Technical Document LA21011

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

NRCB USE ONLY	Application number	Legal land description
☒ Approval ☐ Registration ☐ Authorization ☐ Amendment	LA21011	NE & SE 32-14-25 W4M

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.

Darius Hofer

Date of signing

Feb 18, 2021 Hutterian Brethren of Little Bow

Corporate name (if applicable)

Signature

Darius Hofer

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)
Proposed Layer Barn with attached Manure Storage and Ancillary	66M X 30.5M
(with attached manure storage 10.6 m x 10.6 m)	

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

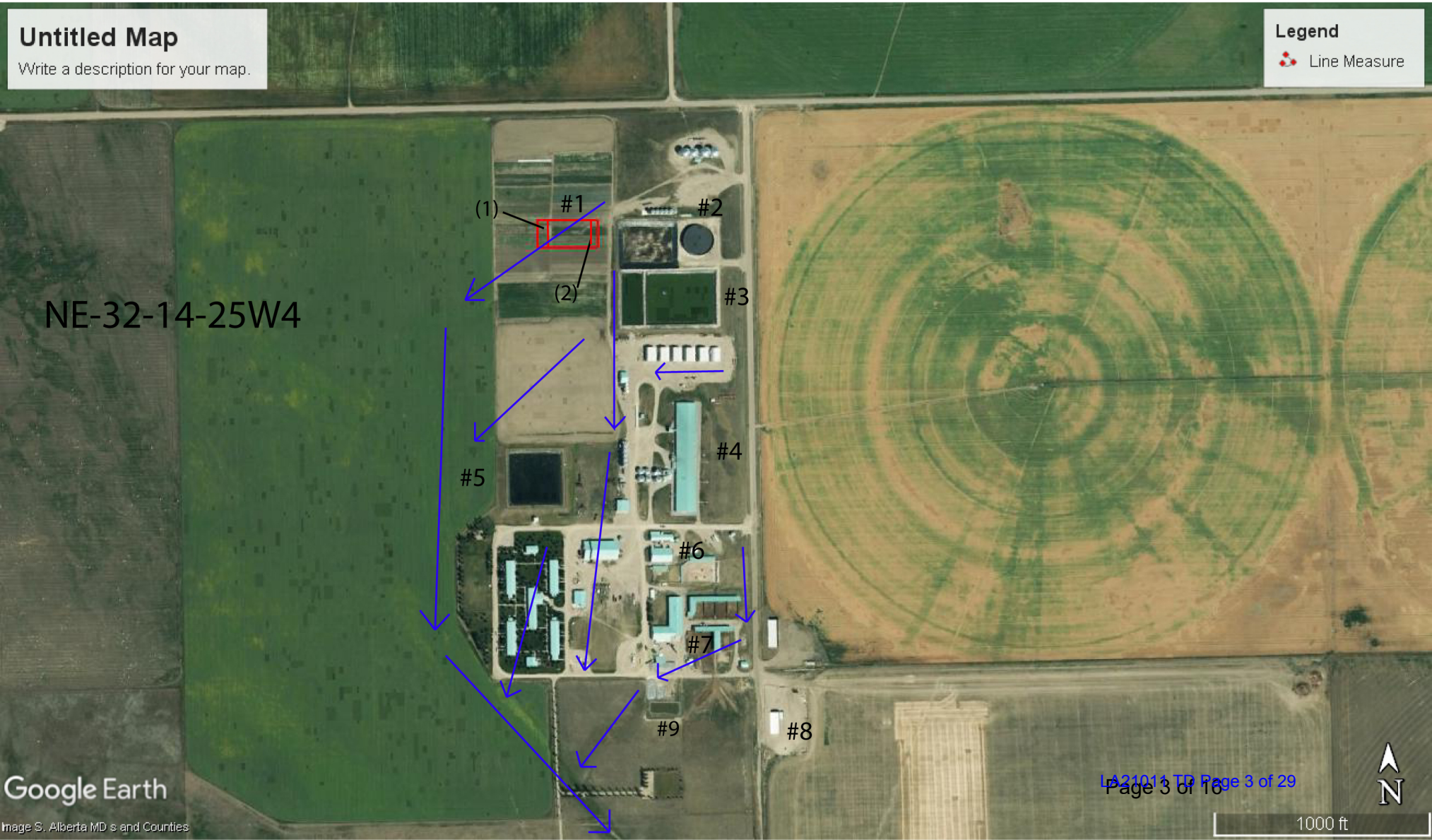
Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Sheep Barn (not a CFO facility, grazing herd)	31M X 13M	
Dairy Barn (holding area)	54M X 18M	
Calf Barn and Milking Parlor	24M X 20M	

