

Technical Document LA25046

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
☐ Approval ☐ Registration ☒ Authorization ☐ Amendment	LA25046	SE 29-11-20 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.

June 5, 2025
Date of signing

SPRINGER DAIRY LTD.
Corporate name (if applicable)

[Redacted Signature]
BRYAN VANDE MUNT
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)
new feed alley + manure transfer pit (2.4m x 3m x 1.8m deep)	120' L x 30' W 36.6 m x 9.1 m
lagoon	30' L x 42' W x 5.5' deep
AO comment: Application to permit unauthorized construction. No construction proposed	

Existing facilities: list ALL existing confined feeding operation facilities and their dimensions		
Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Dairy Barn	42 x 16.5 + 17.5 x 20	
old feed alley	42 x 11	
Shelter within the dry pens	44' x 9.5	
NRCB USE ONLY		
Confirmed existing facilities - grandfathered facilities determined in deemed registration PL25003		

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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

current water storage was formerly lagoon^{EMS}

The EMS in this application was historically used for water storage (dugout).

Construction completion date for proposed facilities N/A

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
No proposed change in livestock numbers. PL25003 determined the livestock capacity of the CFO to be 65 milking cows (plus associated dries and replacements)			

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DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE

issued by Alberta Environment and Protected Areas (EPA) 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 EPA 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** EPA'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 EPA 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 EPA'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.
7. **Provide:** Water licence application number(s) _____

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 EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. **Provide:** Water license number(s) or water conveyance agreement details _____

LNID water rights for PNV Land Corp

Signed this 5th day of JUNE, 2025.

Signature of Applicant or Agent

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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 EPA 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** EPA'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 EPA 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 EPA'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.
7. **Provide:** Water license number(s) or water conveyance agreement details _____

Signed this _____ day of _____, 20_____.

Signature of Applicant or Agent





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NRCB USE ONLY

ALL SIGNATURES IN FILE

☒ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

June 5, 2025	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: July 14, 2025

Municipality: Lethbridge 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: Lethbridge Northern Irrigation District ☐ N/A

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

Other: ATCO ☐ N/A

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

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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: Dairy Barn

Proposed 1: new feed alley

Proposed 2: 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 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?	☒ > 1 m ☐ ≤ 1 m	☒ > 1 m ☐ ≤ 1 m	☒ > 1 m ☐ ≤ 1 m	☐ > 1 m ☐ ≤ 1 m	☒ YES ☐ NO ☐ YES with exemption	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?	0	0	0		☒ YES ☐ NO ☐ YES with exemption	Confirmed during site visit
	How many water wells are within 100 m of the manure storage facility or manure collection area?	0	0	0		☒ YES ☐ NO ☐ YES with exemption	None registered to LLD on Ab water wells database. None observed during site visit
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	600'	600'	600'		☒ YES ☐ NO ☐ YES with exemption	Irrigation canal 217 m to N
Groundwater information	What is the depth to the water table?					☒ YES ☐ NO ☐ YES with exemption	Saturated sand streaks at 3 mbgs encountered during drilling (see attached report)
	What is the depth to the groundwater resource/aquifer you draw water from?	no wells	no wells	no wells		☒ YES ☐ NO ☐ YES with exemption	No water wells within 2 km. WW ID 2094500 (for UGR only): water bearing sandstone at 71.6 mbgs

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

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NRCB | Natural Resources
Conservation Board

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ENVIRONMENTAL RISK SCREENING INFORMATION

ERST for proposed facilities

Facility	Groundwater score	Surface water score	File number
EMS	Low	Low	LA25046
Feed alley	Low	Low	LA25046

ERST for existing facilities

Facility	Groundwater score	Surface water score	File number
Dairy barn	Low	Low	LA25046
Old feed alley	Low	Low	LA25046
Heifer pens	Low	Low	LA25046
Dry pens	Low	Low	LA25046

ERST related comments:

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WATER WELL AND SURFACE WATER INFORMATION

Well IDs: 2094500 (used for determining UGR only)

