

CB USE ONLY	Addication number	Legal land	description - A
	LA25027	E½ 33-2	20-23 W4M
Approval Registration Authorization	<u> </u>		
DITCATION DISCLOSURE			
information is collected under the authority of the Agricu	rivacy net. This issues		
construction prior to obtaining an NRCB permit is a secution.			
ne applicant, or applicant's agent, have read and understa vided in this application is true to the best of my knowled	and the statements above, and the ige.	acknowledge in	at the anomaton
Plarch 15/2025			<u> </u>
oranin Farms 190	Signáture		
hearten Forms 110	Natthew Ja	cobser.	
porate name (if applicable)	Print name		
•			
NERAL INFORMATION REQUIREMENTS roposed facilities: list all proposed confined feeding ope	eration facilities and their dimensi	ions. Indicate w	hether any of the
roposed facilities are additions to existing facilities. (attac	ch additional pages if needed)		
roposed facilities		1	nensions (m) width, and depth)
	· <u>·</u>	(iongav)	Total of the second
		35 m x 22 r	n x 3 m deep
Catch basin		151 m x 90	5 m
Pen areas including alleys		131 x 3	
<u> </u>	•		
			<u>_</u>
-			
		l	
Existing facilities: list ALL existing confined feeding ope	esation facilities and their dimensi	ions	
Existing facilities: list ALL existing commed recomp opt	Dimensions	s (m)	NRCB USE ONLY
Existing facilities		and depth)	
Albert S recently	familiar and a		
	15/m × 9	6 m	
Area including Allys-		6 m	
		6 m	
		6 m	
Area including Allys- NRCB USE ONLY AO Comment: Applicant is applying to permit-exis	15/m × 9		
Area including Allys-	15/m × 9	used for seas	
Area including Allys- NRCB USE ONLY AO Comment: Applicant is applying to permit-exis	15/m \times 9	used for seas	



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.

struction completion date for proposed facili	ties		
litional Information			
AO Comment: Applicant proposes to comp	lete construction of the	proposed catch basin by	December 31, 20
	_		
vestock numbers: Complete only if livestock num estock numbers increase in your Part 2 application	ibers are different from wha , a new Part 1 application n	at was identified in the Part : nust be submitted which ma	1 application, Note y result in a loss of
iority for minimum distance separation (MDS). Livestock category and type		Proposed increase or	
Available in the Schedule 2 of the Part 2 Matters	Permitted number	decrease in number (if applicable)	Total
Regulation)		(ii applicable)	
		···	/500
		1500	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
		···	/500
Regulation) Regulation)		···	/500

Noronden forms LTD Els 33-20-23 W4 Figure 3



1 Proposed Cotch Busin Location of required

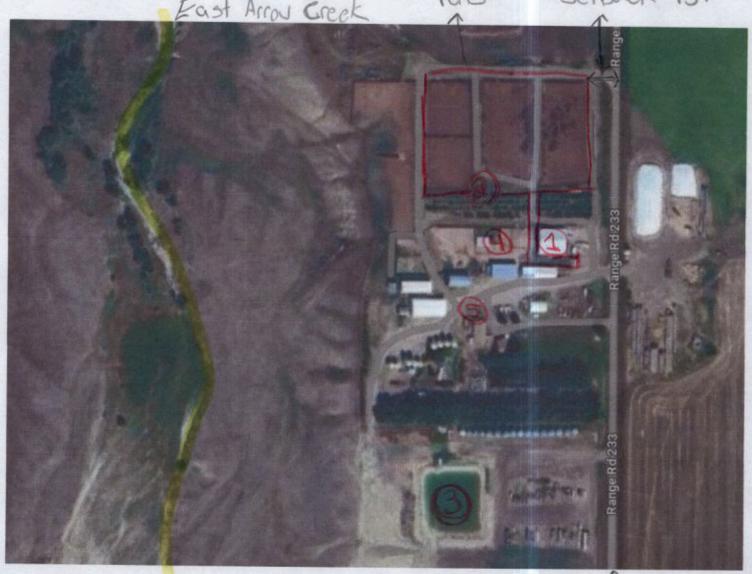
E = 23-20-23 WH

Norander forms LTD Figure 2

East Arrow Greek

Pens

setback 15M



1 - Barn/Recieving

- Water Well-above ground casing, Inactive

3) - Fresh Water Storcage 4 250m from Pens 4 Above grade of Pens 4 Burmed

Property line Follows RR233

Watercell, nactive non-donestic 50m setback

Application LA25027 Page 4 of 37 110m setback supply



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 Parks (AEP) for a confined feeding operation (CFO)

	ION 1: Applying through the NRCB for both to I DO want my water licence application coupled to	he AOPA permit and to my AOPA permit ap	d the Water Act licence plication.
Sign	ed thisday of, 20		Signature of Applicant or Agent
OPT	ION 2: Processing the AOPA permit and Wat	er Act licence separ	ately
			EP under the Water Act for the development or activity
Ζ.	I (we) request that the NRCB process the AOPA water licence.	application Independ	ently of AEP's processing of the CFO's application for a
3.	In making this request, I (we) recognize that, if considered by AEP as improving or enhancing the		is granted by the NRCB, the NRCB's decision will not be water licence under the <i>Water Act</i> .
	absence of a Water Act licence will not be releva	int to AEP's considerat	FO with Ilvestock pursuant to an AOPA permit in the tion of whether to grant the <i>Water Act</i> licence application
5.	application is denied or if the operation of the CF	O is otherwise deeme	will be at the CFO's sole risk if the <i>Water Act</i> licence d to be in violation of the <i>Water Act</i> . This risk includes tion, or to remove "works" or "undertakings" (as defined
6.	AS RELEVANT: 1 (we) acknowledge that the CF		uth Saskatchewan River Basin and that, pursuant to the order [Alta. Reg. 171/2007], this basin is currently closed
Sign	ned this day of, 20		
			Signature of Applicant or Agent
	in this AOPA application.	licence from AEP unde	er the Water Additor the development or activity proposed
	in this AOPA application.		s the Water Autifor the development or activity proposed signature of Applicant or Agent
Sigr	ned this 15 day of 100 4: Uncertain if Water Act Ilcence is need	ded; acknowledgem	signature of Applicant or Agent ent of risk (for existing CFOs only)
Sigr	in this AOPA application. led this 15 day of	ded; acknowledgem	s Signature of Applicant or Agent
Sigr <u>OP</u> 1	in this AOPA application. TON 4: Uncertain if Water Act licence is need At this time, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required.	ied; acknowledgem water licence is neede	signature of Applicant or Agent ent of risk (for existing CFOs only)
Sigr <u>OP</u> 1. 2.	in this AOPA application. TON 4: Uncertain if Water Act licence is need this time, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water in	ied; acknowledgem water licence is neede uest that the NRCB pricence. this AOPA application	ent of risk (for existing CFOs only) ed from AEP under the Water Act for the development or occase the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be
Sigr <u>OP</u> 1 1. 2.	in this AOPA application. TON 4: Uncertain if Water Act licence is need. At this time, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water if In making this request, I (we) recognize that, if considered by AEP as improving or enhancing the I (we) acknowledge that any construction or act in the absence of a Water Act licence will not be	ied; acknowledgem water licence is neede uest that the NRCB pri cence. this AOPA application e CFO's eligibility for a ions to populate the C	ent of risk (for existing CFOs only) ed from AEP under the Water Act for the development or occase the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be
OF) 1. 2. 3. 4.	TON 4: Uncertain if Water Act licence is need this ime, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water if In making this request, I (we) recognize that, if considered by AEP as improving or enhancing the I (we) acknowledge that any construction or act in the absence of a Water Act licence will not be application, if a new water licence is needed. I (we) acknowledge that any such construction of application is denied or if the operation of the Climater.	ied: acknowledgem water licence is neede uest that the NRCB pri cence. this AOPA application e CFO's eligibility for a ions to populate the C relevant to AEP's con or livestock increase w FO is otherwise deeme	ent of risk (for existing CFOs only) and from AEP under the Water Act for the development or occess the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be a water licence under the Water Act. FO with additional livestock pursuant to an AOPA permit is ideration of whether to grant my Water Act licence will be at the CFO's sole risk if the Water Act licence and to be in violation of the Water Act. This risk includes
OF) 1. 2. 3. 4.	TON 4: Uncertain if Water Act licence is need this ime, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water if In making this request, I (we) recognize that, if considered by AEP as improving or enhancing the I (we) acknowledge that any construction or act in the absence of a Water Act licence will not be application, if a new water licence is needed. I (we) acknowledge that any such construction is application is denied or if the operation of the Cibeing required to depopulate the CFO and/or to in the Water Act).	ied; acknowledgem water licence is neede uest that the NRCB pricence. this AOPA application is CFO's eligibility for a ions to populate the Circlevant to AEP's control livestock increase wero is otherwise deeme cease further construction.	ent of risk (for existing CFOs only) and from AEP under the Water Act for the development or occess the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be a water licence under the Water Act. FO with additional livestock pursuant to an AOPA permit is ideration of whether to grant my Water Act licence will be at the CFO's sole risk if the Water Act licence and to be in violation of the Water Act. This risk includes ction, or to remove "works" or "undertakings" (as defined
OF) 1. 2. 3. 4.	TON 4: Uncertain if Water Act licence is need this time, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water if In making this request, I (we) recognize that, if considered by AEP as improving or enhancing the I (we) acknowledge that any construction or act in the absence of a Water Act licence will not be application, if a new water licence is needed. I (we) acknowledge that any such construction to application is denied or if the operation of the CI being required to depopulate the CFO and/or to in the Water Act). AS RELEVANT: I (we) acknowledge that the CFO	ied: acknowledgem water licence is neede uest that the NRCB pricence. this AOPA application is CFO's eligibility for a ions to populate the Circlevant to AEP's control livestock increase were in our livestock increase were so that the solution of the Solution is otherwise deems cease further construction is located in the Solution.	ent of risk (for existing CFOs only) and from AEP under the Water Act for the development or occess the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be a water licence under the Water Act. FO with additional livestock pursuant to an AOPA permit is ideration of whether to grant my Water Act licence will be at the CFO's sole risk if the Water Act licence and to be in violation of the Water Act. This risk includes cition, or to remove "works" or "undertakings" (as defined out the Saskatchewan River Basin and that, pursuant to the
Sigr OF) 1. 2. 3. 4. 5.	TON 4: Uncertain if Water Act licence is need this time, I (we) do not know whether a new activity proposed in this AOPA application. If a new Water Act licence is needed, I (we) required processing of the CFO's application for a water license is needed, I (we) required by AEP as improving or enhancing the I (we) acknowledge that any construction or act in the absence of a Water Act licence will not be application, if a new water licence is needed. I (we) acknowledge that any such construction to application is denied or if the operation of the Cibeing required to depopulate the CFO and/or to in the Water Act). AS RELEVANT: I (we) acknowledge that the CFB Bow, Oldman and South Saskatchewan River Bar	ied: acknowledgem water licence is needed uest that the NRCB projection is AOPA application of CPO's eligibility for a construction to populate the CPO's relevant to AEP's construction of the structure of the construction of the structure of the construction of the construction of the structure of the construction of the con	ent of risk (for existing CFOs only) and from AEP under the Water Act for the development or occess the AOPA application independently of AEP's is granted by the NRCB, the NRCB's decision will not be a water licence under the Water Act. EFO with additional livestock pursuant to an AOPA permit isideration of whether to grant my Water Act licence will be at the CFO's sole risk if the Water Act licence and to be in violation of the Water Act. This risk includes oction, or to remove "works" or "undertakings" (as defined

