

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
<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Registration <input type="checkbox"/> Authorization <input type="checkbox"/> Amendment	<u>LA25002</u>	<u>NW 22-10-22 W4M</u>

APPLICATION DISCLOSURE

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

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

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

Date of signing <u>PRAIRIE VIEW FEEDERS</u> Corporate name (if applicable)	Signature <u>HENRY JAW HEERDEN</u> 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 FEEDLOT PENS (6 PENS)	980' - 226'
CATCH BASIN	25 m x 55 m x 4 m

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
CATCH BASIN 46 x 36 x 4.5 m		
37 x 173 m + 222 x 40 m	FEEDLOT PENS	
+ 47 x 88 m + 86 x 44 m	FEEDLOT PENS	
61 x 200 m	FEEDLOT PENS	
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)

Existing facilities continued	Dimensions (m) (length, width, and depth)	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)

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 DEC 31/25

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

Part 2 – Technical Requirements

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

DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE

issued by Alberta Environment and 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 27 day of JAN, 2025.

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 _____

Signed this ____ day of _____, 20____.

Signature of Applicant or Agent

Part 2 — Technical Requirements

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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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The application must include the figures identified below at a minimum

FIGURE 1: AREA / LARGE SCALE PLAN

(e.g. municipality maps, overview images from Google Earth, etc.)

The application must include an area plan to scale, unless otherwise directed by the approval officer. An area plan should include:

- North arrow
- Legal land description(s) of the proposed development and immediately surrounding properties
- Roadways
- Property lines
- Distances between the confined feeding operation and neighbouring residences
- Water courses, common bodies of water, springs, and water wells within 800 m of the CFO
- Runoff patterns

FIGURE 2: DETAILED SITE LAYOUT PLAN

The application must include a detailed site layout plan unless otherwise directed by the approval officer. At a minimum, the site plan should include the following:

- North arrow
- Legal land description(s)
- Water bodies
- Water wells and springs
- Monitoring wells (if applicable)
- Property lines
- Barns, corrals, and pens
- Manure storage facilities and manure collection areas
- Surface water control systems, if required by an approval officer
- Setbacks to property lines and boundaries
- Right-of-ways (roads, utilities, etc.)
- Any other pertinent information related to the CFO

Part 2 – Technical Requirements

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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: CATCH BASIN

Proposed 1: FEEDLOT PENS

Proposed 2: CATCH BASIN

Proposed 3: FEEDLOT PENS

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?	<input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	How many springs are within 100 m of the manure storage facility or manure collection area?	NO	0	0	0	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
Surface water information	How many water wells are within 100 m of the manure storage facility or manure collection area?	0	0	0	0	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	2 miles	2 miles	2 miles	2 miles	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
Groundwater information	What is the depth to the water table?					<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	What is the depth to the groundwater resource/aquifer you draw water from?					<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	

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

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)

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
SLINGERLAND T	NE 15-10-22	602					
SLINGERLAND C	SE 28-10-22	721					
COTY SCHGOTEN	NE 22-10-22						

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)
22-10-22					
PRAIRIE VIEW FEEDERS	NW + SW	280	IRRIGATION		
TONY SLINGERLAND	NE 21-10-22	160	IRRIGATION		
FILBERT VAN HERDIEN	SE 16-10-22	65	"		
TREVOR SLINGERLAND	NE 27-10-22	160	"		
PARAGON LIVESTOCK	SW 27-9-22	130	"		
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)

Part 2 — Technical Requirements

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RUNOFF CONTROL CATCH BASIN: Naturally occurring protective layer (complete a copy of this section for EACH proposed runoff control catch basin with a naturally occurring protective layer)

Facility description / name (as indicated on site plan)

