

# Technical Document LA19032

## Part 2 – Technical Requirements



Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area, and/or manure storage facility(ies)

<b>NRCB USE ONLY</b>	Application number	Legal land description
<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Registration <input type="checkbox"/> Authorization <input type="checkbox"/> Amendment	<u>LA19032</u>	<u>NE 7-7-20 W4M</u>

### APPLICATION DISCLOSURE

This information is collected under the authority of the *Agricultural Operation Practices Act (AOPA)*, and is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This information is public unless the NRCB grants a written request that certain sections remain private.

**Any construction prior to obtaining an NRCB permit is an offence and is subject to enforcement action, including prosecution.**

I, the applicant, or applicant's agent, have read and understand the statements above, and I acknowledge that the information provided in this application is true to the best of my knowledge.

July 20/20  
 Date of signing

CORNEAS PRIDE FARMS  
 Corporate name (if applicable)

[Signature]  
 Signature

JAMES STOWJESDYK  
 Print name

### GENERAL INFORMATION REQUIREMENTS

**Proposed facilities:** list all proposed confined feeding operation facilities and their dimensions. Indicate whether any of the proposed facilities are additions to existing facilities. (attach additional pages if needed)

Proposed facilities	Dimensions (m) (length, width, and depth)
6 corrals/shelters <span style="border: 1px solid red; padding: 2px;">Pens #1- #6 (19.5 m x 137.2 m dimensions of each)</span>	64' x 450'
1 processing barn/office	60' x 80'
1 commodity shed	40' x 80'
<span style="border: 1px solid red; padding: 2px;">Catch basin</span>	<span style="border: 1px solid red; padding: 2px;">75 m x 35 m x 4.5 m</span>

**Existing facilities:** list ALL existing confined feeding operation facilities and their dimensions

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
N/A		

**NRCB USE ONLY**

This application is for a new CFO. No existing facilities on site



# Corners Pride Farms

Legend

IRIDA Canal

Telus Line

Proposed Feedlot Site

Pivot Center

Drain that runs in north south direction along the road

Approximate location of county borders

Closest Neighbour

Irrigation Ditch

Main Yard-Hay Farm

Google Earth

Image © 2020 Maxar Technologies  
© 2020 Google



1 km



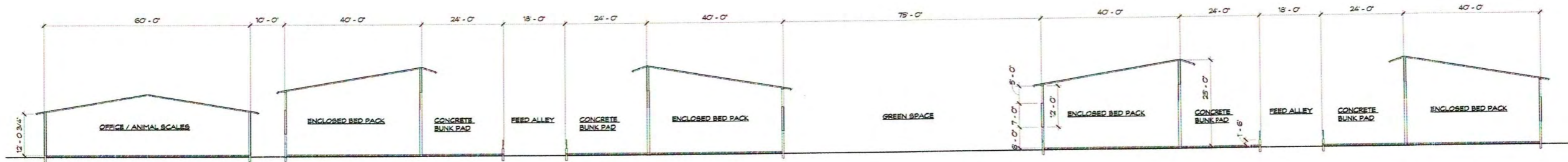


The green spaces will be used as a loafing area to allow outside access for the heifer cows. No water or feeding.

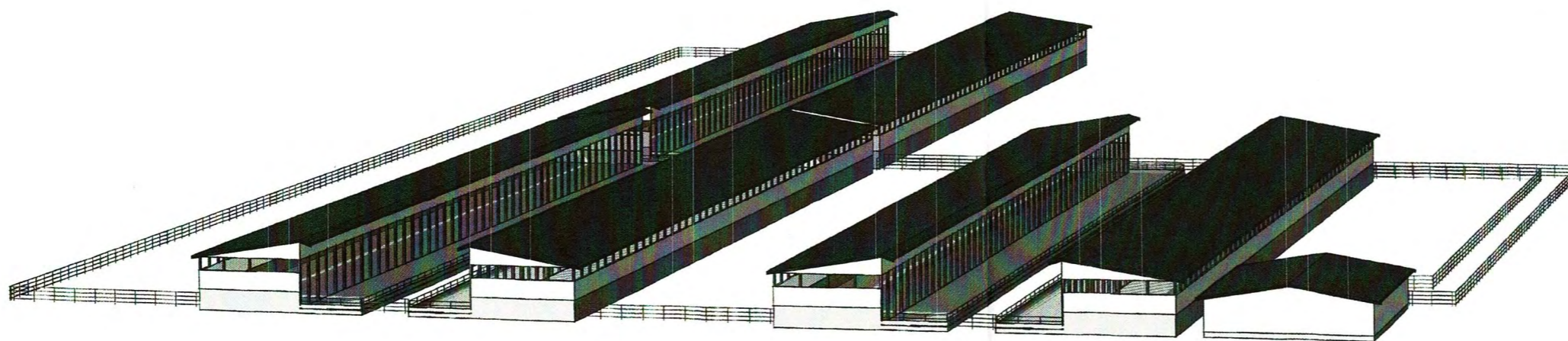
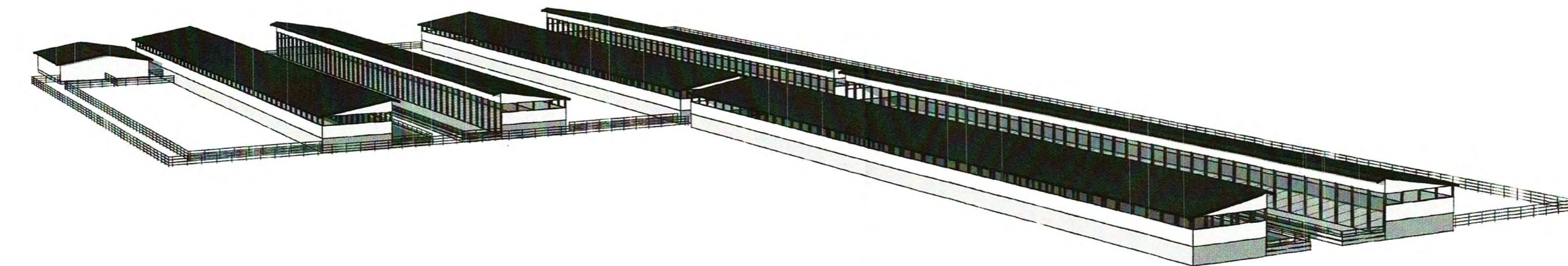
NE 7-7-20 MW



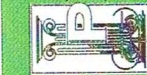




**A CROSS SECTION**  
 A4 1/16" = 1'-0"



PRECISION  
 building design associates ltd.