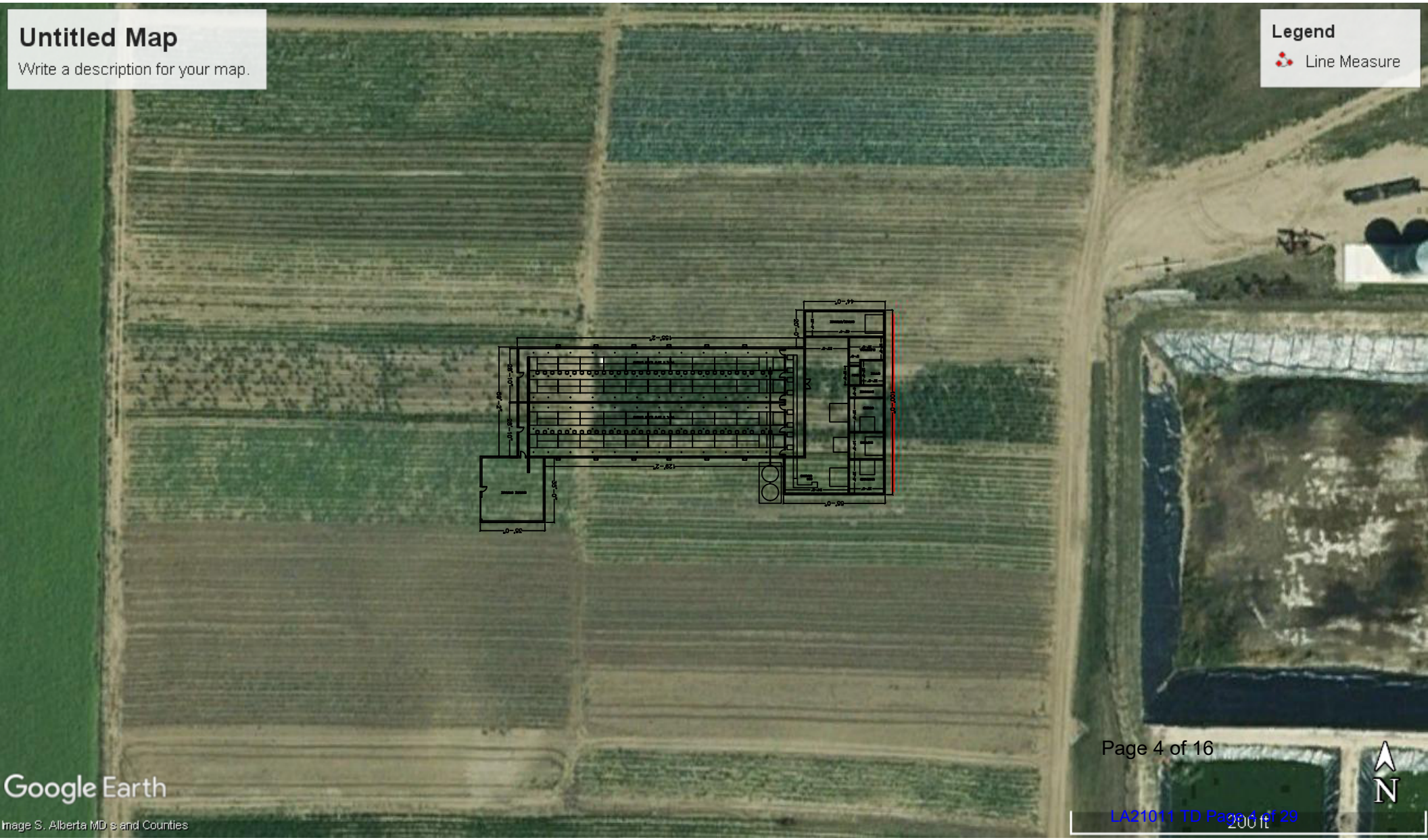
NRCB USE ONLY

Existing facilities continued	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Broiler Barn (poultry)	29MX 20M	
Turkeys (outside shelter)	21M X 5M	
Duck and Goose (outside shelter)	36M X 5M	
Layer Barn (existing)	32M X 9M	
Hog Barn	154M X 28M	
slurry store tank	21 m radius and 6 m tall	
slurry tank overflow	83 m x 67 m x 6 m	
dairy barn catch basin	14 m x 15 m x 3 m	

AO note: all facilities aside from some associated with the sheep herd existed as of January 1, 2002 and are therefore grandfathered under the AOPA. The sheep barns and facilities are part of a grazing herd and fall outside of the AOPA's permitting jurisdiction. See Decision Summary LA21011 for further discussion.

#1- Proposed Layer Barn
(1)- Manure Storage
(2)- Ancillary/ Egg collection area
#2- Liquid Manure Storage (hogs & Dairy)
#3- Human Waste
#4- Hog (farrow to finish)
#5- Dugout
#6- Poultry (layer barn, broiler barn, turkey shelter, duck and goose shelter)
#7- Dairy barn (incuding dry cows and calves)
#8- Sheep Barn
#9- Dairy Catch Basin
● -Drainage Direction




Untitled Map
Write a description for your map.
Legend
Line Measure
Google Earth
Image S. Alberta MD s and Counties
200 ft
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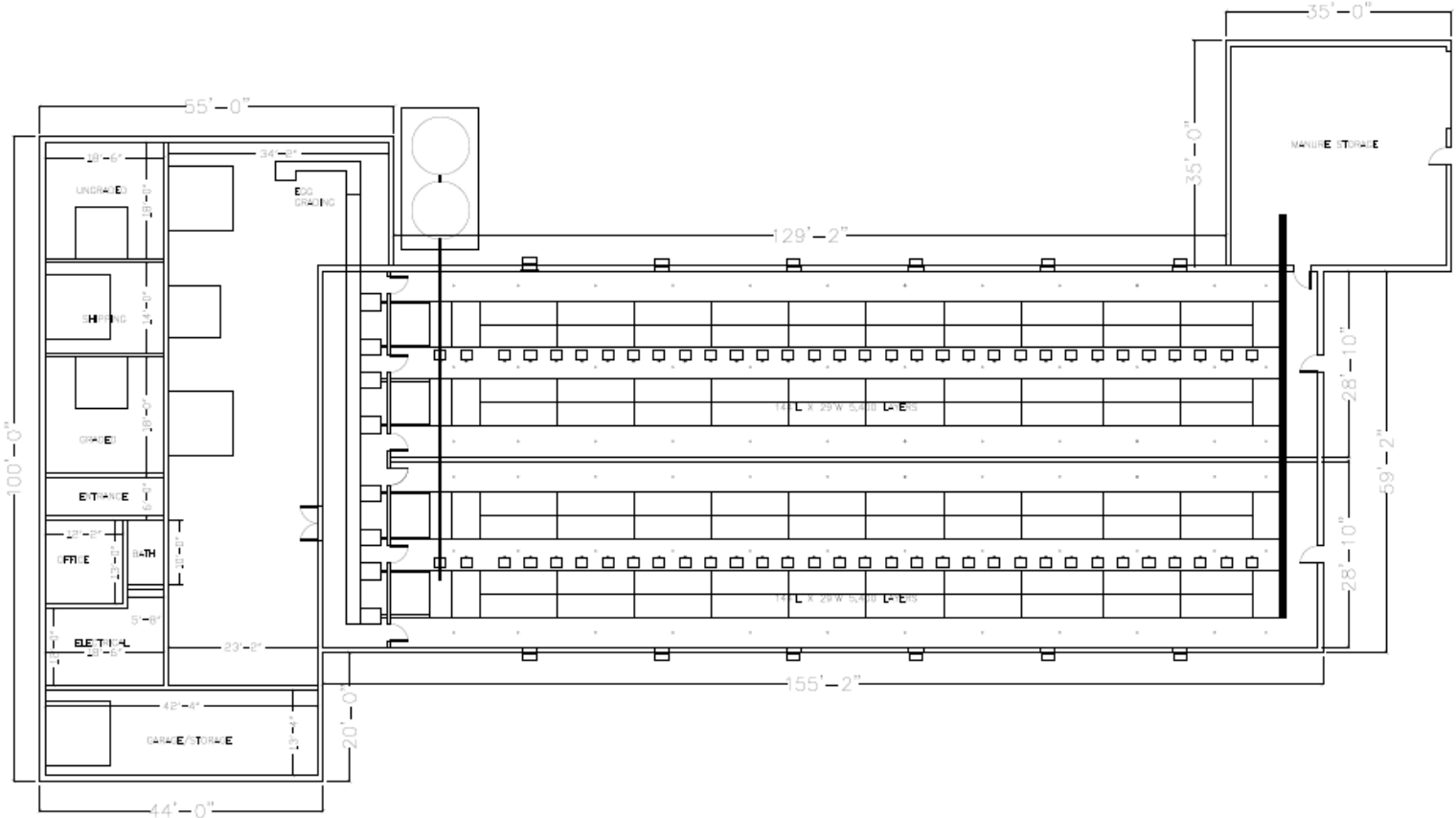
55'-0"
35'-0"
MANURE STORAGE
129'-2"
100'-0"
28'-10"
59'-2"
28'-10"
155'-2"
20'-0"
44'-0"
UNGRADED
GRADED
ENTRANCE
OFFICE
BATH
ELECTRICAL
GARAGE/STORAGE