1. CATCH BASIN
2. _____
3. _____

Determination of runoff area

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

Catch basin capacity

	Length (m)	Width (m)	Total depth (m)	Depth below ground level (m)	Slope run:rise			NRCB USE ONLY Calculated storage capacity (excl. 0.5 m freeboard) (m ³)
					Inside end walls	Inside side walls	Outside walls	
1.	<u>25</u>	<u>55</u>	<u>4</u>		<u>3-1</u>	<u>3-1</u>	<u>4-1</u>	
2.								
3.								
TOTAL CAPACITY								

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	<u>3.1^m</u> (m)	Provide details (as required)	
Soil texture	<u>35</u> % sand	<u>25</u> % silt	<u>40</u> % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested <u>8.5^m clay</u>	Hydraulic conductivity (cm/s) <u>1.0 x 10⁻⁸</u>	Describe test standard used <u>mod. tide falling head</u>

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

If soil info differs per facility include additional soils page.

NRCB USE ONLY

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

Part 2 – Technical Requirements

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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. FEEDLOT PENS
2. _____

Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	NRCB USE ONLY Estimated storage capacity (m ³)
1.	980'	226'	0	
2.				
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

CATCH BASIN

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	<u>1.6</u> (m)			Provide details (as required)
Soil texture	<u>38</u> % sand	<u>25</u> % silt	<u>37</u> % clay	
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested	Hydraulic conductivity (cm/s)	Describe test standard used	
	<u>3^m clay loam</u>	<u>2.6 x 10⁻⁸</u>	<u>Modified Fallinghead</u>	

Additional information (attach copies of soil test reports)

NRCB USE ONLY

Requirements met: YES NO

Condition required: YES NO

Report attached: YES NO

Minimum Distance Separation (MDS) Waiver (declaration)

Applicant information

NRCB application number: _____

Operator/operation name: PRAIRIE VIEW FEEDERS LTD

Address: Box 185 SHAUGHNESSY AB Postal Code: TOK 2A0

Legal land location of confined feeding operation: NW 22-10-22

I have requested the residence owner(s) named below to waive the required minimum distance separation (MDS) to their residence for the *Agricultural Operation Practices Act* (AOPA) permit application identified above. In making this request, I have provided the owner(s) with an opportunity to review my permit application and a copy of the Natural Resources Conservation Board (NRCB) Fact Sheet "Minimum Distance Separation (MDS) Waivers" available on the NRCB website at www.nrcb.ca. I have also explained:

- The MDS requirement set out in section 3 of the Standards and Administration Regulation of AOPA. I have advised the owner(s) that section 3(6)(a) of the Standards and Administration Regulation allows this requirement to be waived by the owners of residences, if they agree in writing to grant a waiver;
- That my proposed development does not meet the required MDS to the owner's residence; and,
- That this waiver applies only to this application as described. An increase in livestock capacity, annual manure production, level of odour production, change to the site plan or change to a facility that would increase the MDS would require a new waiver.

Following is a summary of the proposed development:

- The current scope of my confined feeding operation (CFO), including the type, number, and category of livestock, if any, is:

4000 FEEDERS

- My application for a new AOPA permit proposes the following changes to the existing livestock category, type and/or capacity at my CFO:

The proposed new CFO facility(ies), or changes to the existing CFO facilities, including manure storage, manure storage volume and any other pertinent details, if any, are (attach a site layout plan if available):

2000 FINISHER CATTLE
WITH NEW PENS AND CATCH BASIN

I the applicant understand that the waiver is not valid unless ALL registered owners of the residence sign this document.

