

---

File S2372

# **Innovative Agriproducts Inc. Discretionary Use Application Form**

Parcel G, NW-4-36-4-W3

R.M. of Corman Park No. 344, SK



**Clifton**



---

**17 September 2019**

Attention: Dr. A. Ruben J. Rajakumar  
Company: Innovative Agriproducts Inc.  
Address: 514 Braeside View  
Saskatoon, SK S7V 1A6

arr426@mail.usask.ca

---

**Solar Farm Discretionary Use Application  
R.M. of Corman Park, SK**

**File S2372**

Clifton Engineering Group Inc. is pleased to present to you our report regarding the above subject.

We thank you for the opportunity to work with you on this project. If you have any questions, please contact me.

Yours truly,

**Clifton**

A handwritten signature in blue ink that reads 'Lindsay Larre'.

Lindsay Larre BAsC  
Environmental Scientist

/lytm

---

# Table of Contents

---

<b>1.0 Introduction</b>	<b>1</b>
<b>2.0 Proposed Development</b>	<b>1</b>
2.1 Solar Farm System	1
2.2 Permits and Approvals	1
2.3 Operational Details	1
<b>3.0 Regional Characteristics</b>	<b>3</b>
3.1 Topography	3
3.2 Geological Setting	3
3.3 Surrounding Land-use	3
3.4 Infrastructure and Utilities	3
3.5 Surface Hydrology and Drainage	4
<b>4.0 Environmental and Heritage</b>	<b>6</b>
4.1 Desktop Assessment	6
4.2 Heritage Study	6
4.3 Decommissioning and Maintenance Plans	6
<b>5.0 Traffic Impact Assessment</b>	<b>7</b>
<b>6.0 Closure</b>	<b>7</b>

---

## Appendices

- Appendix A: Application Form
- Appendix B: Specification Sheet
- Appendix C: Utility Maps
- Appendix D: Groundwater Well Reports
- Appendix E: Rare and Endangered Species Report

---

## 1.0 Introduction

Clifton Engineering Group Inc. (CEG) has been retained by Dr. A. Reuben Rajakumar of Innovative Agriproducts Inc. (IAI) to prepare a Discretionary Use Application required by the R.M. of Corman Park No. 344 (RM) for the approval to construct a solar farm (Project). The proposed Project is located on Parcel G of the NW-4-36-4-W3 off of Haight Road, southeast of Saskatoon, SK (Figure 1 and Figure 2).

The R.M. Discretionary Use Application Form for this Project is included in Appendix A.

---

## 2.0 Proposed Development

---

### 2.1 Solar Farm System

IAI is seeking approval from the R.M. to construct a 1MW solar farm as part of SaskPower's Power Generation Partner Program (PGPP). The Site is located within the Agricultural Residential (AR1) zoning district of the RM. The footprint within Parcel G for the proposed Project is approximately 99 m x 498 m (Figure 2).

It is estimated the Project will produce approximately 1,200,000 kWh of clean renewable electricity per year. The electricity will be sold to SaskPower through the PGPP.

The proposed Project will consist of five or six ground mounted structures that are approximately 12 feet in height. The five structures will run in rows in an east-west direction at the Site (as shown in Figure 3) and each row will produce approximately 240 kW of energy. A specification sheet for an example of the type of structure (Fixed Tilt FlexRack Series G3-X) to be constructed at the Site is included in Appendix B.

---

### 2.2 Permits and Approvals

All structures and equipment associated with the Project will adhere to the National Building Code and the Uniform Building and Accessibility Standards Act. Photovoltaic systems will also adhere to the Electrical Code. IAI will acquire all necessary permits prior to construction of the solar farm.

Approval from SaskPower will be obtained prior to operations of the Project. IAI will provide the R.M. with a copy of the approval.

---

### 2.3 Operational Details

Construction of a solar farm typically includes site clearing (which will not be required as the Site is currently vacant agricultural land), materials delivery and construction and installation of panels, frames,

modules and other electrical equipment. A certified company will be utilized for construction and installation of the solar farm.

### **Security**

The Site will be enclosed within a locked fence and inaccessible to the general public. Signage will be posted at the gate access and will include emergency contact information. Any other signage posted will abide by the sign regulations in the R.M. Bylaw (Schedule B, Section 5.0).

### **Setbacks**

The solar farm will not be within 300 m of a residential dwelling and 750 m of a multi-lot country residential subdivision. Figure 4 illustrates the zoning set-back requirements.

### **Waste Management**

Any waste generated at the Site during construction activities will be stored in dumpsters and disposed of at appropriate waste management/recycling facilities. Once the Site is operational, it is not anticipated that waste will be generated on a day-to-day basis.

### **Employees**

It is not anticipated that employees will be required at the Site on a permanent basis. Maintenance of the solar farm and landscaping/weed control will be fulfilled by qualified persons on an as-needed basis.

### **Wastewater Management**

Sewage or wastewater facilities are not anticipated to be required for the Project.

### **Noise, Odors and Dust**

Noise associated with the Project are minimal and likely to happen during the construction phase due to equipment. Noise concerns with the actual solar farm will be very localized to anything in close proximity to the inverters. It is not expected that mitigations will have to be implemented for noise control.

Odor and dust associated with the Project are expected to be minimal, and only likely to occur during the construction phase of the Project. Upon completion of the installation of the solar farm, the Site will be graveled to reduce dust and for erosion control. It is not expected that any further mitigations will have to be implemented for dust or odor control.

### **Solar Panel Reflection**

One of the most common concerns with solar farms is related to the reflection caused by the solar panels. The solar panels used for the Project will be 'anti-glare' panels which are designed to absorb as much light as possible and reflect as little light as possible.

---

## 3.0 Regional Characteristics

---

### 3.1 Topography

According to Natural Resources Canada Toporama, elevation at the Site is approximately 513 meters above sea level (masl).

### 3.2 Geological Setting

The Water Security Agency NTS Mapsheet 73B (cross-section F-F', borehole 43758) was utilized for stratigraphic cross-section information in the area.

Surficial geology in the area consists of glaciolacustrine deposits. The postglacial sediments consist of stratified alluvium and haultain deposits which are made up of silt, clay, sands and gravels.

Bedrock geology consists from the top down of the Bearpaw Formation (marine silts and clays), Judith River Formation (clays, silts and sands), and the Lea Park Formation (sands, silts and clays).

### 3.3 Surrounding Land-use

The surrounding land use is primarily agricultural. Haight Road is located on the western edge of the ¼ section of the Project.

Two acreage/farm residences are located on the NW-4-36-4-W3, and an additional two residences are located across Haight Road on the NE-5-36-4-W3. There is an R.M. storage lot/facility located immediately west of the proposed location of the Site.

### 3.4 Infrastructure and Utilities

#### Roadways

Haight Road runs parallel to the western edge of the NW-4-36-4-W3.

It is proposed that a road will be constructed to access the Site off east off of Haight Road onto Parcel G. A sketch of the proposed road access is shown in Figure 5. The Site will also have sufficient parking for any vehicles associated with the operations of the Project.

#### Utilities

There is an overhead SaskPower line that runs parallel north of the Site, which is the line that the Project would tie into the grid from. Underground SaskTel, SaskPower and SaskEnergy lines are present throughout the ¼ section. Utility maps were provided by Shermco Industries and are included in Appendix C. Solid lines on the utility maps represent overhead lines and dashed lines represent underground lines.

### Groundwater Wells

According to the Water Security Agency (WSA) water well database, five groundwater wells are located within a 5 km radius of the Site. Four of the wells are listed as domestic withdrawal wells and one has an unknown water use listed. The lithology on the driller's logs reported stratified clay and till deposits to approximately 50 meters below ground surface (mbgs), followed by shale and sandstone deposits. The Water Well Driller's Reports are included in Appendix D.

---

### 3.5 Surface Hydrology and Drainage

There is a large surface waterbody located at the Site (on both Parcel D and Parcel G). There is also a drainage course that runs northeast of the Project area, which appears to drain into the waterbody on Site. Surficial water bodies near the site can be seen in Photograph 3.5 below.