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.

Signed this ____day of _____, 20____. _____

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.

Signed this ____ day of _____, 20____. _____

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 18 day of February, 2021. Dawn P Hofer

Signature of Applicant or Agent

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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**

Old facility will be re-purposed for other farm use that may include seasonal housing of ducks and geese, and or turkeys before being moved to designated outside sheltes.

Construction completion date for proposed facilities 2025

Additional information

The total amount of layers may vary at any given time due to available quotas for purchase and or lease. Total number of animals will not exceed the proposed amount.

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**

See next page (Table from the Part 1 portion of this application)

		(if applicable)	
Dairy Operation	Unknown	N/A.	90
Sheep	N/A	N/A	120
Turkeys (totals per year)	Unknown	N/A.	500
Ducks & Geese (personal)	Unknown	N/A	800
Broilers (poultry)	Unknown	N/A	3000
Layers (poultry)	Unknown	+ ~~7500~~	10 000.
Hogs	Unknown		300 (Sows)

NRCB USE ONLY

ALL SIGNATURES IN FILE ☒ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

April 13, 2021	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: March 10, 2021

Municipality: Vulcan 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: _____ ☐ N/A

☐ letter sent ☐ response received ☐ written/email ☐ verbal ☐ no comments received

Other: _____ ☐ N/A

☐ letter sent ☐ response received ☐ written/email ☐ verbal ☐ no comments received

Part 2 — Technical Requirements

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NRCB Natural Resources Conservation Board

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: Existing Layer Barn **Proposed 1:** Proposed Layer Barn

Proposed 2: _____ **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?	☑ >1 m ☐ ≤ 1 m	☑ >1 m ☐ ≤ 1 m	☐ >1 m ☐ ≤ 1 m	☐ > 1 m ☐ ≤ 1 m	☒ YES ☐ NO ☐ YES with exemption	Nearest flood plain is Little Bow River Valley which is 10m+ below elevation of nearest CFO facility
Surface water information	How many springs are within 100 m of the manure storage facility or manure collection area?	0	0			☒ YES ☐ NO ☐ YES with exemption	No spring identified during site visit
	How many water wells are within 100 m of the manure storage facility or manure collection area?	0	0			☒ YES ☐ NO ☐ YES with exemption	No water wells identified during site visit (within 400 m)*
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	852M	1350M			☒ YES ☐ NO ☐ YES with exemption	Dairy catch basin is located 145 m from unnamed tributary to Little Bow River
Groundwater information	What is the depth to the water table?		<3M			☒ YES ☐ NO ☐ YES with exemption	Shallow water table not anticipated at site of proposed barn
	What is the depth to the groundwater resource/aquifer you draw water from?					☒ YES ☐ NO ☐ YES with exemption	No wells at site. Shallowest UGR likely at 39.6 m depth (ID 9681202)

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

*risk screening (see next page) considers wells that were drilled and later decommissioned at the site as well as a well located on the quarter section to the west of the CFO

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)

NRCB USE ONLY

ENVIRONMENTAL RISK SCREENING INFORMATION

Well IDs: ID1475603 ID9681202 ID9681203 ID223373

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

ERST for **proposed** facilities

Facility	Groundwater score	Surface water score	File number
Layer barn	Low	Low	LA21011

ERST for **existing** facilities

Facility	Groundwater score	Surface water score	File number
Dairy barn and pens	Low	Low	LA21011
Dairy catch basin	Low	Low	LA21011
Poultry facilities	Low	Low	LA21011
Hog barn	Low	Low	LA21011
Liquid manure storage	Low	Low	LA21011

NRCB USE ONLY

Groundwater or surface water related comments:

Nearest common body of water is an unnamed tributary to the Littlebow River which originates at the southwest corner of the CFO. The confluence of the unnamed tributary with the Little Bow River is located 990 m downstream of the CFO. The unnamed tributary is ephemeral with a poorly defined channel. The Little Bow River is a high use water body which is used for diversion of irrigation water

Twin Valley Reservoir is located approximately 4 km upstream of the CFO site and as briefly discussed in Decision Summary LA21011 is located on the former site of the Little Bow Colony.

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 223373
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1966/01/01

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
ARC #TH9	STAVELY				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	NE	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.219093 Longitude -113.373384
How Location Obtained
Field

Elevation 3210.00 ft
How Elevation Obtained
Estimated

Drilling Information

Method of Drilling
Rotary

Proposed Well Use
Unknown

Type of Work
Test Hole

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
12.00		Brown Till
25.00		Gravel
30.00		Till
31.00		Gravel
67.00		Till & Gravel
81.00		Very Fine Grained Shale & Sandstone
86.00		Hard Till
90.00		Hard Shale

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
90.00 ft			1965/07/15

Borehole

Diameter (in)	From (ft)	To (ft)
0.00	0.00	90.00

Surface Casing (if applicable)
Size OD : 0.00 in
Wall Thickness : 0.000 in
Bottom at : 0.00 ft

Well Casing/Liner
Size OD : 0.00 in
Wall Thickness : 0.000 in
Top at : 0.00 ft
Bottom at : 0.00 ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)

Perforated by

Annular Seal
Placed from 0.00 ft to 0.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : 0.00 in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
MCDONALD DRLG

