Application for Amendment

NRCB Natural Resources Conservation Board

Application under the *Agricultural Operation Practices Act* to amend a permit for a confined feeding operation, manure collection area and/or manure storage facility(ies). ("Permit" means an NRCB-issued or grandfathered approval, registration, or authorization, including a grandfathered municipal development permit.)

NRCB USE ONLY

☒ Approval ☐ Registration ☐ Authorization

Amendment

NRCB Application number: LA24020A

Date Stamp: NRCB APPLICATION 18 SEP 25 RECEIVED

CONTACT INFORMATION

Applicant Information

Name:	Corporate Name (if applicable)
Ryan VanHal	Southwood Stock Farms

Address: (Street/P.O. Box) Box 214

City/Town:	Province:	Postal Code:
Vauxhall	AB	T0K 2K0

Agent consent *(if applicable)*

I, _____, hereby give consent for _____
(name of applicant) *(name of agent and company)*

to act on my behalf or as my agent for this application.

Signed this ____day of _____, 20____. _____
Signature of Applicant

LOCATION OF DEVELOPMENT

Which permit do you wish to amend? (List permit number and issuing agency.)	LA 24020
Legal Land Description(s)	SE 5-14-15 W4 (Qtr-Sec-Twp-Rg-W Mer)

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 herein and acknowledge that the information provided in this application is true to the best of my knowledge.

Sept 11 2025
Date of signing

[redacted]
Signature

Southwood Stock Farms
Corporate name (if applicable)

Ryan Van Hal
Print name

Application for Amendment – contd.

NRCB Natural Resources Conservation Board

AMENDMENT INFORMATION REQUIREMENTS

Instructions:
For each part of your permit that you would like amended, please detail what change you would like made and why, and how your proposed change will meet the AOPA requirements. You may attach additional pages to this form to provide this information.

Please note that an approval officer may require a page (or pages) of the Part 2 application forms to be completed as part of this application for amendment, depending on what changes are proposed.

Would like to amend the new catch basin on permit LA 24020. Plan is to make it larger to be able to store more surface runoff. Because of the use of roller compacted concrete the water will shed faster and more storage is needed to contain the runoff water. I would like to increase the catch basin to 66m x 38m x 4.9m.

AO Comment: Applicant is proposing to increase the dimensions of Catch Basin 2 from 38.1 m x 19.1 m x 2.5 m deep to 66 m x 38 m x 4.9 m deep. No other changes are proposed.


North
North pens
298m
244m
244m
Catch basin 2 (to be expanded)
Catch basin (existing)
West pens
Feedlot pens 1-5
Feedlot pens 7
Feedlot pens 6
Recieving pens
Bale storage
Water storage
West
East
South

Google Earth North

AO Comment: Site plan showing direction of run-off and indicating area Catch Basin 2 is to be expanded into.

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)

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. Second 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

See attached map.

Catch basin capacity

	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 (excl. 0.5 m freeboard) (m^3)
1.	66	38	4.9		3	3	3	
2.								
3.								
							TOTAL CAPACITY	

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	1.6 (m)	Provide details (as required)	
Soil texture	36 % sand	37 % silt	27 % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested: 1.6m clay loam	Hydraulic conductivity (cm/s): 2.2×10^{-7} cm/s	Describe test standard used: modified falling head

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

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

24 May 2024

JLECS File: P24014

Southwood Stock Farms Ltd.
PO Box 214
Vauxhall, Alberta T0K2K0

Attention: Mr. Ryan Van Hal

Re: Geotechnical Review and Evaluation
NRCB Permitting of Proposed Pens
SE-05-014-15-W4M, near Vauxhall, 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 site soil conditions to support a permit application related to a series of proposed new pens to be located both north and west of the existing pens at SE-05-014-15-W4M (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, eleven boreholes were advanced at the site on April 26, 2024. The boreholes were advanced at the approximate locations denoted as SW1-24 to SW11-24 on Figure 1, attached.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services Ltd. and extended depths ranging between 3.0 m and 3.6 m below the existing grade. The boreholes were logged by Mr. Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered in the boreholes consisted of a layer of plastic lacustrine clay loam (to approximately 0.7 m depth) which was underlain by stiff medium plastic clay till to the termination depth of the eleven boreholes. No evidence of free groundwater or a groundwater resource (as defined by the AOPA) was identified within the 3.6 m investigation depth at the proposed development site.

