Technical Document LA23045

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)

NRCB USE ONLY	Application number	Legal land description
☑ Approval ☐ Registration ☐ Authorization ☐ Amendment	LA23045	SW 21-10-21-W4

APPLICATION DISCLOSURE

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

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

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

Dec 1 2023
Date of signing

Signatu[redacted]

JTV Farms Ltd
Corporate name (if applicable)

Jeff Vanderberg
Print name

GENERAL INFORMATION REQUIREMENTS

Proposed facilities: list all proposed confined feeding operation facilities and their dimensions. Indicate whether any of the proposed facilities are additions to existing facilities. (attach additional pages if needed)

Proposed facilities	Dimensions (m) (length, width, and depth)
feedlot pens	800 x 150 feet
see attached sketch	(243.8m x 45.7 m)
The applicant is also applying to expand an existing catch basin. New dimensions:	46 m x 27.4 m x 4.5 m deep

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
see attached sketch		

NRCB USE ONLY

All facilities are constructed as permitted in Approval LA21014. No change to the facilities listed in the appendix of Approval LA21014.

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)

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

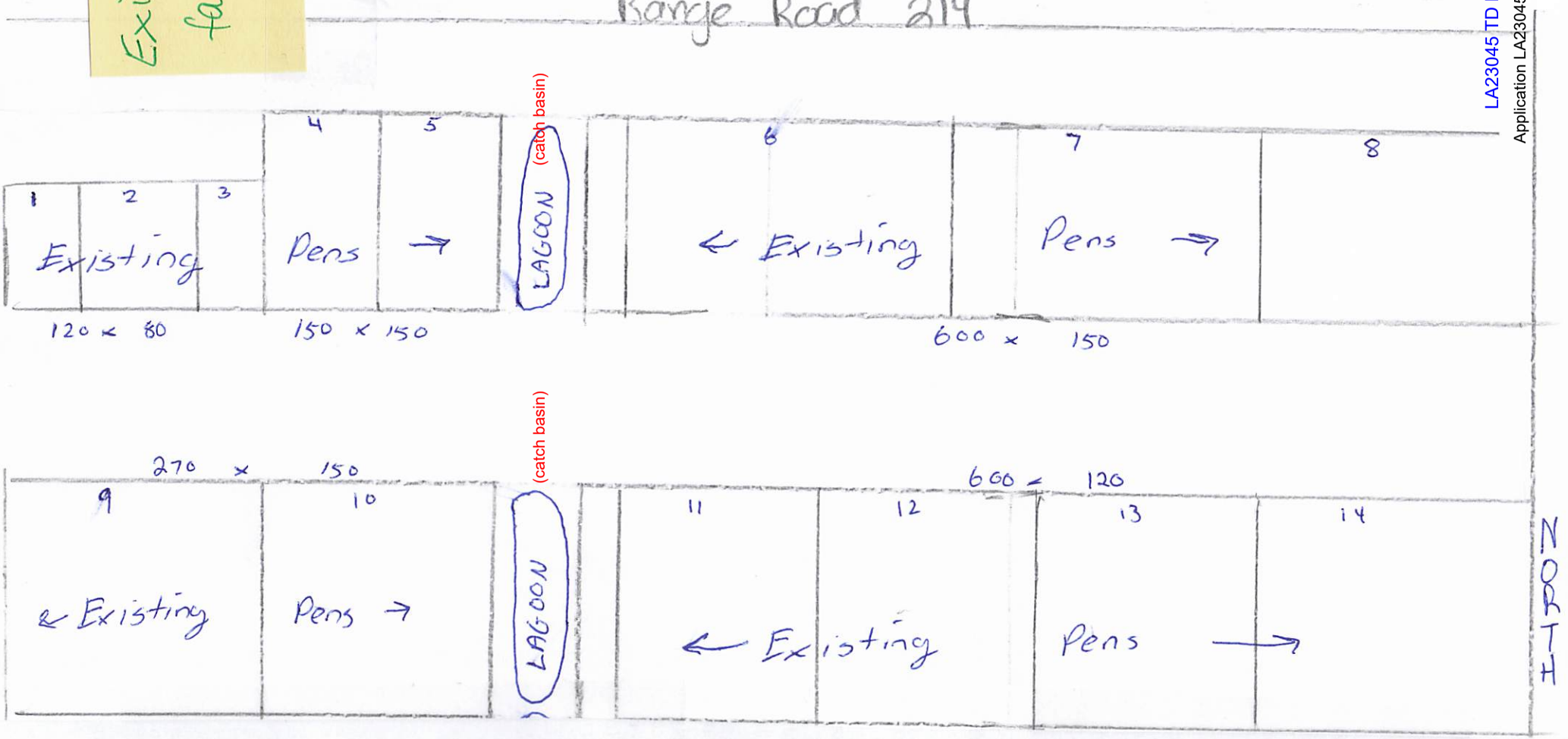
Construction completion date for proposed facilities Sept 2024