Copy of Well report provided to owner
Date approval holder signed

Water Well Drilling Report

View in Metric | Export to Excel

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GIC Well ID 223373
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1966/01/01

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
ARC #TH9	STAVELY				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	NE	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.219093 Longitude -113.373384
How Location Obtained: Field

Elevation 3210.00 ft
How Elevation Obtained: Estimated

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level: in
Is Artesian Flow:
Rate: igpm
Is Flow Control Installed:
Describe:

Recommended Pump Rate: igpm
Recommended Pump Intake Depth (From TOC): ft
Pump Installed:
Type:
Depth: ft
Make:
H.P.:
Model (Output Rating):

Did you Encounter Saline Water (>4000 ppm TDS):
Depth: ft
Gas:
Depth: ft
Well Disinfected Upon Completion:
Geophysical Log Taken: Electric
Submitted to ESRD: Electric

Sample Collected for Potability:
Submitted to ESRD:

Additional Comments on Well

Yield Test

Taken From Ground Level | Measurement in Imperial

Test Date	Start Time	Static Water Level
		ft

Method of Water Removal

Type:
Removal Rate: igpm
Depth Withdrawn From: ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
MCDONALD DRLG

Copy of Well report provided to owner

Date approval holder signed

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

GIC Well ID 1475603
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2006/08/01

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
MCDOUGALL, IAN	38247 RR270	RED DEER COUNTY	ALBERTA	CA	T4E 1B7

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	12	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.219198 Longitude -113.389504
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation ft
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Unknown

Proposed Well Use

Type of Work
Unknown

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
30.00		Brown Sandy Clay & Rocks
96.00		Gray Clay & Rocks
97.00		Gravel
132.00		Clay
136.00		Gravel
160.00		Shale & Sandstone Ledges

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)
2006/07/14	16.60	73.67

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
160.00 ft	155.00 ft	2006/07/12	2006/07/12

Borehole

Diameter (in)	From (ft)	To (ft)
8.75	0.00	139.00
6.75	139.00	160.00

Surface Casing (if applicable)
Plastic
Size OD : 5.56 in
Wall Thickness : 0.327 in
Bottom at : 155.00 ft

Well Casing/Liner
Unknown
Size OD : in
Wall Thickness : in
Top at : ft
Bottom at : ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)
139.00	155.00	0.250		10.00

Perforated by Saw

Annular Seal
Placed from 0.00 ft to 139.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings Bottom Fittings

Pack
Type Unknown Grain Size
Amount Unknown

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
PAUL STAHL

Certification No
32588A

Company Name
M&M DRILLING CO. LTD.

Copy of Well report provided to owner
Yes

Date approval holder signed
2006/07/23

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 1475603
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2006/08/01

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
MCDOUGALL, IAN	38247 RR270	RED DEER COUNTY	ALBERTA	CA	T4E 1B7

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	12	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.219198 Longitude -113.389504
How Location Obtained: Differential corrected handheld GPS 5-10m

Elevation ft
How Elevation Obtained: Not Obtained

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level 26.00 in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate igpm
Recommended Pump Intake Depth (From TOC) ft
Pump Installed
Type
Depth ft
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD
Sample Collected for Potability
Submitted to ESRD

Additional Comments on Well

FIeLD TEST 800 TDS SOFT WATER. BAILED 18 IGM @ 140'.

Yield Test

Taken From Ground Level
Measurement in Imperial

Test Date	Start Time	Static Water Level
2006/07/14	2:24 AM	73.67 ft

Method of Water Removal

Type Pump
Removal Rate 16.60 igpm
Depth Withdrawn From 150.00 ft

If water removal period was < 2 hours, explain why

Depth to water level

Pumping (ft)	Elapsed Time Minutes:Sec	Recovery (ft)
86.75	1:00	93.00
93.08	2:00	84.17
97.50	3:00	81.17
100.67	4:00	79.00
102.58	5:00	77.82
104.00	6:00	77.17
105.42	7:00	76.58
106.08	8:00	76.50
106.75	9:00	76.25
107.25	10:00	76.17
108.17	12:00	75.92
108.67	14:00	75.82
109.00	16:00	75.75
109.75	20:00	75.42
110.00	25:00	75.25
110.42	30:00	75.17
110.82	35:00	75.07
110.82	40:00	74.75
111.33	50:00	74.58
111.67	60:00	74.58
112.00	75:00	74.42
112.17	90:00	74.33
112.42	105:00	74.33
112.75	120:00	74.33

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well: PAUL STAHL
Certification No: 32588A
Company Name: M&M DRILLING CO. LTD.
Copy of Well report provided to owner: Yes
Date approval holder signed: 2006/07/23

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

GIC Well ID 9681202
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2016/10/26

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
LITTLE BOW COLONY	P.O. BOX 1587	VULCAN	ALBERTA	CANADA	T0L 2B0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	9	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.218508 Longitude -113.370798
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 3166.01 ft
How Elevation Obtained
Differential corrected handheld GPS 5-10m

Drilling Information

Method of Drilling
Combination

Proposed Well Use
Commercial

Type of Work
New Well-Decommissioned
View Decommissioning Report

Plugged 2016/10/13
Plugged with Bentonite Chips
Amount 20.00 Bags

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
2.00		Brown Sandy Clay & Rocks
10.00		Brown Sandy Clay
22.00		Brown Sand
28.00		Brown Clay
35.00		Brown Sandy Clay
42.00		Gray Clay & Rocks
45.00		Gray Sand
113.00		Gray Clay & Rocks
117.00		Gray Shale
130.00	Yes	Gray Medium Grained Sandstone
140.00		Gray Shale & Sandstone Ledges
220.00		See Comments Shale
240.00		Gray Sandstone
260.00		Gray Shale & Sandstone Ledges
280.00		Gray Medium Grained Sandstone
380.00		Gray Shale
440.00		Gray Shale & Sandstone Ledges

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
440.00 ft		2016/05/09	

Borehole

Diameter (in)	From (ft)	To (ft)
7.88	0.00	113.00
6.00	113.00	116.00
5.13	116.00	440.00

Surface Casing (if applicable)
Size OD : in
Wall Thickness : in
Bottom at : ft

Well Casing/Liner
Size OD : in
Wall Thickness : in
Top at : ft
Bottom at : ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)

Perforated by

Annular Seal
Placed from ft to ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
CHAD NIEMANS

Certification No
46340A

Company Name
NIEMANS DRILLING & SONS LTD.