Samples of soil collected from the screened zone of boreholes SW2-24 and SW9-24, as well as samples from the same depth at the other boreholes were subjected to grain size analyses, which was carried out by Down to Earth Laboratories in Lethbridge, Alberta. The results indicate a soil texture breakdown of:

Table 1: Soil Texture Analyses

Borehole/Depth	% Sand	% Silt	% Clay
SW1-24 / 1.5-3.0 m	37	34	29
SW2-24 / 1.5-3.0 m	36	37	27
SW3-24 / 1.5-3.0 m	36	36	28
SW4-24 / 1.5-3.0 m	35	35	30
SW5-24 / 1.5-3.0 m	36	36	28
SW6-24 / 1.5-3.0 m	34	38	28
SW7-24 / 1.5-3.0 m	36	33	31
SW8-24 / 1.5-3.0 m	35	34	30
SW9-24 / 1.5-3.0 m	36	34	30
SW10-24 / 1.5-3.0 m	37	32	31
SW11-24 / 1.5-3.0 m	38	32	30

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes SW2-24 and SW9-24. Test well SW2-24 was screened from 1.55 m to 3.15 m depth while test well SW9-24 was screened from 2.0 m to 3.6 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring wells to the top for several consecutive days. After several days of testing, a 24-hour water drop of 0.15 m was determined at SW2-24, and a 24-hour water drop of 0.22 m was determined at SW9-24.

To calculate the permeability of the screened portion of the clay till 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 indicate an *in situ* hydraulic conductivity, k_s, of 2.1×10^{-8} cm/s at SW2-24, and an *in situ* hydraulic conductivity, k_s, of 2.7×10^{-8} cm/s at SW9-24.

Using the measured permeability of the clay stratum, the 1.6 m of clay screened at SW2-24 is estimated to represent the equivalent of approximately 76 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). Similarly, the 1.6 m of clay screened at SW9-24 is estimated to represent the equivalent of approximately 59 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 solid manure storage (minimum 2 m, Section 9.5-c).

JLECS

Conclusion

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

PROFESSIONAL ENGINEER ALBERTA
JOHN P. LOBBEZOO
ID 110450

23 May 2024

John Lobbezoo, P.Eng.
Principal Geotechnical Engineer

PERMIT TO PRACTICE
J LOBBEZOO ENGINEERING & CONSULTING SERVICES LTD.
RM SIGNATURE: _____
RM APEGA ID #: 110450
DATE: 23 May 2024
PERMIT NUMBER: P016456
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