Following construction activities, the Site will be graded to represent the surrounding landscape with surficial drainage graded towards the surface water body immediately south of the Project.

It is not anticipated that alterations to drainage, landscape, or other natural conditions are required for construction of the Project. Should drainage alterations be required, applicable permits from Water Security Agency and other agencies will be acquired before work is completed.



Photo 3.5 – Surface water bodies near the site (HABISask, Government of Saskatchewan)

---

## 4.0 Environmental and Heritage

---

### 4.1 Desktop Assessment

A rare and endangered species desktop review was done for the NW-4-36-4-3. Tree species were identified in the ¼ section, including Northern Blue-eyed Grass, Loggerhead Shrike, and Bobolink. It is not expected that the Project will have any negative effects on the identified species. Details on the species are included in the Rare and Endangered Species Report is in Appendix E.

### 4.2 Heritage Study

The Heritage Conservation Branch online screening tool was utilized for heritage sensitivity in the Project area. The following ¼ sections surrounding the Project area were researched:

- NW 4-36-4-W3 is not heritage sensitive;
- NE 4-36-4-W3 is not heritage sensitive;
- SW 4-36-4-W3 is not heritage sensitive;
- SE 4-36-4-W3 is not heritage sensitive;
- NE 05-36-4-W3 is not heritage sensitive;
- SE 05-36-4-W3 is not heritage sensitive;
- SE 09-36-4-W3 is not heritage sensitive; and,
- SW 09-36-4-W3 is not heritage sensitive.

The screening tool advised that no further screening was required for any of the above ¼ sections.

### 4.3 Decommissioning and Maintenance Plans

#### Maintenance

Routine maintenance such as weed control and landscaping will be completed as required.

#### Decommissioning

Any previously vegetated areas that have been disturbed from construction of the Project will be seeded with an approved and suitable re-vegetation mix when Site conditions are favorable to do so.

Once the Site has been decommissioned, the Site will be restored to agricultural land (within 12 months of the Project ceasing operations). Upon closure, all infrastructure associated with the solar farm will be removed from the Site.

It is not anticipated that the construction of the Project will adversely impact adjacent lands. IAI understands that they may be required to provide a financial guarantee equal to the cost of restoration of the Site if the R.M. requires them to do so.

---

## 5.0 Traffic Impact Assessment

Upon completion of construction, the only traffic generated from the solar farms will be maintenance traffic for landscaping/weed control. This traffic will only visit the Site on a as-needed basis, and it is anticipated that this will not be more than once a week. Should any unanticipated problems arise with the solar farm, there may be an employee traveling to the Site to correct the issue; however, this will likely not be a regular occurrence.

It is likely that any traffic generated would occur outside of the peak hour; therefore, it can be assumed that this Site will have no impact to the existing traffic volumes.

---

## 6.0 Closure

Should you have any questions or require further information, please contact the undersigned.

Yours truly,

**Clifton**



Lindsay Larre BAsC  
Environmental Scientist



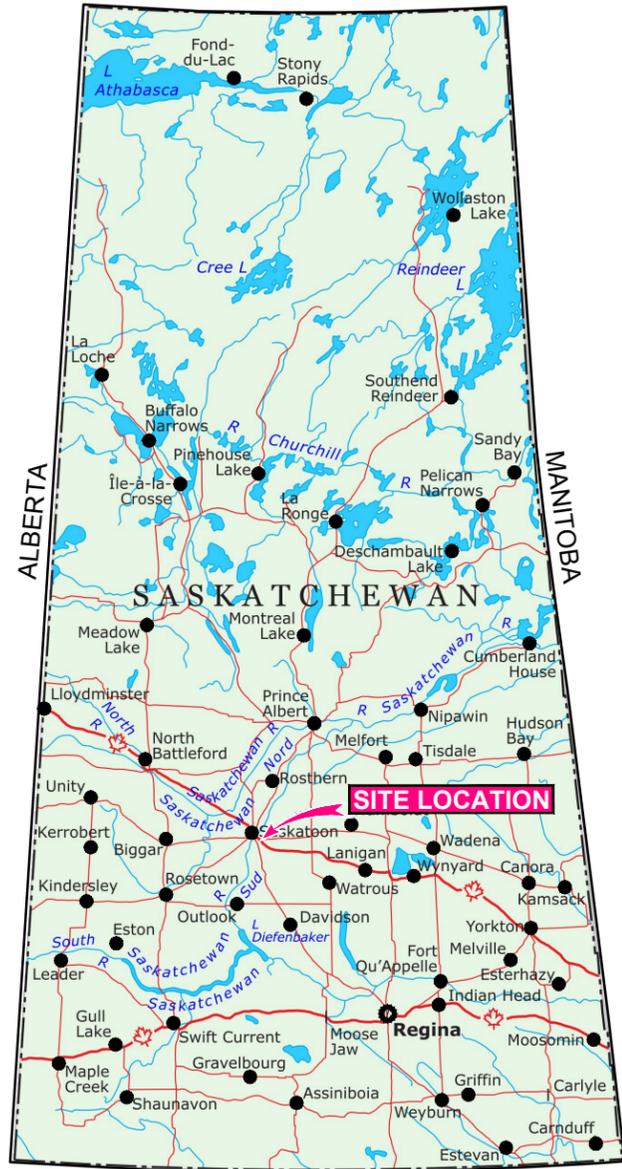
Geoff Haanen  
Regional Environmental Manager