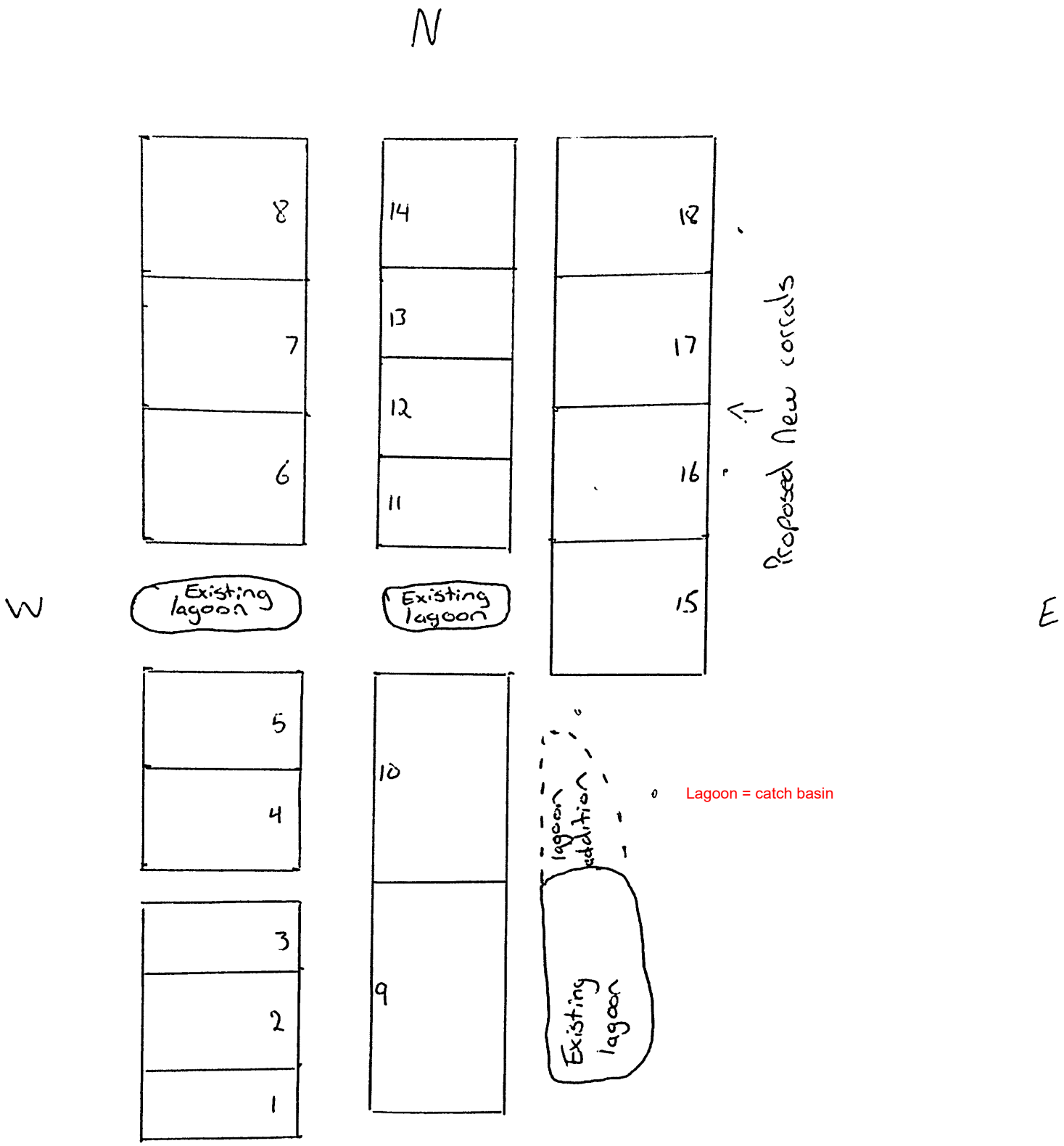
Additional information

Livestock numbers: Complete only if livestock numbers are different from what was identified in the Part 1 application. Note: if livestock numbers increase in your Part 2 application, a new Part 1 application must be submitted which may result in a loss of priority for minimum distance separation (MDS).

Livestock category and type (Available in the Schedule 2 of the Part 2 Matters Regulation)	**Permitted number**	**Proposed increase or decrease in number (if applicable)**	**Total**
Beef	1700	1000	2700

Existing facilities




N
W
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12
11
18
17
16
15
Proposed New corrals
Existing lagoon
Existing lagoon
5
4
3
2
1
10
9
lagoon addition
Existing lagoon
Lagoon = catch basin


existing lagoon. Proposed to be expanded
(catch basin)
New
Proposed new feedlot pens

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)

DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING *WATER ACT* LICENCE

issued by Alberta Environment and Protected Areas (EPA) for a confined feeding operation (CFO)

Date and sign one of the following four options

OPTION 1: Applying through the NRCB for both the AOPA permit and the *Water Act* licence

I **DO** want my water licence application coupled to my AOPA permit application.

Signed this ____day of _____, 20____. _____

Signature of Applicant or Agent

OPTION 2: Processing the AOPA permit and *Water Act* licence separately

1. I (we) acknowledge that the CFO will need a new water licence from EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. I (we) request that the NRCB process the AOPA application **independently of** EPA's processing of the CFO's application for a water licence.
3. In making this request, I (we) recognize that, if this AOPA application is granted by the NRCB, the NRCB's decision will not be considered by EPA as improving or enhancing the CFO's eligibility for a water licence under the *Water Act*.
4. I (we) acknowledge that any construction or actions to populate the CFO with livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to EPA's consideration of whether to grant the *Water Act* licence application.
5. I (we) acknowledge that any such construction or livestock populating will be at the CFO's sole risk if the *Water Act* licence application is denied or if the operation of the CFO is otherwise deemed to be in violation of the *Water Act*. This risk includes being required to depopulate the CFO and/or to cease further construction, or to remove "works" or "undertakings" (as defined in the *Water Act*).
6. **AS RELEVANT:** I (we) acknowledge that the CFO is located in the South Saskatchewan River Basin and that, pursuant to the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order* [Alta. Reg. 171/2007], this basin is currently closed to new surface water allocations.
7. **Provide:** Water licence application number(s) _____

Signed this ____ day of _____, 20____. _____

Signature of Applicant or Agent

X

OPTION 3: Additional water licence not required

1. I (we) declare that the CFO will not need a new licence from EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. **Provide**: Water license number(s) or water conveyance agreement details C2-21-10-21-40SW

Signed this 1 day of December, 2023. [redacted]gent

OPTION 4: Uncertain if *Water Act* licence is needed; acknowledgement of risk (for existing CFOs only)

1. At this time, I (we) do not know whether a new water licence is needed from EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. If a new *Water Act* licence is needed, I (we) request that the NRCB process the AOPA application **independently of** EPA's processing of the CFO's application for a water licence.
3. In making this request, I (we) recognize that, if this AOPA application is granted by the NRCB, the NRCB's decision will not be considered by EPA as improving or enhancing the CFO's eligibility for a water licence under the *Water Act*.
4. I (we) acknowledge that any construction or actions to populate the CFO with additional livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to EPA's consideration of whether to grant my *Water Act* licence application, if a new water licence is needed.
5. I (we) acknowledge that any such construction or livestock increase will be at the CFO's sole risk if the *Water Act* licence application is denied or if the operation of the CFO is otherwise deemed to be in violation of the *Water Act*. This risk includes being required to depopulate the CFO and/or to cease further construction, or to remove "works" or "undertakings" (as defined in the *Water Act*).
6. **AS RELEVANT:** I (we) acknowledge that the CFO is located in the South Saskatchewan River Basin and that, pursuant to the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order* [Alta. Reg. 171/2007], this basin is currently closed to new surface water allocations.
7. **Provide**: Water license number(s) or water conveyance agreement details _____

_____

Signed this _____ day of _____, 20____. _____

Signature of Applicant or Agent

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)

GENERAL ENVIRONMENTAL INFORMATION

(complete this section for the worst case of the existing facility which is the closest to water bodies or water wells and for each of the proposed facilities)

Facility description / name *(as indicated on site plan)*

Existing: pens

Proposed 1: Ad one new row 8 pens (and catch basin expansion)

Proposed 2:

Proposed 3:

Facility and environmental risk information		Facilities				NRCB USE ONLY	
		Existing	Proposed 1	Proposed 2	Proposed 3	Meets requirements	Comments
Flood plain information	What is the elevation of the floor of the lowest manure storage or collection facility above the 1:25 year flood plain or the highest known flood level?	☒ >1 m ☐ ≤ 1 m	☒ >1 m ☐ ≤ 1 m	☐ >1 m ☐ ≤ 1 m	☐ > 1 m ☐ ≤ 1 m	☒ YES ☐ NO ☐ YES with exemption	not located in known flood plain
Surface water information	How many springs are within 100 m of the manure storage facility or manure collection area?	none	none			☒ YES ☐ NO ☐ YES with exemption	confirmed
	How many water wells are within 100 m of the manure storage facility or manure collection area?	none	none			☒ YES ☐ NO ☐ YES with exemption	confirmed during site visit and EPA water well database
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	230 m	300 m			☒ YES ☐ NO ☐ YES with exemption	251 m to coulee system connected to the Old Man River
Groundwater information	What is the depth to the water table?		10 m			☒ YES ☐ NO ☐ YES with exemption	confirmed (drilling report)
	What is the depth to the groundwater resource/aquifer you draw water from?	no wells in area				☒ YES ☐ NO ☐ YES with exemption	not determined. Below drilling zone. No water wells in area

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

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)

NRCB USE ONLY

ENVIRONMENTAL RISK SCREENING INFORMATION

ERST for **proposed** facilities The proposed facilities meet all AOPA liner requirements and are presumed to pose a low risk to surface water and ground water

Facility	Groundwater score	Surface water score	File number

ERST for **existing** facilities All facilities were assessed in 2018 and determined to pose a low risk to groundwater and surface water

Facility	Groundwater score	Surface water score	File number

ERST related comments:

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)