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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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)	Meets regulations
Mike Nieboer (1)	NE 20-11-20 W4M	700'	Urban Fringe	1	190 m	N/A	Yes w exemption
Tony Ankerman (2)	SW 28-11-20 W4M	1000'	Urban Fringe	1	310 m	N/A	Yes
Huntsville School (3)		400'	Huntsville school is not a residence, therefore MDS does not apply				

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)
	N/A 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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MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): Aerial imagery

Margin of error (if applicable): +/- 3m

Requirements (m): Category 1: 231 Category 2: 309 Category 3: 386 Category 4: 617

Technology factor: ☐ YES ☒ NO

Expansion factor: ☐ YES ☒ NO

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

The new feed alley was built within the existing footprint of the dairy CFO, and further away from the closest residence than other CFO facilities. As there is no increase in animal numbers or annual manure production an exemption can be applied under section 9.9.8 of the Approvals Policy

LAND BASE FOR MANURE AND COMPOST APPLICATION

Land base required: _____

Land base listed: _____

Area not suitable: _____

Available area: _____

NA for authorizations

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 PL25003

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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)

LIQUID MANURE STORAGE: Earthen manure storage (EMS): Naturally occurring protective layer (complete a copy of this section for EACH proposed earthen liquid manure storage facility with a naturally occurring protective layer)

Facility description / name (as indicated on site plan)

1. lagoon EMS

2. _____

Manure storage capacity (complete a separate row of this table for each cell of the EMS)

	Length (m)	Width (m)	Total depth (m)	Depth below ground level (m)	Slope run:rise			NRCB USE ONLY	
					Inside end walls	Inside side walls	Outside walls	Calculated storage capacity (m ³) (excl. 0.5 m freeboard)	Filled in lower ¼? Y/N
1.	<u>30</u>	<u>42</u>	<u>5.5</u>	<u>5</u>	<u>3:1</u>	<u>3:1</u>		<u>1,815 m³</u>	<u>Yes</u>
2.									
TOTAL CAPACITY								<u>1,815 m³</u>	

Surface water control systems

Describe the run-on and runoff control system

Berm

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	<u>4</u> (m)	Provide details (as required)	
Soil texture	<u>43.1</u> % sand	<u>29.9</u> % silt	<u>27</u> % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested	Hydraulic conductivity (cm/s) <u>2.6×10^{-8}</u>	Describe test standard used <u>modified falling head.</u>

Additional information (attach copies of soil test reports)

NRCB USE ONLY

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

Last updated: 31 Mar 2020

Page ____ of ____

NRCB USE ONLY

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Liquid manure storage volume calculator attached: ☒ YES ☐ NO

Depth to water table: 3 mbgs

Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: 71.6 mbgs

Requirements met: ☒ YES ☐ NO

Comments:

AOPA requires that there is at least 1 m between the bottom of a MSF/MCA at the time of construction. As the EMS is already constructed, this requirement is not applicable.

ERST completed: ☒ see ERST page for details

Surface water control systems

Requirements met: ☒ YES ☐ NO

Details/comments: Berm

Naturally occurring protective layer details

Layer specification comments (e.g. description of the layer texture, layer thickness/depth and the methodology used to collect this information such as sand lenses, number, and location of boreholes):

JLECS report on pages 16-21

Leakage detection system required: ☐ YES ☒ NO

If yes, please explain why.

8 July 2025

J Lobbezoo Engineering & Consulting Services Ltd.
PO Box 96, Monarch, AB T0L1M0

JLECS File: P25064

Springer Dairy Ltd
PO Box 1127
Picture Butte, AB T0K1V0

Attention: Mr. Bryan Vande Munt

**Re: Geotechnical Review and Evaluation
 NRCB Permitting of Manure Storage Lagoon
 SW-29-011-20-W4M, near Iron Springs, 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 manure storage lagoon 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, three boreholes were advanced at the site on June 12, 2025. The boreholes were advanced at the approximate locations denoted as BV1-25 to BV3-25 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 12.0 m to 15.0 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 lacustrine clay and silty clay overlying stiff medium plastic clay till to the termination depth of the three boreholes. While minor saturated sand streaks were observed in the lacustrine clay in boreholes BH1-25 and BV3-25, no groundwater resource (as defined by the AOPA) was encountered within the 15.0 m investigation depth at this site.