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

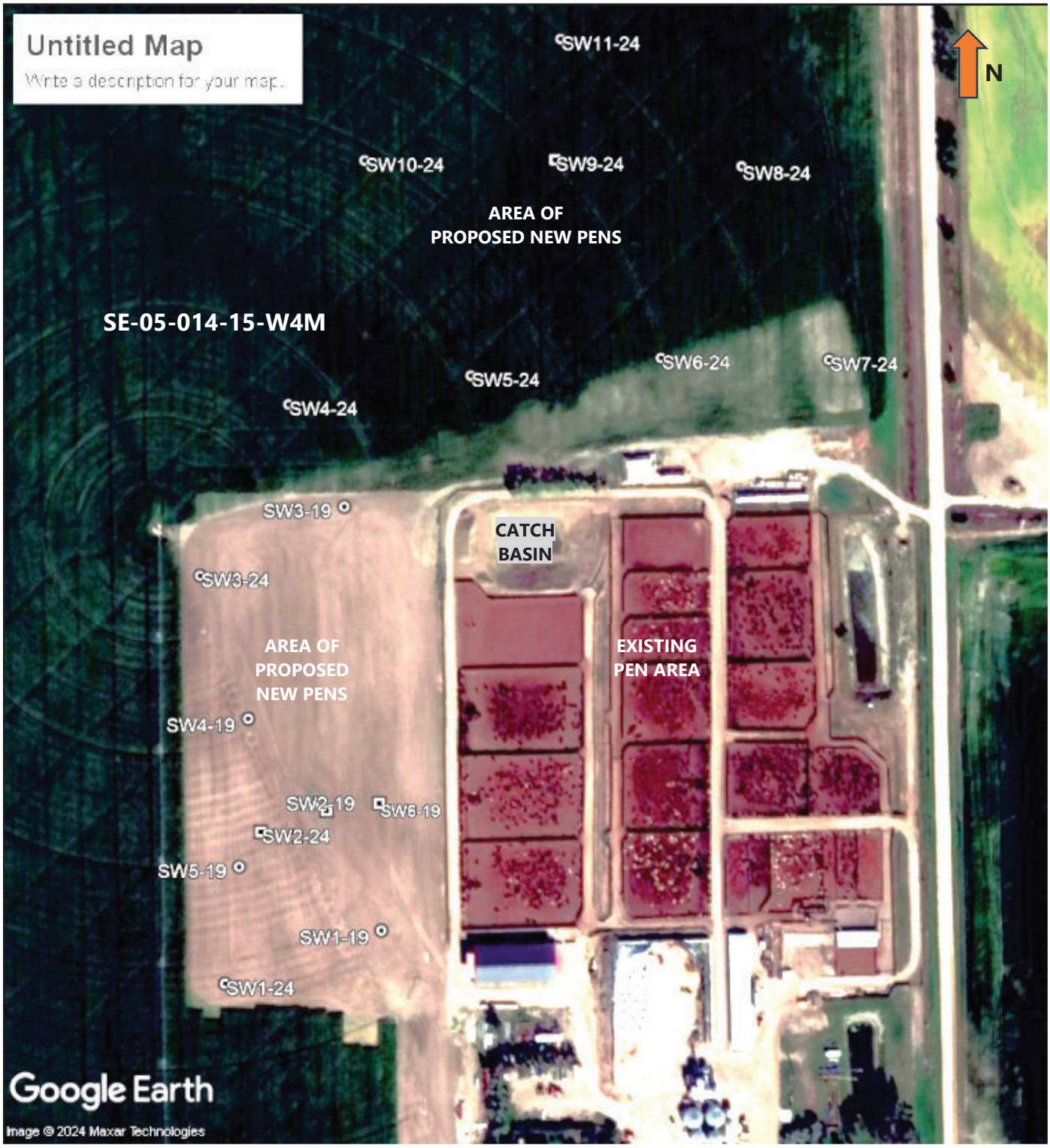


Figure 1: Borehole Locations Proposed New Pens

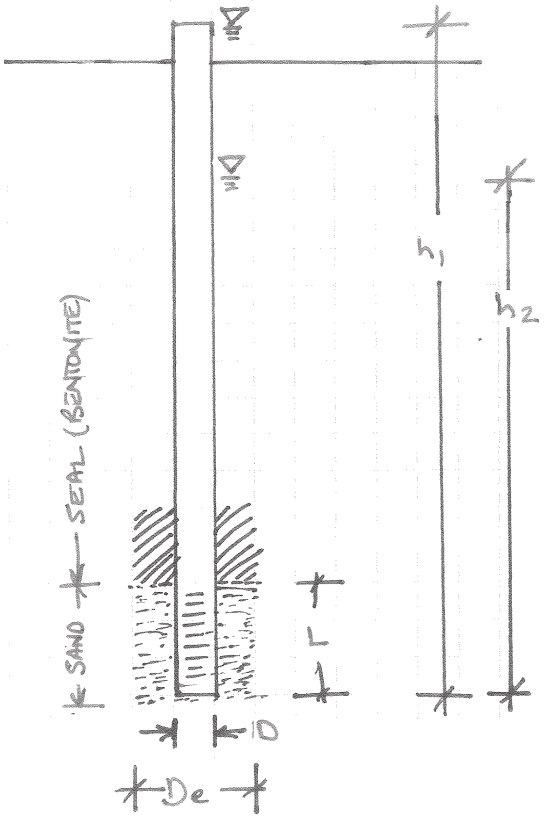
SW2-24

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)



SW2-24 - Southwood Stockfarms Ltd.