3-45953 Airport Rd  
 Chilliwack  
 British Columbia  
 V2P 1A3  
 T. 604 792 0826  
 F. 604 792 0856

**Corner's Pride Farm**

Raymond Irrigation District, Alberta  
 1/16" = 1'-0"  
 May 20, 2020



# Part 2 – Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area, and/or manure storage facility(ies)

If a new facility is replacing an old facility, please explain what will happen to the old facility and when.  N/A

Construction completion date for proposed facilities NOVEMBER 2023

Additional information

**Livestock numbers:** Complete only if livestock numbers are different from what was identified in the Part 1 application. Note: if livestock numbers increase in your Part 2 application, a new Part 1 application must be submitted which may result in a loss of priority for minimum distance separation (MDS).

Livestock category and type (Available in the Schedule 2 of the Part 2 Matters Regulation)	Permitted number	Proposed increase or decrease in number (if applicable)	Total
AO note: Corner's Pride is applying for a feedlot site for 2500 holstein dairy replacement heifers. Based on the size of the livestock and intended management practices, under AOPA they are applying for 2500 beef finisher capacity. This value will be used in assessing minimum distance or separation and landbase for manure spreading requirements.			



# Part 2 – Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area, and/or manure storage facility(ies)

## DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE

issued by Alberta Environment and Parks (AEP) for a confined feeding operation (CFO)

*Date and sign one of the following four options*

### OPTION 1: Applying through the NRCB for both the AOPA permit and the Water Act licence

I **DO** want my water licence application coupled to my AOPA permit application

Option 2 was chosen

Signed this 10 day of June, 2020

\_\_\_\_\_  
Signature of Applicant or Agent

### OPTION 2: Processing the AOPA permit and Water Act licence separately

1. I (we) acknowledge that the CFO will need a new water licence from AEP under the *Water Act* for the development or activity proposed in this AOPA application.
2. I (we) request that the NRCB process the AOPA application **independently** of AEP's processing of the CFO's application for a water licence.
3. In making this request, I (we) recognize that, if this AOPA application is granted by the NRCB, the NRCB's decision will not be considered by AEP as improving or enhancing the CFO's eligibility for a water licence under the *Water Act*.
4. I (we) acknowledge that any construction or actions to populate the CFO with livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to AEP's consideration of whether to grant the *Water Act* licence application.
5. I (we) acknowledge that any such construction or livestock populating will be at the CFO's sole risk if the *Water Act* licence application is denied or if the operation of the CFO is otherwise deemed to be in violation of the *Water Act*. This risk includes being required to depopulate the CFO and/or to cease further construction, or to remove "works" or "undertakings" (as defined in the *Water Act*).
6. **AS RELEVANT:** I (we) acknowledge that the CFO is located in the South Saskatchewan River Basin and that, pursuant to the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order* [Alta. Reg. 171/2007], this basin is currently closed to new surface water allocations.

The applicant received a water conveyance agreement from the RID

Signed this 20 day of July, 2020

\_\_\_\_\_  
Signature of Applicant or Agent

### OPTION 3: Additional water licence not required

1. I (we) declare that the CFO will not need a new licence from AEP under the *Water Act* for the development or activity proposed in this AOPA application.

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Signature of Applicant or Agent

### OPTION 4: Uncertain if Water Act licence is needed; acknowledgement of risk (for existing CFOs only)

1. At this time, I (we) do not know whether a new water licence is needed from AEP under the *Water Act* for the development or activity proposed in this AOPA application.
2. If a new *Water Act* licence is needed, I (we) request that the NRCB process the AOPA application **independently** of AEP's processing of the CFO's application for a water licence.
3. In making this request, I (we) recognize that, if this AOPA application is granted by the NRCB, the NRCB's decision will not be considered by AEP as improving or enhancing the CFO's eligibility for a water licence under the *Water Act*.
4. I (we) acknowledge that any construction or actions to populate the CFO with additional livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to AEP's consideration of whether to grant my *Water Act* licence application, if a new water licence is needed.
5. I (we) acknowledge that any such construction or livestock increase will be at the CFO's sole risk if the *Water Act* licence application is denied or if the operation of the CFO is otherwise deemed to be in violation of the *Water Act*. This risk includes being required to depopulate the CFO and/or to cease further construction, or to remove "works" or "undertakings" (as defined in the *Water Act*).
6. **AS RELEVANT:** I (we) acknowledge that the CFO is located in the South Saskatchewan River Basin and that, pursuant to the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order* [Alta. Reg. 171/2007], this basin is currently closed to new surface water allocations.

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Signature of Applicant or Agent



# Part 2 – Technical Requirements

Application under the Agricultural Operation Practices Act for a confined feeding operation, manure collection area, and/or manure storage facility(ies)

## GENERAL ENVIRONMENTAL INFORMATION

(complete this section for the worst case of the existing facility which is the closest to water bodies or water wells and for each of the proposed facilities)

Facility description / name (as indicated on site plan)

Existing: \_\_\_\_\_ (no existing facilities)

Proposed 1: CHANGES PROPOSED FROM PENS/SHELTERS

Proposed 2: CATCH BASIN / LAGOON

Proposed 3: \_\_\_\_\_

Facility and environmental risk information		Facilities				NRCB USE ONLY	
		Existing	Proposed 1	Proposed 2	Proposed 3	Meets requirements	Comments
Flood plain information	What is the height of the floor of the lowest manure storage or collection facility above the 1:25 year flood plain or the highest known flood level?	<input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	The facilities are >1m above the low laying areas in the south
	How many springs are within 100 m of the manure storage facility or manure collection area?	AO note: confirmed 0 with applicant				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	confirmed
Surface water information	How many water wells are within 100 m of the manure storage facility or manure collection area?	AO note: confirmed 0 with applicant				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	confirmed
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)		1600 m <sup>m</sup> south			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	35 m from drainage ditch east 1337 m to irrigation ditch south
Groundwater information	What is the depth to the water table?		40'			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	Below 9.2 m (drilling depth) see engineering report below
	What is the depth to the groundwater resource/aquifer you draw water from?		9.2 m*			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	well 2028579 (>1km southwest) UGR at 40.54 m

Additional information (attach supporting information, e.g. borehole logs, records, etc. you consider relevant to your application)

AO note: applicant has provided a report by Wood which is attached.