NRCB USE ONLY

WATER WELL AND SURFACE WATER INFORMATION

Well IDs: No wells in area

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

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

Water wells ☒ N/A

If applicable, exemption for 100 m distance requirements applied: ☐ YES ☐ NO Condition required: ☐ YES ☐ NO

Surface water ☒ N/A

If applicable, exemption for 30 m distance requirements applied: ☐ YES ☐ NO Condition required: ☐ YES ☐ NO

Water Well Exemption Screening Tool ☒ N/A

Water Well ID	Preliminary Screening Score	Secondary Screening Score	Facility

Groundwater or surface water related comments:

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)

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

			NRCB USE ONLY				
Neighbour name(s)	**Legal land description**	**Distance (m)**	**Zoning (LUB) category**	**MDS category (1-4)**	**Distance (m)**	**Waiver attached (if required)**	**Meets regulations**
Gerrit Haarman (2 residences)	3/4 km		RA (*)	1	280 m + 536 m	yes	yes w. waiver
Lloyd Vandenberg Dairy		830 m	RA	1	830 m		yes
The other residences in proximity are owned by the operator/applicant							

(*) Rural Agriculture

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

				NRCB USE ONLY	
Name of land owner(s)*	**Legal land description**	**Usable area** (ha)**	**Soil zone *****	**Usable area (ha)**	**Agreement attached (if required)**
Alex VandeBrunhorst	SE 20-10-21 + SE 24-8-21	160+ + 80 acres	irrigated	all	yes
Couleeview Farms	NW 21-10-21	155 acres	irrigated	all	yes
	Agreement on file from previous additions				
Brink	SW 35-9-23	50 acres	irrigated	all	yes
JTV	SW 21-10-21	150 acres	irrigated	all	
			Total	595 acres irrigated	

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

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

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

Additional information (attach any additional information as required)

Declaration of Permit Applicant Regarding MDS Waiver

NRCB application number _____

Applicant information

Operator/operation name: JTV Farms Ltd

Address: Box 47 Diamond City AB

Postal code: T0K 0T0

Legal land location of proposed confined feeding operation (CFO development): SW-21-10-21-W4

I have requested the residence owner(s) named below to waive the required minimum distance separation (MDS) to their residence for the *Agricultural Operation Practices Act* (AOPA) permit application identified above. In making this request, I have provided the owner(s) with an opportunity to review my permit application and a copy of the NRCB publication "Minimum Distance Separation (MDS) Waivers." I have also explained:

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

Following is a summary of the proposed development:

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

  1700 Beef finishing Lot

- ☐ My application for a new AOPA permit proposes the following changes to the existing livestock capacity at my CFO:

  add 1000 head to beef Lot, build lagoon bigger

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

Permit applicant: [redacted] Date: Jan 17 2024

Residence owner(s) to initial: JV

Minimum Distance Separation (MDS) Waiver

Residence owner information

Names(s) on title: Coulee View Farms

Address: Box 212

Postal code: Shaughnessy AB T0K 2A0

Legal land location: SE - 20 - 10 - 21

I am/we are the legal landowner(s) of a residence located at the above noted address. I/we have read the NRCB publication "Minimum Distance Separation (MDS) Waivers" and the above declaration of the applicant, and discussed the nature of application number_____with the applicant. I/we understand that:

- ☐ The application **does not** meet the MDS requirement to my/our residence, under the *Agricultural Operation Practices Act* (AOPA);
- ☐ **I/we are not obligated to waive the MDS requirement to our residence;**
- ☐ If I/we choose to waive the MDS requirement, I/we can cancel the waiver, by providing written notice of the cancellation to the Natural Resources Conservation Board (NRCB), at any time prior to the permit decision being issued by the NRCB;
- ☐ This waiver is a public document.

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

[redacted] [redacted]

Signature(s) of all landowners on title

Dave Haarman Gerrit Haarman

Printed names of all landowners on title

Date: March 4 2024

FOR NRCB USE ONLY:

Residence owner contact information

(Please note that telephone numbers and email addresses are not publicly released)

Telephone: **Email:**

Manure Spreading Contract with JTV Farms Ltd

Name: Coulee View Farms

Date: March 4 2024

Location: [redacted] NW 20-10-21

Number of Acres: 155

Dry / Irrigated

[redacted]

signature

Manure spreading Contract with JTV Farms Ltd

Name: Brainhorst Family Farm LTD

Date: Jan 23 2024

Location: SE 24-8-21-W4

Number of Acres: 80

Dry / Irrigated: Irrigated

[redacted]

signature

Manure Spreading Contract with JTV Farms Ltd

Name: Steph Brink

Date: January 17 2024

Location: SW 1/4 35-9-23 W4

Number of Acres: 50

Dry / Irrigated: Yes

[redacted]

signature

Name
Address
Legal Land Location

MDS Spreadsheet based on 2006 AOPA Regulations

Category of Livestock	Type of Livestock	Factor A	Technology Factor	MU	LSU Factor	Number of Animals	LSU
Beef	Cows/Finishers (900+ lbs)	0.700	0.700	0.910	0.446	2,700	1,203.9
	Feeders (450 - 900 lbs)	0.700	0.700	0.500	0.245		-
	Feeder Calves (<550 lbs)	0.700	0.700	0.275	0.135		-
	Other						-
Dairy (*count lactating cows only)	*Free Stall – Lactating Cows with all associated dries, heifers, and calves	0.800	1.100	2.000	1.760		-
	*Free Stall – Lactating cows with Dry Cows only	0.800	1.100	1.640	1.443		-
	Free Stall – Lactating Cows only	0.800	1.100	1.400	1.232		-
	Tie Stall – Lactating cows only	0.800	1.000	1.400	1.120		-
	Loose Housing – Lactating cows only	0.800	1.000	1.400	1.120		-
	Dry Cow (Solid manure)	0.800	0.700	1.000	0.560		-
	Dry Cow (Liquid manure)						
	Replacements – Bred Heifers (Breeding to Calving)	0.800	0.700	0.875	0.490		-
	Replacements - Growing Heifers (350 lbs to breeding)	0.800	0.700	0.525	0.294		-
	Calves (< 350 lbs)	0.800	0.700	0.200	0.112		-
	Other						-
Swine Liquid (*count sows only)	Farrow to finish *	2.000	1.100	1.780	3.916		-
	Farrow to wean *	2.000	1.100	0.670	1.474		-
	Farrow only *	2.000	1.100	0.530	1.166		-
	Feeders/Boars	2.000	1.100	0.200	0.440		-
	Growers/Roasters	2.000	1.100	0.118	0.260		-
	Weaners	2.000	1.100	0.055	0.121		-
	Other						-
Swine Solid (*Count sows only)	Farrow to finish *	2.000	0.800	1.780	2.848		-
	Farrow to wean *	2.000	0.800	0.670	1.072		-
	Farrow only *	2.000	0.800	0.530	0.848		-
	Feeders/Boars	2.000	0.800	0.200	0.320		-
	Growers/Roasters	2.000	0.800	0.118	0.189		-
	Weaners	2.000	0.800	0.055	0.088		-
							-
Poultry	Chicken - Breeders - Solid	1.000	0.700	0.010	0.007		-
	Chicken - Layers - Liquid (includes associated pullets)	2.000	1.100	0.008	0.018		-
	Chicken - Layers - (Belt Cage)	2.000	0.700	0.008	0.011		-
	Chicken - Layers - (Deep Pit)	2.000	0.700	0.008	0.011		-
	Chicken - Pullets/Broilers	1.000	0.700	0.002	0.001		-
	Turkey - Toms/Breeders	1.000	0.700	0.020	0.014		-
	Turkey - Hens (light)	1.000	0.700	0.013	0.009		-
	Turkey - Broilers	1.000	0.700	0.010	0.007		-
	Ducks	1.000	0.700	0.010	0.007		-
	Geese	1.000	0.700	0.020	0.014		-
	Other						-
Horses	PMU	0.650	0.700	1.000	0.455		-
	Feeders > 750 lbs	0.650	0.700	1.000	0.455		-
	Foals < 750 lbs	0.650	0.700	0.300	0.137		-
	Mules	0.600	0.700	1.000	0.420		-
	Donkeys	0.600	0.700	0.670	0.281		-
	Other						-
Sheep	Ewes/Rams	0.600	0.700	0.200	0.084		-
	Ewes with lambs	0.600	0.700	0.250	0.105		-
	Lambs	0.600	0.700	0.050	0.021		-
	Feeders	0.600	0.700	0.100	0.042		-
	Other						-
Goats	Meat/Milk (per Ewe)	0.700	0.700	0.170	0.083		-
	Nannies/Billies	0.700	0.700	0.140	0.069		-
	Feeders	0.700	0.700	0.077	0.038		-
	Other						-
Bison	Bison	0.600	0.700	1.000	0.420		-
	Other						-
Cervid	Elk	0.600	0.700	0.600	0.252		-
	Deer	0.600	0.700	0.200	0.084		-
	Other						-
Wild Boar	Feeders	2.000	0.800	0.140	0.224		-
	Sow (farrowing)	2.000	0.800	0.371	0.594		-
	Other						-
					Total		1,203.9