JLECS File: P24014

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

k_s = 2.1E-08 cm/sec

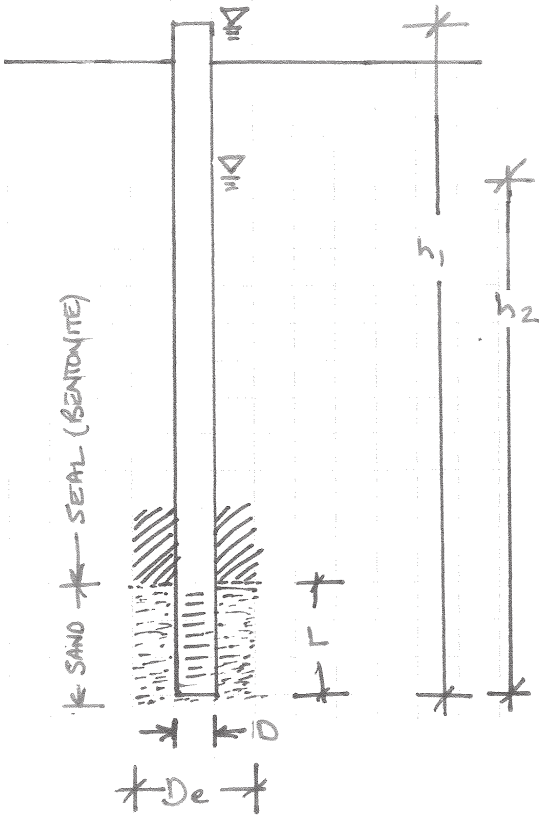
SW9-24

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)



SW9-24 - Southwood Stock Farms Ltd.

JLECS File: P24014

INPUT VARIABLES

Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	1.60	length of sand section (m)
h1	4.20	initial height of water above base of hole (m)
h2	3.98	final height of water above base of hole (m)
t	24.0	time of test (h)

k_s = 2.7E-08 cm/sec

CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: SE5-14-15W4 Southwood Stock Farms Date: 26-Apr-24

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
SW1-24	0427713	0-0.3	CL	M	Lac		
	5554345	0.3-1.0	SiCL	SM	Lac		
		1.0-3.0	CL	SM	Till	1.5-3.0	Stiff, med plastic, dark brown, oxidized
SW2-24	0427735	0-0.3	CL	M	Lac		
	5554425	0.3-1.0	CL-FSCL	D	Lac		
		1.0-3.15	CL	SM	Till	1.5-3.0	Stiff, med plastic, brown, oxidized
							50mm H.C. Well installed to 3.15m
							Screen: 3.15-1.65m
							Sand: 3.15-1.55m
							Bentonite: 1.55-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m
SW3-24	0427706	0-0.15	CL-FSCL	M	Lac		
	5554560	0.15-1.0	CL-FSCL	M	Lac		
		1.0-1.5	CL	M	Till		V. Firm, med plastic, brown
		1.5-1.6	CL	VM	Till		Sand layers
		1.6-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, dark brown, oxidized
SW4-24	0427756	0-0.15	CL	M	Lac		
	5554650	0.15-0.8	CL	M	Lac		Sand lens @ 0.8m, brown
		0.8-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, dark brown, oxidized
SW5-24	0427852	0-0.15	CL	M	Lac		
	5554662	0.15-0.7	CL	M	Lac		V. Firm, brown, sand lensing
		0.7-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, brown
SW6-24	0427954	0-0.15	CL	M	Lac		
	5554667	0.15-0.7	CL	M	Lac		V. Firm, brown, some sand
		0.7-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, dark brown
SW7-24	0428043	0-0.15	CL	VM	Lac		
	5554663	0.15-0.6	CL	M	Lac		Soft, med plastic, brown
		0.6-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, brown
SW8-24	0428000	0-0.15	CL	M	Lac		Topsoil
	5554767	0.15-0.4	CL	M	Lac		
		0.4-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, brown
SW9-24	0427900	0-0.15	CL	M	Lac		Topsoil
	5554775	0.15-0.6	CL-SCL	M	Lac		V. Firm, low-med plastic, brown
		0.6-3.6	CL	M	Till	1.5-3.0	Stiff, med plastic, brown
							50mm H.C. Well installed to 3.6m
							Screen: 3.6-2.1m
							Sand: 3.6-2.0m
							Bentonite: 2.0-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m
SW10-24	0427800	0-0.15	CL	M	Topsoil		
	5554777	0.15-0.6	CL-SCL	M	Lac		Stiff, low-med plastic, brown
		0.6-3.0	CL	M	Till	1.5-3.0	Stiff, med plastic, brown
SW11-24	0427905	0-0.15	CL	M	Topsoil		
	5554839	0.15-0.7	CL-SCL	M	Lac		V. Firm
		0.7-1.8	CL	M	Till		Stiff, med plastic, brown, sand lensing
		1.8-3.0	CL	M	Till		Stiff, med plastic, brown

