

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	Application number	Legal land description
	LA24046	NW 6-17-21 W4M
<input type="checkbox"/> Approval <input type="checkbox"/> Registration <input checked="" type="checkbox"/> Authorization <input type="checkbox"/> Amendment		

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.

April 11/2025

Date of signing

Sliver winds Hutterian Brethren

Corporate name (if applicable)

michael

Signature

michael b Mandel

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)
Solid manure pad/composting pad	27x20x1
AO Comment: Solid manure/composting pad is to be constructed at grade with berms to prevent run-off.	

Existing facilities: list ALL existing confined feeding operation facilities and their dimensions		
Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Layer/poulet	59x16/63/25	
Finisher barn 1 turkeys	122x25	
Finisher bar 2 turkeys	122x25	
NRCB USE ONLY AO Comment: CFO is currently permitted under Approval LA17073 and Authorization LA21051. Of the facilities permitted by the approval and authorization, only the layer barn, pullet barn, turkey barns, and solid manure pad have been constructed to date.		

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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)

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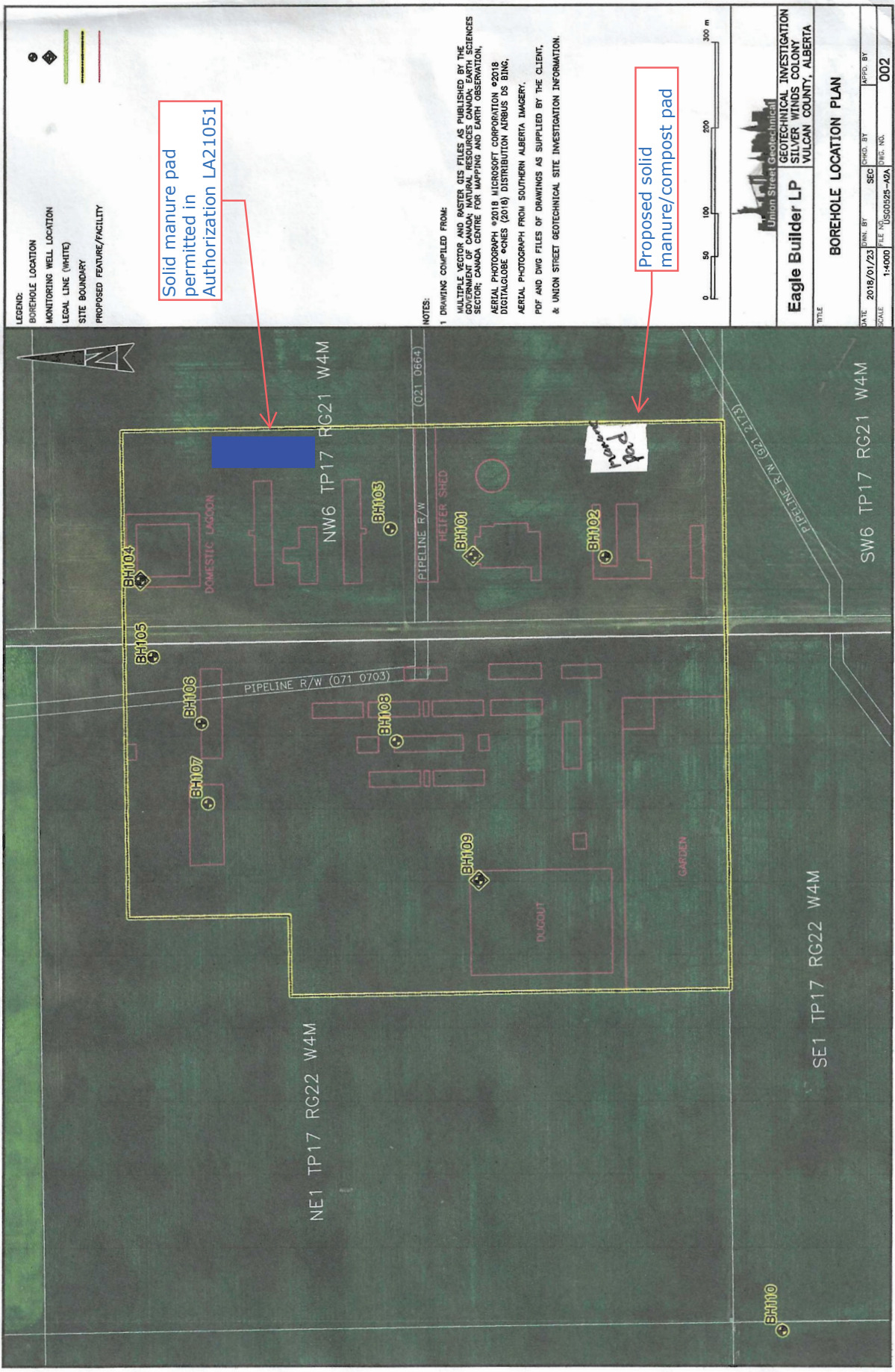
If a new facility is replacing an old facility, please explain what will happen to the old facility and when. ☐ N/A

Construction completion date for proposed facilities April 15/2025

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 Comment: No proposed change in livestock numbers with this application.			