For New Operations

Dispersion Factor 1

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,793	547
2	54.72	2,391	729
3	68.4	2,989	911
4	109.44	4,782	1,457

For Expanding Operations

Dispersion Factor 1
Expansion Factor 0.77

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,381	421
2	54.72	1,841	561
3	68.40	2,301	701
4	109.44	3,682	1,122

Name	0
Address	0
Legal Land Location	0

Landbase Requirements (hectares) based on 2006 AOPA requirements

Category of Livestock	Type of Livestock	Number of Animals	Dark Brown & Brown (ha)	Grey Wooded (ha)	Black (ha)	Irrigated (ha)
Beef	Cows/Finishers (900+ lbs)	2700	337.5	280.8	210.6	167.4
	Feeders (450 - 900 lbs)	0	0	0	0	0
	Feeder Calves (<550 lbs)	0	-	-	-	-
	Other	0				
Dairy (*count lactating cows only)	*Free Stall – Lactating Cows with all associated dries, heifers, and calves	0	0	0	0	0
	*Free Stall – Lactating cows with Dry Cows only	0	-	-	-	-
	Free Stall – Lactating Cows only	0	-	-	-	-
	Tie Stall – Lactating cows only	0	-	-	0	0
	Loose Housing – Lactating cows only	0	-	-	-	-
	Dry Cow (Solid manure)	0	-	-	-	-
	Dry Cow (Liquid manure)	0	-	-	-	-
	Replacements – Bred Heifers (Breeding to Calving)	0	-	-	-	-
	Replacements - Growing Heifers (350 lbs to breeding)	0	-	-	-	-
	Calves (< 350 lbs)	0	-	-	-	-
	Other	0				
Swine Liquid (*count sows only)	Farrow to finish *	0	-	0	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	0	0	0
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
	Other	0				
Swine Solid (*Count sows only)	Farrow to finish *	0	-	-	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	-	-	-
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
		0				
Poultry	Chicken - Breeders - Solid	0	-	-	-	-
	Chicken - Layers - Liquid (includes associated pullets)	0	-	0	0	0
	Chicken - Layers - (Belt Cage)	0	-	-	-	-
	Chicken - Layers - (Deep Pit)	0	-	-	-	-
	Chicken - Pullets/Broilers	0	-	0	0	0
	Turkey - Toms/Breeders	0	0	0	0	0
	Turkey - Hens (light)	0	-	-	-	-
	Turkey - Broilers	0	-	-	-	-
	Ducks	0	0	0	0	0
	Geese	0	0	0	0	0
	Other	0				
Horses	PMU	0	0	0	0	0
	Feeders > 750 lbs	0	-	0	-	-
	Foals < 750 lbs	0	-	-	-	-
	Mules	0	-	-	-	-
	Donkeys	0	-	-	-	-
	Other	0				
Sheep	Ewes/Rams	0	-	0	0	0
	Ewes with lambs	0	-	-	-	-
	Lambs	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0				
Goats	Meat/Milk (per Ewe)	0	0	0	0	0
	Nannies/Billies	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0				
Bison	Bison	0	0	0	0	0
	Other	0				
Cervid	Elk	0	0	0	0	0
	Deer	0	0	0	0	0
	Other	0				
Wild Boar	Feeders	0	-	0	0	0
	Sow (farrowing)	0	-	-	-	-
	Other	0				

Total Hectares	337.5	280.8	210.6	167.4
Total Acres	834.0	693.9	520.4	413.6

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NRCB USE ONLY

MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): google earth

Margin of error (if applicable): +/- 2 m

Requirements (m): Category 1: 547 m Category 2: 729 m Category 3: 911 m Category 4: 1457 m

Technology factor: ☐ YES ☒ NO

Expansion factor: ☐ YES ☒ NO

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

LAND BASE FOR MANURE AND COMPOST APPLICATION

Land base required: 413.6 acres irrigated

Land base listed: 595 acres irrigated

Area not suitable: NA

Available area 595 acres irrigated Requirement met: ☒ YES ☐ NO

Land spreading agreements required: ☒ YES ☐ NO

Manure management plan: ☐ YES ☒ NO If yes, plan is attached: ☐

PLANS

Submitted and attached construction plans: ☒ YES ☐ NO

Submitted aerial photos: ☒ YES ☐ NO

Submitted photos: ☐ YES ☒ NO

GRANDFATHERING

Already completed: ☒ YES ☐ NO ☐ N/A

If already completed, see Approval LA18037

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)

NRCB USE ONLY

ALL SIGNATURES IN FILE ☒ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

March 12, 2024	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: March 19, 2024

Municipality: Lethbridge County

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

Alberta Health Services: NA

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

Alberta Environment and Parks: ☐ N/A

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

Alberta Transportation: ☐ N/A

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

Alberta Regulatory Services: ☒ N/A

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

Other: LNID, Fortis AB ☐ N/A

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

Other: Tamarck Acquisition Corp, Lethbridge North county Potable Water Coop Ltd., Carbon Development Corp. ☐ N/A

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

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)

SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Naturally occurring protective layer

*(complete a copy of this section for **EACH** barn, feedlot, and storage facility for solid manure, composting materials, or compost with a naturally occurring protective layer for the liner)*

Facility description / name *(as indicated on site plan)*

1. Feedlot Pens
2. _____

Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	**NRCB USE ONLY** Estimated storage capacity (m^3)
1.	300 feet	150 feet		
2.	(243.8 m)	(45.7 m)		
			TOTAL CAPACITY	9 mth storage available

☒ I plan to use a short-term solid manure storage (STMS) as part of my manure storage and handling plan for this CFO. (The AOPA requirements for STMS are set out in the NRCB Short-Term Solid Manure Storage Requirements Fact Sheet.

Surface water control systems

Describe the run-on and runoff control system

see drilling report.