GENERAL ENVIRONMENTAL INFORMATION

Last podefed: 31 Mer 2020



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

xisting	· Nurander Furns ETD		Propose	d 1:			
гороѕе	d 2:		d 3:				
Facil	ty and environmental risk		Faci	lities			B USE ONLY
	information	Existing	Proposed 1	Proposed 2	Proposed 3	Meets requirements	Comments
Flood plain information	What is the height of the floor of the lowest manure storage or collection facility above the 1:25 year flood plain or the highest known flood level?	[54 >1 m □ ≤1 m			□ > 1 m □ ≤ 1 m	1	
<u>.</u>	How many springs are within 100 m of the manure storage facility or manure collection area?	O				YES NO YES with exemption	
Surface water Information	How many water wells are within 100 m of the manure storage facility or manure collection area?	1				YES NO YES with	
ng =	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	140 m				YES NO YES with examption	
lwater lation	What is the depth to the water table?					YES NO YES with exemption	
Groundwater	What is the depth to the groundwater resource/aquifer you draw water from?	N/A Descent				YES NO YES with	

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

NRCB USE ONLY

Application LA25027 Page 6 of 37



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

		Ţ	NRCB USE ONLY			LY 🔻	
Neighbour name(s)	Legal land description	Distance (m)	Zoning (LUB) category	MDS category (1-4)	Distance (m)	Waiver attached (if required)	
Art Bird	SE 4-21-23 WH	675m					
Art Bird	SE 4-21-23 W4	1030m				(F)	
Ach Tomes	NE 26-20-23 004	1000m					a dei fa
Amount Village		ISOC M				4 %	

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

			ĺ	NRCB U	SE ONLY DO MALLONG ON
Name of land owner(s)*	Legal land description	Usable area** (ha)	Soli zone ***	Usable area (ha)	Agreement attached (If required)
Mounten Frams LTD	W/ 34-20-23 W4	259	Pork Snewn		
"	vil 27-20-23 WH	250	Park Brown		
14	PT 33-20-23 WH	40	Do-A Brown		
					1 1988年1864
					100000000000000000000000000000000000000
			Total		

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

Additional information (attach any additional information as required)

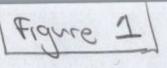
Last updated: 31 Mar 202	D		Page of
Bridge State		NRCB USE ONLY	

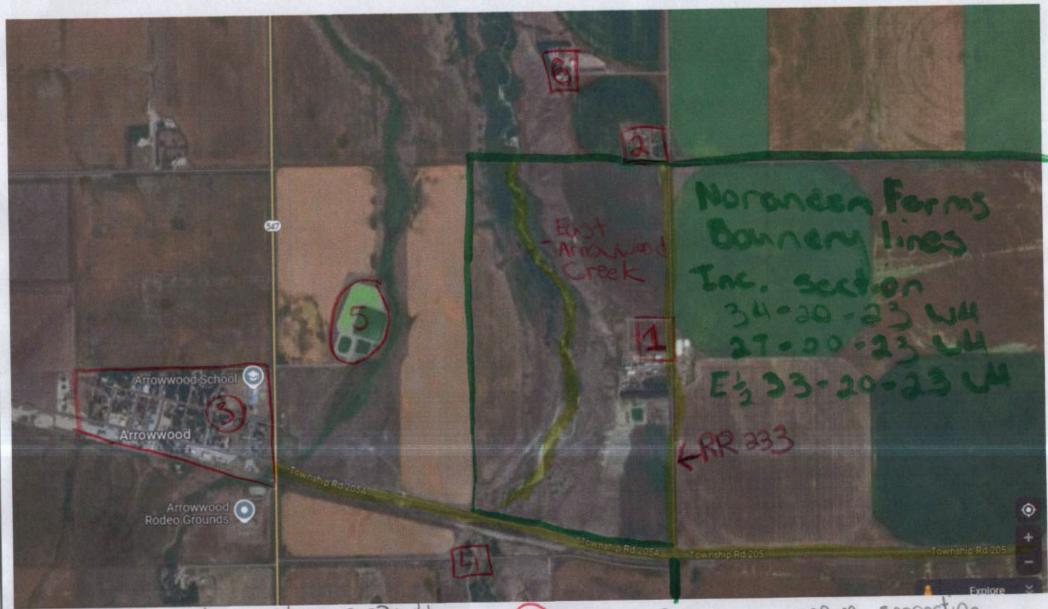
^{**} Available manure spreading area (excluding setback areas from residences, common bodies of water, water wells, etc. as identified in Agdex 096-5 Manure Spreading Regulations)

