❑	Level ☒
Wetland Hydrology (Deepest portion of the wetland):		Open Water ❑	Standing Water ☒	No Surface Water ❑	
Wetland Phase:	Normal Emergent: ❑		Open Water: ❑	Drawdown Bare-soil: ❑	
	Normal Draw-down Emergent: ☒		Cropland Drawdown: ❑		Cropland Tillage: ❑

Soils:	Horizon	Depth (cm)	Texture	Structure	Color	Redox Color	Redox %
	A	0-29	**Clay loam**	granular	10YR2/1		
	B						

Organic Matter Content :	Low: ❑	Moderate: ☒	High: ❑	Cobble: ❑		
Soil Moisture:	Dry: ❑	Low: ❑	Moderate: ❑	High: ☒	Saturated: ❑	
Soil Conditions:	Gleyed: ❑	Anaerobic: ❑	Cultivated: ❑	Depth to Saturation (cm):		

Primary Wetland Hydrological Indicators:	Inundated ☒	Sediment deposits ❑	Salt crust ❑	Invert. shells ❑	True aquatics ❑
	Saturated upper 30cm ❑	Algal mat or crust ☒	Inundated on aerials ❑	Iron deposits ❑	Sparsley vegetated concave ❑
Secondary Wetland Hydrological Indicators:	Oxidized root channels ❑	Local soil survey data ❑	Thin organic (muck) surface layer ❑		
	Surace soil cracks ❑	Drainage patterns ☒	Frost heave hummocks ❑		

Vegetation: % Vascular Cover: 95	% Non-vascular Cover:	% Litter Cover:	% Unvegetated Area: 5	% Water:

Grasses:	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**	**Grasses:**	**Canopy Cover%:**
Agropyron smithii	10				

Forbs:	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**	**Forbs:**	**Canopy Cover%:**
Polygonum lapathifolium	90				
Capsella bursa-pastoris	5				

Trees/ Shrubs:	**Canopy Cover%:**	**Trees/ Shrubs:**		**Trees/ Shrubs:**	**Canopy Cover%:**

Preliminary Wetland Classification:	Class I Ephemeral Pond ❑	Class II Temporary Pond ❑	Class III Seasonal Pond ☒	
	Class IV Semi-permanent Pond ❑	Class V Permanent Pond ❑	Class VI Alkali Pond ❑	

Wildlife Observations:

General Observations: *Carex viridula in the basin*

APPENDIX B

Historical Air Photos

Scale N.T.S.

FEBRUARY 2013

Client/Project

1598768 ALBERTA LTD.

SOUTH ASPELUND
WETLAND ASSESSMENT

Figure No.

APPENDIX B

Title

1969 HISTORICAL AERIAL

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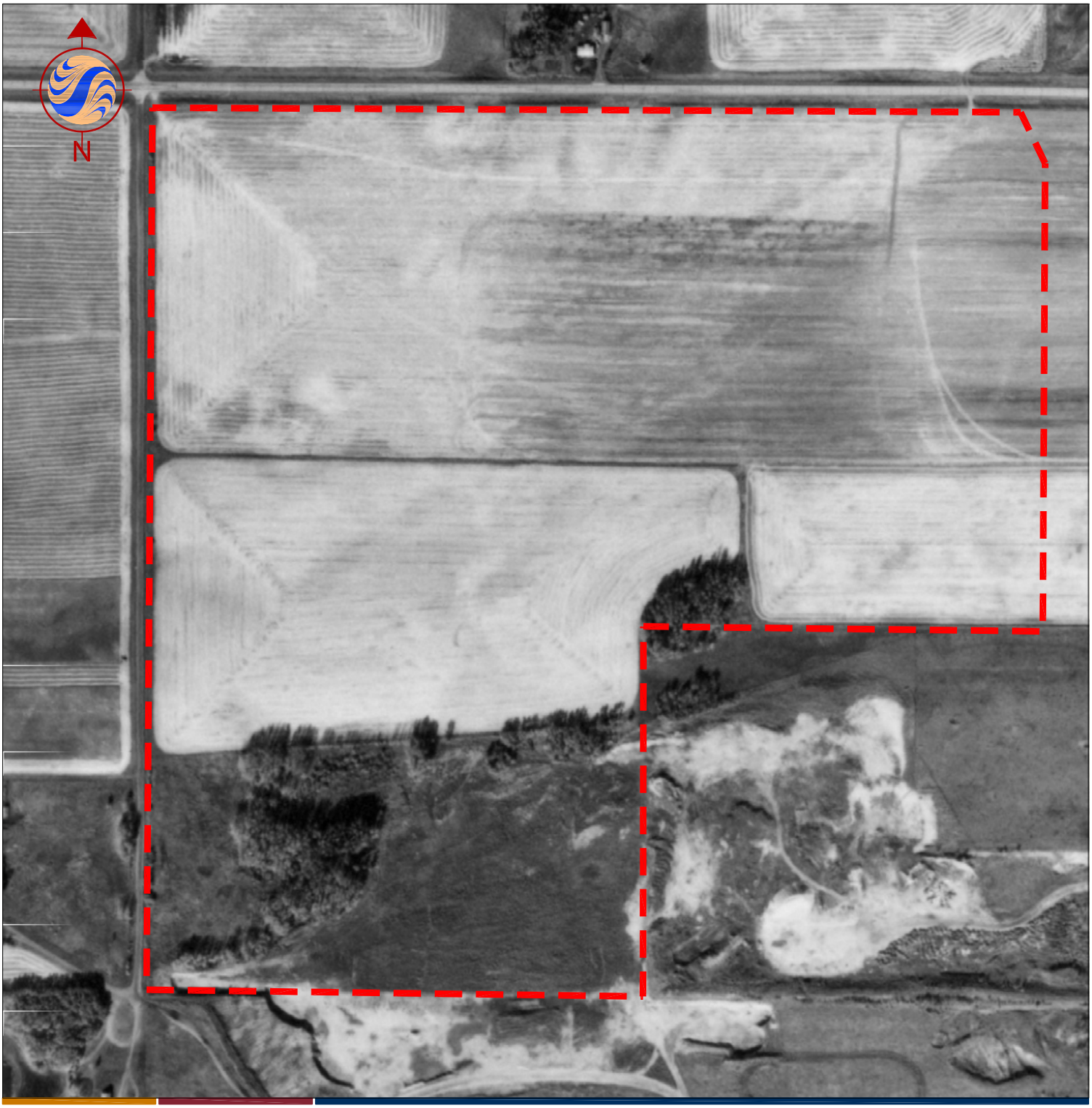

Scale N.T.S.

FEBRUARY 2013

Client/Project

1598768 ALBERTA LTD.

SOUTH ASPELUND
WETLAND ASSESSMENT

Figure No.

APPENDIX B

Title

1982 HISTORICAL AERIAL

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SOUTH ASPELUND
WETLAND ASSESSMENT

Figure No.

APPENDIX B

Title

1991 HISTORICAL AERIAL

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