Permit Applicant: _____^a Date: JAN 27/25
Signature

Residence owner(s) to initial: _____

Minimum Distance Separation (MDS) Waiver (declaration)

Residence owner(s) information

ALL Names on land title: ANTHONY + NELLA SLINGERLAND

Legal land location of residence(s): NE 21-10-22-04

Telephone number(s)¹ [REDACTED] Email address(es)¹: [REDACTED]

Address(es)¹ and Postal code(s)¹: Box 119 SNAUGHNESS AB
TOK -2A0

¹ Please note that personal contact information is for NRCB use ONLY and not publicly released

I am/we are the legal landowner(s) of a residence(s) located at the above noted legal land location/address:

- I/we have read the NRCB Fact Sheet "Minimum Distance Separation (MDS) Waivers";
- I/we have discussed this application with the applicant and understand its potential impacts to our residence(s);
- I/we understand that the application **does not** meet the MDS requirement to my/our residence(s), under the *Agricultural Operation Practices Act (AOPA)*;
- **I/we understand that this waiver is not valid unless signed by ALL parties identified on the land title as owners;**
- **I/we are not obligated to waive the MDS requirement to our residence(s);**
- I/we understand that if I/we choose to waive the MDS requirement, I/we can revoke the waiver, by providing written notice to the NRCB approval officer, as set out in the "Minimum Distance Separation (MDS) Waivers" Fact Sheet; and
- I/we understand that this waiver is a public document.

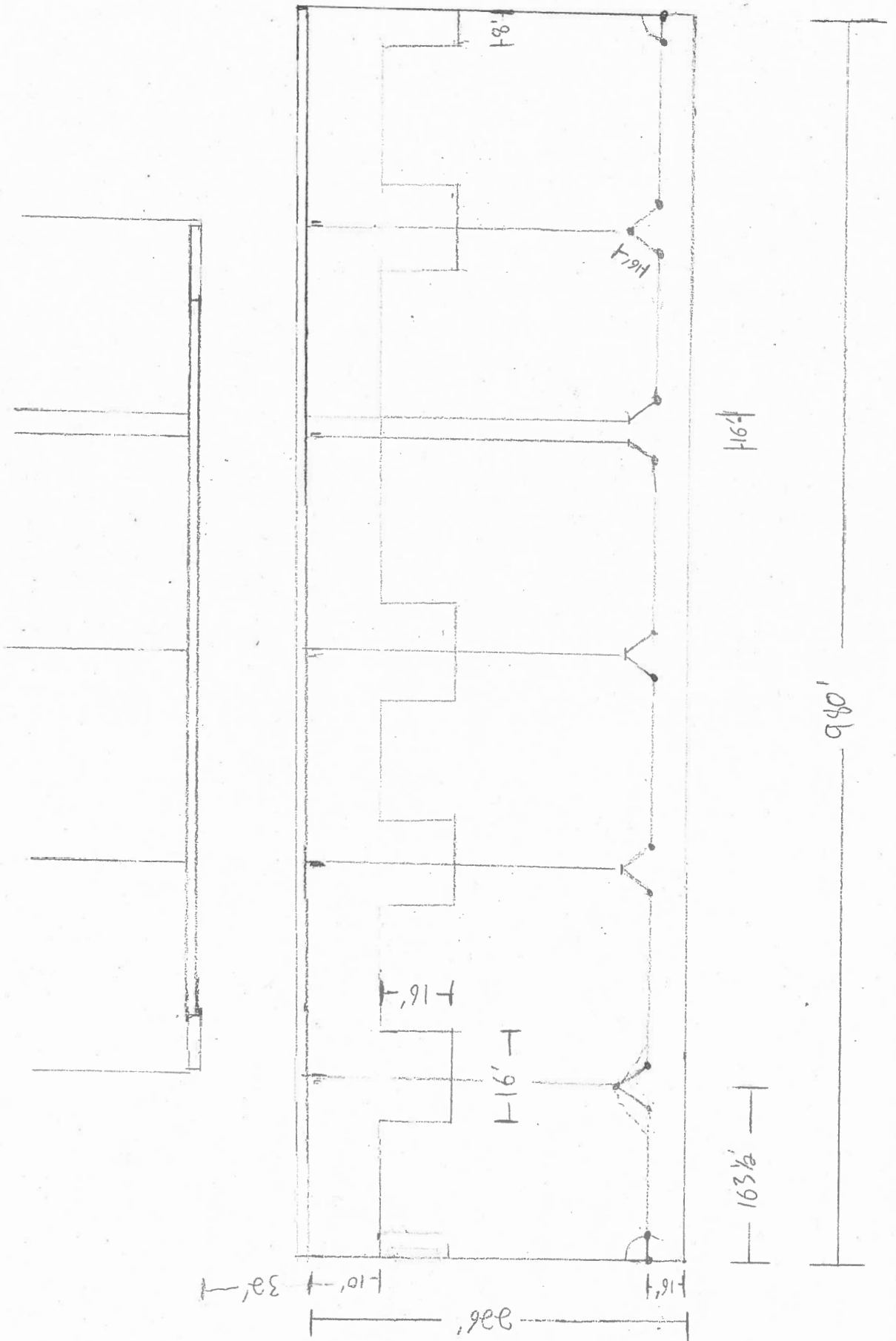
Having considered my/our rights, I/we hereby waive the MDS requirement to my/our residence, with respect to