^{***} Brown, dark brown, black, grey wooded, or irrigated

Noranden Forms LTD Runoff runs natural grade NE

MT





1) Pen Location Ed 23-20-23 WH

1) Neighbor Residence - 615 M separation

4) Neighbor Residence - 1000 m seperation

Application LA25027 Page 8 of 37

3 Village of Amorroad-1500 m seperation (Sheighber Residence-1030 m seperation

Name Address Legal Land Location

E 1/2 33-20-23 W4

MDS Spreadsheet based on 2006 AOPA Regulations

Category of	Type of Livestock	Factor A	Technology	MU	LSU	Number of	LSU
Livestock	Type of Livestock	Factor A	Factor	IVIO	Factor		LSU
Livestock			Factor		Factor	Animals	
Feedlot	Beef Cows/Finishers (900+ lbs)	0.700	0.700	0.910	0.4459	1,500	668.9
Animals	Beef Feeders (450 - 900 lbs)	0.700	0.700	0.500	0.2450		-
	Beef Feeder Calves (<550 lbs)	0.700	0.700	0.275	0.1348		-
	Horses - PMU	0.650	0.700	1.000	0.4550		-
	Horses - Feeders > 750 lbs	0.650	0.700	1.000	0.4550		
	Horses - Foals < 750 lbs	0.650	0.700	0.300	0.1365		
	Mules	0.600	0.700	1.000	0.4200		
	Donkeys	0.600	0.700	0.670	0.2814	-	-
	Bison	0.600	0.700	1.000	0.4200		-
	Other						-
Dairy		0.800	1.100	2.000	1.7600		-
	Free Stall – Lactating Cows with all						
(*count	associated dries, heifers, and calves*						
lactating	Free Stall - Lactating Cows with Dry	0.800	1.100	1.640	1.4432		-
cows only)	Cows only*						
,,	Free Stall – Lactating Cows only	0.800	1,100	1.400	1.2320		
	Tie Stall – Lactating Cows only	0.800	1.000	1.400	1.1200		
	Tie Gtaii – Lactating Cows Only	0.800	1.000	1.400			
	Lease Housing Leat-time Com	0.800	1.000	1.400	1.1200		-
	Loose Housing – Lactating Cows only			4 00-	0.500		
	Dry Cow	0.800	0.700	1.000	0.5600		-
	Replacements – Bred Heifers	0.800	0.700	0.875	0.4900		-
	(Breeding to Calving)						
	Replacements - Growing Heifers	0.800	0.700	0.525	0.2940		-
	(350 lbs to breeding)						
	Calves (< 350 lbs)	0.800	0.700	0.200	0.1120		
	Calves (< 330 lbs)	0.800	0.700	0.200	0.1120		
	Other		1 100	1 = 0.0	0.0400		
Swine	Farrow to finish *	2.000	1.100	1.780	3.9160		-
Liquid	Farrow to wean *	2.000	1.100	0.670	1.4740		-
(*count	Farrow only *	2.000	1.100	0.530	1.1660		-
sows only)	Feeders/Boars	2.000	1.100	0.200	0.4400		-
,	Growers/Roasters	2.000	1.100	0.118	0.2600		-
	Weaners	2.000		0.055	0.1210		
	Other	2.000	1.100	0.000	0.1210		-
Swine	Farrow to finish *	2.000	0.800	1.780	2.8480		
			0.800				
			0.8001	0.670	1.0720		-
Solid	Farrow to wean *	2.000		0.000	0.0100		
(*Count	Farrow only *	2.000	0.800	0.530	0.8480		-
(*Count	Farrow only * Feeders/Boars	2.000 2.000	0.800 0.800	0.200	0.3200		-
(*Count	Farrow only *	2.000	0.800				
(*Count	Farrow only * Feeders/Boars	2.000 2.000	0.800 0.800	0.200	0.3200		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters	2.000 2.000 2.000	0.800 0.800 0.800	0.200 0.118	0.3200 0.1888		-
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ultier	2.000 2.000 2.000 2.000	0.800 0.800 0.800 0.800	0.200 0.118 0.055	0.3200 0.1888 0.0880		- - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ditter Chicken - Breeders - Solid	2.000 2.000 2.000 2.000 1.000	0.800 0.800 0.800 0.800	0.200 0.118 0.055 0.010	0.3200 0.1888 0.0880 0.0070		- - -
(*Count	Farrow only * Feeders/Boars Growers/Roasters Weaners Diber Chicken - Breeders - Solid Chicken - Layers - Liquid (includes	2.000 2.000 2.000 2.000	0.800 0.800 0.800 0.800	0.200 0.118 0.055	0.3200 0.1888 0.0880		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ther Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets)	2.000 2.000 2.000 2.000 1.000 2.000	0.800 0.800 0.800 0.800 0.700 1.100	0.200 0.118 0.055 0.010 0.008	0.3200 0.1888 0.0880 0.0070 0.0176		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage)	2.000 2.000 2.000 2.000 1.000 2.000	0.800 0.800 0.800 0.800 0.700 1.100	0.200 0.118 0.055 0.010 0.008	0.3200 0.1888 0.0880 0.0070 0.0176		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Diber Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit)	2.000 2.000 2.000 2.000 1.000 2.000 2.000	0.800 0.800 0.800 0.800 0.700 1.100	0.200 0.118 0.055 0.010 0.008 0.008	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ditter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers	2.000 2.000 2.000 2.000 1.000 2.000 2.000 2.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.008	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ditter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers	2.000 2.000 2.000 2.000 1.000 2.000 2.000	0.800 0.800 0.800 0.800 0.700 1.100	0.200 0.118 0.055 0.010 0.008 0.008	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112		- - - -
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders	2.000 2.000 2.000 2.000 1.000 2.000 2.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.008 0.002 0.020	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014 0.0140		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Unior Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light)	2.000 2.000 2.000 2.000 1.000 2.000 2.000 2.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014 0.0140 0.0091		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Diter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers	2.000 2.000 2.000 2.000 1.000 2.000 2.000 2.000 1.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0070		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ditter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks	2.000 2.000 2.000 2.000 1.000 2.000 2.000 1.000 1.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.020 0.013 0.010 0.010	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014 0.0091 0.0091 0.0070		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Diter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers	2.000 2.000 2.000 2.000 1.000 2.000 2.000 2.000 1.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0070		
(*Count sows only) Poultry	Farrow only * Feeders/Boars Growers/Roasters Weaners Dither Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010 0.010	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0012 0.0014 0.0091 0.0070 0.0070 0.0140		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Sheep - Ewes/Rams	2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 1.000	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.010 0.010 0.010 0.020	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0091 0.0070 0.0070 0.0140		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Uther Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Ditter Sheep - Ewes/Rams Sheep - Ewes with lambs	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.013 0.010 0.010 0.020 0.200 0.250	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0114 0.0140 0.0091 0.0070 0.0070 0.0140		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Sheep - Ewes/Rams	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.020 0.020 0.020 0.200 0.250 0.055	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0070 0.0070 0.0170 0.0140 0.0140 0.0091		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Diber Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Geese Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.020 0.020 0.020 0.200 0.250 0.055	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0114 0.0140 0.0091 0.0070 0.0070 0.0140		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010 0.020 0.250 0.250 0.050 0.002	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0114 0.0140 0.0091 0.0070 0.0140 0.00840 0.0840 0.0210 0.0210 0.0210		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Ditter Sheep - Ewes/Rams Sheep - Ewes/Rams Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe)	2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.013 0.010 0.020 0.250 0.250 0.050 0.170	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0114 0.0014 0.0091 0.0070 0.0140 0.0840 0.0840 0.0210 0.0210 0.0823		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Diber Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Mannies/Billies	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.600 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700 0.700	0.200 0.118 0.055 0.010 0.008 0.002 0.020 0.010 0.010 0.010 0.020 0.200 0.250 0.050 0.100 0.000 0.	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.1040 0.0091 0.0091 0.0090 0.0140 0.0091 0.0090 0.0140 0.0091 0.0090 0.000 0.000		
(*Count sows only) Poultry Sheep and	Farrow only * Feeders/Boars Growers/Roasters Weaners Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Ditter Sheep - Ewes/Rams Sheep - Ewes/Rams Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe)	2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.600	0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.013 0.010 0.020 0.250 0.250 0.050 0.170	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0114 0.0014 0.0091 0.0070 0.0140 0.0840 0.0840 0.0210 0.0210 0.0823		
(*Count sows only) Poultry Sheep and Goats	Farrow only * Feeders/Boars Growers/Roasters Weaners Weaners United Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese United Scheep - Ewes/Rams Sheep - Ewes/Rams Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Nannies/Billies Goats - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010 0.020 0.250 0.050 0.100 0.170 0.140 0.077	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014 0.0091 0.0070 0.0070 0.0140 0.0840 0.0210 0.0420 0.0833 0.6886 0.0377		
(*Count sows only) Poultry Sheep and Goats	Farrow only * Feeders/Boars Growers/Roasters Weaners Ulter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Free Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Mannies/Billies Goats - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.010 0.010 0.020 0.200 0.250 0.100 0.170 0.104 0.077	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0091 0.0091 0.0091 0.0091 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093		
(*Count sows only) Poultry Sheep and Goats	Farrow only * Feeders/Boars Growers/Roasters Weaners Weaners United Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese United Scheep - Ewes/Rams Sheep - Ewes/Rams Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Nannies/Billies Goats - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010 0.020 0.250 0.050 0.100 0.170 0.140 0.077	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0112 0.0014 0.0091 0.0070 0.0070 0.0140 0.0840 0.0210 0.0420 0.0833 0.6886 0.0377		
(*Count sows only) Poultry Sheep and Goats	Farrow only * Feeders/Boars Growers/Roasters Weaners Ulter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Free Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Mannies/Billies Goats - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.010 0.010 0.020 0.200 0.250 0.100 0.170 0.104 0.077	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0091 0.0091 0.0091 0.0091 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093		
(*Count sows only)	Farrow only * Feeders/Boars Growers/Roasters Weaners Ulter Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Deep Pit) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Hens (light) Turkey - Broilers Ducks Geese Free Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Feeders Goats - Meat/Milk (per Ewe) Goats - Mannies/Billies Goats - Feeders	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700 0.600 0.600 0.600	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.008 0.002 0.020 0.013 0.010 0.010 0.020 0.250 0.050 0.170 0.140 0.077 0.600 0.200	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0091 0.0070 0.0140 0.0840 0.0210 0.0833 0.0886 0.0377 0.2520 0.0840		
(*Count sows only) Poultry Sheep and Goats Cervid	Farrow only * Feeders/Boars Growers/Roasters Weaners Weaners Chicken - Breeders - Solid Chicken - Layers - Liquid (includes associated pullets) Chicken - Layers - (Belt Cage) Chicken - Layers - (Belt Cage) Chicken - Pullets/Broilers Turkey - Toms/Breeders Turkey - Broilers Ducks Geese Diber Sheep - Ewes/Rams Sheep - Ewes with lambs Sheep - Lambs Sheep - Lambs Sheep - Lambs Goats - Meat/Milk (per Ewe) Goats - Nannies/Billies Goats - Feeders Elk Deer	2.000 2.000 2.000 2.000 2.000 2.000 2.000 2.000 1.000 1.000 1.000 0.600 0.600 0.700 0.700 0.700	0.800 0.800 0.800 0.800 0.800 0.700 1.100 0.700	0.200 0.118 0.055 0.010 0.008 0.008 0.002 0.020 0.010 0.010 0.020 0.200 0.250 0.100 0.170 0.104 0.077	0.3200 0.1888 0.0880 0.0070 0.0176 0.0112 0.0014 0.0140 0.0091 0.0091 0.0091 0.0091 0.0091 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093 0.0093		

668.9 Total

For New Operations
Dispersion Factor

			ance
Category	Odour Objective	Feet	Metres
1	41.04	1,447	441
2	54.72	1,929	588
3	68.4	2,411	735
4	109.44	3,858	1,176

For Expanding Operations
Dispersion Factor
Expansion Factor

		Distance		
Category	Odour Objective	Feet	Metres	
1	41.04	1,114	340	
2	54.72	1,485	453	
3	68.40	1,857	566	
4	109.44	2,971	906	

Name Noranden Farms Ltd Address Legal Land Location E 1/2 33-20-23 W4 Noranden Farms Ltd