September 19, 2016

Amec Foster Wheeler File: BX30404

Southwood Stock Farms Ltd.
P.O. Box 214
Vauxhall, Alberta T0K 2K0

Attention: Mr. Ryan Van Hal

Re: Geotechnical Review and Evaluation
Proposed New Pens
SE-5-14-15-W4, near Vauxhall, Alberta

As requested, Amec Foster Wheeler Environment & Infrastructure has carried out a geotechnical review and evaluation of the above captioned site relative to the required protection of the groundwater resource, as required by the Agricultural Operation Practices Act, AB Reg. 267/2001 (hereinafter referred to as "AOPA").

This letter encompasses the soil conditions associated with a series of proposed new pens along the west side of the existing feed lot (see Figure 1). In addition, boreholes were advanced adjacent to an existing catchbasin in order to assess the soil conditions associated with the catchbasin.

In order to demonstrate the suitability of the natural clay soils for consideration as a naturally occurring protective layer for the pens, a series of boreholes were advanced at the site on March 13, 2016, at the approximate locations illustrated on Figure 1. A second set of boreholes VH5-16 and VH6-16) were advanced on September 2, 2016 adjacent to the existing catchbasin. The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services, and extended to depths of about 3 m (pens) to 13.5 m (catchbasin) below existing grades. These boreholes were logged by Mr. Larry DeLong of Chilako Drilling Services Ltd (see attachments).

In general, the soils encountered within the current test holes generally included clay till soils to the termination depths of the boreholes. The clay till unit also include some sand lensing, with sandier conditions below about 11 m depth.

In order to demonstrate the permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes VH3-16 and VH5-16. Borehole VH3-16 was screened from 1.4 m to 3.0 m depth while VH5-16 was screened from about 5.2 m to 6.8 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring well to the top of the well for several consecutive days. After several days, the 24 hour water drop in the standpipe was about 1.3 m (VH3-16) and 2.6 m (VH5-16). During the testing, the well locations were protected, and care was taken to ensure that the column of water being monitored in the well was not frozen during the testing.

A second 25 mm was also installed at borehole VH2-16. Only nominal water accumulation was observed in the base of this borehole within a week of the drilling.

Amec Foster Wheeler
Environment & Infrastructure
469 – 40 Street South
Lethbridge, AB, CANADA T1J 4M1
Tel +1 (403) 327-7474
Fax +1 (403) 327-7682
www.amecfw.com

amec foster wheeler

In order to calculate the permeability of the screened portion of the clay stratum, a modified falling head test (as outlined in the USBR *Engineering Geology Field Manual Volume 2* [2001]) was used. The input variables and output data are outlined on the *In Situ Permeability Test* report, attached. As outlined on the report, the results of the *in situ* permeability testing indicate a hydraulic conductivity, k_s, in the order of **2.6 x 10^{-7} cm/s** at borehole VH3-16, and **2.2 x 10^{-7} cm/s** at borehole VH5-16

Using the measured permeability of the clay stratum, the 1.6 m portion of clay which has been screened at the boreholes has been estimated to represent an equivalent of about 6 m (VH3-16) and 7 m (VH5-16) of naturally occurring materials having a hydraulic conductivity of 1 x 10-6 cm/s. 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) and for catchbasins (minimum 5 m, Section 9.5-b).