Copy of Well report provided to owner
Yes

Date approval holder signed
2016/10/26

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 9681202
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2016/10/26

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
LITTLE BOW COLONY	P.O. BOX 1587	VULCAN	ALBERTA	CANADA	T0L 2B0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	9	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.218508 Longitude -113.370798
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 3166.01 ft
How Elevation Obtained
Differential corrected handheld GPS 5-10m

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate igpm
Recommended Pump Intake Depth (From TOC) ft
Pump Installed
Type
Depth ft
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion Yes
Geophysical Log Taken
Submitted to ESRD

Sample Collected for Potability
Submitted to ESRD

Additional Comments on Well

GRAY AND RED SHALE LEDGES FROM 140' - 220'. 6 GPM AT 130' TDS 1000 PPM.

Yield Test

Taken From Ground Level | Measurement in Imperial

Test Date	Start Time	Static Water Level
		ft

Method of Water Removal

Type
Removal Rate igpm
Depth Withdrawn From ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken		Diversion Date & Time
TOWN OF HIGH RIVER	1200.00	ig	2016/05/09 7:00 AM

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
CHAD NIEMANS

Certification No
46340A

Company Name
NIEMANS DRILLING & SONS LTD.

Copy of Well report provided to owner
Yes

Date approval holder signed
2016/10/26

Water Well Drilling Report

View in Metric | Export to Excel

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GOWN ID

GIC Well ID 9681203
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2016/10/26

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
LITTLE BOW COLONY	P.O. BOX 1587	VULCAN	ALBERTA	CANADA	T0L 2B0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	10	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.217694 Longitude -113.375239

How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 3162.73 ft

How Elevation Obtained
Differential corrected handheld GPS 5-10m

Drilling Information

Method of Drilling
Combination

Proposed Well Use
Commercial

Type of Work
New Well-Decommissioned
View Decommissioning Report

Plugged 2016/05/11
Plugged with Bentonite Chips
Amount 50.00 Bags

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
13.00		Brown Sandy Clay & Rocks
35.00		Brown Sandy Clay
108.00		Gray Sandy Clay & Rocks
125.00		Gray Shale
260.00		See Comments Shale
265.00		Gray Medium Grained Sandstone
305.00		Gray Shale
310.00		Gray Fine Grained Sandstone
320.00		Gray Shale

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
320.00 ft		2016/05/11	2016/05/12

Borehole

Diameter (in)	From (ft)	To (ft)
7.88	0.00	109.00
6.00	109.00	113.00
5.13	113.00	320.00

Surface Casing (if applicable)
Size OD : in
Wall Thickness : in
Bottom at : ft

Well Casing/Liner
Size OD : in
Wall Thickness : in
Top at : ft
Bottom at : ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)

Perforated by

Annular Seal
Placed from ft to ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
CHAD NIEMANS

Certification No
46340A

Company Name
NIEMANS DRILLING & SONS LTD.

Copy of Well report provided to owner
Yes

Date approval holder signed
2016/10/26

Water Well Drilling Report

View in Metric | Export to Excel

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GOWN ID

GIC Well ID 9681203
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2016/10/26

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
LITTLE BOW COLONY	P.O. BOX 1587	VULCAN	ALBERTA	CANADA	T0L 2B0

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	10	32	14	25	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 50.217694 Longitude -113.375239
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 3162.73 ft
How Elevation Obtained
Differential corrected handheld GPS 5-10m

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate igpm
Recommended Pump Intake Depth (From TOC) ft
Pump Installed
Type
Depth ft
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion Yes
Geophysical Log Taken
Submitted to ESRD
Sample Collected for Potability
Submitted to ESRD

Additional Comments on Well
RED AND GRAY SHALE FROM 125' - 260'.

Yield Test

Taken From Ground Level | Measurement in Imperial

Test Date	Start Time	Static Water Level
		ft

Method of Water Removal

Type
Removal Rate igpm
Depth Withdrawn From ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken		Diversion Date & Time
TOWN OF HIGH RIVER	1200.00	ig	2016/05/11 7:00 AM

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
CHAD NIEMANS

Certification No
46340A

Company Name
NIEMANS DRILLING & SONS LTD.

Copy of Well report provided to owner
Yes

Date approval holder signed
2016/10/26

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

DISTANCE OF ANY MANURE STORAGE FACILITY (EXISTING OR PROPOSED) TO NEIGHBOURING RESIDENCES

			NRCB USE ONLY				
Neighbour name(s)	**Legal land description**	**Distance (m)**	**Zoning (LUB) category**	**MDS category (1-4)**	**Distance (m)**	**Waiver attached (if required)**	**Meets regulations**
(#1) 145071 RGE RD 255	NW-32-14-25W4	1450M	RG*	1	1390		Yes
(#2) 151026 HWY 529	SE-8-15-25W4	3200M	RG*	1	2700		Yes
(#3) 252079 HWY 529	NW-10-15-25W4	3700M	RG*	1	3280		Yes
(#4) 252045B TWP RD 150	NW-34-14-25W4	2500M	RG*	1	2395		Yes
	RG- rural general						

LAND BASE FOR MANURE AND COMPOST APPLICATION (complete only if an increase in livestock or manure production will occur)

				NRCB USE ONLY	
Name of land owner(s)*	**Legal land description**	**Usable area** (ha)**	**Soil zone *****	**Usable area (ha)**	**Agreement attached (if required)**
Document supplied	(Land Owners Map)	3000 ha+			
	AO note: see next page				
			Total		

* If you are **not** the registered landowner, you must attach copies of land use agreements signed by all landowners.

** Available manure spreading area (excluding setback areas from residences, common bodies of water, water wells, etc. as identified in Agdex 096-5)

*** Brown, dark brown, black, grey wooded, or irrigated

Additional information (attach any additional information as required)

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)

NRCB USE ONLY

MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): Measurement from aerial photo

Margin of error (if applicable): _____

Requirements (m): Category 1: 590 m Category 2: 787 m Category 3: 984 m Category 4: 1,574 m

Technology factor: ☐ YES ☒ NO

Expansion factor: ☐ YES ☒ NO

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

LAND BASE FOR MANURE AND COMPOST APPLICATION

Land base required: 207 ha irrigated, 412 ha dark brown

Land base listed: 4000 ha (irrigated and dark brown)

Area not suitable: _____

Available area _____ Requirement met: ☒ YES ☐ NO

AO note: applicant provided significantly more than sufficient spreading lands. AOPA requirements are easily met.