**NRCB USE ONLY**  
**ENVIRONMENTAL RISK SCREENING INFORMATION**

Well IDs: No water wells within 400 m of the CFO. Well 2028579 is over 1 km southwest of the CFO

Surface water related concerns from directly affected parties or referral agencies:  YES  NO

Groundwater related concerns from directly affected parties or referral agencies:  YES  NO

**Water wells**  N/A

If applicable, exemption for 100 m distance requirements applied:  YES  NO Condition required:  YES  NO

**Surface water**  N/A

If applicable, exemption for 30 m distance requirements applied:  YES  NO Condition required:  YES  NO

These concerns are addressed in Decision Summary LA19032)

**ERST for proposed facilities**

Facility	Groundwater score	Surface water score	File number
catch basin	low	low	LA19032
pens with shelter (feedlot)	low	low	LA19032

**ERST for existing facilities** NA

Facility	Groundwater score	Surface water score	File number






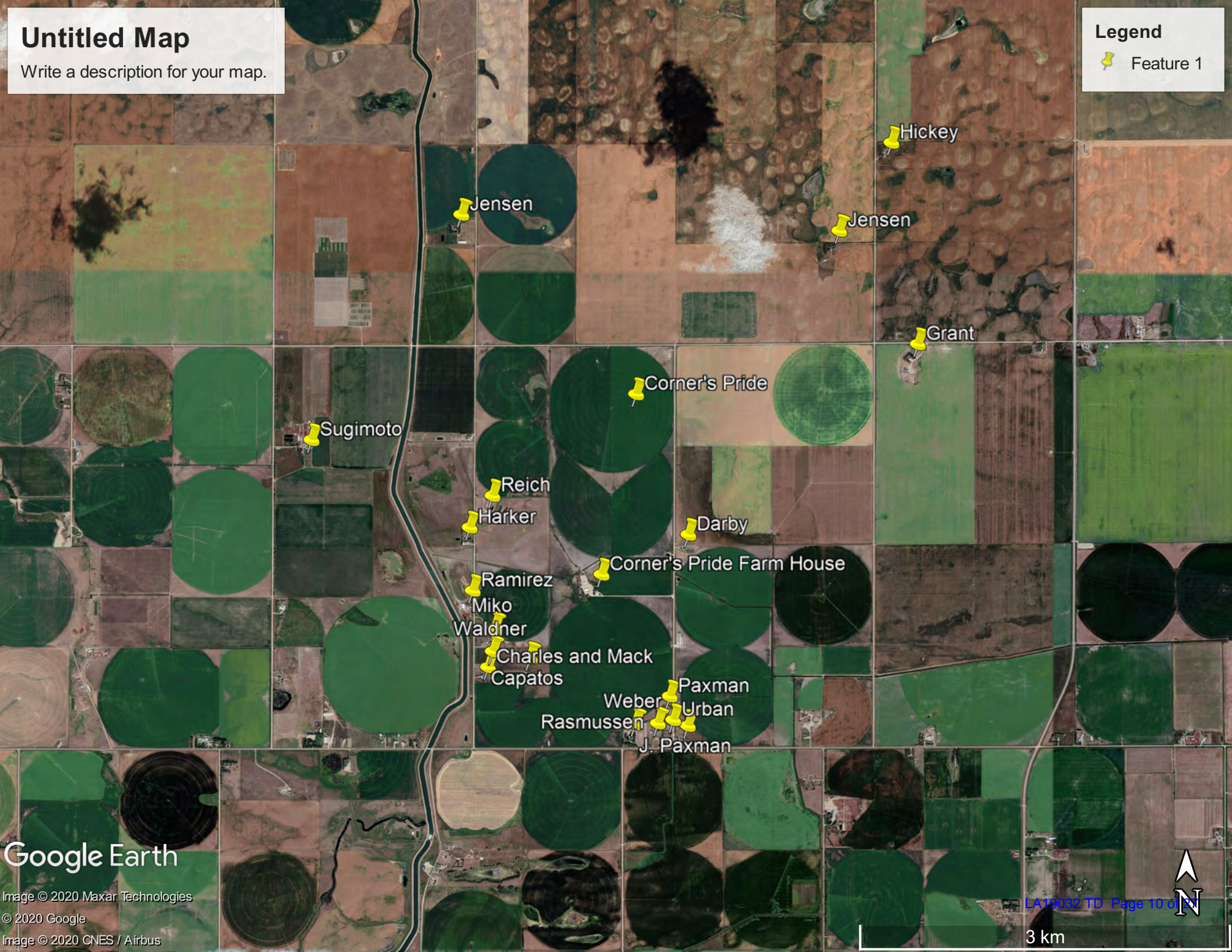


# Untitled Map

Write a description for your map.

## Legend

 Feature 1



Jensen

Hickey

Jensen

Grant

Sugimoto

Corner's Pride

Reich

Harker

Darby

Corner's Pride Farm House

Ramirez

Miko

Waldner

Charles and Mack

Capatos

Paxman

Weber

Urban

Rasmussen

J. Paxman

Google Earth

Image © 2020 Maxar Technologies

© 2020 Google

Image © 2020 CNES / Airbus

LA19032 TD Page 10 of 11



3 km



Raymond Hay Land

40 Acres SW Qrt Meridian 4 Range 20 Township 7 Sec 7  LETHBRIDGE	160 Acres SE Qrt Meridian 4 Range 20 Township 7 Sec 7  LETHBRIDGE	158.97
40 Acres NW Qrt Meridian 4 Range 20 Township 7 Sec 7  LETHBRIDGE	160 Acres NE Qrt Meridian 4 Range 20 Township 7 Sec 7  LETHBRIDGE	158.97
40 Acres NW Qrt Meridian 4 Range 20 Township 7 Sec 6 New: Lot 3 Block 3 Plan 1312909 WARNER	160 Acres NE Qrt Meridian 4 Range 20 Township 7 Sec 6 New Legal Description: Lot 3 Block 3 Plan 1312909 House & Shop  WARNER	