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	> 2m (m)	Provide details (as required)	
Soil texture 2 boreholes within pen area	3 / 31 % sand	33 / 50 % silt	19 / 64 % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested silty clay loam	Hydraulic conductivity (cm/s) 4.9 E-7 cm/s	Describe test standard used Falling head

Additional information *(attach copies of soil test reports)*

NRCB USE ONLY

Requirements met: ☒ YES ☐ NO

Condition required: ☒ YES ☐ NO

Report attached: ☒ YES ☐ NO

Last updated February 26, 2021

SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Naturally occurring protective layer (cont.)

NRCB USE ONLY

Nine month manure storage volume requirements met: ☐ YES ☒ YES With STMS ☐ NO

Depth to water table: below drilling depth (9m) Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: below drilling depth (9m) Requirements met: ☒ YES ☐ NO

ERST completed: ☒ see ERST page for details

Surface water control systems

Requirements met: ☒ YES ☐ NO Details/comments:

Runoff control catch basin

Naturally occurring protective layer details

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

Uniform layering of stiff, medium plastic brown till. Silty clay loam with varying clay content. Some sand streaks reported.

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. catch basin (expansion of existing facility)
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 report

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.	150 f	90 feet	15 feet		3 to 1	3:1		1730 m^3
2.	(46 m)	(27.4 m)	(4.5 m)	(4.5 m)				
3.								
							TOTAL CAPACITY	1730 m^3

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____(m)	Provide details (as required) see attached report	
Soil texture	39 % sand	45 % silt	14 % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested: 9 m silty clay loam	Hydraulic conductivity (cm/s): 3.2 E-8	Describe test standard used: 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

Catch Basin Storage Volume Calculator

Construction Dimensions of Catch Basin

*** Only cells in blue can be changed.**

Overall Dimensions of Catch Basin			Catch Basin Dimensions
Total Length*[4]	46.0	m	151 ft
Total Width*[4]	27.4	m	90 ft
Total Depth*[4]	4.5	m	15 ft
Design Capacity Depth	*4.00*	m	13 ft
End Slope*[4]	3	run:rise	3 run:rise
Side Slope*[4]	3	run:rise	3 run:rise
Length of Bottom	19.0	m	62 ft
Width of Bottom	0.4	m	1 ft
Capacity @ top of Bank	*2,306*	m^3	*Capacity (@tob)* *81,444* ft^3 *507,304 Imp. Gal.*

Design Capacity of Catch Basin (freeboard level)			Design Capacity (freeboard level)
Length (design capacity depth)	43.0	m	141 ft
Width (design capacity depth)	24.4	m	80 ft
Total Depth	*4.5*	m	*15* ft
Design Capacity Depth	4.00	m	13 ft
End Slope	3	run:rise	3 run:rise
Side Slope	3	run:rise	3 run:rise
Design Capacity (freeboard level)	**1,730**	m^3	61,080 ft^3
			380,459 Imp. Gal.
level)	*1,049*	m^2	*11,293* ft^2

CFO Name [1]	(Enter CFO Name Here)
Land Location [1]	1-1-4-W5

Paved Runoff Catchment Area(s)

Area [2]	Length (m)	Width (m)	Area (m^2)
1			0.0
2			0.0
3			0.0
4			0.0
5			0.0
		Total Area (m^2)	**0**

Unpaved Runoff Catchment Area(s)

Area [2]	Length (m)	Width (m)	Area (m^2)
6	44	174	7,656.0
7	38	175	6,650.0
8	39	93	3,627.0
9	35	42	1,470.0
10	243	46	11,178.0
		Total Area (m^2)	**30,581**

(entire feedlot)

Rainfall (Select Town [3])

Lethbridge 90

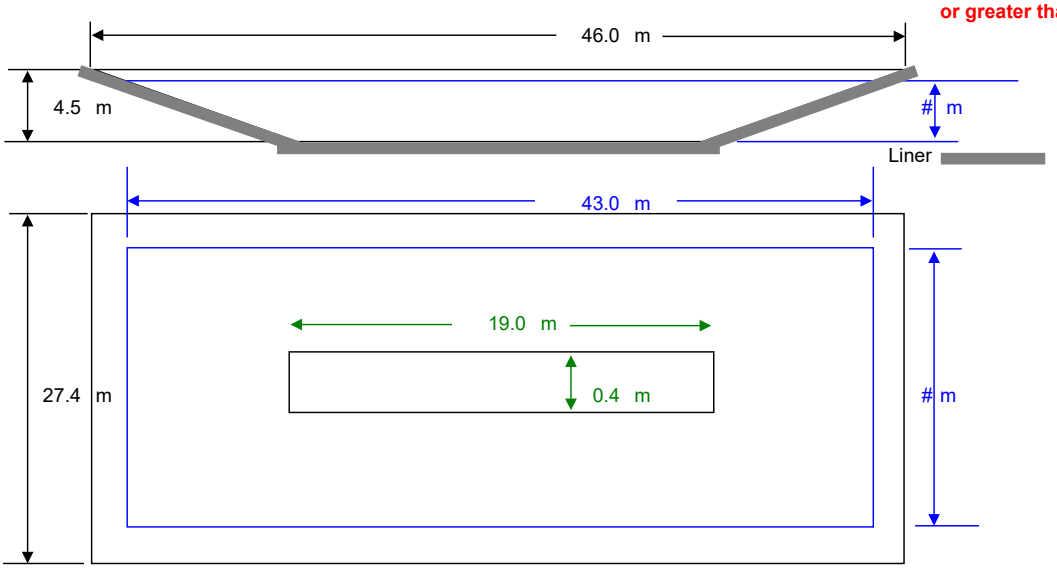
AOPA Design Rainfall **90 mm**

Minimum Catchbasin Storage Volume Required

1,789 m^3 ** 63177.533 ft^3

393522.3 Imp. Gal.

**** Design capacity of catch basin should be equal to or greater than, minimum storage volume required.**



Lines in Black - Overall catch basin dimensions

Lines in Blue - Design capacity depth dimensions (excludes freeboard)

NTS - Not To Scale

RUNOFF CONTROL CATCH BASIN: Naturally occurring protective layer (cont.)

NRCB USE ONLY

Catch basin calculator. Total volume @ freeboard level: 1730 m^3 Runoff capacity requirements met: ☒ YES ☐ NO

Calculation of the volume attached: ☒ YES ☐ NO

Depth to water table: below drilling depth (9m) Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: below drilling depth (9m) Requirements met: ☒ YES ☐ NO

ERST completed: ☒ See ERST page for details

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

Uniform layering of stiff, medium plastic brown till. Silty clay loam with varying clay content. Some sand streaks reported.

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

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)

NRCB USE ONLY **RUNOFF CONTROL CATCH BASIN CAPACITY SUMMARY (if applicable)**	
Facility 1	
Name / description: catch basin 1 (west)	Capacity: 150 m^3
Facility 2	
Name / description: catch basin 2 (middle)	Capacity: 112 m^3
Facility 3	
Name / description: catch basin (expanded)	Capacity: 1,730 m^3
Facility 4	
Name / description	Capacity
TOTAL CAPACITY	2,061 m^3
RUNOFF VOLUME FROM CONTRIBUTING AREAS	1,789 m^3 (entire feedlot including new pens)
MEETS AOPA RUNOFF CONTROL VOLUME REQUIREMENTS	☒ YES ☐ NO

3102 – 12 Avenue South
Lethbridge, Alberta T1H 5V1
T: +1 403 327-7474
www.wsp.com

26 February 2024

WSP File: CA0023843/ BX30776

JTV Farms Ltd.
PO Box 47
Diamond City, Alberta T0K 0T0

Attention: Trevor Vandenberg

Re: Geotechnical Review and Evaluation
NRCB Permitting of Proposed Catch Basin and Feedlot Pens
SW-21-010-21-W4M, near Diamond City, Alberta

As requested, WSP E&I Canada Limited (WSP) 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 proposed catch basin and new pens to be located east of the existing pens in SW-21-010-21-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, four boreholes were advanced at the site on January 23, 2024. The boreholes were advanced at the approximate locations denoted as HV1-24 to HV4-24 on Figure 1, attached. HV1-24 and HV2-24 were drilled in the area of the proposed catch basin, while HV3-24 and HV4-24 were drilled in the area of the proposed new pens.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services. The boreholes for the catch basin were extended to depths ranging from 7.8 m to 9.0 m below existing grades, while the boreholes for the proposed pen area were extended to 3.0 m below existing grades. The boreholes were logged by Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered within the boreholes consisted of a lacustrine silty clay layer which was underlain by clay till. Neither free groundwater, nor a groundwater resource (as defined by the AOPA) were encountered during the drilling process at the site.