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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 11 day of April, 2025.

michael

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

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NRCB USE ONLY

WATER WELL AND SURFACE WATER INFORMATION

Well IDs: 114748 (not located on site, used for determining UGR) _____

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

Water Well Exemption Screening Tool ☒ N/A

Water Well ID	Preliminary Screening Score	Secondary Screening Score	Facility

Groundwater or surface water related comments:

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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: Layer/poulet

Proposed 1: _____

Proposed 2: Solid manure pad/composting pad

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 elevation of the floor of the lowest manure storage or collection facility above the 1:25 year flood plain or the highest known flood level?	<div><input type="checkbox"/> > 1 m</div> <div><input type="checkbox"/> ≤ 1 m</div>	<div><input checked="" type="checkbox"/> > 1 m</div> <div><input type="checkbox"/> ≤ 1 m</div>	<div><input type="checkbox"/> > 1 m</div> <div><input type="checkbox"/> ≤ 1 m</div>	<div><input type="checkbox"/> > 1 m</div> <div><input type="checkbox"/> ≤ 1 m</div>	<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>	Not in a known flood plain
	Surface water information	How many springs are within 100 m of the manure storage facility or manure collection area?	n/a	n/a			<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>
How many water wells are within 100 m of the manure storage facility or manure collection area?		n/a	n/a			<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>	None observed on site
What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)			67.66			<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>	800 m to unnamed tributary to Lake McGregor
Groundwater information	What is the depth to the water table?		9.14			<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>	No water encountered in drilling reports from Approval LA17073
	What is the depth to the groundwater resource/aquifer you draw water from?					<div><input checked="" type="checkbox"/> YES</div> <div><input type="checkbox"/> YES with exemption</div> <div><input type="checkbox"/> NO</div>	Shallowest potential for UGR is 18.3 m in well ID# 114748

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

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ENVIRONMENTAL RISK SCREENING INFORMATION

ERST for **proposed** facilities

Facility	Groundwater score	Surface water score	File number
Solid manure/compost pad	Low	Low	LA24046

ERST for **existing** facilities

Facility	Groundwater score	Surface water score	File number
Solid manure pad	Low	Low	LA21051
Dairy barn	Low	Low	LA17073
Heifer shed and exercise pen	Low	Low	LA17073
Concrete manure storage tank	Low	Low	LA17073
Pullet barn + manure storage room	Low	Low	LA17073
Layer barn + manure storage room	Low	Low	LA17073
Turkey finisher barn A	Low	Low	LA17073
Turkey finisher barn B	Low	Low	LA17073

~~ERST related comments:~~

Turkey brooder barn	Low	Low	LA17073
Duck and goose barn	Low	Low	LA17073

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

Neighbour name(s)	Legal land description	Distance (m)	NRCB USE ONLY			
			Zoning (LUB) category	MDS category (1-4)	Distance (m)	Waiver attached (if required)
Jim Drewery	SE-2-17-22-W4	1917.33	Rural Gen	1	1775	N/A
Lynne Goode	NE-31-16-21-W4	1602.04	Rural Gen	1	1775	N/A
Brad & Melanie Mach	sw-12-17-22-w4	2128.91	Rural Gen	1	1775	N/A

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

Name of land owner(s)*	Legal land description	Usable area** (ha)	Soil zone ***	NRCB USE ONLY	
				Usable area (ha)	Agreement attached (if required)
AO Comment: Not applicable for authorizations.					
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 [Manure Spreading Regulations](#))

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

Additional information (attach any additional information as required)

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NRCB USE ONLY

MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): Google Earth

Margin of error (if applicable): +/- 5 m

Requirements (m): Category 1: 400 Category 2: 533 Category 3: 667 Category 4: 1,067

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: N/A for authorizations

Land base listed: _____

Area not suitable: _____

Available area: _____

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 _____

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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. layer/poulet manure/composting pad

2. _____

Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	NRCB USE ONLY Estimated storage capacity (m³)
1.	27	20	1	
			AO Comment: To be constructed at grade.	
2.				
			TOTAL CAPACITY	Sufficient 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

WE built a berm around the back and both sides with a good slent to the back there will not be any runoff

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____53_____ (m)	Provide details (as required)		
Soil texture	_____42.1_____ % sand	_____27.9_____ % silt	_____30.0_____ % clay	
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested 3.0m Very fine sandy clay loam	Hydraulic conductivity (cm/s) 3.0x10 ⁻⁸	Describe test standard used Falling head test	
Additional information	(attach copies of soil test reports)		NRCB USE ONLY Requirements met: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Condition required: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Report attached: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

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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: greater than 9.14 m below grade Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: 18.3 m below grade Requirements met: ☒ YES ☐ NO

ERST completed: ☒ see ERST page for details

Surface water control systems

Requirements met: ☒ YES ☐ NO Details/comments:

AO Comment: Applicant is proposing to construct berms around the pad.