---

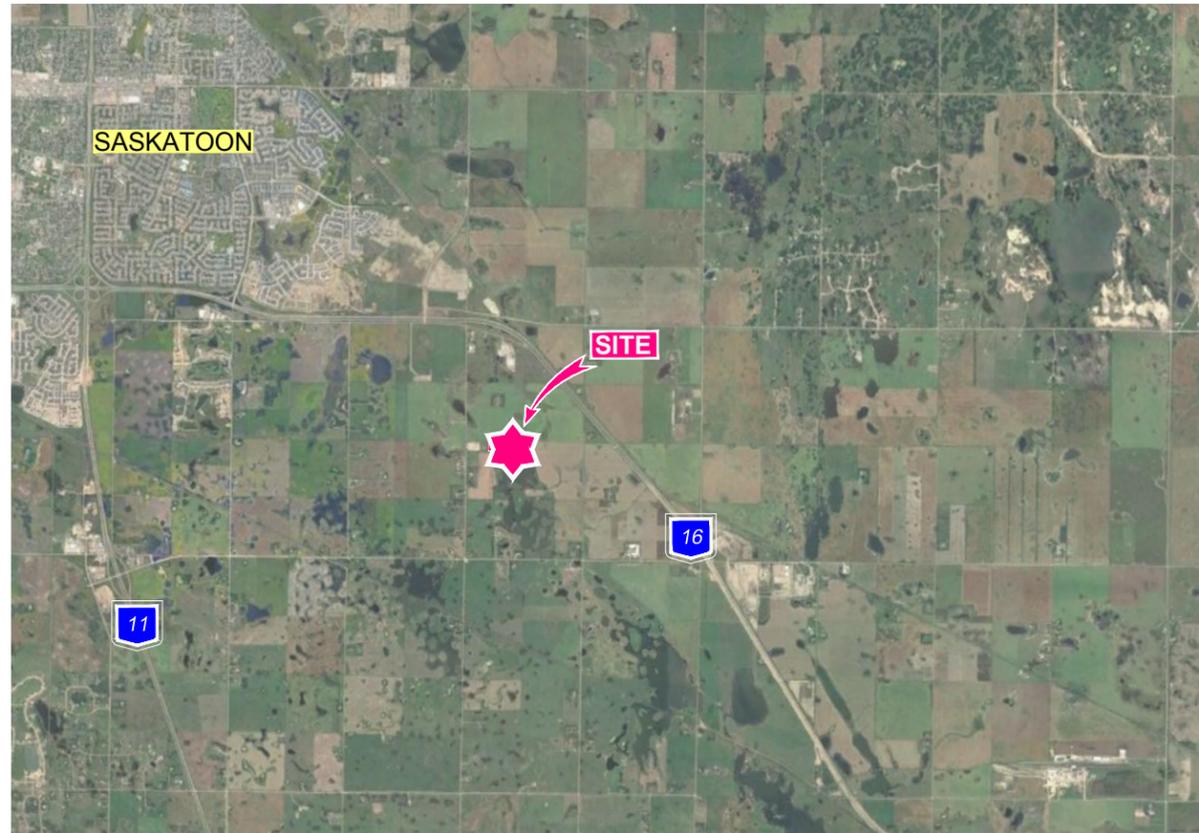
# Figures



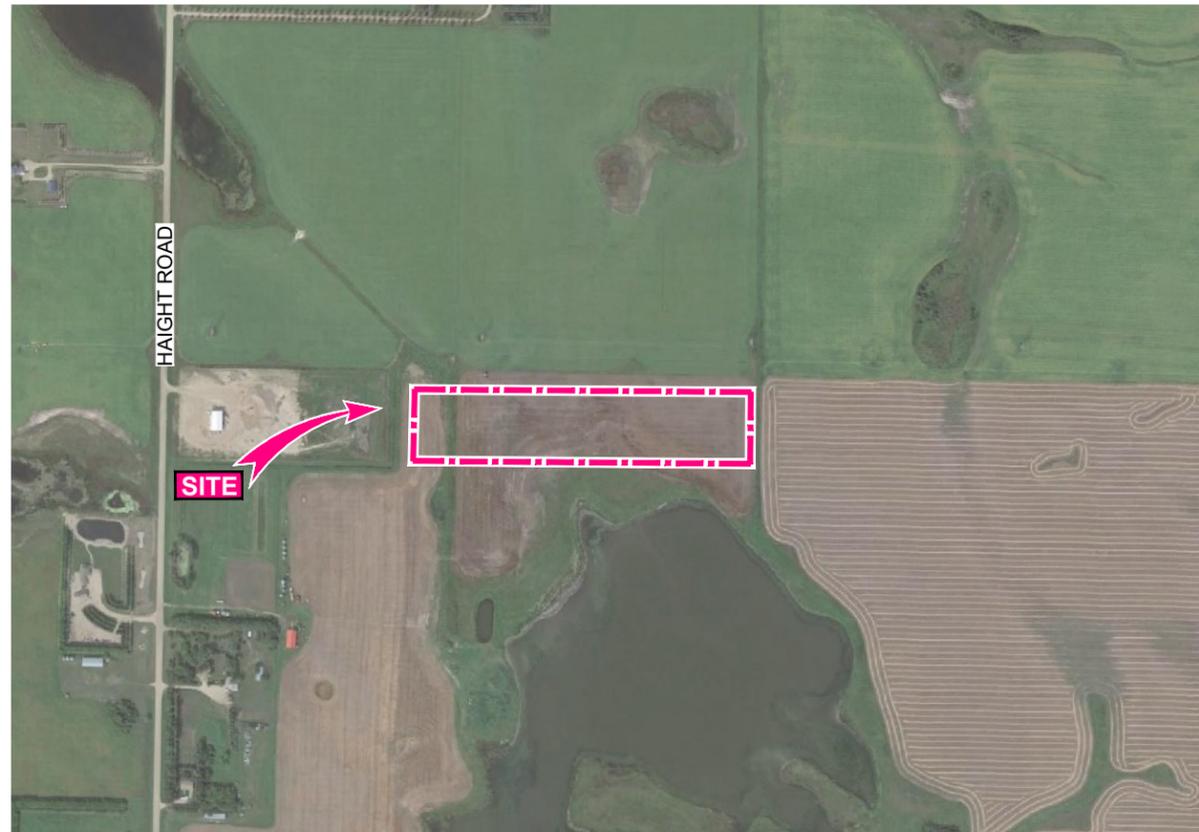
**Clifton**



**KEY PLAN**  
SCALE: 1:7,500,000



**SITE LOCATION PLAN**  
SCALE: 1:100,000



**SITE LOCATION PLAN**  
SCALE: 1:10,000



LEGEND

SITE LOCATION



NOTES:

1. IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.
2. KEY PLAN IMAGE PROVIDED BY GOVERNMENT OF CANADA; NATURAL RESOURCES CANADA; EARTH SCIENCES SECTOR; THE ATLAS OF CANADA, 2001.

DRAWING REVISIONS

REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER



CLIENT  
**INNOVATIVE AGRIPRODUCTS INC.**

PROJECT  
SOLAR FARM  
DISCRETIONARY USE APPLICATION

DRAWING NAME  
SITE LOCATION PLAN

DSGN. BY	PROJECT NO.	SCALE
LLE <td>S2372</td> <td>AS SHOWN</td>	S2372	AS SHOWN
REV. BY <td>ISSUED DATE</td> <td>SHT. NO.</td>	ISSUED DATE	SHT. NO.
	2019-09-03	



LEGEND

SITE LOCATION ▬▬▬▬▬

NOTES:

1. IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.
2. EDGE OF SOLAR FARM WILL BE AT LEAST 15 M FROM THE PROPERTY LINES.

DRAWING REVISIONS			
REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER 

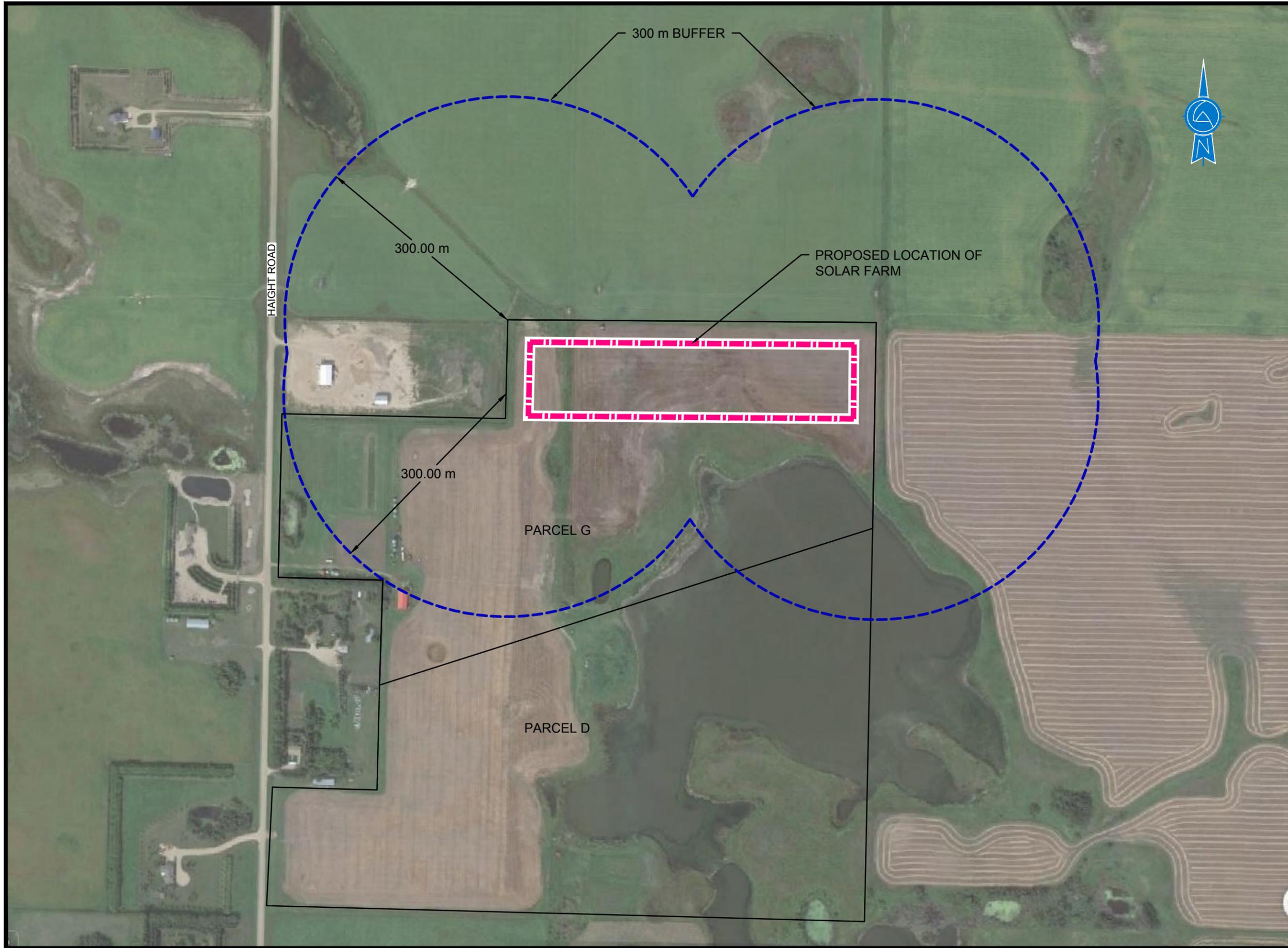
CLIENT  
**INNOVATIVE AGRIPRODUCTS INC.**