Samples of soil collected from boreholes HV1-24 to HV3-24 were subjected to laboratory grain size (i.e., hydrometer) analyses. The results (attached) indicate a textural breakdown of approximately:

Table 1: Soil Textural Analyses

Borehole/Depth	% Gravel	% Sand	% Silt	% Clay
HV1-24 / 5.0-6.0m	2	39	45	14
HV2-24 / 5.0-6.0m	0	31	50	19
HV3-24 / 1.5-2.1m	0	3	33	64

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in each of boreholes HV2-24 and HV4-24. The HV2-24 test well was screened from 4.2 m to 7.8 m depth, while HV4-24 test well was screened from 1.1 m – 2.7 m. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring well to the top for several consecutive

days. After several days of saturation, HV2-24 exhibited a 24-hour water drop of 0.86 m, while HV4-24 showed a 3-hour water drop of 0.4 m.

To calculate the permeability of the screened portion of the clay strata at the test well location, a modified falling head test (as outlined in the USBR Engineering Geology Field Manual Volume 2 [2001]) was used. The input variables and output data are outlined on the attached In Situ Permeability Test reports. The results of the permeability testing indicate an *in situ* hydraulic conductivity, k_s, of 3.2×10^{-8} cm/s at HV2-24, and a hydraulic conductivity, k_s, of 4.9×10^{-7} cm/s at HV4-24.

Using the measured permeability of the clay stratum, the 3.6 m of clay screened at HV2-24 is estimated to represent the equivalent of over 100 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). This represents natural material protection in excess of the minimum requirements outlined by the AOPA for a catch basin (minimum 5 m, Section 9.5-b). At HV4-24, the 1.6 m of clay that was screened is estimated to represent the equivalent of approximately 3.3 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). This represents natural material protection in excess of the minimum requirements outlined by the AOPA for solid manure storage (minimum 2 m, Section 9.5-c).

Conclusion

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

WSP E&I Canada Limited

26 Feb 2024

John Lobbezoo, P.Eng.
Principal Geotechnical Engineer

Reviewed by:
Kevin Spencer, P.Eng., M.Eng.
Sr. Associate, Geotechnical Engineer

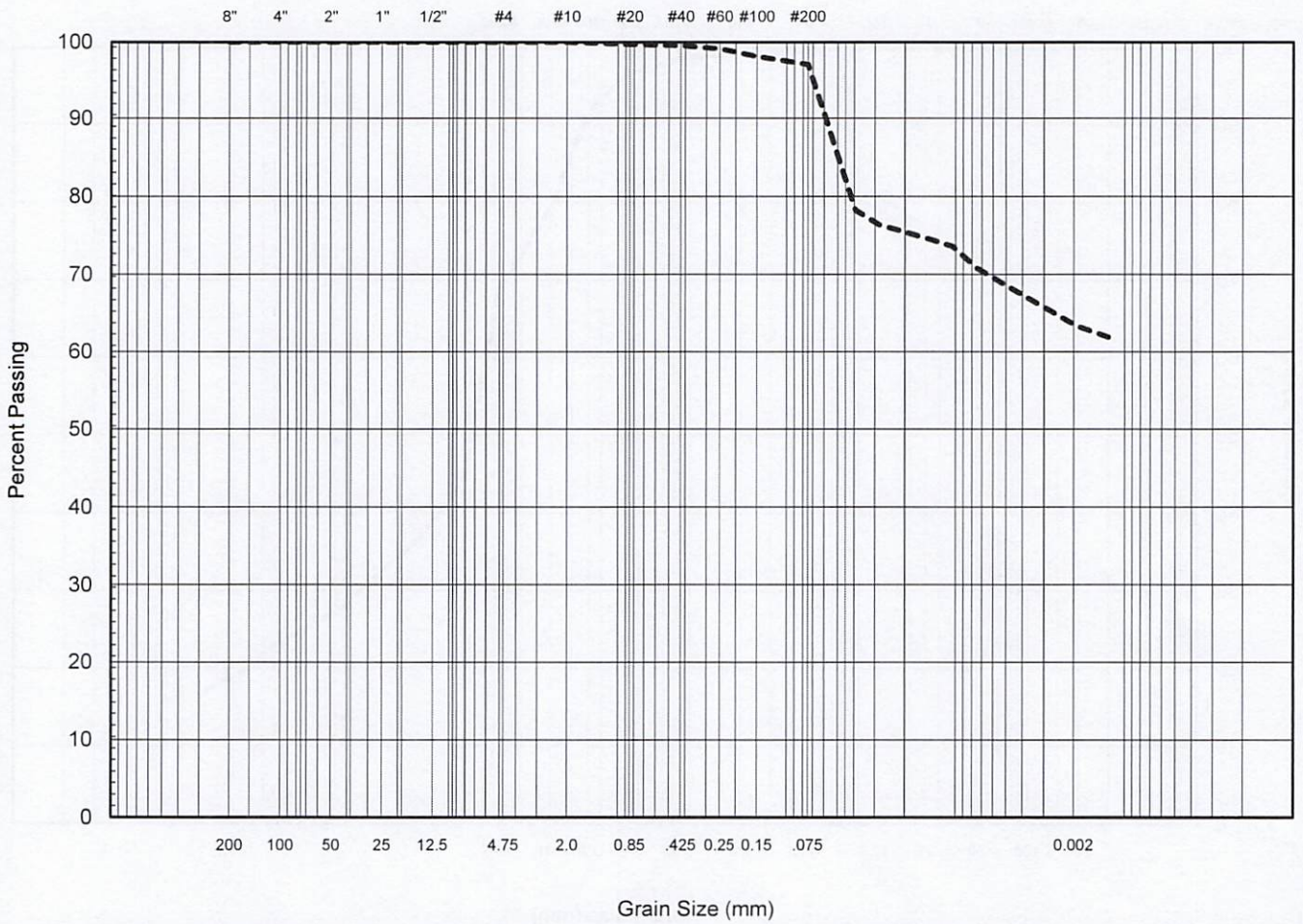
PERMIT TO PRACTICE
WSP E&I CANADA LIMITED
RM SIGNATURE: _____
RM APEGA ID #: 110450
DATE: 26 Feb 2024
PERMIT NUMBER: P004546
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

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

HYDROMETER TEST

Wood Environment & Infrastructure Solutions

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks: Please Place Comments Here - Delete If not needed

Summary					
D10 =	#N/A	mm	**Gravel**	0	%
D30 =	#N/A	mm	**Sand**	3	%
D60 =	#N/A	mm	**Silt**	33	%
Cu =	#N/A		**Clay**	64	%
Cc =	#N/A				