Application number _____

[REDACTED] _____
Signatures of all residence owner(s) on title

Tony Slingerland _____ Nella Slingerland _____
Printed names of all residence owner(s) on title

Date: Jan 27/25



10:07

75%



← Measure



Move the map and add points to measure distances and area

Perimeter
2,404 ft

Area
217,398 ft²

 Save to project




Prairie View Feeders

Manure Agreement

Date April 4, 2024

TREJOR SLINGERLAND agrees to take manure from Prairie View Feeders for a minimum of one year on 150 irrigated acres, land location NE 27-10-22

Land owner (signature) 

Full name (printed) TREJOR SLINGERLAND

Address Box 15 Sledgecross, AB
TOK 2A0

Prairie View Feeders LTD 


Prairie View Feeders

Manure Agreement

Date April 4, 2024

PARAGON LIVESTOCK agrees to take manure from Prairie View Feeders for a minimum of one

year on 130 irrigated acres, land location SE 27-9-22 W4

Land owner (signature) 

Full name (printed) BERT VAN HIERDEN

Address Box 459

COAKHURST AB TOLDOO

Prairie View Feeders LTD. 

Prairie View Feeders

Manure Agreement

Date April 4, 2024

ELBERT VAN HIERDEN agrees to take manure from Prairie View Feeders for a minimum of one
year on 65 irrigated acres, land location SE 16-10-22

Land owner (signature) _____

Full name (printed) ELBERT VAN HIERDEN

Address _____

Box 1762

Lethbridge, AB

Prairie View Feeders LTD _____

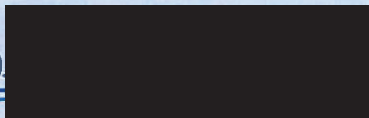
Prairie View Feeders

Manure Agreement

Date April 4, 2024

Tony Slingerland agrees to take manure from Prairie View Feeders for a minimum of one year on 150 irrigated acres, land location NE 21-10-22

Land owner (signature)

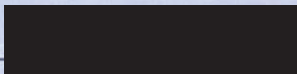


Full name (printed) Tony Slingerland

Address Box 119 Shaughnessy

AB TOK 2A0

Prairie View Feeders LTD.





5 February 2025

J Lobbezoo Engineering & Consulting Services Ltd.

PO Box 96, Monarch, AB T0L1M0

JLECS File: P25008

Prairie View Feeders Ltd.

PO Box 185

Shaughnessy, Alberta T0K 2A0

Attention: Mr. Henry Van Hierden

**Re: Geotechnical Review and Evaluation
 NRCB Permitting of Proposed Catch Basin & Pen Expansion
 NW-22-010-22-W4M, near Shaughnessy, 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 catch basin and pen expansion at the east side of the existing feedlot 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, six boreholes were advanced at the site on January 29, 2025. The boreholes were advanced at the approximate locations denoted as PV1-25 to PV5-25 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 3.0 m to 9.2 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 depths of all the boreholes. While minor perched groundwater (seepage) was noted at 8.75 m depth in borehole PV1-25 and 1.6 m depth at PV5-25, no groundwater resource (as defined by the AOPA) was encountered within the 9.2 m investigation depth at this site.