Conclusion

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

We trust this satisfies your present requirements. If you have questions or require further information or clarification, please don't hesitate to contact the undersigned.

Respectfully submitted,

Amec Foster Wheeler Environment & Infrastructure
A division of Amec Foster Wheeler Americas Ltd.

PROFESSIONAL ENGINEER JOHN LOBBEZOO ALBERTA

Sept 19, 2016

John Lobbezoo, P.Eng.
Senior Geotechnical Engineer

APEGA Permit: P04546

Attachments:
Figure 1 – Borehole Location Plan
In Situ Permeability Test Calculations – VH3-16, VH5-16
Soil Profile and Parent Material Description, Chilako Drilling Services

Amec File: BX30404 Figure 1 – Borehole Location Plan Southwood Stock Farms Ltd. Sept, 2016

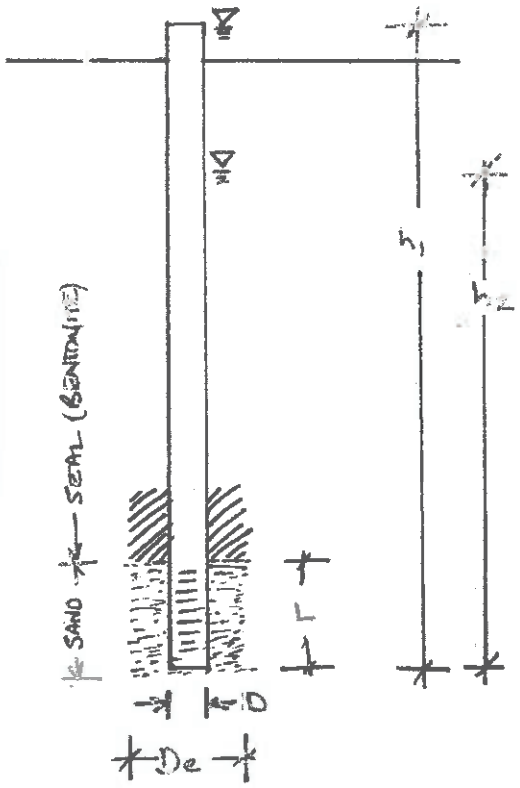
VH3-16

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)



VH3-16 - Southwood Stock Farms Ltd.

Amec Foster Wheeler File: BX30404

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	2.23	final height of water above base of hole (m)
	t	24.0	time of test (h)

Ks = 2.6E-07 cm/sec

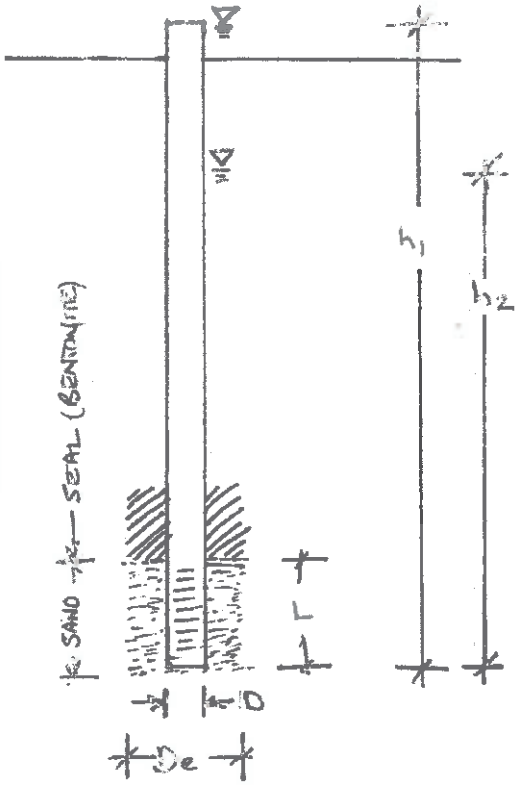
VH5-16

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)



VH5-16 - Southwood Stock Farms Ltd.