PROJECT  
SOLAR FARM  
DISCRETIONARY USE APPLICATION

DRAWING NAME  
PROPOSED LOCATION OF SOLAR FARM

DSGN. BY	PROJECT NO.	S2372	SCALE	1:5000
DWN. BY	FILE NO.	S2372-02 REV01.DWG	DWG. NO.	S2372-02
REV. BY	ISSUED DATE	2019-09-03	SHT. NO.	

A:\Projects\Subarea\2372 - Innovative Agriproducts Solar Farm\CURRENT DRAWINGS\S2372-02 REV01.dwg, 09/23/2019 9:42:11 AM



LEGEND

SITE LOCATION ▬▬▬▬▬▬

NOTES:

1. IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.

DRAWING REVISIONS			
REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER

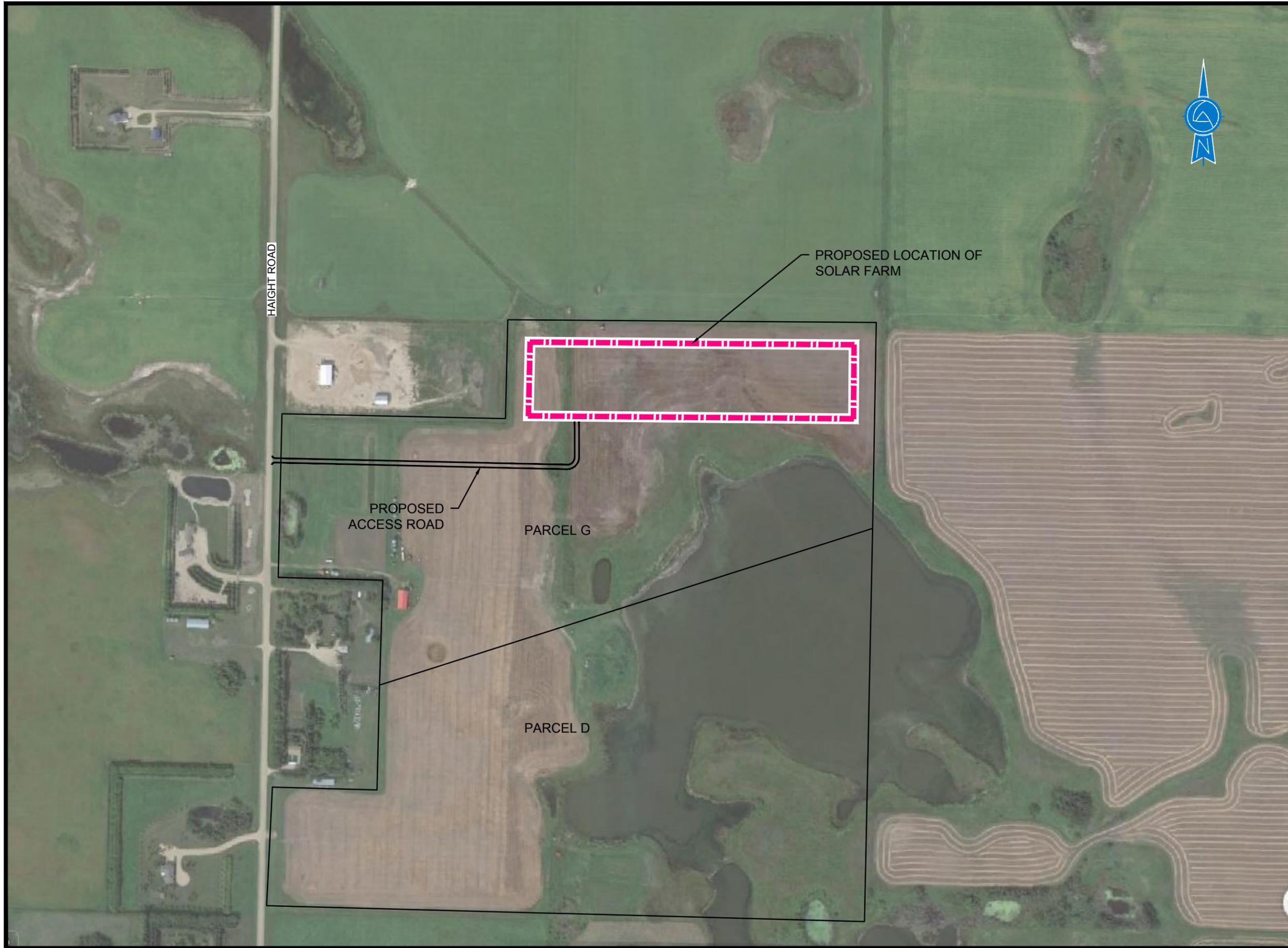


CLIENT  
**INNOVATIVE AGRIPRODUCTS INC.**

PROJECT  
SOLAR FARM  
DISCRETIONARY USE APPLICATION

DRAWING NAME  
ZONING SET-BACK REQUIREMENTS

DSGN. BY	PROJECT NO.	S2372	SCALE	1:5000	
DWN. BY	LLE	FILE NO.	S2372-03 REV01.DWG	DWG. NO.	S2372-03
REV. BY	ISSUED DATE	2019-09-03	SHT. NO.		



LEGEND

SITE LOCATION ▬▬▬▬▬

NOTES:

- IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.

DRAWING REVISIONS			
REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER



CLIENT  
INNOVATIVE AGRIPRODUCTS INC.

PROJECT  
SOLAR FARM  
DISCRETIONARY USE APPLICATION

DRAWING NAME  
PROPOSED ACCESS ROAD

DSGN BY	PROJECT NO.	S2372	SCALE	1:5000
DWN BY	FILE NO.	S2372-04 REV01.DWG	DWG. NO.	S2372-04
REV. BY	ISSUED DATE	2019-09-03	SHT. NO.	