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 *Photo of site attached by AO

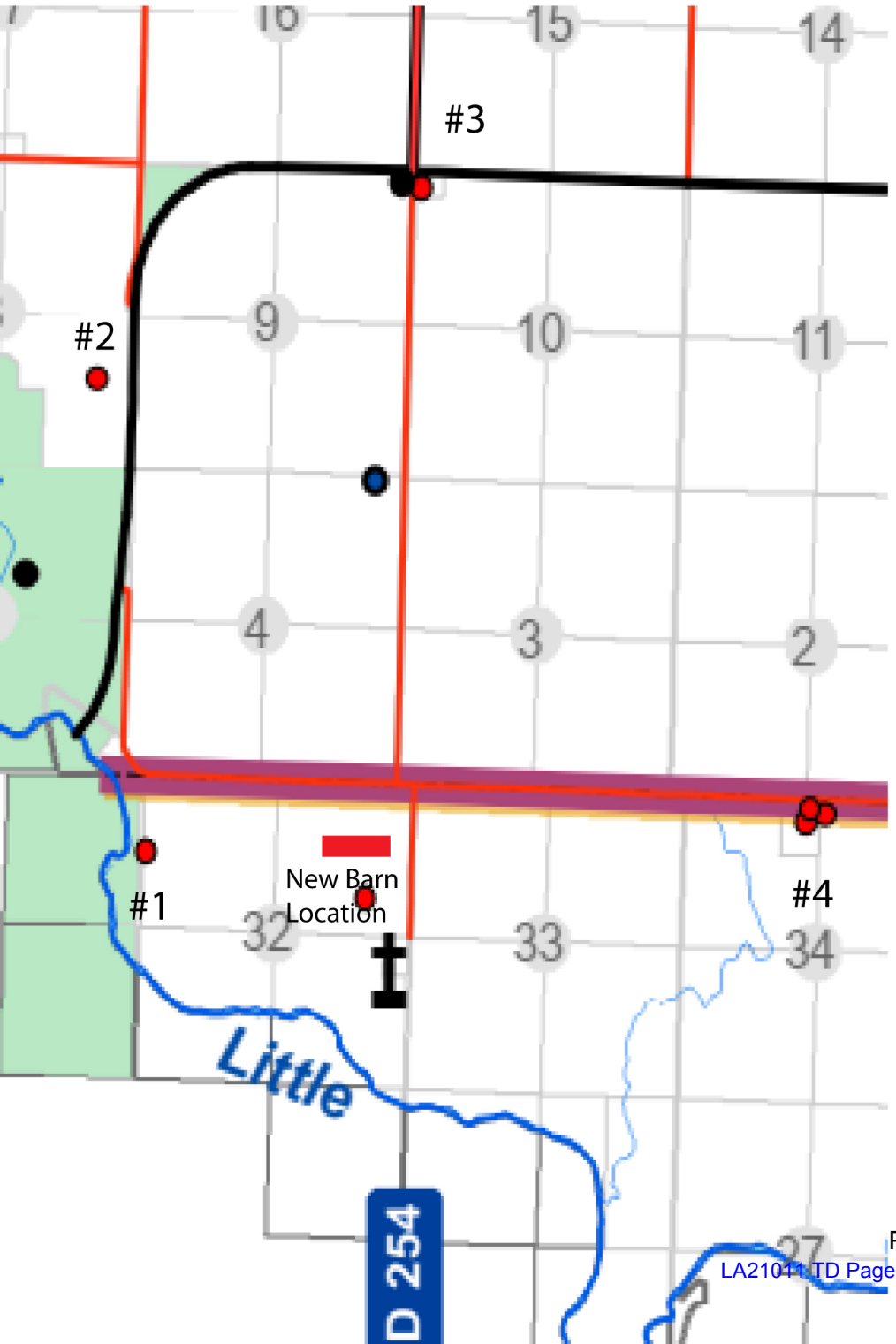
GRANDFATHERING

Already completed: ☐ YES ☒ NO ☐ N/A

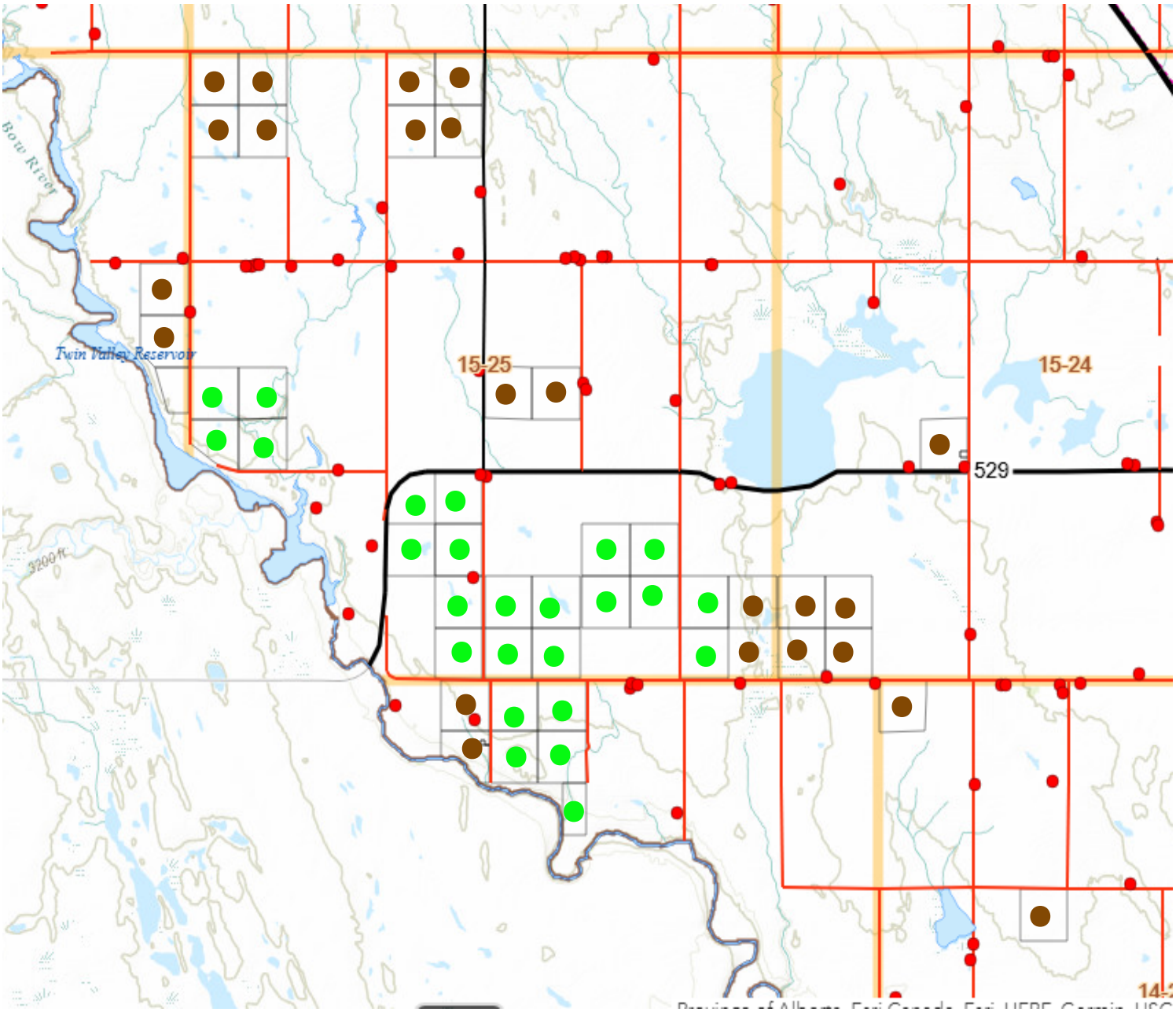
If already completed, see _____

See decision summary LA21011 for discussion of grandfathering of the CFO

AO note: Site of proposed layer barn on April 13th 2021. Topography is flat


N
#3
HWY 529
#2
9
10
11
4
3
2
TWP 150
E
#1
New Barn
Location
#4
32
33
34
Little
D 254
27

- -Irrigation
- -Dryland



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
Feedlot Animals	Cows/Finishers (900+ lbs)	0.700	0.700	0.910	0.4459		-
	Feeders (450 - 900 lbs)	0.700	0.700	0.500	0.2450		-
	Feeder Calves (<550 lbs)	0.700	0.700	0.275	0.1348		-
	Horses - PMU	0.650	0.700	1.000	0.4550		-
	Horses - Feeders > 750 lbs	0.650	0.700	1.000	0.4550		-
	Horses - Foals < 750 lbs	0.650	0.700	0.300	0.1365		-
	Mules	0.600	0.700	1.000	0.4200		-
	Donkeys	0.600	0.700	0.670	0.2814		-
	Bison	0.600	0.700	1.000	0.4200		-
	Other						-
Dairy (*count lactating cows only)	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	0.800	1.100	2.000	1.7600	90	158.4
	Free Stall – Lactating Cows with Dry Cows only*	0.800	1.100	1.640	1.4432		-
	Free Stall – Lactating Cows only	0.800	1.100	1.400	1.2320		-
	Tie Stall – Lactating Cows only	0.800	1.000	1.400	1.1200		-
	Loose Housing – Lactating Cows only	0.800	1.000	1.400	1.1200		-
	Dry Cow	0.800	0.700	1.000	0.5600		-
	Replacements – Bred Heifers (Breeding to Calving)	0.800	0.700	0.875	0.4900		-
	Replacements - Growing Heifers (350 lbs to breeding)	0.800	0.700	0.525	0.2940		-
	Calves (< 350 lbs)	0.800	0.700	0.200	0.1120		-
	Other						-
Swine Liquid (*count sows only)	Farrow to finish *	2.000	1.100	1.780	3.9160	300	1,174.8
	Farrow to wean *	2.000	1.100	0.670	1.4740		-