Amec Foster Wheeler File: BX30404

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	7.20	initial height of water above base of hole (m)
	h2	4.65	final height of water above base of hole (m)
	t	24.0	time of test (h)

Ks = 2.2E-07 cm/sec

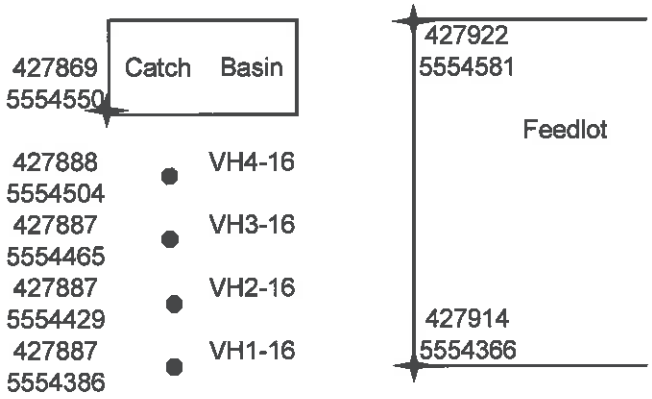
CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: Van Hal SE5-14-15W4 Date: Mar 2016

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
VH1-16	Center of	0-0.3	CL	SM	Till		
	south	0.3-1.6	CL	M	Till		Stiff, med plastic, brown
	proposed	1.6-3.0	CL	M	Till		Stiff, med plastic, brown, trace sand
	pen						
VH2-16	Center of	0-0.3	CL	SM	Till		Stiff, med plastic, brown
	south-center	0.3-2.0	CL	SM	Till		Stiff, med plastic, brown
	proposed	2.0-3.0	CL	SM	Till		Stiff, med plastic, brown, trace sand
	pen						25mm WTW installed to 3.0m
VH3-16	Center of	0-0.4	CL	SM	Till		Some silt
	north-center	0.4-2.4	CL	M	Till		Stiff, med plastic, brown
	proposed	2.4-3.0	CL	M	Till		Stiff, med plastic, brown
	pen						50mm HC well installed to 3.0m
							Screen: 3.0-1.5m
							Sand: 3.0-1.4m
							Benonite: 1.4-0.0m
							Stickup: 0.6m
							Hole diameter: 0.15m
VH4-16	Center of	0-0.3	CL	SM	Till		
	north	0.3-2.0	CL	M	Till		Stiff, med plastic, brown
	proposed	2.0-2.3	SCL	VM	Till		Firm, low plastic, sand lenses
	pen	2.3-3.0	CL	M	Till		Stiff, med plastic, brown



CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: SE5-14-15W4, Ryan Vanhal Date: 02-Sep-16

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
							Phase 1 including holes 1-4 drilled on an earlier date
							Existing catch basin is 5.1m deep
VH5-16	Southwest	0-0.3	CL	M	Till		
	corner of	0.3-0.6	CL	M	Till		Some silt
	catch basin	0.6-2.7	CL	M	Till		Stiff, med plastic, brown
		2.7-5.4	CL	M	Till		V. Firm, med plastic, brown
		5.4-5.7	CL	VM	Till		Sat sand lenses
		5.7-7.7	CL	M	Till		Stiff, med plastic, brown, oxidized
		7.7-9.0	CL-SCL	M	Till		V. Firm, low plastic, grayish brown
		9.0-10.5	CL	M	Till		Stiff, low-med plastic, dark brown, trace sand
		10.5-13.5	SL	Sat	Till		Free water @ 10.5m
							50mm H.C. well installed to 6.8m
							Screen: 6.8-5.3m
							Sand: 6.8-5.2m
							Bentonite: 5.2-1.5m
							Stickup: 0.6m
							Hole diameter: 0.15m
VH6-16	Northwest	0-1.0	SiCL	SM	Till		
	corner of	1.0-6.0	CL	M	Till		Stiff, med plastic, brown
	catch basin	6.0-8.4	CL	M	Till		Stiff, low plastic, trace sand, oxidized
		8.4-9.0	CL	VM	Till		Sat sand lenses
		9.0-11.0	C	M	Till		Stiff, med plastic, brown
		11.0-13.5	SL	Sat	Till		Free Water @ 11.0m