GILES +  
Dosterhof  
164

88.48 Acres  
SE Qrt  
Meridian 4, Range 20  
Township 7 Sec 6  
New Legal: Lot 3 Block 3 Plan  
1312909  
WARNER Plan 01610882  
Block 3 Lot 1

FCC  
Security  
Cancelled  
&  
replaced  
with

160 Acres  
  
NW Qrt  
Meridian 4 Range 20  
Township 7 Sec 5  
  
159.37 Acres  
  
SW Qrt  
Meridian 4 Range 20  
Township 7 Sec 5

+ 105 Acres Giles Nov 2015  
+ 19 Acres July 2014  
+ Dosterhof 40 Acres May 2014

1170 Total Acres  
owned



Name  
Address  
Legal Land  
Location

**MDS Spreadsheet based on 2006 AOPA Regulations**

Category of Livestock	Type of Livestock	Factor A	Technology Factor	MU	LSU Factor	Number of Animals	LSU
Beef	Cows/Finishers (900+ lbs)	0.700	0.700	0.910	0.446	2,500	1,114.8
	Feeders (450 - 900 lbs)	0.700	0.700	0.500	0.245	-	-
	Feeder Calves (<550 lbs)	0.700	0.700	0.275	0.135	-	-
	Other	-	-	-	-	-	-
Dairy (*count lactating cows only)	*Free Stall - Lactating Cows with all associated dries, heifers, and calves	0.800	1.100	2.000	1.760	-	-
	*Free Stall - Lactating cows with Dry Cows only	0.800	1.100	1.640	1.443	-	-
	Free Stall - Lactating Cows only	0.800	1.100	1.400	1.232	-	-
	Tie Stall - Lactating cows only	0.800	1.000	1.400	1.120	-	-
	Loose Housing - Lactating cows only	0.800	1.000	1.400	1.120	-	-
	Dry Cow (Solid manure)	0.800	0.700	1.000	0.560	-	-
	Dry Cow (Liquid manure)	-	-	-	-	-	-
	Replacements - Bred Heifers (Breeding to Calving)	0.800	0.700	0.875	0.490	-	-
	Replacements - Growing Heifers (350 lbs to breeding)	0.800	0.700	0.525	0.294	-	-
	Calves (< 350 lbs)	0.800	0.700	0.200	0.112	-	-
Swine Liquid (*count sows only)	Farrow to finish *	2.000	1.100	1.780	3.916	-	-
	Farrow to wean *	2.000	1.100	0.670	1.474	-	-
	Farrow only *	2.000	1.100	0.530	1.166	-	-
	Feeders/Boars	2.000	1.100	0.200	0.440	-	-
	Growers/Roasters	2.000	1.100	0.118	0.260	-	-
	Weaners	2.000	1.100	0.055	0.121	-	-
	Other	-	-	-	-	-	-
Swine Solid (*Count sows only)	Farrow to finish *	2.000	0.800	1.780	2.848	-	-
	Farrow to wean *	2.000	0.800	0.670	1.072	-	-
	Farrow only *	2.000	0.800	0.530	0.848	-	-
	Feeders/Boars	2.000	0.800	0.200	0.320	-	-
	Growers/Roasters	2.000	0.800	0.118	0.189	-	-
	Weaners	2.000	0.800	0.055	0.088	-	-
Poultry	Chicken - Breeders - Solid	1.000	0.700	0.010	0.007	-	-
	Chicken - Layers - Liquid (includes associated pullets)	2.000	1.100	0.008	0.018	-	-
	Chicken - Layers - (Belt Cage)	2.000	0.700	0.008	0.011	-	-
	Chicken - Layers - (Deep Pit)	2.000	0.700	0.008	0.011	-	-
	Chicken - Pullets/Broilers	1.000	0.700	0.002	0.001	-	-
	Turkey - Toms/Breeders	1.000	0.700	0.020	0.014	-	-
	Turkey - Hens (light)	1.000	0.700	0.013	0.009	-	-
	Turkey - Broilers	1.000	0.700	0.010	0.007	-	-
	Ducks	1.000	0.700	0.010	0.007	-	-
	Geese	1.000	0.700	0.020	0.014	-	-
	Other	-	-	-	-	-	-
Horses	PMU	0.650	0.700	1.000	0.455	-	-
	Feeders > 750 lbs	0.650	0.700	1.000	0.455	-	-
	Foals < 750 lbs	0.650	0.700	0.300	0.137	-	-
	Mules	0.600	0.700	1.000	0.420	-	-
	Donkeys	0.600	0.700	0.670	0.281	-	-
	Other	-	-	-	-	-	-
Sheep	Ewes/Rams	0.600	0.700	0.200	0.084	-	-
	Ewes with lambs	0.600	0.700	0.250	0.105	-	-
	Lambs	0.600	0.700	0.050	0.021	-	-
	Feeders	0.600	0.700	0.100	0.042	-	-
Goats	Meat/Milk (per Ewe)	0.700	0.700	0.170	0.083	-	-
	Nannies/Billies	0.700	0.700	0.140	0.069	-	-
	Feeders	0.700	0.700	0.077	0.038	-	-
	Other	-	-	-	-	-	-
Bison	Bison	0.600	0.700	1.000	0.420	-	-
	Other	-	-	-	-	-	-
Cervid	Elk	0.600	0.700	0.600	0.252	-	-
	Deer	0.600	0.700	0.200	0.084	-	-
Wild Boar	Other	-	-	-	-	-	-
	Feeders	2.000	0.800	0.140	0.224	-	-
	Sow (farrowing)	2.000	0.800	0.371	0.594	-	-
	Other	-	-	-	-	-	-
Total							1,114.8

**For New Operations**

Dispersion Factor 1

Category	Odour Objective	Distance	
		Feet	Metres
1	41.04	1,743	531
2	54.72	2,325	709
3	68.4	2,906	886
4	109.44	4,649	1,417