Landbase Requirements (hectares) based on 2006 AOPA requirements

0

Category of	Type of Livestock		Dark Brown	Grey	Black	Irrigated
Livestock		Animals	& Brown	Wooded	(ha)	(ha)
	(0.00		(ha)	(ha)		
Feedlot Animals	Cows/Finishers (900+ lbs)	1500.0 0.0	187.5 0.0	156.0 0.0	117.0 0.0	93.0
Animais	Feeders (450 - 900 lbs) Feeder Calves (<550 lbs)	0.0	0.0	0.0	0.0	0.0
	Horses - PMU	0.0	0.0	0.0	0.0	0.0
	Horses - Feeders > 750 lbs	0.0	0.0	0.0	0.0	0.0
	Horses - Foals < 750 lbs	0.0	0.0	0.0	0.0	0.0
	Mules	0.0	0.0	0.0	0.0	0.0
	Donkeys	0.0	0.0	0.0	0.0	0.0
	Bison	0.0	0.0	0.0	0.0	0.0
S-:	Other	0.0	0.0	0.0	0.0	0.0
Dairy *count	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	0.0	0.0	0.0	0.0	0.0
actating cows only)	Free Stall – Lactating Cows with Dry Cows only *	0.0	0.0	0.0	0.0	0.0
,,	Free Stall – Lactating Cows only*	0.0	0.0	0.0	0.0	0.0
	Tie Stall - Lactating Cows only	0.0	0.0	0.0	0.0	0.0
	Loose Housing – Lactating Cows only	0.0	0.0	0.0	0.0	0.0
	Dry Cow (Solid manure)	0.0	0.0	0.0	0.0	0.0
	Dry Cow (Liquid manure)	0.0	0.0	0.0	0.0	0.0
	Replacements – Bred Heifers (Breeding to Calving)	0.0	0.0	0.0	0.0	0.0
	Replacements - Growing Heifers (350 lbs to breeding)	0.0	0.0	0.0	0.0	0.0
	Calves (< 350 lbs)	0.0	0.0	0.0	0.0	0.0
Swine	Farrow to finish *	0.0	0.0	0.0	0.0	0.0
_iquid	Farrow to wean *	0.0	0.0	0.0	0.0	0.0
*count	Farrow only *	0.0	0.0	0.0	0.0	0.0
sows only)	Feeders/Boars	0.0	0.0	0.0	0.0	0.0
,,	Growers/Roasters	0.0	0.0	0.0	0.0	0.0
	Weaners	0.0	0.0	0.0	0.0	0.0
Swine	Farrow to finish *	0.0	0.0	0.0	0.0	0.0
Solid	Farrow to wean *	0.0	0.0	0.0	0.0	0.0
(*Count	Farrow only *	0.0	0.0	0.0	0.0	0.0
sows only)	Feeders/Boars	0.0	0.0	0.0	0.0	0.0
	Growers/Roasters	0.0	0.0	0.0	0.0	0.0
	Weaners	0.0	0.0	0.0	0.0	0.0
Poultry	Chicken - Breeders - Solid	0.0	0.0	0.0	0.0	0.0
- Ould y	Chicken - Layers - Liquid (includes associated pullets)	0.0	0.0	0.0	0.0	0.0
	Chicken - Layers - (Belt Cage)	0.0	0.0	0.0	0.0	0.0
	Chicken - Layers - (Deep Pit)	0.0	0.0	0.0	0.0	0.0
	Chicken - Pullets/Broilers	0.0	0.0	0.0	0.0	0.0
	Turkey - Toms/Breeders	0.0	0.0	0.0	0.0	0.0
	Turkey - Hens (light)	0.0	0.0	0.0	0.0	0.0
	Turkey - Broilers	0.0	0.0	0.0	0.0	0.0
	Ducks Geese	0.0	0.0	0.0	0.0	0.0
	Othor	0.0	0.0	0.0	0.0	0.0
Goats and	Sheep - Ewes/Rams	0.0	0.0	0.0	0.0	0.0
Sheep	Sheep - Ewes with lambs	0.0	0.0	0.0	0.0	0.0
	Sheep - Lambs	0.0	0.0	0.0	0.0	0.0
	Sheep - Feeders	0.0	0.0	0.0	0.0	0.0
	Goats - Meat/Milk (per Ewe)	0.0	0.0	0.0	0.0	0.0
	Goats - Nannies/Billies	0.0	0.0	0.0	0.0	0.0
	Goats - Feeders	0.0	0.0	0.0	0.0	0.0
	Other	0.0				
Cervid	Elk	0.0	0.0	0.0	0.0	0.0
	Deer	0.0	0.0	0.0	0.0	0.0
		U.U				
Wild Boar	Other Feeders		0.0	0.01	0.01	() (
Wild Boar	Feeders Sow (farrowing)	0.0	0.0	0.0	0.0	
Wild Boar	Feeders Sow (farrowing) Other		0.0	0.0	0.0	0.0
Vild Boar		0.0				



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

(COM	apilale a copy o	of Main and	to by EACH pro	Naturally Pend rutoff	coep	n cath ye Bulling b	rotective sit with a a	e layer Hursily occus	rring protective layer)
Faci	ilty descripti	on / nam	= (as indicated on	alle plan)	1.	Noca	nden	Farms	(Catch basin)
					2.				
					3,				
Deta	emination of	runoff a	rea			·			
Ü	ue used	Alber	w, you calculated t	Hum o	a k	Jako	n proc	ind to	at Albertaica
Cel	ch beein cap	acity							·
	Length (m)	Width (r	Total depth	Depth bek			lope run:ris	T	MINCS LINE COLLY
	Cango (n)	Wider (1	ⁿ) (m)	ground lev (m)	/el	Inside end walls	side walls	Outside walls	
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Catch Basin Dimension Calculator

For more information on runoff control catch basin design consideration including liner options, each basin protection, etc., check out the catch basin factsheet.

Name

Norenden Farms LTD.

Land Location

SE 33-20-23 W4

ENDG EGGE		
_F Estimating	Runoff	Potential-

Area	Length (m)	Wldth (m)	Paved?	Area (m²)
1	96	133	NO 🕶	12768.00
	Total Area			12768 00

Estimation of water runoff to be collected in the catch basin:

746.93 m³ 26378 n³ 164301 Imp. Gal

Calculating Catch Basin Volume: -

Constructions Dimensions		Storage
Length	36	32.0
(m): Width	22	19.0
(m): Depth	3	2.5
(m):		

Evacuation Capacity:

 1095 m^3

38670 p³

240869 Imp. Gal

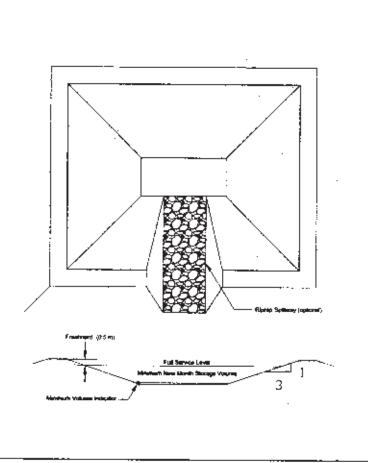
Catch basin volume (minus

freeboard):

751 m³ $26521 \cdot ft^3$

165195 Imp.

Gal



Comparing Catch Busin Volume versus Runoff Potential:

Runoff potential:

 746.93 m^3

Catch basin volume:

 751 m^3

The catch basin dimensions meet the design requirements in AOPA



the Agricultural Operation Practices Act for a confined feeding operation, manure collection area and/or manure storage facility[les]

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•	2.	<u> </u>	
ure storage capacity			NRCB USE ONLY
Length (m)	Width (m)	Depth below ground level (m)	Estimated storage capacity (m³)
151	96		
<u> </u>		TOTAL CAPACITY	
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P.O. BOX 180 VULCAN, ALBERTA TOL 280

TELEPHONE: 1-403-485-2241 TCall FREE: 1-877-485-2299 FAX: 1-403-485-2920 www.vulcancounty.ab.ca

September 27th, 2023

Mr. Matthew Jacobsen Noranden Farms P.O. Box 33 Arrowwood, AB **TOL OBO**

Re: Application for CFO license

Dear Mr. Jacobsen,

Vulcan County concluded an Intermunicipal Development Plan with the Village of Arrowwood in December of 2020, and your input during the public consultation phase was greatly appreciated. It was understood by all, at the time of public consultation, that your farming operation had been running an unlicensed confined feeding operation since the 1960s.

With this in mind, your operation is considered an existing confined feeding operation under s. 2.5.2 of the Intermunicipal Development Plan between the Vulcan County and Village of Arrowwood. This section reads:

"New confined feeding operations (CFOs) are not permitted to be established within the Intermunicipal Development Plan Boundary and the Confined Feeding Exclusion Area as illustrated in Map 3. However, any existing CFOs located with the Intermunicipal Development Plan Boundary are allowed to continue with their existing operations and may expand in accordance with the requirements of the Agricultural Operation Practices Act and Regulations. Expansions should not negatively impart rural and urban residents of the area or the environment."

Please consider this letter as support to your current CFO operation and your endeavour to have this operation licensed with the Natural Resource Conservation Board.

Should you have any questions or concerns please do not hesitate to contact my office.

Kind Regards,

Nels Petersen Chief Administrative Officer Vulcan County



June 30, 2023

Mr. Matthew Jacobsen, President, Noranden Farms P.O. Box 33 Arrowwood, AB TOL 0B0

Re: Application for CFO license

Dear Mr. Jacobsen.