Samples of soil collected from the screened zones of borehole BV2-25 as well as samples from similar depths at the other boreholes were all 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
BV1-25 / 12.0 – 13.5 m	43	30	27
BV2-25 / 12.0 – 13.5 m	45	30	25
BV3-25 / 12.0 – 13.0 m	46	29	25
<i>Average:</i>	45	30	26

To measure the *in situ* permeability of the subsurface soils, a 50 mm diameter PVC monitoring well was constructed in borehole BV2-25. The test well was screened from 11.7 m to 15.0 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 several days of testing, a 24-hour water drop of 1.37 m was determined at BV2-25.

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 reports. The results of the permeability testing indicated an *in situ* hydraulic conductivity (k_s) of 2.6×10^{-8} cm/s at PP1-25.

Using the measured permeability of the clay at this site, the 3.3 m of clay screened at test hole BV2-25 is estimated to represent the equivalent of over 100 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 lagoons (minimum 10 m, Section 9.5-a).

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 manure storage lagoon 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

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

PERMIT TO PRACTICE	
J LOBBEZOO ENGINEERING & CONSULTING SERVICES LTD.	
RM SIGNATURE: _____	_____
RM APEGA ID #: _____	110450
DATE: _____	8 July 2025
PERMIT NUMBER: P016456	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	



Image Credit: Google

Figure 1: Site Layout & Borehole Locations

BV2-25

In Situ Permeability Test

Modified Falling Head Permeability Equation

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

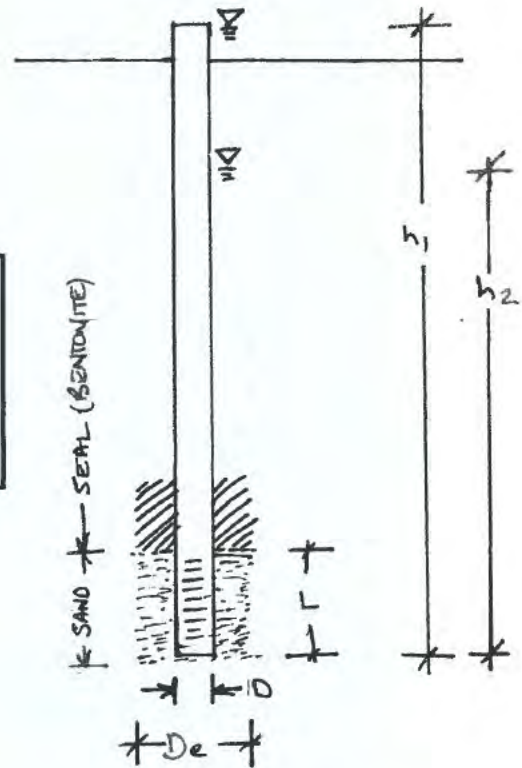
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

BV2-25 - Springer Dairy Ltd.

JLECS File: P25064

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	3.30	length of sand section (m)
	h1	15.60	initial height of water above base of hole (m)
	h2	14.23	final height of water above base of hole (m)
	t	24.0	time of test (h)

$k_s = 2.6E-08$ cm/sec





Down To Earth Labs Inc.

The Science of Higher Yields

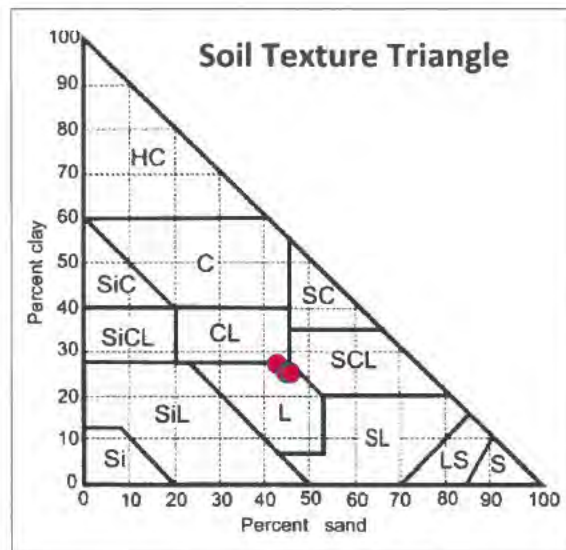
J. Lobbezoo Engineering +
Consulting Services
Box 96
Monarch, Alberta T0L 1M0