**For Expanding Operations**

Dispersion Factor 1  
Expansion Factor 0.77

Category	Odour Objective	Distance	
		Feet	Metres
1	41.04	1,342	409
2	54.72	1,790	546
3	68.40	2,237	682
4	109.44	3,580	1,091



Name 0  
 Address 0  
 Legal Land  
 Location 0

**Landbase Requirements (hectares) based on 2006 AOPA requirements**

Category of Livestock	Type of Livestock	Number of Animals	Dark Brown & Brown (ha)	Grey Wooded (ha)	Black (ha)	Irrigated (ha)
Beef	Cows/Finishers (900+ lbs)	2500	312.5	260	195	155
	Feeders (450 - 900 lbs)	0	0	0	0	0
	Feeder Calves (<550 lbs)	0	-	-	-	-
	Other	0	-	-	-	-
Dairy (*count lactating cows only)	*Free Stall - Lactating Cows with all associated dries, heifers, and calves	0	0	0	0	0
	*Free Stall - Lactating cows with Dry Cows only	0	-	-	-	-
	Free Stall - Lactating Cows only	0	-	-	-	-
	Tie Stall - Lactating cows only	0	-	-	0	0
	Loose Housing - Lactating cows only	0	-	-	-	-
	Dry Cow (Solid manure)	0	-	-	-	-
	Dry Cow (Liquid manure)	0	-	-	-	-
	Replacements - Bred Heifers (Breeding to Calving)	0	-	-	-	-
	Replacements - Growing Heifers (350 lbs to breeding)	0	-	-	-	-
	Calves (< 350 lbs)	0	-	-	-	-
Other	0	-	-	-	-	
Swine Liquid (*count sows only)	Farrow to finish *	0	-	0	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	0	0	0
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
Other	0	-	-	-	-	
Swine Solid (*Count sows only)	Farrow to finish *	0	-	-	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	-	-	-
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
Other	0	-	-	-	-	
Poultry	Chicken - Breeders - Solid	0	-	-	-	-
	Chicken - Layers - Liquid (includes associated pullets)	0	-	0	0	0
	Chicken - Layers - (Belt Cage)	0	-	-	-	-
	Chicken - Layers - (Deep Pit)	0	-	-	-	-
	Chicken - Pullets/Broilers	0	-	0	0	0
	Turkey - Toms/Breeders	0	0	0	0	0
	Turkey - Hens (light)	0	-	-	-	-
	Turkey - Broilers	0	-	-	-	-
	Ducks	0	0	0	0	0
	Geese	0	0	0	0	0
	Other	0	-	-	-	-
Horses	PMU	0	0	0	0	0
	Feeders > 750 lbs	0	-	0	-	-
	Foals < 750 lbs	0	-	-	-	-
	Mules	0	-	-	-	-
	Donkeys	0	-	-	-	-
	Other	0	-	-	-	-
Sheep	Ewes/Rams	0	-	0	0	0
	Ewes with lambs	0	-	-	-	-
	Lambs	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0	-	-	-	-
Goats	Meat/Milk (per Ewe)	0	0	0	0	0
	Nannies/Billies	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0	-	-	-	-
Bison	Bison	0	0	0	0	0
	Other	0	-	-	-	-
Cervid	Elk	0	0	0	0	0
	Deer	0	0	0	0	0
	Other	0	-	-	-	-
Wild Boar	Feeders	0	-	0	0	0
	Sow (farrowing)	0	-	-	-	-
	Other	0	-	-	-	-
Total Hectares			312.5	260.0	195.0	155.0
Total Acres			772.2	642.5	481.8	383.0



**NRCB USE ONLY**

**MINIMUM DISTANCE SEPARATION**

Methods used to determine distance (if applicable): aerial photos (google earth)

Margin of error (if applicable): +/- 2 m

Requirements (m): Category 1: 531 m Category 2: 709 m Category 3: 886 m Category 4: 1417 m

Technology factor:  YES  NO

Expansion factor:  YES  NO

MDS related concerns from directly affected parties or referral agencies:  YES  NO

These concern are addressed in Decision Summary LA19032)

**LAND BASE FOR MANURE AND COMPOST APPLICATION**

Land base required: 383 acres irrigated

Land base listed: minimum 680 acres irrigated

Area not suitable: \_\_\_\_\_

Available area > 400 acres irrigated

Requirement met:  YES  NO

Land spreading agreements required:  YES  NO

Manure management plan:  YES  NO

If yes, plan is attached:

**PLANS**

Submitted and attached construction plans:  YES  NO

Submitted aerial photos:  YES  NO

Submitted photos:  YES  NO

**GRANDFATHERING**

Already completed:  YES  NO  N/A

If already completed, see \_\_\_\_\_



**NRCB USE ONLY**

**ALL SIGNATURES IN FILE**

YES  NO

**DATES OF APPROVAL OFFICER SITE VISITS**

July 14, 2020 (Joe Sonnenberg)	
October 1, 2020 (Carina Weisbach)	

**CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES**

Date deeming letters sent: August 20, 2020

Municipality: Lethbridge County

letter sent       response received       written/email       verbal       no comments received

**Alberta Health Services:**

letter sent       response received       written/email       verbal       no comments received

**Alberta Environment and Parks:**       N/A

letter sent       response received       written/email       verbal       no comments received

**Alberta Transportation:**       N/A

letter sent       response received       written/email       verbal       no comments received

**Alberta Regulatory Services:**       N/A

letter sent       response received       written/email       verbal       no comments received

Other: Warner County       N/A

letter sent       response received       written/email       verbal       no comments received

Other: RID       N/A

letter sent       response received       written/email       verbal       no comments received



# Part 2 – Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area and/or manure storage facility(ies)

## SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Naturally occurring protective layer

(complete a copy of this section for EACH barn, feedlot, and storage facility for solid manure, composting materials, or compost with a naturally occurring protective layer for the liner)

Facility description / name (as indicated on site plan) **1. CORNERS PRIDE FARMS** Shelter with pens (feedlot)  
**2. \_\_\_\_\_**

### Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	NRCB USE ONLY Estimated storage capacity (m <sup>3</sup> )
1.	823	19.5	ground level	
2.	AO note: Corner's Pride proposes construction of six pens (19.5 m x 137.2 m dimensions of each)			
TOTAL CAPACITY				

I plan to use a short-term solid manure storage (STMS) as part of my manure storage and handling plan for this CFO. (The AOPA requirements for STMS are set out in the NRCB Short-Term Solid Manure Storage Requirements Fact Sheet.)