The Village of Arrowwood concluded an Intermunicipal Development Plan with Vulcan County in December of 2020, and your input during the public consultation phase was greatly appreciated. It was understood by all, at the time of public consultation, that your farming operation had been running an unlicensed confined feeding operation since the 1960s.

With this in mind, your operation would be considered an existing confined feeding operation under s. 2.5.2 of the Intermunicipal Development Plan between the Village of Arrowwood and Vulcan County. This section reads:

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Enclosed you will find a copy of the Intermunicipal Development Plan for your review and reference.

Sincerely,

Christopher Northcott Chief Administrative Officer

Enclosure (1)

P.O. Box 36, Arrowwood, Alberta, Canada T0L 0B0 www.villageofarrowwood.ca Tel: (403) 534-3821

October 1st, 2024

Matthew Jacobsen Noranden Farms Ltd. 205038 Range Road 233 Vulcan County, AB

Re: Soll

Soil Sultability and Permeability Testing

Existing Livestock Pens Vuican County, AB

As requested, Roseke Engineering Ltd. (REL) has completed a geotechnical review of the above noted site relative to the required protection of groundwater resources, as required by the Agricultural Operation Practices Act, AB Reg. 267/2001 (AOPA). This letter presents the findings of the geotechnical investigation as it pertains to the suitability of the existing pens noted above.

In order to demonstrate the suitability of the naturally existing soils for consideration as a naturally occurring protective layer for groundwater, four boreholes were advanced at locations spread evenly throughout the existing livestock pen areas. The boreholes were advanced using a truck-mounted solid stem auger drilling contracted from Chilako Drilling Services Ltd., of Coaldale, AB. The boreholes were drilled to a depth of 4.5 m below the existing ground surface.

The general subsurface conditions at the site consisted predominantly of a surficial layer of topsoil, underlain by clay and clay till in descending order with a seam of sand encountered at 3.8 m in BH001. The clay was described as sitty, with a trace of sand and gravel, light brown, and low plastic. Additionally, the clay till was described as sitty, some sand, trace gravel, olive brown, and low plastic. Further soil descriptions can be found in the attached borehole logs. Standpipes installed to monitor groundwater depths were found dry when monitored prior to permeability testing. Atterberg limits analysis were conducted on the collected soil samples to confirm soil properties, and the results are included in the table below.

Sample iD	Depth (m)	Liquid Limit (LL)	Pleatic Limit (PL)	Planticity leater (PI)
183	2.3	23.0	16.6	6.4
281	0.8	24.7	18.1	6.6
3B4	3.0	25.6	17.2	8.4

In order to measure the permeability of the subsurface soils, 1.5 m of machine slotted 51 mm diameter PVC monitoring well was installed in all of the boreholes. Final depths of slotted monitoring wells ranged from approximately 3.05 m to 3.81 m in the clay till layer. Well saturation of the monitoring wells was carried out by filling the monitoring wells to the top of the pipe prior to completing the permeability testing. The results of the in-situ permeability testing indicated an average hydraulic conductivity of $k_{\rm e} = 2.55 \times 10^{-7}$ cm/sec for the clay / clay till strata which ranged in thickness from 3.8 m to at least 4.5 m in thickness across the site.

Using the measured in-situ permeability and the minimum measured thickness of the clay / clay till, the clay / clay till strata has been estimated to represent an equivalent of 3.9 m of naturally occurring materials having a hydraulic conductivity of 1.0 × 10-6 cm/sec. This represents a naturally occurring material layer in excess of the minimum groundwater protection requirements for solid manure storage as specified in Section 9.5(c) of the AOPA Standards and Administration Regulations.

Closure

Based on the results of the in-situ permeability testing, laboratory tests, and the subsurface soil stratigraphy encountered, the clay and clay till strata encountered on site should be considered suitable as a protective layer for the above noted existing livestock pens.

Please feel free to contact me at (403) 942-6170 or by email at bemie.roseke@roseke.com if you have any comments, questions, or concerns.

Respectfully submitted by:

Prepared by: Mr. Christopher Allard, C.E.T. Geotechnical Technologist Roseke Engineering Utd. (403) 331-7182 chris.allard@roseke.com



Reviewed by:
Mr. Bernie Roseke, P.Eng., PMP
Principal
Roseke Engineering Ltd.
APEGA Permit to Practice No. P11347
(403) 942-6170
bernie.roseke@roseke.com



PERMIT TO PRACTICE
ROSEKE ENGINEERING LTD.
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Project	Norand	len Farms Permeability Assessmen	nt						+	NO: BH001		
Client; N	datthew	Jacobsen								IO: REL24305	8	
					olid Stem A				ELEVATION			
SAMPLI		 		SAM		SPT SAMPLE]NO RECOVER			
BACKFI	ILL TYP	E BENTONTE	PEAC	3RAV	EL III	aroneH	∏ GROU		DRILL CUTTIN	GS SAND	ŀ ▼ 	
Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	BLOWS /150 mm	PLASTIC 20 4	Mac. LIGUID	♦ UNCONF SHEAF 100 200 ■0.5 POCKETF	E	OTHER DATA	SLOTTED PIEZOMETER	Elevation (m)
0	***	Topacii & Gravel (150 mm)	+-				o eo eo	100 200	: : : : :			
-1		Clay - sity, trace sand, soft to firm, damp, low plastic, light brown		B1								
-2		Cley Till - sity, some send, trace gravel, very stiff, damp to moist, low plastic, olive brown with coel inclusions and oxide stains	 	B3				\				
- 3				B4 B5								
-4		Send - silty, some clay, trace gravel, demp to moist, fine to medium grained, brown End of borehole at 4.57 m, no	 	86								
-5		sloughing or seepage. Standpipe instaffed to 4.57 m. Standpipe was found dry when monitored on September 11th, 2024.										
-6 -					:							
-7	ı											
 		1					LOGGED BY: CA	· · · · · · ·	COMPL	ETION DEPTH:	4.57 m	
							REVIEWED BY:			ETION DATE: 24	-9- 5	
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-		len Farms Permeability Assessment	T													-						JH003		
Client	Metthew	Jacobsen							_							-					RE	12430)58	
					Stern Auger				_	~					_	_	ŒΛ	_						
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ŀ		low plastic, light brown	L.							<u> </u>		<u>.</u>]		1	1				1	J			
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Projec	t: Norand	len Farms Permeability Assessr	nent.								E NO: BH004	
Client	Matthew	/ Jacobsen		\bot						+	NO: REL2430)58
					Solid Stem A				. <u> </u>	ELEVATIO		
SAME	LE TYPE			SAM		SPT SAMPL	E			NORECOVE		
BACK	FILL TYP	BENTONTE	PEA	GRAVI	EL 🎹	STONGH		GRO	DF TT1	Зовят султ	ings 🔼 san	(D
Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLETYPE	SAMPLE NO	BLOWS /150 mm	PLASTIC	NC.	патю	OUNCONF. SHEAF	E ■ 80 80 8 STR (APA) ◆ 200 400	OTHER Data	SLOTTED PIEZOMETER Elevation (m)
0	99 B	Topsoil (200 mm)	\dashv		-	20	<u>40 80</u>	- 80 : : : :	100 200	300 400 ; ; ; ; ;		
1		Clay - silty, trace send, soft to firm, damp, low plestic, light brown Clay Till - silty, some send, trace gravel, silff to very stiff, damp to m low plastic, olive brown with coal inclusions and oxide stains		61 62 63					•			
-3 -3 -				84 85								
		End of borehole at 4.57 m, no stoughing or seepage. Standpipe installed to 4.57 m. Standpipe was found dry when monitored on September 11th, 2024.		96								
-8-		<u> </u>		1		113114141	LOGG	DBY: C	<u> </u>	COMF	LETION DEPTIH:	4.57 m
								MED BY.			LETION DATE:	24-9-5
									Applicati	on LA25027	- ⁷ Page-21 of 37	Page 1 of

ATTERBERG LIMITS TEST

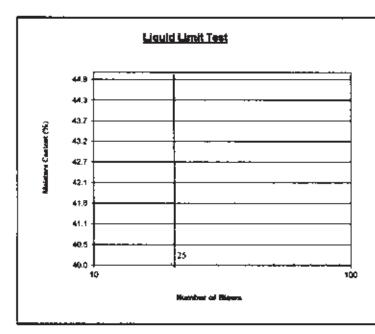
Attention: Matthew Jacobsen

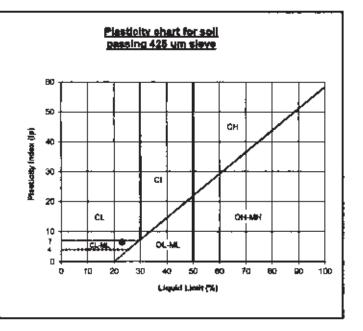
Project No: REL243058

Date: 24-Sep-24

Project: Noranden Farms Permeability Testing

L	iquid Limit Test	Pla	Plastic Limit Test						
# of Blows	26								
Tare #	6	Tare #	A3						
Wet Wt + Tare	42.240	Wet Wt + Tare	12,094						
Dry Wt + Tare	36.906	Dry Wt + Tare	11.400						
Wt of Tare	13.616	Wt of Tare	7.220						
% Moisture	22.9	% Moisture	16.6						





Liquid Limit (%):	23.0	Plastic Limit (%):	16.6	Plasticity Index:	6.4
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Classification : CL Depth: 2.3 m Sample ID: 1B3