Samples of soil collected from the screened zones of boreholes PV2-25 and PV5-25, 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
PV1-24 / 6.5 – 8.5 m	30	28	42
PV2-24 / 6.5 – 8.5 m	35	25	40
PV3-24 / 6.5 – 8.5 m	28	22	50
PV4-24 / 3.0 – 3.5 m	36	24	40
PV5-24 / 2.0 – 3.0 m	38	25	37
PV6-24 / 2.5 – 3.0 m	40	27	33
<i>Average:</i>	35	25	40

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes PV2-25 (proposed catch basin) and PV5-25 (proposed pen expansion area). Test well PV2-25 was screened from 5.8 m to 8.9 m depth while PV5-25 was screened from 1.4 m to 3.0 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring wells to the top for several consecutive days. After three days of testing, the following 24-hour water drop were determined: 0.30 m drop at PV2-25; and 0.15 m at PV5-25.

To calculate the permeability of the screened portion of the clay strata at the test well locations, 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 1.0×10^{-8} cm/s at PV2-25 (proposed catch basin) and k_s of 2.6×10^{-8} cm/s at PV5-25 (proposed pen expansion area).

Using the measured permeability of the clay at this site, the 3.1 m of clay screened at test hole PV2-25 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). At PV5-25, the 1.6 m of clay screened is estimated to represent the equivalent of approximately 61 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s. This represents natural material protection in excess of the minimum requirements outlined by the AOPA for catch basins (minimum 5 m, Section 9.5-b) and solid manure storage (minimum 2 m, Section 9.5-c).

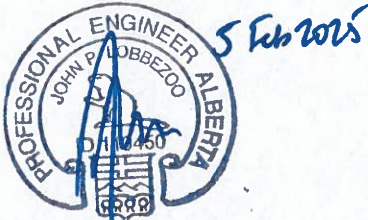
Conclusion

Based on the results of the current investigation, permeability testing, and our understanding of the site and 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 catch basin and pen expansion 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: _____	<i>[Handwritten Signature]</i>
RM APEGA ID #: _____	<i>110450</i>
DATE: _____	<i>5 Feb 2025</i>
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

PV2-25

In Situ Permeability Test

Modified Falling Head Permeability Equation

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

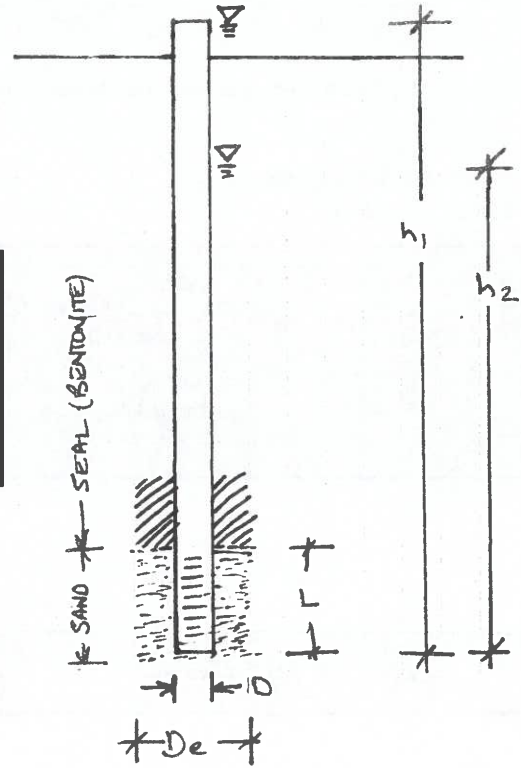
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

PV2-25 - Prairie View Feeders Ltd.