### Surface water control systems

Describe the run-on and runoff control system

SURFACE AND RUN OFF WATER TO BE DIRECTED BY GRADE, AND RUN OFF DITCH TO DRAINAGE LAGOON AT SOUTH END OF YARD SITE  
 (See next page for more detail on run of and runoff control)

### Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____ (m)	Provide details (as required) Soil test revealed natural material protection in excess of minimum requirements outlined by AOPA 6m of naturally occurring material		
Soil texture	_____ % sand	_____ % silt	_____ % clay	
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested	Hydraulic conductivity (cm/s)	Describe test standard used	
		2.5 x 10 <sup>-7</sup> cm/s		

Additional information (attach copies of soil test reports)

#### NRCB USE ONLY

Requirements met:  YES  NO  
 Condition required:  YES  NO  
 Report attached:  YES  NO



**SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Naturally occurring protective layer (cont.)**

**NRCB USE ONLY**

Nine month manure storage volume requirements met:  YES       YES With STMS       NO

Depth to water table: below 9 m (at time of drilling)      Requirements met:  YES  NO

Depth to uppermost groundwater resource: 40.54 m      Requirements met:  YES  NO

ERST completed:  see ERST page for details

**Surface water control systems**

Requirements met:  YES  NO      Details/comments:

Catch basin will collect manure contaminated runoff. Run-on will be diverted around the manure storage and collection areas

**Naturally occurring protective layer details**

Layer specification comments (e.g. sand lenses; layering uniform or irregular; number and location of boreholes):

Predominantly till material with fairly uniform layering of clay loam soils. Some sand lensing at a depth of 1.2 m.



# Part 2 – Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area and/or manure storage facility(ies)

## RUNOFF CONTROL CATCH BASIN: Naturally occurring protective layer

(complete a copy of this section for EACH proposed runoff control catch basin with a naturally occurring protective layer)

- Facility description / name (as indicated on site plan)
1. CORNERS PRIDE FARMS Catch basin
  2. \_\_\_\_\_
  3. \_\_\_\_\_

### Determination of runoff area

Provide a plan and show how you calculated the area contributing to runoff for each catch basin

AGRICULTURE + FORESTRY WEBSITE

### Catch basin capacity

	Length (m)	Width (m)	Total depth (m)	Depth below ground level (m)	Slope run:rise			NRCB USE ONLY Calculated storage capacity (excl. 0.5 m freeboard) (m <sup>3</sup> )
					Inside end walls	Inside side walls	Outside walls	
1.	<u>75</u>	<u>35</u>	<u>4.5 m</u>	<u>4.0 meters</u>				<u>4992 m<sup>3</sup></u>
2.								
3.								
TOTAL CAPACITY								<u>4992 m<sup>3</sup></u>

AO note: potential contributing area (including non manure storage areas) is approx 350 m x 175 m (see next page)

### Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____ (m)	Provide details (as required) <u>SOIL TEST REVEALED NATURAL MATERIAL PROTECTION IN EXCESS OF REQUIREMENTS</u>		
Soil texture	_____ % sand	_____ % silt	_____ % clay	
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested	Hydraulic conductivity (cm/s)	Describe test standard used	
		<u>HC of 2 x 10<sup>-8</sup> cm/s</u>		

Catch Basin – Design and management requirements can be found in Technical Guideline Agdex 096-101

If soil info differs per facility include additional soils page.

#### NRCB USE ONLY

- Requirements met:  YES  NO
- Condition required:  YES  NO
- Report attached:  YES  NO



# Catch Basin Dimension Calculator

For more information on runoff control catch basin design consideration including liner options, catch basin protection, etc., check out the catch basin [factsheet](#).

**Name** Corners Pride Farms  
**Land Location** NE 7-7-20W4

### Estimating Runoff Potential

Area	Length (m)	Width (m)	Paved?	Area (m <sup>2</sup> )
1	350	175	YES ▾	61250.00
<b>Total Area</b>				<b>61250.00</b>

### Estimation of water runoff to be collected in the catch basin:

4593.75 m<sup>3</sup>  
 162227 ft<sup>3</sup>  
 1010483 Imp. Gal

### Calculating Catch Basin Volume:

**Construction Dimensions**      **Storage Dimensions**

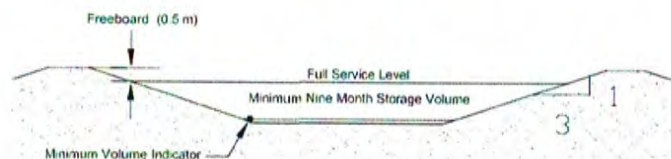
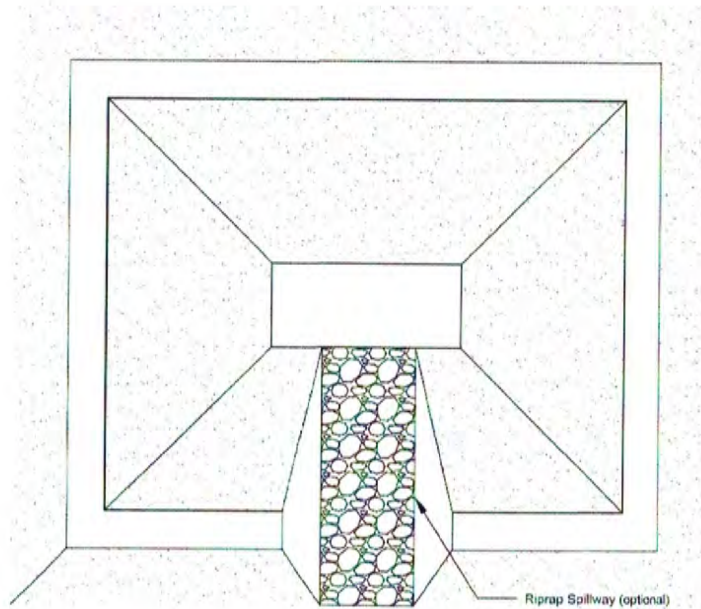
**Length (m):**      75      72.0  
**Width (m):**      35      32.0  
**Depth (m):**      4.5      4