Technician: CA

- Input Data

Per Beill

ATTERBERG LIMITS TEST

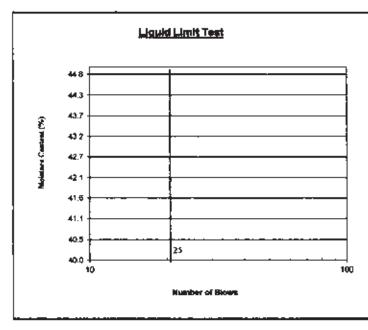
Attention: Matthew Jacobsen

Project No: REL243058

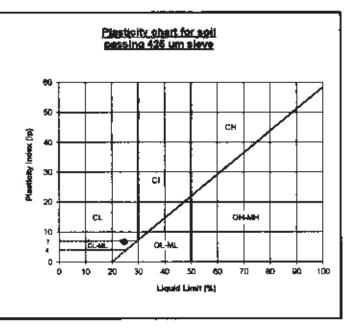
Date: 24-Sep-24

Project: Noranden Farms Permeability Testing

L	iquid Limit Te	est	Plastic Limit Test						
# of Blows	30								
Tare #	14		Tare#	10					
Wet Wt + Tare	40.705		Wet Wt + Tare	11.370					
Dry Wt + Tare	35.400		Dry Wt + Tare	10.736					
Wt of Tare	13.470		Wt of Tare	7.234					
% Moisture	24.2		% Moisture	18.1					



= Input Data



Liquid Limit (%):	24.7	Plastic Limit (%):	18.1	Plasticity Index:	6.6
		_		-	

Classification: Sample ID: Depth: **0.8** m

Technician: Per_Ber P

Reporting of these results constitutes a testing service only. Engineering interpretation or evaluation of these test results is provided only on witten request. The data presented is for the sole use of the chent allouisted above.

ATTERBERG LIMITS TEST

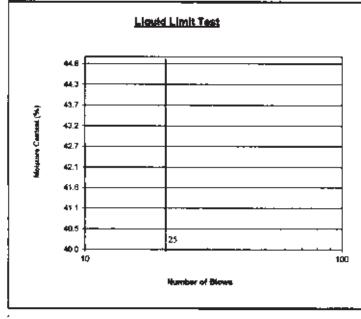
Attention: Matthew Jacobsen

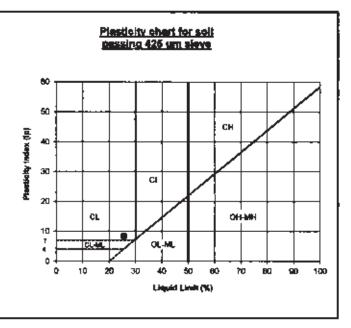
Project No: REL243058

Date: 24-Sep-24

Project: Noranden Farms Permeability Testing

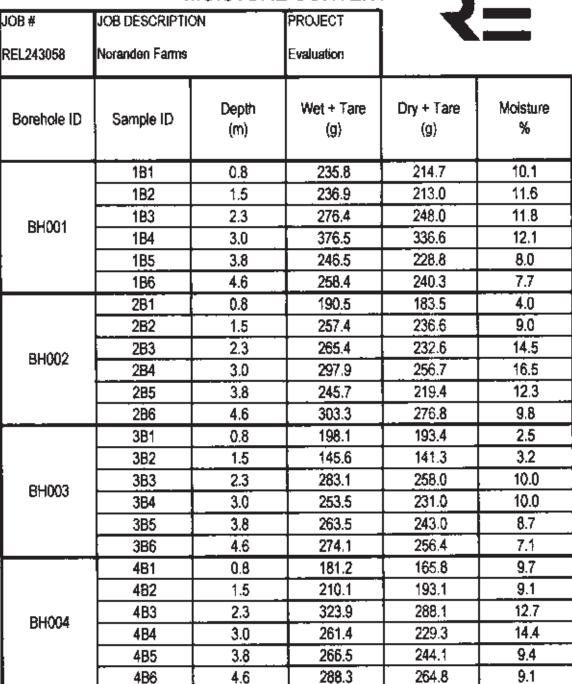
L	iquid Limit Test	Pla	Plastic Limit Test							
# of Blows	30									
Tare #	4	Tare#	A6							
Wet Wt + Tare	38.763	Wet Wt + Tare	11.546	<u> </u>						
Dry Wt + Tare	33.715	Dry Wt + Tare	10.916	-						
Wt of Tare	13.580	Wt of Tare	7.257							
% Moisture	25.1	% Moisture	17.2							





Liquid Limit (%):	25.6	Plastic Limit (%):	17.2	_	Plasticity Index:	8.4	
Classification :	CL	Depth:	3.0	_m	Sample ID:	3B4	
Technician:	CA						
= Input Data					Per:		

MOISTURE CONTENT





March 18th, 2025 Project No.: REL253013

Matthew Jacobsen Noranden Farms Ltd. 205038 Range Road 233 Vulcan County, AB

Re: Soil Suitability and Permeability Testing

Additional Geotechnical Investigation

Proposed Effluent Pond Vulcan County, AB

Introduction

As requested, Roseke Engineering Ltd. (REL) has completed additional geotechnical boreholes in the area of the proposed liquid manure storage pond at the above noted feedlot site to confirm geotechnical subsurface stratigraphy and groundwater conditions. The results of the additional boreholes and this letter report are intended as a supplement to the previous geotechnical report entitled *REL243058 – Permeability Letter* (REL243058) and to confirm that the previously tested in-situ hydraulic conductivity values are applicable to the subsoils beneath the proposed liquid manure storage ponds.

It is understood that the maximum depth of storage for the liquid manure storage pond will be approximately 3 m to 4 m below existing ground, therefore, boreholes were advanced to 9.15 m in order to demonstrate the suitability of the naturally existing soils for consideration as a naturally occurring protective layer for groundwater resources. The boreholes were advanced using a truck-mounted solid stem auger drill rig contracted from Chilako Drilling Services Ltd., of Coaldale, AB. A site plan showing additional borehole locations is attached.

Subsoil and Groundwater Conditions

The general subsurface conditions encountered in the additional boreholes consisted predominantly of a surficial layer of topsoil, underlain by clay, and clay till in descending order, and were found to be consistent in texture and composition with the naturally occurring protective layer encountered in the 2024 REL243058 boreholes to depths of approximately 7.6 m to 7.9 m where the clay till was observed as becoming gravelly. The clay till was described as silty with some sand, trace gravel, olive brown, and low plastic. Borehole logs showing subsoil and groundwater conditions from 2024 and 2025 drilling operations are attached. The following table summarizes the measured groundwater depths when monitored on March 17th, 2025.

Borehole ID	Depth of Standpipe (m)	Depth to Groundwater (m)
BH101	7.0	Dry
BH102	9.15	Dry

In order to comply with the Natural Resources Conservation Board (NRCB)'s requirements, pond construction activities may not take place within 1.0 m of groundwater. Based on the dry monitor well and standpipe observed during groundwater monitoring, it is anticipated that the proposed liquid manure storage pond will not be impacted by groundwater. However, groundwater levels should be monitored prior to construction to confirm these conditions. It should be noted that soil moisture and groundwater levels at the site may fluctuate in response to climatic events.

Conclusions

Based on the previously determined hydraulic conductivity "K" value of 2.55×10^{-7} cm/sec from in-situ testing in REL243058 and the minimum encountered thickness of the clay till strata from the maximum depth of storage to 7.6 m where the soil becomes gravelly, the 3.6 m layer of clay till encountered beneath the proposed liquid manure storage pond can been determined to represent the equivalent of 14.1 m of material having a hydraulic conductivity of 1.0×10^{-6} cm/sec. This represents a naturally occurring protective layer exceeding the minimum requirements for liquid manure storage facilities as specified in Section 9.5 of the AOPA Standards and Administration Regulations.

Closure

Based on the results of the additional field drilling operations, laboratory test results, and in-situ permeability testing, the clay till strata encountered on site should be considered suitable for use as a naturally occurring protective layer for the construction of the proposed effluent pond.

Please feel free to contact the undersigned at (403) 331-7182 or by email at chris.allard@roseke.com if you have any comments, questions, or concerns.

Respectfully submitted by:

Prepared by: Mr. Christopher Allard, C.E.T. Geotechnical Technologist Roseke Engineering Ltd. (403) 331-7182 chris.allard@roseke.com

Reviewed by:
Mr. Bernie Roseke, P.Eng., PMP
Principal
Roseke Engineering Ltd.
APEGA Permit to Practice No. P11347
(403) 942-6170
bernie.roseke@roseke.com





Page 2 www.roseke.com

TERMS USED ON BOREHOLE LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (major portion retained on 0.075mm sieve): Includes (1) clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as inferred from laboratory or in situ tests.

DESCRIPTIVE TERM	RELATIVE DENSITY	N (blows per 0.3m)
Very Loose	0 TO 20%	0 to 4
Loose	20 TO 40%	4 to 10
Compact	40 TO 75%	10 to 30
Dense	75 TO 90%	30 to 50
Very Dense	90 TO 100%	greater than 50

The number of blows, N, on a 51mm 0.D. split spoon sampler of a 63.5kg weight falling 0.76m, required to drive the sampler a distance of 0.3m from 0.15m to 0.45m.

FINE GRAINED SOILS (major portion passing 0.075mm sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as estimated from laboratory or in situ tests.

DESCRIPTIVE TERM	UNCONFINED COMPRESSIVE
	STRENGTH (KPA)
Very Soft	Less than 25
Soft	25 to 50
Firm	50 to 100
Stiff	100 to 200
Very Stiff	200 to 400
Hard	Greater than 400

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil.