Report #: 208607
Report Date: 2025-07-08
Received: 2025-06-24
Completed: 2025-06-26
Test Done: ST

Project :
Springer Dairy
PO:

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

Sample ID:		250624N001	250624N002	250624N003
Cust. Sample ID:		BV1-25	BV2-25	BV3-25
Analyte	Units	12-13.5	12-13.5	12-13.0
Sand	%	43.1	45.1	46.1
Silt	%	29.9	29.9	28.9
Clay	%	27.0	25.0	25.0
Soil Texture	-	Clay Loam	Loam	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: SW29-11-20W4, Springer Dairy

Date: 12-Jun-25

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
BV1-25	0378474 5532562	0-0.7	SiCL	M	Lac		
		0.7-3.0	SiCL	VM	Lac		Firm, med-high plastic, olive brown, SiC layers
		3.0-4.7	SiC	M	Lac		Stiff, high plastic, olive brown, varved, sat sand streaks
		4.7-6.4	CL	M	Till		Stiff, med plastic, brown
		6.4-15.0	C	M	Till	12.0-13.0	Stiff, med plastic, brown, oxidized
BV2-25	0378523 5532562	0-0.7	SiCL	M	Lac		
		0.7-4.5	SiCL	VM	Lac		Firm, med-high plastic, olive brown, SiC layers
		4.5-5.7	SiC	M	Lac		Stiff, high plastic, olive brown
		5.7-6.6	CL-C	M	Till	5.0-6.0	Stiff, med plastic, brown
		6.6-15.0	C	M	Till	12.0-13.5	Stiff, med plastic, brown 50mm H.C. Well installed to 15m BGS Screen: 15.0-12.0m Sand: 15.0-11.7m Bentonite: 11.7-0.0m Stickup: 0.6m Hole Diameter: 0.15m
BV3-25	0378476 5532524	0-0.5	CL	SM	Fill		
		0.5-1.0	SiCL	SM	Lac		
		1.0-3.4	SiCL	VM	Lac		Sat sand streaks
		3.4-3.9	SiC	M	Lac		Stiff, med-high plastic, olive brown
		3.9-5.5	CL	M	Till		Stiff, med plastic, brown
		5.5-12.0	C	M	Till	12.0-13.0	Stiff, med plastic, brown

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

Eg. VFSCCL = Very Fine Sandy Clay Loam

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LIQUID MANURE COLLECTION AND/OR STORAGE: In-barn - Concrete liner

(complete a copy of this section for **EACH** proposed in-barn liquid manure storage facility with a concrete liner)

Facility description / name (as indicated on site plan)

1. new feed alley.
2. manure transfer pit.
3. _____

Manure storage capacity (use one row in the table for **EACH** in-barn storage. Attach additional pages if you require more rows)

	Length (m)	Width (m)	Total depth (m)	Depth below ground level (m)	NRCB USE ONLY Calculated storage capacity (m ³)
1.	<u>120' 36.6 m</u>	<u>30' 9.1 m</u>	<u>0</u>	<u>0</u>	
2.	<u>8' 2.4 m</u>	<u>10' 3 m</u>	<u>6' 1.8 m</u>	<u>1.8 m</u>	<u>13 m3</u>
3.					
TOTAL CAPACITY					<u>13 m3</u>

Concrete liner details

Scrape alleys or unslatted portions of barn floors (if applicable)	Concrete thickness <u>5"</u>		Method of sulphate protection <u>Type 50</u>	
	Concrete strength <u>32 MPA</u>		Concrete reinforcement size and spacing <u>10 mm x 12" spacing.</u>	
In-barn manure pit floors	Concrete thickness <u>8"</u>		Method of sulphate protection <u>Type 50</u>	
	Concrete strength <u>32 MPA</u>		Concrete reinforcement size and spacing <u>15 mm x 12" spacing</u>	
In-barn manure pit walls	Concrete thickness <u>8"</u>		Method of sulphate protection <u>Type 50</u>	
	Concrete strength <u>32 MPA</u>	Horizontal reinforcement size and spacing <u>15 mm x 12" space</u>	Vertical reinforcement size and spacing <u>15 mm x 12" space</u>	

Last updated: 31 Mar 2020

Page ____ of ____

NRCB USE ONLY

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)

LIQUID MANURE COLLECTION AND/OR STORAGE: In-barn - Concrete liner (cont.)