### Evacuation Capacity:

6224 m<sup>3</sup>  
 219798 ft<sup>3</sup>  
 1369085 Imp. Gal

### Catch basin volume (minus freeboard):

4992 m<sup>3</sup>  
 176291 ft<sup>3</sup>  
 1098087 Imp. Gal



### Comparing Catch Basin Volume versus Runoff Potential:

Runoff potential:      4593.75 m<sup>3</sup>  
 Catch basin volume:      4992 m<sup>3</sup>

The catch basin dimensions meet the design requirements in AOPA



**RUNOFF CONTROL CATCH BASIN: Naturally occurring protective layer (cont.)**

**NRCB USE ONLY**

Catch basin calculator. Total volume @ freeboard level: 4992 m<sup>3</sup> Runoff capacity requirements met:  YES  NO

Calculation of the volume attached:  YES  NO

Depth to water table: 9 m (see attached report) Requirements met:  YES  NO

Depth to uppermost groundwater resource: 40.54 m Requirements met:  YES  NO

ERST completed:  See ERST page for details

Protective layer specification comments (e.g. sand lenses; layering uniform or irregular; number and location of boreholes):

Fairly uniform layering of till material (clay loam). Stiff medium plastic . No sand lensing reported in area of proposed catch basin (boreholes 1-4).

Two conditions will be attached to address concerned raised by directly affected parties:  
The permit holder shall immediately notify the NRCB if the water table is less than one meter below the construction zone of the catch basin. See more detail in Appendix D of Decision Summary LA19032.

Leakage detection system required:  YES  NO If yes, please explain.



NRCB USE ONLY	
RUNOFF CONTROL CATCH BASIN CAPACITY SUMMARY (if applicable)	
<b>Facility 1</b>	
Name / description catch basin	Capacity 4992 m <sup>3</sup>
<b>Facility 2</b>	
Name / description	Capacity
<b>Facility 3</b>	
Name / description	Capacity
<b>Facility 4</b>	
Name / description	Capacity
<b>TOTAL CAPACITY</b>	4992 m <sup>3</sup>
<b>RUNOFF VOLUME FROM CONTRIBUTING AREAS</b>	minimal. All run-on diverted
<b>MEETS AOPA RUNOFF CONTROL VOLUME REQUIREMENTS</b>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO



3 July 2020

Wood File: BX30656

Corner's Pride Farms Ltd.  
10484 Magrath Road  
Rosedale, B.C. V0X 1X2

Attention: Mr. James Stoutjesdyk

**Re: Geotechnical Review and Evaluation  
Proposed Feedlot Pens & Catchbasin  
NE-07-007-20-W4M, near Raymond, Alberta**

**wood.**

469 – 40 Street S  
Lethbridge, Alberta T1J 4M1  
T: +1 403 327-7474  
F: +1 403 327-7682  
www.woodplc.com

As requested, Wood Environment & Infrastructure Solutions (Wood) has carried out a geotechnical review and evaluation of the above-captioned site relative to the required protection of the groundwater resource, as required by the Agricultural Operation Practices Act, AB Reg. 267/2001 (hereinafter referred to as "AOPA"). This letter encompasses the soil conditions associated with proposed feedlot pens and a proposed catch basin at the above-captioned site.

In order to demonstrate the suitability of the naturally existing soils for consideration as a naturally occurring protective layer, nine (9) boreholes were advanced at the site on May 27, 2020. The boreholes were advanced at the approximate locations illustrated on Figure 1 as CP1-20 to CP9-20, inclusive.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services and extended to depths of 3.0 m to 9.2 m below existing grades. The boreholes were logged by Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered within the boreholes comprised of medium plastic clay and clay till. No groundwater resource (as defined by the AOPA) was identified within the 9.2 m drilling depth at the site.

In order to demonstrate the permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes CP1-20 and CP9-20. Test well CP1-20 (proposed catch basin) was screened from 5.7 m to 9.0 m depth, and test well CP9-20 (proposed pens) was screened from 2.9 m to 4.5 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring wells to the top for several consecutive days. After several days, the average 24-hour water drop at CP1-20 was about 0.64 m, and the average 24-hour water drop at CP9-20 was 1.75 m.

In order to calculate the permeability of the screened portion of the clay till strata at the test well location, a modified falling head test (as outlined in the USBR Engineering Geology Field Manual Volume 2 [2001]) was used. The input variables and output data are outlined on the In Situ Permeability Test report, attached. As outlined on the report, the results of the *in situ* permeability testing indicate a hydraulic conductivity,  $k_s$ , of  $2.0 \times 10^{-8}$  cm/s at CP1-20, and  $2.5 \times 10^{-7}$  cm/s at CP9-20.



Using the measured permeability of the clay stratum, the 3.5 m of clay screened at CP1-20 has been estimated to represent over 100 m of naturally occurring materials having a hydraulic conductivity of  $1 \times 10^{-6}$  cm/s, and the 1.6 m of clay screened at CP9-20 has been estimated to represent about 6 m of naturally occurring materials having a hydraulic conductivity of  $1 \times 10^{-6}$  cm/s. This represents natural material protection in excess of the minimum requirements outlined by the AOPA for catch basins (minimum 5 m, Section 9.5-b), and solid manure storage (minimum 2 m, Section 9.5-c).

### **Conclusion**

Based on the results of the current investigation, permeability testing, and our understanding of the site and proposed development at the site, it is Wood's opinion that the naturally occurring materials at the site satisfy the AOPA requirements for a naturally occurring 'protective layer' for the proposed catch basin and pens.

We trust that this report satisfies your present requirements. Should you have any questions, please contact the undersigned at your convenience.