C:\Users\m...\_innovative\pds\temp\pds\sub\116283272-04\_REV01.dwg 09/22/2019 9:42:08 AM



LEGEND

SITE LOCATION 

NOTES:

1. IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.

DRAWING REVISIONS			
REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER

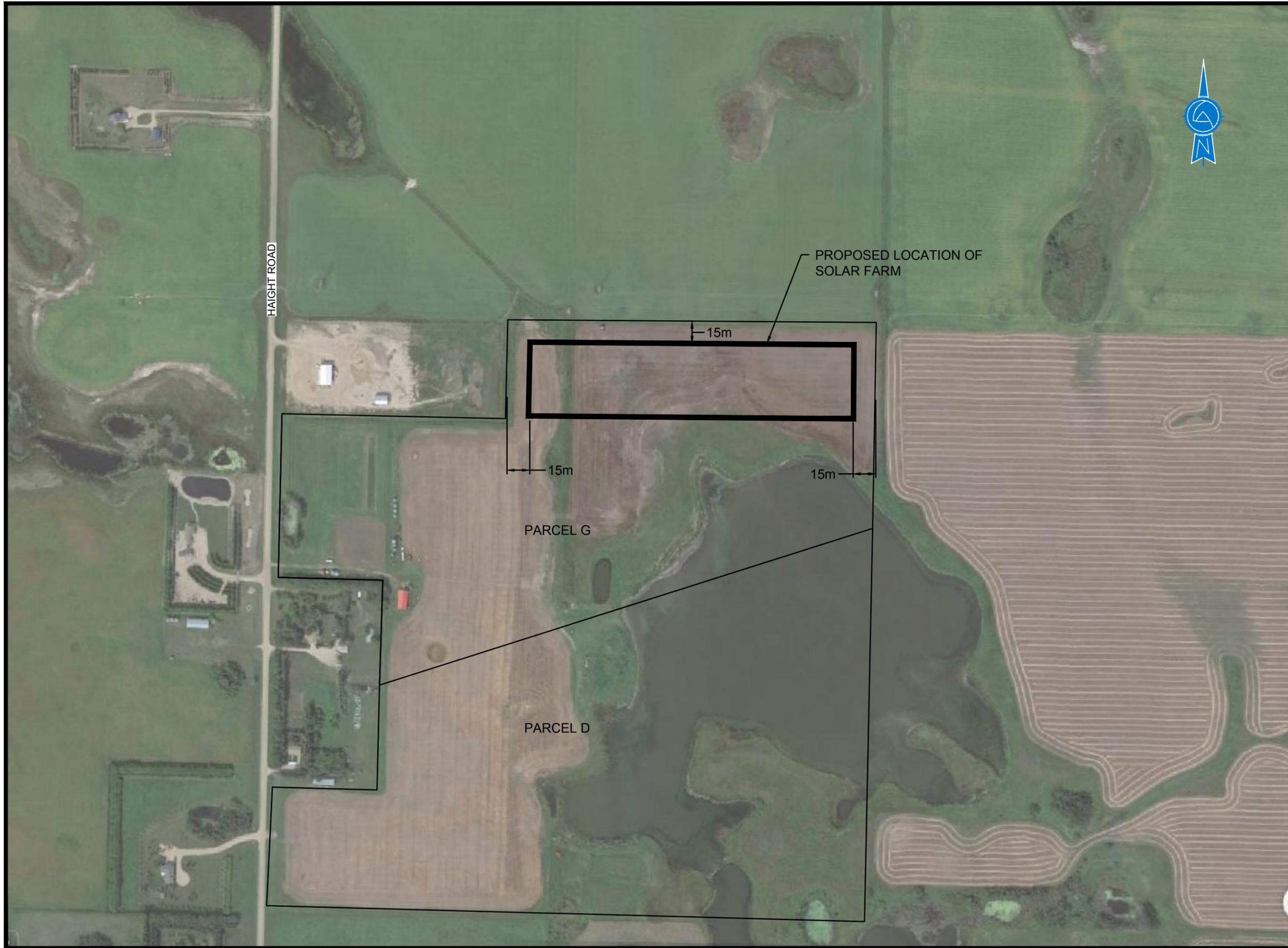


CLIENT  
**INNOVATIVE AGRIPRODUCTS INC.**

PROJECT  
 SOLAR FARM  
 DISCRETIONARY USE APPLICATION

DRAWING NAME  
 PROPOSED SOLAR FARM SYSTEM

DSGN. BY	PROJECT NO.	S2372	SCALE	1:5000	
DWN. BY	LLE	FILE NO.	S2372-05 REV01.DWG	DWG. NO.	S2372-05
REV. BY	ISSUED DATE	2019-09-03	SHT. NO.		



LEGEND

PROPERTY LINE

NOTES:

1. IMAGERY FROM GOOGLE EARTH PRO © 2019 AND IMAGE © 2019 DIGITALGLOBE, DATED AUGUST 23, 2015.
2. PROPERTY SET IN AR1 ZONING DISTRICT.

DRAWING REVISIONS

REV	DESCRIPTION	BY	DATE
01	SITE RELOCATION REQUESTED BY AB	LW	2019-09-22

ENGINEER

CLIENT  
**INNOVATIVE AGRIPRODUCTS INC.**

PROJECT  
SOLAR FARM  
DISCRETIONARY USE APPLICATION

DRAWING NAME  
ZONING SET-BACK REQUIREMENTS

DSGN BY	PROJECT NO.	S2372	SCALE	1:5000
DWN BY	LLE	FILE NO. S2372-06.DWG	DWG. NO.	S2372-06
REV. BY	ISSUED DATE	2019-09-03	SHT. NO.	

---

# Appendix A

## Application Form



Clifton



**Application Form**

1) Applicant: Dr. Reuban Rajakumar of Innovative Agriproducts Inc.  
 Address: 514 Braeside View  
Saskatoon, SK  
S7V 1A6  
 Phone: 306 956 2500 Cell: 306 612 3105 Fax: 306 956 2501  
 Email: arr426@mail.usask.ca

NOTE: If the applicant is not the registered owner of the subject property, the owner of the property must also sign the application form or provide a letter of consent for the application to be processed.

2) **Legal description of land proposed for development**

All/Part of the NW ¼, Section 4, Township 36, Range 4  
 LSD(s) \_\_\_\_\_ Lot(s) \_\_\_\_\_ Block(s) G  
 Registered Plan No. \_\_\_\_\_  
 Certificate of Title No. 138252258

3) **Existing use of land intended for development:**

Agricultural  
 \_\_\_\_\_  
 \_\_\_\_\_

4) **Proposed use of land and buildings:**

1MW solar farm system; Vertical Solar Greenhouse  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



---

# Appendix B

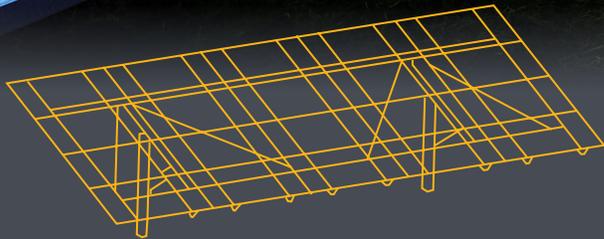
## Specification Sheet



# THE FLEXRACK SERIES G3-X



156 FlexRack Series G3P-X racks  
1.9MW Nixon Farms Project | West Friendship, MD



## + TURN-KEY SERVICES

We're here for you because we care about your projects. From engineering to installation, you can also leverage our expert turn-key services on any job from start to finish.

Contact us to see how our team of project engineers, field techs, geologists and other specialists can help make sure your next project is a success.

## Experience the Flex

CALL US TO FIND OUT HOW THIS GROUNDBREAKING  
RACK CAN IMPROVE HOW YOU DO SOLAR

1.888.380.8138 | [SOLARFLEXRACK.COM](http://SOLARFLEXRACK.COM)

### Pick your preference

Solar Developers and EPCs demand choices and continued innovation to maintain their leadership position. The Field Assembled G3-X Ground Rack joins our flagship Pre-assembled G3L and G2P series as the latest advancement in our ongoing quest to provide products which meet project-specific needs. Solar FlexRack stands alone as the only racking company able to provide you with these options.

### Easy assembly

The G3-X system is easily staged on the jobsite, can be assembled in the field by crews of nearly any skill level, and has been third-party verified for speed of installation by The Industrial Time Study Institute, Inc. Multiple pre-drilled holes, slot to slot connections, and generous construction tolerances make the G3-X an efficient and adaptable model on the jobsite.

### Seamless flexibility

The G3-X, available in both Portrait and Landscape orientations, leverages the knowledge gained in delivering nearly 1 GW of pre-assembled ground mounts into a racking system which is assembled in the field. This product is a perfect fit for projects where labor costs are low and field assembly is preferred.

### Intelligent design

The series G3-X is value-engineered by our professional team of best-in-class engineers to optimize materials and limit components to create a cost-effective solution. Our field engineering team will work with you personally to ensure that whatever system you choose will be the most cost effective solution for your project needs.