	Farrow only *	2.000	1.100	0.530	1.1660		-
	Feeders/Boars	2.000	1.100	0.200	0.4400		-
	Growers/Roasters	2.000	1.100	0.118	0.2600		-
	Weaners	2.000	1.100	0.055	0.1210		-
	Other						-
Swine Solid (*Count sows only)	Farrow to finish *	2.000	0.800	1.780	2.8480		-
	Farrow to wean *	2.000	0.800	0.670	1.0720		-
	Farrow only *	2.000	0.800	0.530	0.8480		-
	Feeders/Boars	2.000	0.800	0.200	0.3200		-
	Growers/Roasters	2.000	0.800	0.118	0.1888		-
	Weaners	2.000	0.800	0.055	0.0880		-
							-
Poultry	Chicken - Breeders - Solid	1.000	0.700	0.010	0.0070		-
	Chicken - Layers - Liquid (includes associated pullets)	2.000	1.100	0.008	0.0176		-
	Chicken - Layers - (Belt Cage)	2.000	0.700	0.008	0.0112	10,000	112.0
	Chicken - Layers - (Deep Pit)	2.000	0.700	0.008	0.0112		-
	Chicken - Pullets/Broilers	1.000	0.700	0.002	0.0014	3,000	4.2
	Turkey - Toms/Breeders	1.000	0.700	0.020	0.0140	500	7.0
	Turkey - Hens (light)	1.000	0.700	0.013	0.0091		-
	Turkey - Broilers	1.000	0.700	0.010	0.0070		-
	Ducks	1.000	0.700	0.010	0.0070	800	5.6
	Geese	1.000	0.700	0.020	0.0140	800	11.2
	Other						-
Goats and Sheep	Sheep - Ewes/Rams	0.600	0.700	0.200	0.0840		-
	Sheep - Ewes with lambs	0.600	0.700	0.250	0.1050	120	12.6
	Sheep - Lambs	0.600	0.700	0.050	0.0210		-
	Sheep - Feeders	0.600	0.700	0.100	0.0420		-
	Goats - Meat/Milk (per Ewe)	0.700	0.700	0.170	0.0833		-
	Goats - Nannies/Billies	0.700	0.700	0.140	0.0686		-
	Goats - Feeders	0.700	0.700	0.077	0.0377		-
	Other						-
Cervid	Elk	0.600	0.700	0.600	0.2520		-
	Deer	0.600	0.700	0.200	0.0840		-
	Other						-
Wild Boar	Feeders	2.000	0.800	0.140	0.2240		-
	Sow (farrowing)	2.000	0.800	0.371	0.5936		-
	Other						-
					Total		1,485.8

For New Operations

Dispersion Factor 1

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,936	590
2	54.72	2,582	787
3	68.4	3,227	984
4	109.44	5,163	1,574