Yours truly,

**Wood Environment and Infrastructure Solutions,  
A Division of Wood Canada Limited**

  
John Lobbezoo, P.Eng.  
Associate Engineer, Geotechnical  
Branch Manager, Lethbridge & Medicine Hat



*6 July 2020.*

**Permit to Practice No. P-4546**

### Attachments

- Figure 1 Borehole Locations
- In Situ Permeability Test Calculations
- Soil Profile and Parent Material Description, Chilako Drilling Services



Figure 1

Borehole Locations  
Proposed Pens/Catch Basin  
Corner's Pride Farms Ltd.  
NE-07-007-20-W4M  
Wood File: BX30656  
July, 2020

Township Rd 72

Legend

- Feature 1
- Feature 2

Proposed  
Water Storage  
Dugout

Proposed  
Cattle  
Shelters/Pen

CP7-20

CP6-20

CP8-20

CP5-20

CP9-20

Proposed  
Catch Basin

CP4-20

CP3-20

CP2-20

CP1-20





### In Situ Permeability Test

Modified Falling Head Permeability Equation

$$K_s = \frac{r^2}{2\ell\Delta t} \left[ \frac{\sinh^{-1} \frac{\ell}{r_e}}{2} \ln \left[ \frac{2H_1 - \ell}{2H_2 - \ell} \right] - \ln \left[ \frac{2H_1 H_2 - \ell H_2}{2H_1 H_2 - \ell H_1} \right] \right]$$

taken from USBR Engineering Geology Field Manual Volume 2 (2001)

CP1-20 - Corner's Pride Farms

Wood File: BX30656

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	3.50	length of sand section (m)
	h1	9.35	initial height of water above base of hole (m)
	h2	8.72	final height of water above base of hole (m)
t	24.0	time of test (h)	

**Ks = 2.0E-08 cm/sec**





### In Situ Permeability Test

Modified Falling Head Permeability Equation

$$K_s = \frac{r^2}{2\ell\Delta t} \left[ \frac{\sinh^{-1} \frac{\ell}{r_e}}{2} \ln \left[ \frac{2H_1 - \ell}{2H_2 - \ell} \right] - \ln \left[ \frac{2H_1 H_2 - \ell H_2}{2H_1 H_2 - \ell H_1} \right] \right]$$

taken from USBR Engineering Geology Field Manual Volume 2 (2001)

CP9-20 - Corner's Pride Farms

Wood File: BX30656

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	1.60	length of sand section (m)
	h1	4.65	initial height of water above base of hole (m)
	h2	2.90	final height of water above base of hole (m)
t	24.0	time of test (h)	

**Ks = 2.5E-07 cm/sec**





# CHILAKO DRILLING SERVICES LTD

Box 942 Coaldale, Alberta, T1M 1M8  
(403) 345-3710

## SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: NE7-7-20W4, Corners Pride Farms

Date: 27-May-20

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
CP1-20	0377693 5489812	0-0.15	CL	M	Topsoil		
		0.15-1.9	CL	M	Till		Stiff, med plastic, yellow brown
		1.9-2.5	CL	M	Till		Stiff, med plastic, yellow brown
		2.5-5.1	CL	M	Till		Stiff, med plastic, brown, oxidized
		5.1-9.2	CL	M	Till		Stiff, med plastic brown 50mm H.C. well installed to 9.2m Screen: 9.2-6.2m Sand: 9.2-5.7m Bentonite: 5.7-0.0m Stickup: 0.5m Hole Diameter: 0.15m
CP2-20	0377709 5489860	0-0.15	CL	M	Topsoil		
		0.15-1.5	CL	M	Lac		Stiff, med plastic, brown
		1.5-3.1	CL	M	Till		Stiff, med plastic, brown, oxidized along fractures
		3.1-4.2	SiCL	M	Lac		Stiff, med-high plastic, olive brown, weakly layered
		4.2-6.2	CL-C	M	Till		Stiff, med plastic, dark brown-gray oxidized along fractures
6.2-9.2	CL	M	Till		Stiff, med plastic, brown		
CP3-20	0377684 5489856	0-0.15	CL	M	Topsoil		
		0.15-1.0	CL	M	Lac		Stiff, med plastic, brown
		1.0-7.2	CL	M	Till		Stiff, med plastic, brown, oxidized along fractures
		7.2-9.2	CL-C	M	Till		Stiff, med plastic, brown
CP4-20	0377682 5489960	0-0.15	CL	M	Topsoil		
		0.15-1.2	CL	M	Lac		Stiff, med plastic, gray brown
		1.2-2.2	CL	M	Till		Stiff, med plastic, gray brown, sand lensing
		2.2-3.0	CL	M	Till		Stiff, med plastic, gray brown
CP5-20	0377684 5490060	0-0.15	CL	M	Topsoil		
		0.15-1.5	SiCL	D	Lac		Stiff, med plastic, light brown
		1.5-2.5	CL	SM	Till		Stiff, med plastic, brown, sand lensing
2.5-3.6	CL	M	Till		Stiff, med plastic, brown		
CP6-20	0377686 5490150	0-0.15	CL	M	Topsoil		
		0.15-0.4	CL	D	Lac		V. firm, med plastic, light brown
		0.4-2.1	SiCL	D	Till		V. firm, med plastic, brown, sand lensing @ 1.2m
		2.1-3.3	CL	M	Till		Stiff, med plastic, brown, silt lenses
CP7-20	0377596 5490162	0-0.15	CL	M	Topsoil		
		0.15-1.0	CL-C	D	Lac		
		1.0-1.5	SiCL	D	Lac		Stiff, med plastic, light brown
		1.5-2.1	CL-SCL	D	Till		Stiff, low plastic, dark brown, sand lensing
2.1-3.0	CL-C	D	Till		Stiff, med plastic, dark brown		
CP8-20	0377583 5490058	0-0.15	CL	M	Topsoil		
		0.15-1.5	CL	M	Lac		Stiff, med plastic, brown
		1.5-2.4	CL	M	Till		Stiff, med plastic, brown, sand lensing
		2.4-4.5	CL	M	Till		Stiff, med plastic, brown
CP9-20	0377642 5490048	0-0.15	CL	M	Topsoil		
		0.15-2.4	CL	M	Till		Stiff, med plastic, brown, sand lensing
		2.4-3.0	SiCL-CL	M	Till		Stiff, med plastic, olive brown, weak layering
		3.0-4.5	CL	M	Till		Stiff, med plastic, olive brown 50mm H.C. installed to 4.5m Screen: 4.5-3.0m Sand: 4.5-2.9m Bentonite: 2.9-1.1m Stickup: 0.7m Hole Diameter: 0.15m