### Bankability

Solar FlexRack is a product of Northern States Metals, a full service manufacturer with over 40 years of experience. With close to 1 GW of installed capacity Solar FlexRack has the experience and sustainability to be a reliable partner for your next successful solar project. The G3-X series also comes standard with a 20 year warranty.

<b>MATERIALS</b>	
<b>Hardware</b>	Mounting hardware is Magni 560 coated standard. Stainless available upon request.
<b>Racking Structure</b>	G 90 galvanized steel standard. Higher coatings available for high corrosion areas
<b>Foundations</b>	Hot Dipped Galvanized
<b>DESIGN</b>	
<b>Orientation</b>	Landscape or Portrait
<b>Tilt Angle</b>	5° - 45° (custom tilts can be accommodated)
<b>Adjustability</b>	20% E/W Landscape, 20% E/W Portrait
<b>Wind Speed</b>	Any
<b>Snow Load</b>	Any
<b>Module Accommodation</b>	Any 60 or 72 cell framed module along with any frameless module
<b>Module Mounting Type</b>	Direct bolt to vertical rails (bonded connection)
<b>Foundation Accommodation</b>	W-Section, SmartPost, Round Post, Helical Pier, Ballast
<b>Warranty</b>	20 Years
<b>CERTIFICATIONS AND TESTING</b>	
<b>UL Compliance</b>	UL 2703 (Issue 2) compliant.
<b>Wind Tunnel Testing</b>	CPP third party testing laboratory
<b>Structural Connection Testing</b>	Accutek Testing Laboratory
<b>Code Compliance</b>	Racks are designed using local environmental loads (wind, snow, and seismic) per the governing and/or local building codes
<b>Finite Element Modeling</b>	Risa 3D
<b>Engineering</b>	PE stamped drawings and calculations
<b>SERVICES</b>	
<b>Geotechnical Engineering</b>	Field investigation and engineering, laboratory testing, engineering analysis, push/pull tests, foundation design
<b>Structural/Civil Engineering</b>	Preliminary investigation, engineering, layout
<b>Installation</b>	Foundation, racking, module, and module pre-wiring

Solar FlexRack, a division of Northern States Metals, is an integrated solar company that offers custom-designed, fixed tilt ground mount and single-axis solar tracking systems in the commercial, community solar and utility-scale solar mounting industries. Solar FlexRack offers full turnkey packages including engineering, geotechnical, pullout testing, field, layout, and installation services to address the actual site conditions of an installation and provide a full scope of services from design to delivery and installation. Solar FlexRack has completed over 2 GW of solar racking installations in 40 states across America and five countries globally.