For Expanding Operations

Dispersion Factor 1
Expansion Factor 0.77

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,491	454
2	54.72	1,988	606
3	68.40	2,485	757
4	109.44	3,976	1,212

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)
Feedlot Animals	Cows/Finishers (900+ lbs)	0.0	0.0	0.0	0.0	0.0
	Feeders (450 - 900 lbs)	0.0	0.0	0.0	0.0	0.0
	Feeder Calves (<550 lbs)	0.0	0.0	0.0	0.0	0.0
	Horses - PMU	0.0	0.0	0.0	0.0	0.0
	Horses - Feeders > 750 lbs	0.0	0.0	0.0	0.0	0.0
	Horses - Foals < 750 lbs	0.0	0.0	0.0	0.0	0.0
	Mules	0.0	0.0	0.0	0.0	0.0
	Donkeys	0.0	0.0	0.0	0.0	0.0
	Bison	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Dairy (*count lactating cows only)	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	90.0	133.7	111.3	83.5	66.8
	Free Stall – Lactating Cows with Dry Cows only *	0.0	0.0	0.0	0.0	0.0
	Free Stall – Lactating Cows only*	0.0	0.0	0.0	0.0	0.0
	Tie Stall – Lactating Cows only	0.0	0.0	0.0	0.0	0.0
	Loose Housing – Lactating Cows only	0.0	0.0	0.0	0.0	0.0
	Dry Cow (Solid manure)	0.0	0.0	0.0	0.0	0.0
	Dry Cow (Liquid manure)	0.0	0.0	0.0	0.0	0.0
	Replacements – Bred Heifers (Breeding to Calving)	0.0	0.0	0.0	0.0	0.0
	Replacements - Growing Heifers (350 lbs to breeding)	0.0	0.0	0.0	0.0	0.0
	Calves (< 350 lbs)	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Swine Liquid (*count sows only)	Farrow to finish *	300.0	200.5	167.1	125.3	100.3
	Farrow to wean *	0.0	0.0	0.0	0.0	0.0
	Farrow only *	0.0	0.0	0.0	0.0	0.0
	Feeders/Boars	0.0	0.0	0.0	0.0	0.0
	Growers/Roasters	0.0	0.0	0.0	0.0	0.0
	Weaners	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Swine Solid (*Count sows only)	Farrow to finish *	0.0	0.0	0.0	0.0	0.0
	Farrow to wean *	0.0	0.0	0.0	0.0	0.0
	Farrow only *	0.0	0.0	0.0	0.0	0.0
	Feeders/Boars	0.0	0.0	0.0	0.0	0.0
	Growers/Roasters	0.0	0.0	0.0	0.0	0.0
	Weaners	0.0	0.0	0.0	0.0	0.0
		0.0				
Poultry	Chicken - Breeders - Solid	0.0	0.0	0.0	0.0	0.0
	Chicken - Layers - Liquid (includes associated pullets)	0.0	0.0	0.0	0.0	0.0
	Chicken - Layers - (Belt Cage)	10000.0	55.0	46.0	34.0	28.0
	Chicken - Layers - (Deep Pit)	0.0	0.0	0.0	0.0	0.0
	Chicken - Pullets/Broilers	3000.0	9.8	8.1	6.1	4.9
	Turkey - Toms/Breeders	500.0	4.8	4.0	3.0	2.4
	Turkey - Hens (light)	0.0	0.0	0.0	0.0	0.0
	Turkey - Broilers	0.0	0.0	0.0	0.0	0.0
	Ducks	800.0	1.3	1.0	0.8	0.6
	Geese	800.0	2.6	2.2	1.6	1.3
	Other	0.0				
Goats and Sheep	Sheep - Ewes/Rams	0.0	0.0	0.0	0.0	0.0
	Sheep - Ewes with lambs	120.0	4.9	4.1	3.1	2.5
	Sheep - Lambs	0.0	0.0	0.0	0.0	0.0
	Sheep - Feeders	0.0	0.0	0.0	0.0	0.0
	Goats - Meat/Milk (per Ewe)	0.0	0.0	0.0	0.0	0.0
	Goats - Nannies/Billies	0.0	0.0	0.0	0.0	0.0
	Goats - Feeders	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Cervid	Elk	0.0	0.0	0.0	0.0	0.0
	Deer	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Wild Boar	Feeders	0.0	0.0	0.0	0.0	0.0
	Sow (farrowing)	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
	Total Hectares		412	343.8	257.4	206.7
	Total Acres		1,019	849.6	636.0	510.7

SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Concrete liner

*(complete a copy of this section for **EACH** barn, feedlot, and storage facility for solid manure, composting materials, or compost with a concrete liner)*

Facility description / name *(as indicated on site plan)*

1. Proposed Layer Barn
2. Manure Storage

Manure storage capacity

	Length (m)	Width (m)	Depth below grade to the bottom of the liner (m)	**NRCB USE ONLY** Estimated storage capacity (m^3)
1.	66M	30.5M	0	1 year
2.	10.6M	10.6M	0	1 year
			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

Roof and concrete base liner.

Liner protection

Describe how the physical integrity of the liner will be maintained

NRCB USE ONLY

Requirements met: ☒ YES ☐ NO

SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Concrete liner (cont.)

Concrete liner details

Concrete thickness 6"	Method of sulphate protection: Type 50 or equivalent
Concrete strength 25MPA	Concrete reinforcement size and spacing 10mm No more that 18" O/C

Concrete requirements can be found in Technical Guideline Agdex 096-93
Guideline minimums:
Solid manure: 25MPa (D)
Solid manure (wet): 30MPa (C)
Method of sulphate protection:
Type 50 or Type 10 with fly ash or equivalent

NRCB USE ONLY
Requirements met: ☒ YES ☐ NO
Condition required: ☒ YES ☐ NO
Report attached: ☐ YES ☒ NO

Additional information *(attach as required)*

NRCB USE ONLY

Nine month manure storage volume requirements met ☒ YES ☐ YES With STMS ☐ NO

Depth to water table: 3 m _____ Requirements met: ☒ YES ☐ NO

Depth to Uppermost groundwater resource: 39.6 m from surface _____ Requirements met: ☒ YES ☐ NO

ERST completed: ☒ see ERST page for details

Surface water control systems

Requirements met: ☒ YES ☐ NO Details/comments:

All surface water controlled by roof and contouring

Concrete liner details

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