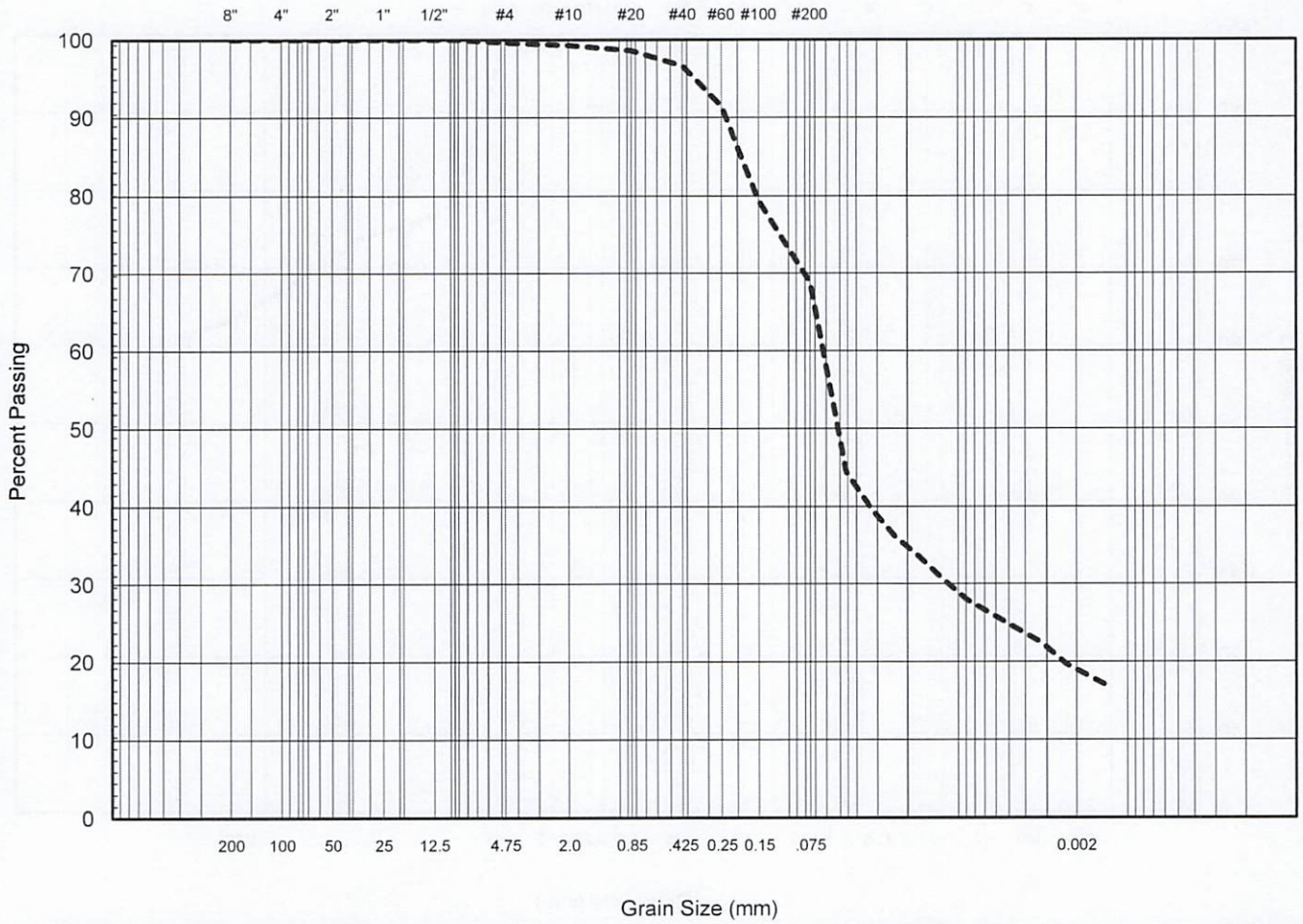
Project No: BX30776
Hole No: HV3-24
Depth (m): 1.5 - 2.1 m

Client: Trevor Vanderberg
Sample: Sample # 3
Date: February 13, 2024 **Tech:** EC

HYDROMETER TEST

Wood Environment & Infrastructure Solutions

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks: Please Place Comments Here - Delete If not needed

Summary					
D10 =	#N/A	mm	**Gravel**	0	%
D30 =	0.0116	mm	**Sand**	31	%
D60 =	0.0644	mm	**Silt**	50	%
Cu =	#N/A		**Clay**	19	%
Cc =	#N/A				

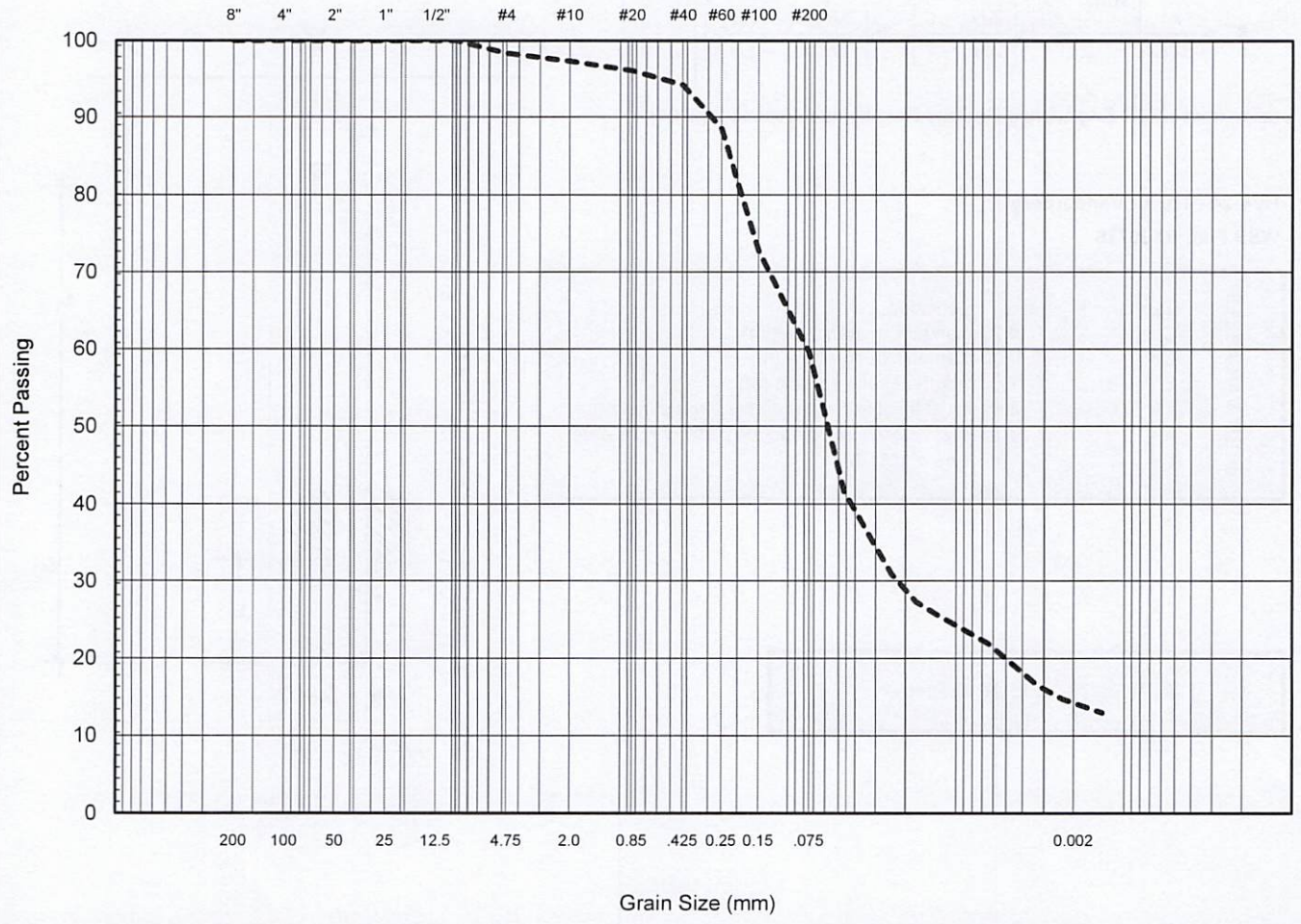
Project No: BX30776
Hole No: HV2-24
Depth (m): 5 - 6 m