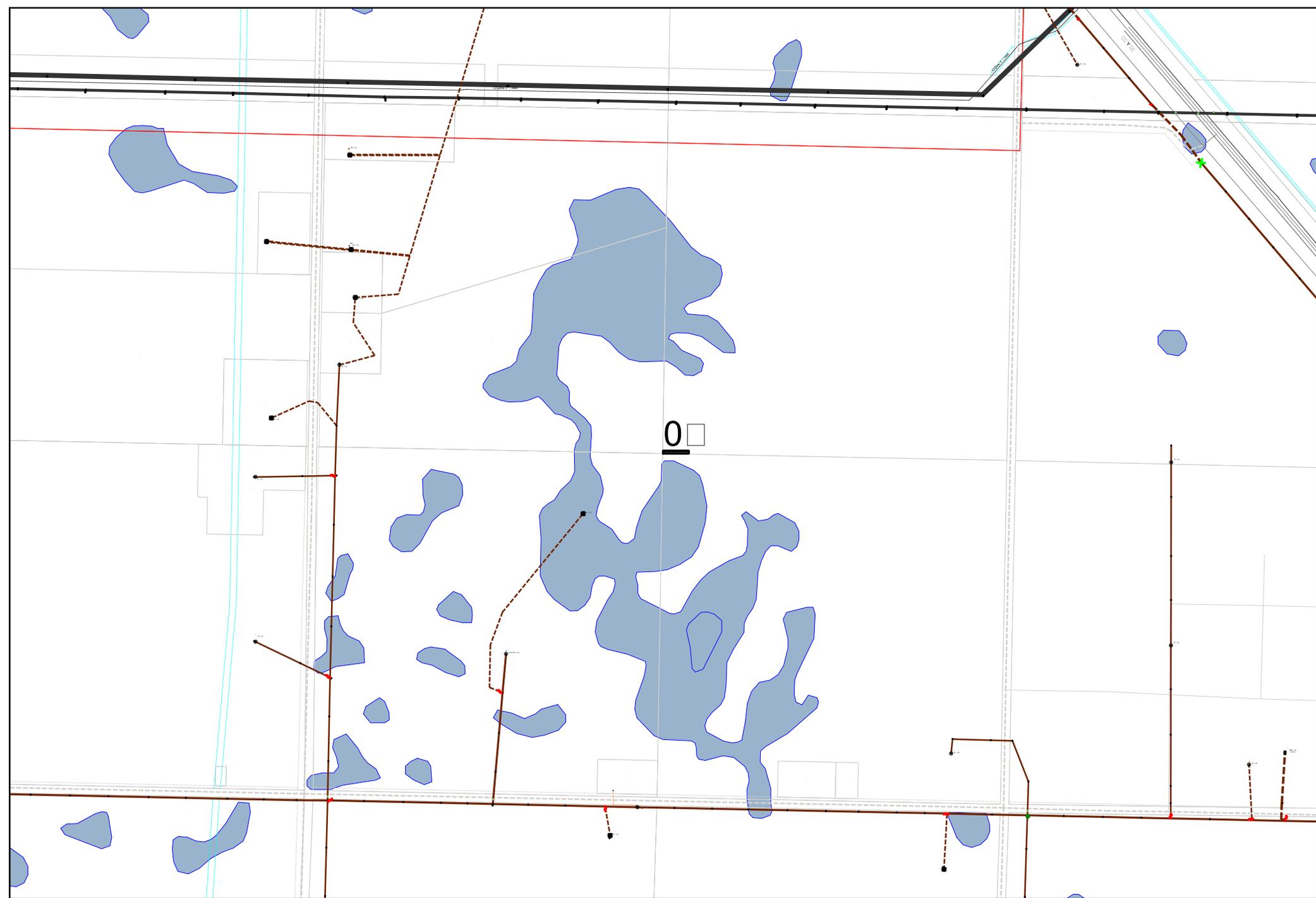
---

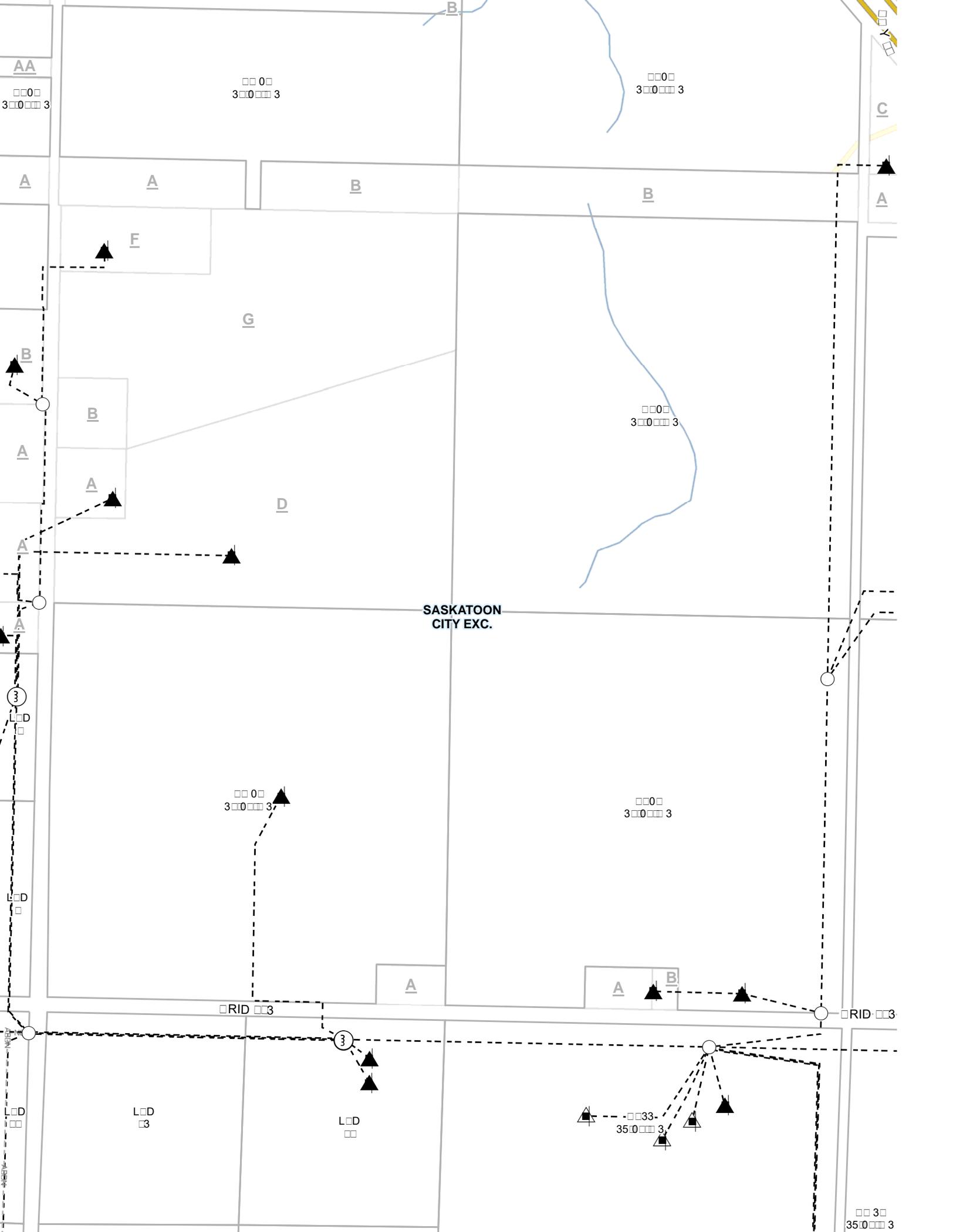
# Appendix C

## Utility Maps



Clifton





HWY 16

00 00

00 00

00 00

00 00

00 05

00 00

00 00

00 03

A

D

3003

00 05

00 00

00 00

00 03

TBS

00 30

00 33

3503

00 33

00 30

---

# Appendix D

## Groundwater Well Reports



Clifton

Well Name: RAJAKUMAR	WWDR #: 221666
----------------------	----------------

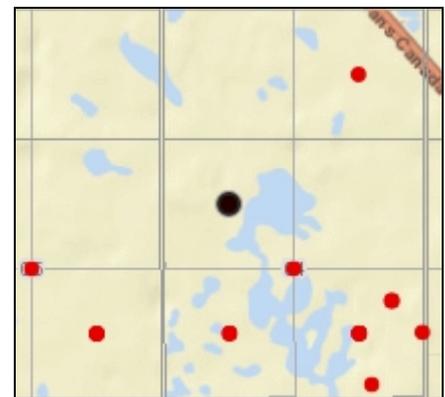
Well Location	
Land Location	NW-04-036 -04 -W3
LSD	00
Reserve	
RM:	344
NTS Map:	73B02
Elevation (ft)	1666
Aquifer	

Location of Well (in Quarter)	
	0 ft from N/S Boundary
	0 ft from E/W Boundary
Major Basin:	06
SubBasin:	30

Well Information					
Driller	HAYTER DRILLING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	2012.09.05	0	0	0	
Hole #	00000002	0	0	0	
Install Method	Drilled	Well Casings			
Borehole Depth (ft)	100	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Bit Dia (in)	6.8	0	0	0	0
Water Level	0	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use		Well Screens			
Well Use		Pump Test			
Completion Method		Draw Down	0 ft		
E-Log	Yes	Duration	0 hrs		
		Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

Lithology List			
Depth (ft):	Material	Colour	Description
100	Till	Unknown	Unknown



**Well Name: HAIGHT BROTHERS**
**WWDR #: 013059**
**Well Location**

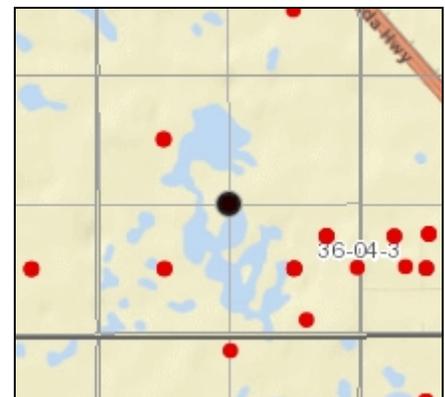
Land Location	-04-036 -04 -W3	Location of Well (in Quarter)	
LSD	00	1600 ft from N/S Boundary	N
Reserve		360 ft from E/W Boundary	W
RM:			
NTS Map:	73B00	Major Basin:	06
Elevation (ft)	1675	SubBasin:	30
Aquifer			

**Well Information**

Driller	PEDERSON DRILLING	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	1974.09.20	0	0	0	
Hole #	001	0	0	0	
Install Method	Drilled				
Borehole Depth (ft)	230				
Bit Dia (in)	0	0	0	0	
Water Level	0	0	0	0	
Flowing Head	0	0	0	0	
Water Use	Domestic				
Well Use	Water Test Hole	Draw Down			0 ft
Completion Method		Duration			0 hrs
E-Log	No	Pumping Rate			0 igpm
		Temperature			0 deg. F
		Rec. Pumping Rate			0 igpm

**Lithology List**

Depth (ft):	Material	Colour	Description
10	Till	Brown	Unknown
41	Clay	Unknown	Sandy
158	Till	Grey	Unknown
198	Shale	Grey	Unknown
202	Sandstone	Unknown	Shale Streaks
212	Shale	Grey	Sandy
220	Sandstone	Unknown	Shale Streaks
230	Shale	Unknown	Unknown





**Well Name: RAJAKUMAR**
**WWDR #: 216926**
**Well Location**

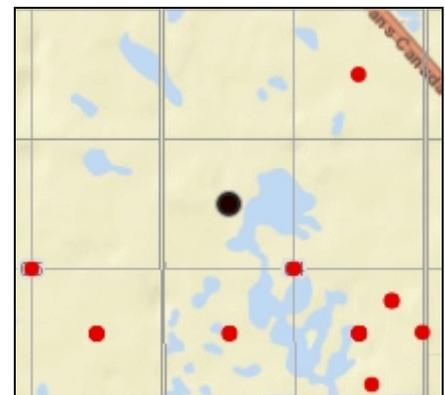
Land Location	NW-04-036 -04 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1666	SubBasin: 30
Aquifer		

**Well Information**

Driller	HAYTER DRILLING LTD	Well Casings			
Completion Date	2012.09.13	Length (ft)	Btm (ft)	Dia (in)	Material
Hole #	00000003	72	70	30	Fiberglass
Install Method	Bored	0	0	0	
Borehole Depth (ft)	70	0	0	0	
Bit Dia (in)	36	Well Screens			
Water Level	18	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Flowing Head	0	52	70	30	30
Water Use	Domestic	0	0	0	Fiberglass
Well Use	Withdrawal	0	0	0	0
Completion Method	Perforated Casing	Pump Test			
E-Log	No	Draw Down	0 ft		
		Duration	0 hrs		
		Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	1 igpm		

**Lithology List**

Depth (ft):	Material	Colour	Description
1	Topsoil	Unknown	Unknown
12	Till	Brown	Silty
20	Silt	Brown	Unknown
24	Silt	Grey	Unknown
63	Clay	Grey	Unknown
70	Till	Grey	Unknown