JLECS File: P25008

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	3.10	length of sand section (m)
	h1	9.05	initial height of water above base of hole (m)
	h2	8.75	final height of water above base of hole (m)
t	24.0	time of test (h)	

$k_s = 1.0E-08$ cm/sec



PV5-25

In Situ Permeability Test

Modified Falling Head Permeability Equation

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

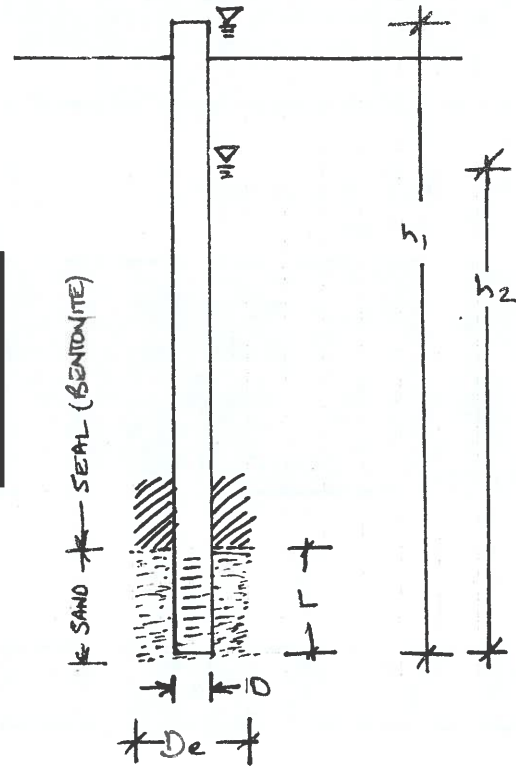
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

PV5-25 - Prairie View Feeders Ltd.

JLECS File: P25008

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	3.15	initial height of water above base of hole (m)
	h2	3.00	final height of water above base of hole (m)
t	24.0	time of test (h)	

$k_s =$	2.6E-08 cm/sec
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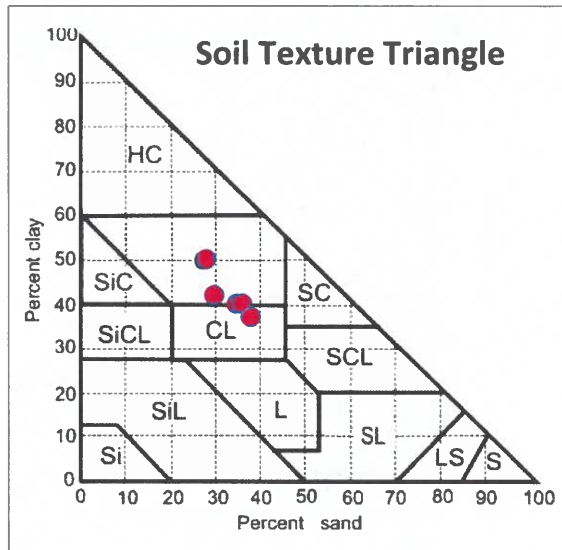
J. Lobbezoo Engineering +
Consulting Services
Box 96
Monarch, Alberta T0L 1M0

Report #: 202409
Report Date: 2025-02-04
Received: 2025-01-31
Completed: 2025-02-04
Test Done: ST

Project: Prairie View
Feeders
PO:

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

Sample ID:	250131P007	250131P008	250131P009	250131P010	250131P011
Cust. Sample ID:	PV1-25	PV2-25	PV3-25	PV4-25	PV5-25
Analyte Units	6.5-8.5	6.5-8.5	6.5-8.5	3.0-3.5	2.0-3.0
Sand %	30.0	35.0	28.2	36.2	38.2
Silt %	28.0	25.0	21.7	23.7	24.8
Clay %	42.0	40.0	50.1	40.1	37.0
Soil Texture	Clay	Clay	Clay	Clay	Clay Loam