Describe how the joints at the junction of the pit walls, pit floors and any other joints will be sealed

See attached invOice: WaterstOp RX 101

Describe sealing practices for piping, etc. that penetrates the liner

See attached invOice: WaterstOp RX 101

Concrete requirements can be found in Technical Guideline Agdex 096-93

Guideline minimums:

Solid manure (wet): 30MPa (C)

Liquid manure: 32MPa (B)

Category A is required to be engineered

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

Additional information

NRCB USE ONLY

Liquid manure storage volume calculator attached: ☒ YES ☐ NO

Depth to water table: 3 mbgs

Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: 71.6 mbgs

Requirements met: ☒ YES ☐ NO

ERST completed: ☒ see ERST page for details

Concrete liner requirements

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

Last updated: 31 Mar 2020

Page ____ of ____

NRCB USE ONLY

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		
LIQUID MANURE STORAGE VOLUME CALCULATOR (if applicable)		
Facility 1		
Name / description	EMS	Capacity 1,815 m3
Facility 2		
Name / description	In-barn manure transfer pit	Capacity 13 m3
Facility 3		
Name / description		Capacity
Facility 4		
Name / description		Capacity
TOTAL CAPACITY		1,828 m3
REQUIRED 9 MONTH STORAGE CAPACITY		1,755 m3
MEETS THE REQUIREMENTS FOR A MINIMUM OF 9 MONTHS STORAGE		☒ YES ☐ NO

3760 18th Ave. N
Lethbridge, AB T1H 5S7, Canada
Phone: 403-327-8820 Fax: 403-320-8728
Email: ar@nca.ca

Sales Invoice
SI0381389
May 13, 2020
NCA1CWILDE

Page: 1

Bill To: Delco Contractors

P.O. Box 389
Nobleford, AB T0L 1S0
Canada

Ship To: Delco Contractors

P.O. Box 389
Nobleford, AB T0L 1S0
Canada

Marinus@Delcocontractors.Com

P: 403-317-9768
Marinus@Delcocontractors.Com

Sales Order #: S00456125	Payment Terms: Net 30 days	Due Date: 6/12/2020	Sales Person Code: JASONW	P.O. Number: SPRINGER DAIRY
Order Date: 5/13/2020	Ship Agent Code: PICKUP	Package Tracking #	Customer #: DELCON-C05	Ship Via: PICKUP

Please remit payment to:
National Concrete Accessories Canada Inc.,
172 Bethridge Rd., Toronto ON, Canada M9W 1N3

Item / Description	Location Code	Quantity	UOM	Unit Price	Total Price
RX101TESP Waterstop Rx101T 1-1/4X1/2 1 RI=20' 6 RI/Bx	AB-0601	6	ROL		
13885MAR 6 X 8 SS Hand Edger/Groover; 1/2R; 1/4" Groove Part Number 3885SD	AB-0601	2	PCS		
CETSEALDRE CelSeal - 10.1 oz/Tube Adhesive For Rx-101 & Rx-102	AB-0601	12	PCS		
HA141251SPLLAC 14" x .125 x 1" - 20mm 10mm; SPL Asphalt / Block	AB-0601	1	PCS		

NS = Non-Stock. Non-stock items are final sale with no cancellations or returns

HST: 809 287 113 RT0003 *** Please visit nca.ca for terms and conditions

Subtotal: (CDN)

Amount Subject to Sales Tax

Total Tax: (CDN)

Amount Exempt from Sales Tax

\$0.00

Total: (CDN)

CANADA'S LARGEST CONCRETE ACCESSORY DISTRIBUTOR

Sales Quotes are valid for 30 Days

Effective Nov 1 2019, a government mandated recycling fee will be charged for the purchases of certain products. Should this fee apply to your order, the fee will appear separately on your invoice. Please contact your branch with any questions.