Naturally occurring protective layer details

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

AO Comment: Meets AOPA requirements.

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NRCB USE ONLY

ALL SIGNATURES IN FILE

☒ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

November 18, 2024	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: April 16, 2025

Municipality: Vulcan County

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

Alberta Health Services: ☒ N/A

☐ 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: Bow River Irrigation District, Sunshine Gas Co-op Ltd. ☐ 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

5 April 2025

J Lobbezoo Engineering & Consulting Services Ltd.

PO Box 96, Monarch, AB T0L1M0

JLECS File: P24076

Silverwinds Farming Co. Ltd.

PO Box 359

Vulcan, Alberta T0L 2B0

Attention: Mr. Michael Mandel

**Re: Geotechnical Review and Evaluation
 NRCB Permitting of Proposed Solid Manure Storage
 NW-06-017-21-W4M, near Vulcan, Alberta**

As requested, J Lobbezoo Engineering & Consulting Services Ltd. (JLECS) 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 describes the site soil conditions to support a permit application related to a proposed solid manure storage at the above captioned site (refer to Figure 1, attached).

In order to demonstrate the suitability of the naturally existing soils for consideration as a naturally occurring protective layer to the groundwater resource, two boreholes were advanced at the site on November 8, 2024. The boreholes were advanced at the approximate locations denoted as MC1-24 and MC2-24 on Figure 1, attached.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services and extended to depths of 3 m below the existing grade. The boreholes were logged by Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered in the boreholes consisted of stiff, medium plastic clay till. No evidence of groundwater or a groundwater resource (as defined by the AOPA) was encountered within the upper 3.0 m at the two boreholes.

Samples of soil collected from the screened zone of borehole MC1-24 as well as a sample from a similar depth at borehole MC2-24 were subjected to grain size analyses, which was carried out by Down to Earth Laboratories in Lethbridge, Alberta. The lab report is attached, for reference. The results indicate a soil texture breakdown of:

Table 1: Soil Texture Analyses

Borehole/Depth	% Sand	% Silt	% Clay
MC1-24 / 1.5 – 3.0 m	42	28	30
MC2-24 / 1.5 – 3.0 m	41	28	31
<i>Average:</i>	<i>41</i>	<i>28</i>	<i>31</i>

To measure the *in situ* permeability of the subsurface soils, a 50 mm diameter PVC monitoring well was constructed in borehole MC1-24. The test well was screened from 1.4 m to 3.0 m depth. Well saturation of the 50 mm diameter monitoring well was carried out by filling the monitoring well to the top for several consecutive days. After three days of testing, a 24-hour water drop of 0.20 m was determined.

To calculate the permeability of the screened portion of the clay 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 attached In Situ Permeability Test report. The results of the permeability testing indicated an *in situ* hydraulic conductivity (k_s) of 3.0×10^{-8} cm/s at MC1-24.

Using the measured permeability of the clay at this site, the 1.6 m of clay screened at test hole MC1-24 is estimated to represent the equivalent of about 53 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). This represents natural material protection in excess of the minimum requirements outlined by the AOPA for solid manure storage (minimum 2 m, Section 9.5-c).

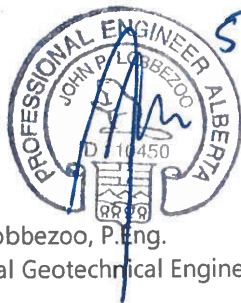
Conclusion

Based on the results of the current investigation, permeability testing, and our understanding of the site and development at the site, it is JLECS's opinion that the naturally occurring materials at the site satisfy the AOPA requirements for permitting the proposed solid manure storage at this location.

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

Yours truly,

J Lobbezoo Engineering & Consulting Services Ltd.