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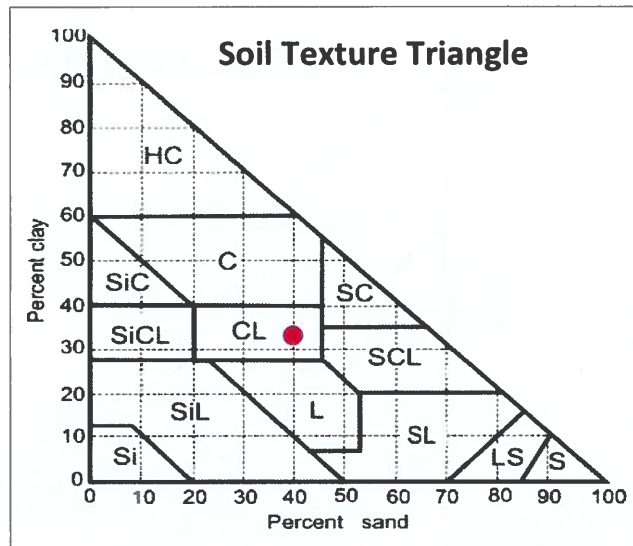
Report #: 202409
Report Date: 2025-02-04
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Test Done: ST

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Sample ID: 250131P012
Cust. Sample ID: PV6-25
Analyte Units 2.5-3.0

Sand	%	40.2
Silt	%	26.8
Clay	%	33.0
Soil Texture	-	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: NW22-10-22W4, Prairieview Feeders

Date: 29-Jan-25

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
PV1-25	0362844 5522664	0-0.15	CL	M	Topsoil		
		0.15-0.7	CL-SCL	M	Lac		Sand lensing
		0.7-3.1	SiC	M	Lac		Stiff, med plastic, olive brown
		3.1-9.2	C	M	Till	6.5-8.5	Stiff, med plastic, brown, sat sand lens @ 8.75m (free water)
Limited options for drill locations due to two buried water lines							
PV2-25	0362864 5522671	0-0.15	CL	M	Topsoil		
		0.15-1.2	SiCL	M	Lac		V. Firm, med plastic, olive brown
		1.2-3.4	SiC	M	Lac		Stiff, med plastic, olive brown, varved
		3.4-8.9	C	M	Till	6.5-8.5	Stiff, med plastic, brown, some oxidation sand pocket @ 5.0m 50mm H.C. Well installed to 8.9m BGS Screen: 8.9-5.9m Sand: 8.9-5.8m Bentonite: 5.8-0.0m Stickup: 0.15m
Limited options for drill locations due to two buried water lines							
PV3-25	0362867 5522654	0-0.15	CL	M	Topsoil		
		0.15-1.1	CL	M	Lac		V. Firm, med plastic, yellow brown, some silt
		1.1-1.5	SiCL	M	Lac		Stiff, med plastic, olive brown
		1.5-2.5	SiC	M	Lac		Stiff, med plastic, olive brown
		2.5-9.2	C	M	Till	6.5-8.5	Stiff, med plastic, brown
Limited options for drill locations due to two buried water lines							
PV4-25	0362846 5522815	0-0.15	CL	M	Lac		
		0.15-1.6	CL	VM	Lac		
		1.6-2.0	FSCL-CL	Sat	Lac		Soft, yellow brown
		2.0-3.6	FSCL-CL	M	Lac		V. Firm, low-med plastic, yellow brown
		3.6-4.0	CL-C	M	Till	3.0-3.5	Stiff, med plastic brown
PV5-25	0362856 5522913	0-0.15	CL	M	Lac		
		0.15-0.7	SiCL	M	Lac		
		0.7-3.0	CL-C	M	Till	2.0-3.0	Stiff, med plastic 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 Hole Diameter: 0.15m
PV6-25	0362856 5522913	0-0.15	CL	M	Lac		
		0.15-0.7	CL	M	Lac		
		0.7-2.5	CL	VM	Lac		
		2.5-3.0	CL-C	M	Till	2.5-3.0	Firm, med plastic, brown, trace sand

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