Signature:

- No cash refunds
- Any/all returns must be accompanied with the original receipt
- All returns are subject to a 25% restocking charge

ASK US ABOUT OUR EXCESS INVENTORY SALE ON NOW AT ALL NCA BRANCHES



Prairie Stone Concrete Ltd.
PO Box 361
Nobleford, AB
T0L 1S0

Invoice

Date	Invoice #
5/27/2020	3271

Invoice To
Delco Contractors PO Box 389 Nobleford, AB T0L 1S0

Ship To
Brian Vande Munt Dairy Footings

P.O. No.	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30		5/27/2020			

Quantity	Item	Description	U/M	Price Each	Amount
2.7	32MPA	32 MPA concrete @ 28 days - Type 50 (HS) Cement	cu mtr		
1	Small load 3	Air entrainment 4 - 7% Small load charge (2 - 3 mtrs)			

Sales Tax Summary

GST@5.0%
Total Tax

Net 30 days. A 2% per month finance charge will be added to accounts over 30 days.

Total

GST/HST No. 795244128



**PRAIRIE STONE
CONCRETE**

Prairie Stone Concrete Ltd.
PO Box 361
Nobleford, AB
T0L 1S0

Invoice

Date	Invoice #
5/12/2020	3190

Invoice To
Delco Contractors PO Box 389 Nobleford, AB T0L 1S0

Ship To
Vandemunt Dairy Footings

P.O. No.	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30		5/12/2020			
Quantity	Item	Description	U/M	Price Each	Amount	
8.4	32MPA	32 MPA concrete @ 28 days - Type 50 (HS) Cement Air entrainment 4-7%	cu mtr			
Sales Tax Summary GST@5.0% Total Tax Net 30 days. A 2% per month finance charge will be added to accounts over 30 days. Total						

GST/HST No. 795244128



**PRAIRIE STONE
CONCRETE**

Prairie Stone Concrete Ltd.
PO Box 361
Nobleford, AB
T0L 1S0

Invoice

Date	Invoice #
5/15/2020	3219

Invoice To
Delco Contractors PO Box 389 Nobleford, AB T0L 1S0

Ship To
Brian Vandemunt Walls

P.O. No.	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30		5/15/2020			

Quantity	Item	Description	U/M	Price Each	Amount
29.9	32MPA	32 MPA concrete @ 28 days - Type 50 (HS) Cement Air Entrainment 4-7%	cu mtr		

Sales Tax Summary

GST@5.0%
Total Tax

Net 30 days. A 2% per month finance charge will be added to accounts over 30 days.

Total

GST/HST No. 795244128



130 13th Street
Box 389 Nobleford, AB
T0L 1S0

Invoice

Date	Invoice #
5/20/2020	6725

Invoice To
PNV Land Corp.

PAID
06/09/2020

P.O. No.	Terms	Project

Item	Description	Est Amt	Prior Amt	Qty	Rate	Amount
04 Concrete	Concrete misc: Rebar 470pcs 10m @ [REDACTED] [REDACTED] 20 pieces 15m @ [REDACTED]			1	[REDACTED]	[REDACTED]
04 Concrete	Lumber package GST on sales			1	5.00%	[REDACTED]
				Total		
				Payments/Credits		
				Balance Due		
						\$0.00



130 13th Street
Box 389 Nobleford, AB
T0L 1S0

Invoice

Date	Invoice #
5/20/2020	6725

Invoice To
PNV Land Corp.

PAID
06/09/2020

P.O. No.	Terms	Project

Item	Description	Est Amt	Prior Amt	Qty	Rate	Amount
001 Labour	Labour Cornell 168:51 Wilhelm Reimer 103:03 Frank Reimer 64:55 Justin Klok 33:14 Chris Joose 19:02 Willard Evers 14:53 Jaydon Klok 8:51 Brad 4:43 Henry Klok 4:51 Kevin Froese 4:45 Shane 2:50					
03 Excavation	Excavation E-45 hours					
04 Concrete	Concrete			1		
				Total		
				Payments/Credits		
				Balance Due		