Well Name: RAJAKUMAR

WWDR #: 221665

**Well Location**

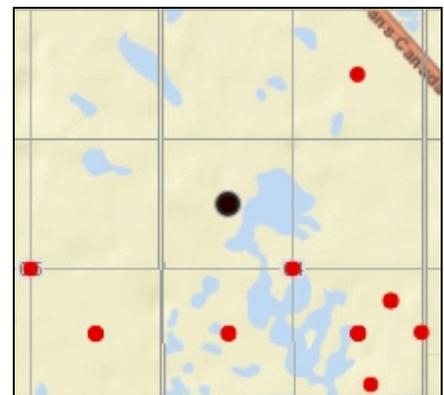
Land Location	NW-04-036 -04 -W3	Location of Well (in Quarter)
LSD	00	0 ft from N/S Boundary
Reserve		0 ft from E/W Boundary
RM:	344	
NTS Map:	73B02	Major Basin: 06
Elevation (ft)	1666	SubBasin: 30
Aquifer		

**Well Information**

Driller	HAYTER DRILLING LTD	Length (ft)	Btm (ft)	Dia (in)	Material
Completion Date	2012.09.04	0	0	0	
Hole #	00000001	0	0	0	
Install Method	Drilled				
Borehole Depth (ft)	140				
Bit Dia (in)	6.8	Length (ft)	Bottom (ft)	Dia (in)	Slot (in)
Water Level	18	0	0	0	0
Flowing Head	0	0	0	0	0
Water Use	Domestic				
Well Use	Water Test Hole	Draw Down	0 ft		
Completion Method	Well Screen And Gravel	Duration	0 hrs		
E-Log	Pack Yes	Pumping Rate	0 igpm		
		Temperature	0 deg. F		
		Rec. Pumping Rate	0 igpm		

**Lithology List**

Depth (ft):	Material	Colour	Description
60	Till	Unknown	Silt
104	Till	Brown	Unknown
140	Till	Unknown	Stoney



---

# Appendix E

## Rare and Endangered Species Report



Clifton

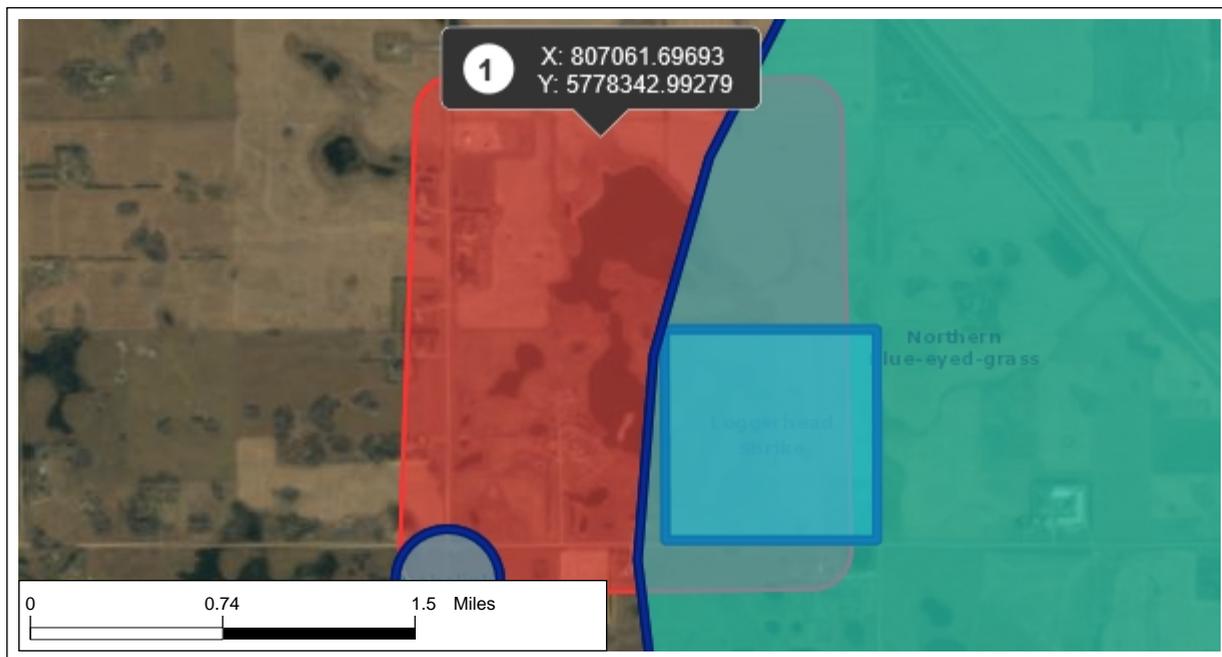
# Rare and Endangered Species Report

Report Generated: 8/28/2019 4:12:35 PM

The absence of information provided by the Saskatchewan Conservation Data Centre (SKCDC) does not categorically mean the absence of sensitive species or features. The quantity and quality for data collected by the SKCDC are dependent on the research and observations of many individuals and organizations. SKCDC reports summarize the existing natural heritage information, known to the SKCDC, at the time of the request.

SKCDC data should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The user therefore acknowledges that the absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Rare and Endangered Species Area of Interest



# Rare and Endangered Species Report

---

**Scientific Name:** *Sisyrinchium septentrionale*  
**Common Name:** Northern Blue-eyed-grass  
**Provincial Rank:** S3                   **Global Rank:** G4  
**Observation: First:** 1958-08-15                   **Last:** 1958-08-15

**Occurrence ID:** 16762  
**Occurrence Class:** Vascular Plant  
**Occurrence Type:**  
**Occurrence Rank:** H - Historical

**Provincial Legal Status:**  
**Species at Risk Act Status:**  
**COSEWIC Status:**  
**General Description:**

**Occurrence Data:**  
1958 - species observed in 1 site

**Directions:**  
Floral

---

**Scientific Name:** *Dolichonyx oryzivorus*  
**Common Name:** Bobolink  
**Provincial Rank:** S4B,S4M                   **Global Rank:** G5  
**Observation: First:** 2018-06-05                   **Last:** 2018-06-05

**Occurrence ID:** 999991231  
**Occurrence Class:** Vertebrate Animal  
**Occurrence Type:**  
**Occurrence Rank:**

**Provincial Legal Status:**  
**Species at Risk Act Status:**  
**COSEWIC Status:** Threatened  
**General Description:**  
1 Adult(s) (Unknown Gender); (2018)

**Occurrence Data:**

**Directions:**

# Rare and Endangered Species Report

---

**Scientific Name:** *Lanius ludovicianus excubitorides*

**Common Name:** Loggerhead Shrike

**Provincial Rank:** S2B,S2M      **Global Rank:** G4T4

**Observation: First:** 2008/06/09      **Last:** 2008/06/09

**Provincial Legal Status:**

**Species at Risk Act Status:** Threatened

**COSEWIC Status:** Threatened

**General Description:**

**Occurrence ID:** 13823

**Occurrence Class:** Vertebrate Animal

**Occurrence Type:**

**Occurrence Rank:** Not ranked

**Occurrence Data:**

2008: 1 individual observed

**Directions:**

SE-04-36-04-3



**Clifton**

---

**Calgary Office**

2222 30th Avenue NE  
Calgary, AB T2E 7K9

T (403) 263-2556  
F (403) 234-9033

**Edmonton Office**

#101 - 9636 51st Avenue NW  
Edmonton, AB T6E 6A5

T (780) 432-6441  
F (780) 432-6271

**Lloydminster Office**

#1 - 6309 43rd Street W  
Lloydminster, AB T9V 2W9

T (780) 872-5980  
F (780) 872-5983

---

**Regina Office**

340 Maxwell Crescent  
Regina, SK S4N 5Y5

T (306) 721-7611  
F (306) 721-8128

**Saskatoon Office**

#4 - 1925 1st Avenue N  
Saskatoon, SK S7K 6W1

T (306) 975-0401  
F (306) 975-1076

**North Battleford Office**

#2 - 9802 27th Avenue  
North Battleford, SK S9A 1K5

T (306) 445-1621  
F (306) 937-3731

---

[www.clifton.ca](http://www.clifton.ca)