GENERAL DESCRIPTIVE TERMS

Slickensided - having inclined planes of weakness that are slick and glossy in appearance.

Fissured - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

Laminated - composed of thin layers of varying colour and texture.

Interbedded - composed of alternate layers of different soil types.

Calcareous - containing appreciable quantities of calcium carbonate.;

Well graded - having wide range in grain sizes and substantial amounts of intermediate particle sizes.

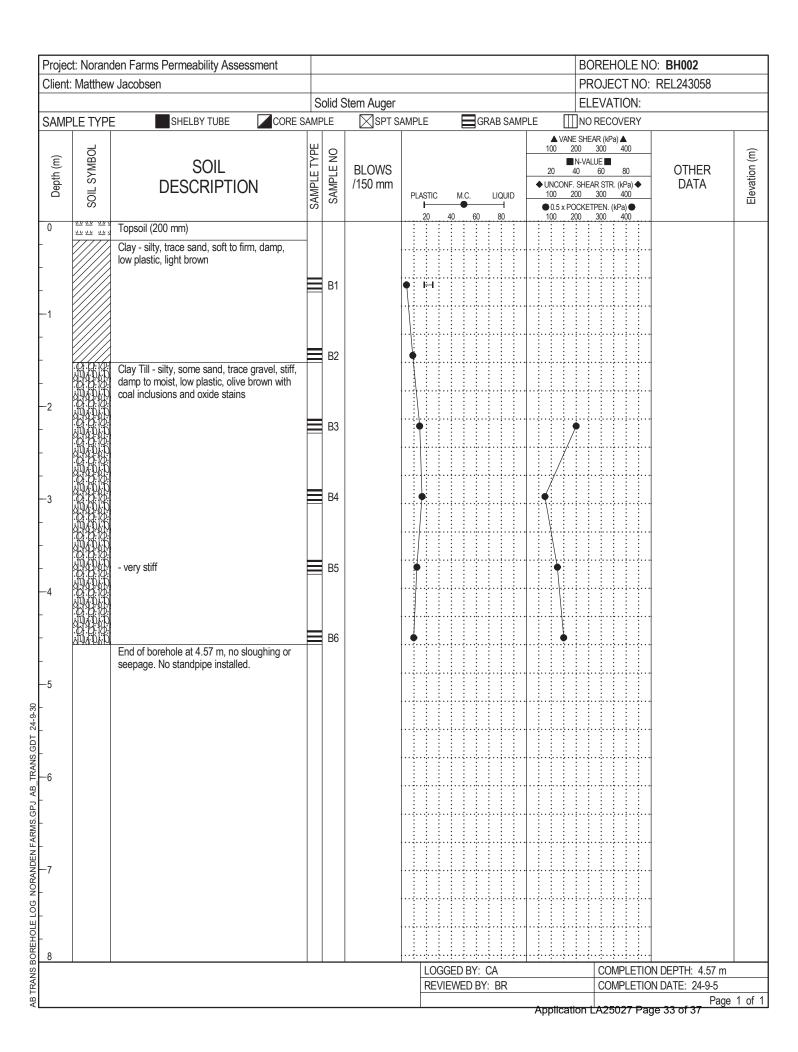
Poorly graded - predominantly of one grain size, or having a range of sizes with some intermediate size missing.

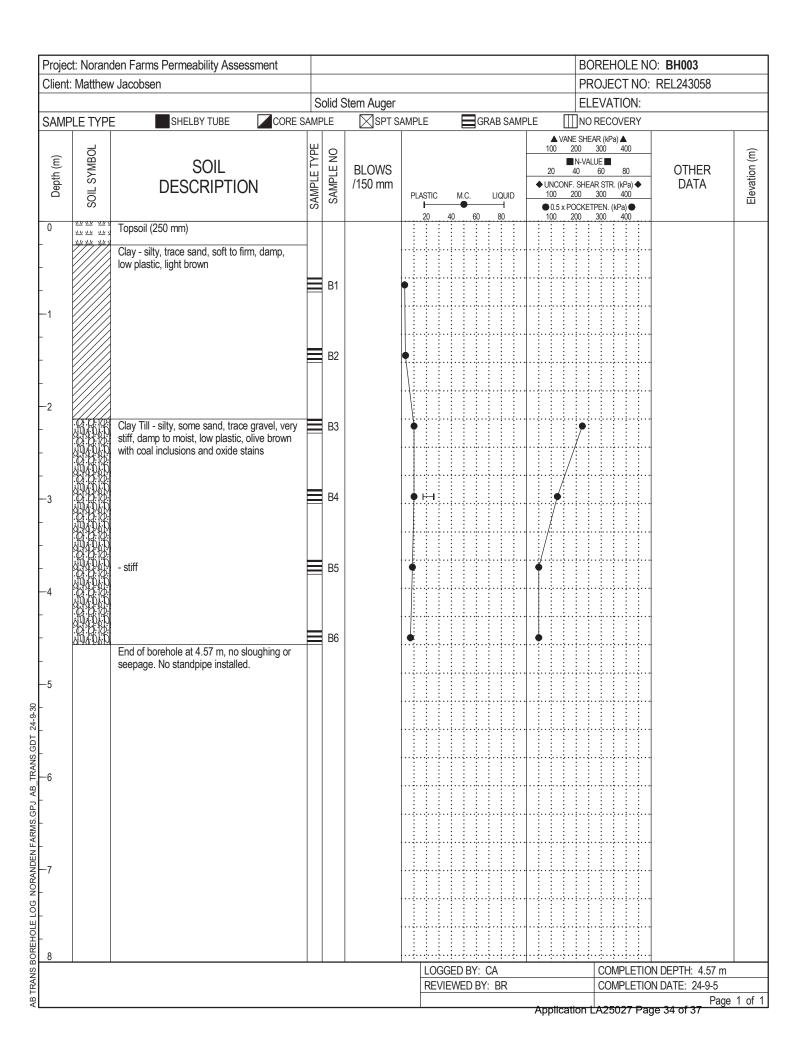
					ı	MODI	FIED UNIFIE	D SOIL	. CL	.ASSI	FICA	TIO	N						
MA	Jor Divis	ION		GRO SYMI			TYPICAL DESCRIPTION				LAE	BORAT	ORY C	CLASSI	FICATIO	ON CRI	ITERIA		
	ion e	AN	ELS	GV	V		raded gravels and grave nixtures, little or no fine			$ C_{\rm u} = D_{\rm so}/D_{\rm lo} $ Greater than 4 $ C_{\rm c} = \frac{(D_{\rm so})^2}{D_{\rm lo} \times D_{\rm so}} $ Between 1 and 3									
	ELS coarse fract 75 mm siev	CLEAN	GRAVELS	GF	•		graded gravels and gra nixtures, little or no fine			GW, GP, SW, SP GM, GC, SM, SC Borderline Classification requiring use of dual symbols	Not n	neeting	g both (criteria	for GW				
n sieve*	GRAVELS 50% or more of coarse fraction retained on 4.75 mm sieve	ELS	ES .	GN	Л		ravels, -sand-silt mixtures		of fines	GW, GP, 9 GM, GC, Borderlii requiring	Atterl or pla	Atterberg limits plot below "A" line or plasticity index less than 4				ne	plottii hatch	Atterberg limits plotting in hatched area are	
INED SOILS led on 75 µr	50% ret	GRAVELS	FINES	GC	;		r gravels, -sand-clay mixtures		of percentage		Atterberg limits plot above "A" line or plasticity index greater than 7 classifications requiring use of dual symbols				of				
COARSE-GRAINED SOILS More than 50% retained on 75 µm sieve*	eve	AN	DS	SW	V		raded sands and gravel , little or no fines	lly	Classification on basis of percentage of fines	usieve musieve eve	$\mathbf{C}_{\mathrm{c}} = \mathbf{I}$ $\mathbf{C}_{\mathrm{c}} = \mathbf{I}$	O ₆₀ /D ₁₀ (D ₃₀) D ₁₀ x [) ²		ater tha				
C More tha	SANDS More than 50% of coarse fraction passes 4.75 mm sieve	CLEAN	SAN	SF)		graded sands and grav , little or no fines	elly	Classifica	Less than 5% Pass 75 musieve More than 12% Pass 75 musieve 5% to 12% Pass 75 µm sieve	Not n	neeting	j both (criteria	for SW				
	SANDS Nore than 50% or tion passes 4.7'	SANDS	FINES	SN	1	Silty s	ands, sand-silt mixtures	3		Less than 5' More than 1 5% to 12%				ot belo less th	w "A" li an 4	ne	plottii hatch	ed area	
	N frac	SAN	NE NE	sc	;	Clayey	<i>ı</i> sands, sand-clay mixtı	ıres							re "A" l ii r than 7		requi	rime fication ring use symbols	of
	rs	mit	<50	MI	L	rock fl	nic silts, very fine sands our, silty or clayey fine s ht plasticity		For c	assification of fine-grained soils and fine fraction of coarse-grained soils. PLASTICITY CHART									
(1 *	SILTS	Liquid limit	>20	MI	н	diaton	nic silts, micaceous or naceous fine sands or lastic silts		60	1	sing 425	ım	PL	ASTIGIT	T CHAR	<u>'</u>			
(by behavio 75 µm sieve	asticity ic content		<30	CL	-	Inorga gravel	nic clays of low plastici ly clays, sandy clays, lays, lean clays	ty,	50 XX 40	Equation of	f "A" line: P		L - 20)	I		СН			
ED SOILS e passes	CLAYS Above "A" line on plasticity chart negligible organic content	Liquid limit	30-20	CI	I		nic clays of medium city, silty clays		PLASTICITY INDEX	0						"A" line			
FINE-GRAINED SOILS (by behavior) 50% or more passes 75 µm sieve*	Above "		>20	CH	1		nic clays of high city, fat clays		PIA 20		CL		cı			МН	l or OH		
E 4,	ORGANIC SILTS AND CLAYS	Liquid limit	<20	OL	-		ic silts and organic silty plasticity	clays	7 4 0	0 10	C[- M	30	ML o	10		60	70	80	90 100
	ORGAN AND	Liqui	>50	OH	1		ic clays of medium n plasticity								D LIMIT				
HIGHL	Y ORGANIC	SOILS	;	PT	Г	Peat a soils	nd other highly organic		Ref	sed on the erence: AS D2488. U	TM Des	ignatio	on D24	87, for			orocedu	re	
					SOIL	COMPO								OVER	SIZE M	ater i ai			
FR	ACTION			SIEVE S	SIZE		DEFINING R. PERCENTAGE I MINOR COM	BY MASS O	=		Round		subrou -		to 300	mm			
	PASSING RETAINED				ED	PERCENTAGE	DESCR	PTOR		BOUL		;	> 300 r	nm					
GRAVE				1	40.		>35 %	"and			Not ro	unded							_
	coarse fine			5 mm 9 mm	19 m 4.75		>35 % 21 to 35 %	"and "y-adjed			ROCK		MENTS			75 mm	bic met	ro in vo	lumo
SAND			4	75 mm	2.00	mm	10 to 20 %	"y-aujed			ROCKS	•			>	o. 10 CU	inic iliel	10 III V O	unic
	coarse 4.75 mm 2.00 mm medium 2.00 mm 425 µm fine 425 µm 75 µm			m	>0 to 10 %	"trac													
or `	SILT (non plastic)				as above but by behavior														