John Lobbezoo, P.Eng.
Principal Geotechnical Engineer

PERMIT TO PRACTICE J LOBBEZOO ENGINEERING & CONSULTING SERVICES LTD.	
RM SIGNATURE:	<u>[Signature]</u>
RM APEGA ID #:	<u>110450</u>
DATE:	<u>5 April 2025</u>
PERMIT NUMBER: P016456 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

Attachments

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



Figure 1: Site Layout & Borehole Locations

Image Credit: Google

MC1-24

In Situ Permeability Test

Modified Falling Head Permeability Equation

$$K_s = \frac{r^2}{2\ell\Delta t} \left[\frac{\sinh^{-1} \frac{\ell}{r_e}}{2} \ln \left[\frac{2H_1 - \ell}{2H_2 - \ell} \right] - \ln \left[\frac{2H_1H_2 - \ell H_2}{2H_1H_2 - \ell H_1} \right] \right]$$

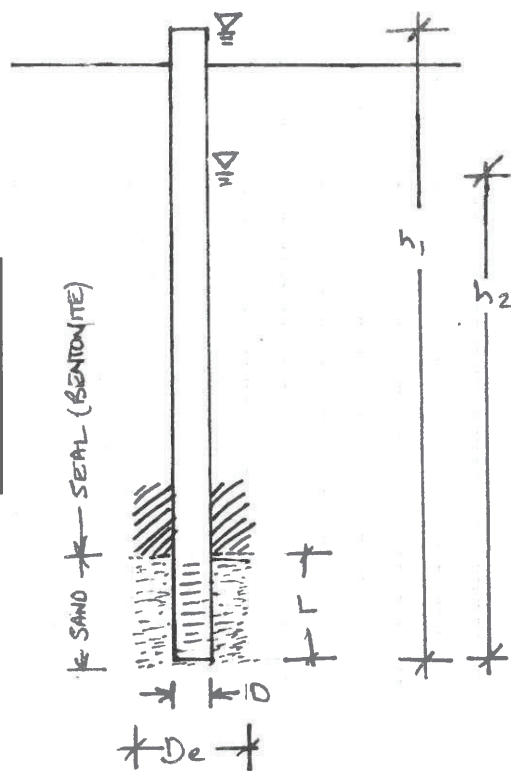
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

MC1-24 - Silverwinds Farming Co. Ltd.

JLECS File: P24076

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	3.60	initial height of water above base of hole (m)
	h2	3.40	final height of water above base of hole (m)
	t	24.0	time of test (h)

$k_s = 3.0E-08$ cm/sec





Down To Earth Labs Inc.

The Science of Higher Yields

J. Lobbezoo Engineering +
Consulting Services
Box 96
Monarch, Alberta T0L 1M0

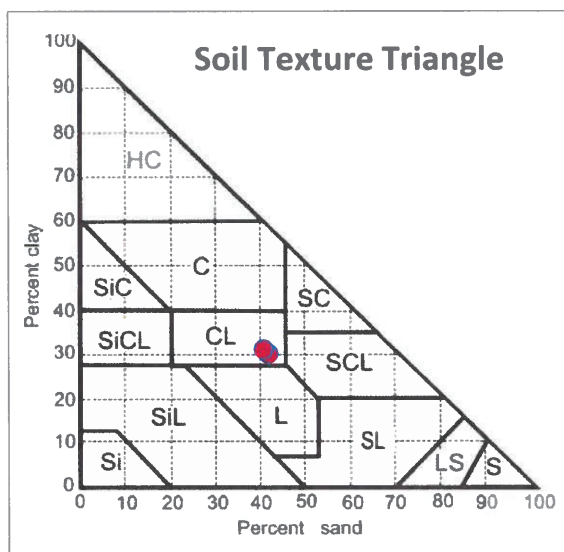
Report #: 200092
Report Date: 2024-11-27
Received: 2024-11-25
Completed: 2024-11-27
Test Done: ST

Project :
Mialth Colony
PO:

3510 6th Ave North
Lethbridge, AB T1H 5C3
403-328-1133
www.downtoearthlabs.com
info@downtoearthlabs.com

Sample ID:	241125L034	241125L035
Cust. Sample ID:	MC1-24	MC2-24
Analyte	Units	

Sand	%	42.1	41.1
Silt	%	27.9	27.9
Clay	%	30.0	31.0
Soil Texture	-	Clay Loam	Clay Loam



Raygan Boyce - Chemist

CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: NW6-17-21W4 Silverwinds Colony (Mialta)

Date: 08-Nov-24

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
MC1-24	0365788 5585463	0-3.0	CL-C	M	Till	1.5-3.0	Stiff, med plastic, brown 50mm H.C. Well installed to 3.0m BGS Screen: 3.0-1.5m Sand: 3.0-1.4m Bentonite: 1.4-0.0m Stickup: 0.6m
MC2-24	0365775 5585486	0-1.6 1.6-3.0	CL-C CL-C	M M	Till Till	1.5-3.0	Stiff, med plastic, brown Stiff, med plastic, brown, some iron staining

Legend: L Loam
C Clay
S Sand
Gr. Gravel
Si Silt
F Fine (sand)
VF Very Fine (sand)

Eg. VFSCL = Very Fine Sandy Clay Loam