Client: Trevor Vanderberg
Sample: Sample # 2
Date: February 13, 2024
Tech: EC

HYDROMETER TEST

Wood Environment & Infrastructure Solutions

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks: Please Place Comments Here - Delete If not needed

Summary

D10 =	#N/A	mm	**Gravel**	2	%
D30 =	0.0224	mm	**Sand**	39	%
D60 =	0.0776	mm	**Silt**	45	%
Cu =	#N/A		**Clay**	14	%
Cc =	#N/A				

Project No: BX30776
Hole No: HV1-24
Depth (m): 5 - 6 m

Client: Trevor Vanderberg
Sample: Sample # 1
Date: February 13, 2024 **Tech:** EC

HV4-24

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)

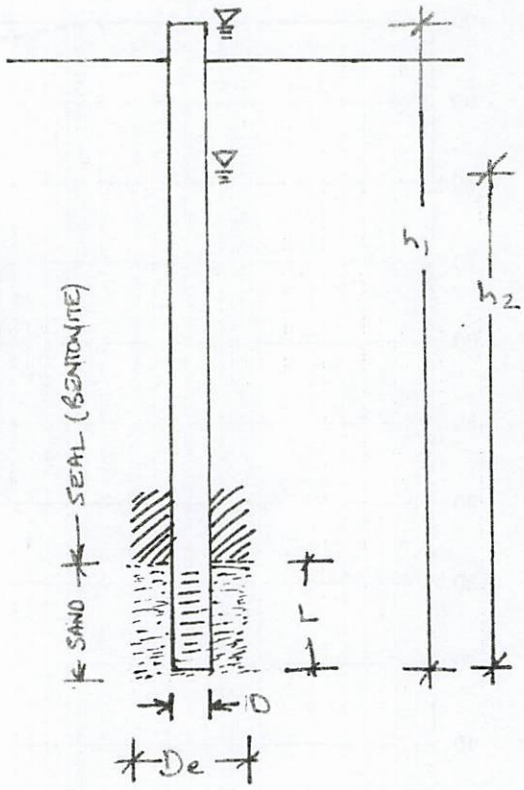
HV4-24 - Trevor Vanderberg

WSP File: BX30776

INPUT VARIABLES

Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	1.60	length of sand section (m)
h1	3.60	initial height of water above base of hole (m)
h2	3.20	final height of water above base of hole (m)
t	3.0	time of test (h)

k_s = 4.9E-07 cm/sec



HV2-24

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)

HV2-24 - Trevor Vanderberg

WSP File: BX30776

INPUT VARIABLES

Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	3.60	length of sand section (m)
h1	8.20	initial height of water above base of hole (m)
h2	7.34	final height of water above base of hole (m)
t	24.0	time of test (h)

k_s = 3.2E-08 cm/sec

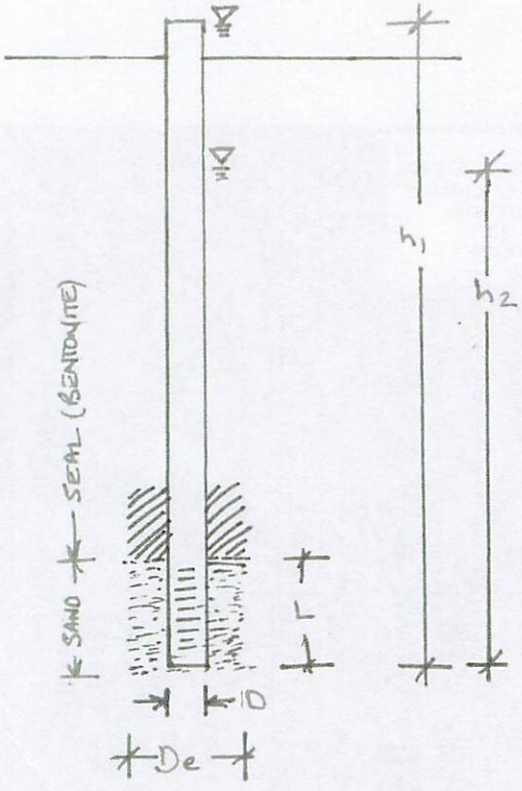



Figure 1
BOREHOLE LOCATIONS
PROPOSED CATCH BASIN
AND FEEDLOT PENS
JTV FARMS LTD.
WSP File:BX30776
February 2024
Legend
Feature 1
Feature 2
HV4-24
PROPOSED PEN
AREA
HV3-24
HV2-18
HV1-18
HV3-18
HV4-18
SW-21-010-21-W4M
PROPOSED CATCH
BASIN AREA
HV1-24
HV2-24
Township Rd 103
Google Earth
100 m
N

CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: SW21-10-21W4, Vandenberg Date: 23-Jan-24

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
HV1-24	0370596	0-1.2	SiCL	F	Lac		
	5521286	1.2-4.0	SiCL	M	Lac	2.0-3.0	Stiff, med-high plastic, olive brown
		4.0-6.7	CL	M	Till	5.0-6.0	V. Firm, med plastic, brown, sand stringers
		6.7-9.0	CL	M	Till		Stiff, med plastic, brown, sand streaks
							no free water at time of drilling
HV2-24	;0370611	0-1.2	SiCL	F	Lac		
	5521279	1.2-1.6	SiCL	M	Lac		
		1.6-4.8	SiC	M	Lac	2.0-3.0	Stiff, med-high plastic, olive brown
		4.8-7.8	CL	M	Till	5.0-6.0	Stiff, med plastic, brown, sand lensing
							no free water
							50mm H.C. Well installed to 7.8m BGS
							Screen: 7.8-4.8m
							Sand: 7.8-4.2m
							Bentonite: 4.7-0.0m
							Stickup: 0.4m
							Hole Diameter: 0.15m
HV3-24	0370643	0-0.15	SiCL	F	Topsoil		
	5521416	0.15-1.0	SiCL	M	Lac		
		1.0-2.1	SiC-C	M	Lac	1.5-2.1	Stiff, med-high plastic, dark brown
		2.1-3.0	CL	M	Till		Stiff, med plastic, brown, sand lensing
HV4-24	0370645	0-0.15	SiCL	F	Topsoil		
	5521482	0.15-0.8	SiCL	M	Lac		
		0.8-2.7	SiC-C	M	Lac		Stiff, med-high plastic, dark brown
		2.7-3.0	CL	M	Till		Stiff, med plastic, brown
							50mm H.C. Well installed to 2.7m BGS
							Screen: 2.7-1.2m
							Sand: 2.7-1.1m
							Bentonite: 1.1-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m

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

Eg. VFSCL = Very Fine Sandy Clay Loam