Projec	t: Norano	den Farms Permeability Assessm	nent							BOREHO	LE NO: BH101		
Client:	Matthew	/ Jacobsen								_	T NO: REL2530	13	
				_	Solid Stem A			_	•	ELEVATI			
	LE TYPE		CORE			SPT SAMPLE		GRAE		∭NO RECOV			
BACK	FILL TYF	PE BENTONITE	PEAC	€RAV	/EL [[]]]	SLOUGH		GROL		DRILL CUT	TINGS SAN		
Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	BLOWS /150 mm	PLASTIC 1	M.C.	LIQUID 80	▲ VANE SHE 100 200 ■ N-VAI 20 40 ◆ UNCONF. SHE/ 50 100 ● POCKETPI 100 200	LUE ■ 80 60 80 AR STR. (kPa) ◆ 150 200	OTHER DATA	WELL	Elevation (m)
AB TRANS BOREHOLE LOG NORANDEN FARMS - 2025.65P. AB TRANS, GDT 25-3-18	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Clay - silty, trace sand, stiff to very stiff, damp to moist, low plastic, ligh brown Clay Till - silty, some sand, trace gravel, very stiff to hard, moist, low plastic, olive brown with coal inclusions and oxide stains - gravelly End of borehole at 9.15 m, no sloughing or seepage. Monitoring winstalled to 7.0 m. Monitoring well was found to be dry when monitore on March 17, 2025.	vell	B1 B2 B3 B4 B5				D BY: CA			PLETION DEPTH:	9.14 m	
ANS						_							
B TR						-	KEVIEV	VED BY: E	SK .	COMP	PLETION DATE: 2		1 of 1
∢∟									Applica	ation LA2502	27 Page 30 of 3	- age 7	ı Ul l

Projec	t: Noran	den Farms Permeability Assessi	nent							BOREHO	LE NO	: BH102		
Client:	Matthew	v Jacobsen								_		REL25301	3	
					Solid Stem A		_	_		ELEVATI				
	LE TYPE		CORE			SPT SAMPLE		GRAB		∭NO RECOV		○○		
BACK	FILL TYF	PE BENTONITE	PEA (3RAV	/EL []]]	SLOUGH		GROU		DRILL CUT	TINGS	SAND		
Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	BLOWS /150 mm	PLASTIC 1 20 4	M.C.	LIQUID	■ VANE SHE 100 200 ■ N-VAI 20 40 ● UNCONF. SHE 50 100 ■ POCKETP 100 200	LUE ■ 80 60 80 AR STR. (kPa) ◆ 150 200	ОТН	ER DATA	SLOTTED PIEZOMETER	Elevation (m)
AB TRANS BOREHOLE LOG NORANDEN FARMS. 2025. GPJ AB TRANS. GDT 25-3-18	#	Topsoil (100 mm) Clay - silty, trace sand, stiff to very stiff, damp to moist, low plastic, light brown Clay Till - silty, some sand, trace gravel, very stiff to hard, moist, low plastic, olive brown with coal inclusions and oxide stains - gravelly End of borehole at 9.15 m, no sloughing or seepage. Standpipe installed to 9.15 m. Standpipe was found to be dry when monitored of March 17, 2025.	ht v	B1 B2 B3 B4 B5		_	LOGGE	DBY: CA		COMF		N DEPTH: 9		
ZANS						_		VED BY: CA	 R			N DATE: 25		
AB Ti														1 of '
`						ı			Applic	ation LA2502	27 Pag	e 31 of 37		

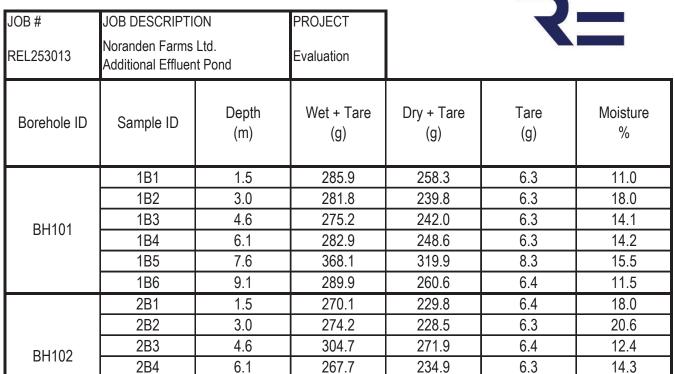
Project: Noranden Farms Permeability Assessment						В	OREHOLE	NO: BH001		
Client: Matthew Jacobsen						Pl	ROJECT N	O: REL2430	58	
	-	Solid Stem A				E	LEVATION	:		
	RE SAM		SPT SAMPLE		SRAB SAMPLE		O RECOVERY			
BACKFILL TYPE BENTONITE PEA	GRA\	/EL 📗	SLOUGH		GROUT		RILL CUTTING	SS 🖸 SANI	D	
SOIL SYMBOL SOIL DESCRIPTION	SAMPLE NO	BLOWS /150 mm	PLASTIC	M.C. LIQU	20 40 ◆ UNCONF. SH	ALUE 60 60 EAR STR 300	80 . (kPa) ◆ 400	OTHER DATA	SLOTTED PIEZOMETER	Elevation (m)
Clay Till - silty, trace sand, soft to firm, damp, low plastic, light brown Clay - silty, trace sand, trace gravel, very stiff, damp to moist, low plastic, olive brown with coal inclusions and oxide stains Sand - silty, some clay, trace gravel, damp to moist, fine to medium grained, brown End of borehole at 4.57 m, no sloughing or seepage. Standpipe installed to 4.57 m. Standpipe was found dry when monitored on September 11th, 2024.	B1 B2 B3 B4 B5 B6									
2			_	OGGED BY:				TION DEPTH: 4		
4			F	EVIEWED B	Y: BR		COMPLET	TION DATE: 24		
B					Appli	cation	LA25027 F	Page 32 of 37	Page 1	of





Projec	t: Norano	den Farms Permeability Assess	ment					BOREHOL	E NO: BH004	
Client:	: Matthew	/ Jacobsen						PROJECT	NO: REL2430	58
				Solid Stem				ELEVATIO	N:	
-	LE TYPE		CORE S		SPT SAMPLE		SAMPLE	NO RECOVE		
BACK	FILL TYP	PE BENTONITE	PEA GR	AVEL [SLOUGH	GROL		DRILL CUTTII	NGS 🖸 SANI)
Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	BLOWS /150 mm		1.C. LIQUID 60 80	● 0.5 x POCKET	JE ■ 60 80 R STR. (kPa) ◆ 300 400	OTHER DATA	SLOTTED PIEZOMETER Elevation (m)
AB TRANS BOREHOLE LOG NORANDEN FARMS.GPJ 24-9-30	Clay - silty, trace sand, soft to firm damp, low plastic, light brown Clay Till - silty, some sand, trace gravel, stiff to very stiff, damp to m low plastic, olive brown with coal inclusions and oxide stains End of borehole at 4.57 m, no sloughing or seepage. Standpipe installed to 4.57 m. Standpipe was found dry when monitored on September 11th, 2024.	E E E E E E E E E E E E E E E E E E E	11 12 13 14 14 15 16							
8 80RE					110	GGED BY: CA		COMPI	ETION DEPTH: 4	1 57 m
RAN					_	EVIEWED BY: E	R		ETION DEPTH. 4 ETION DATE: 24	
ABT										Page 1 of
							Applica	uon LA25027	Page 35 of 37	

MOISTURE CONTENT



263.0

271.6

229.9

245.1

6.4

6.3

14.8

11.1

2B5

2B6

7.6

9.1

Figure 1 – Site Plan Borehole Locations

