

## Part 2 – Technical Requirements

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

<b>NRCB USE ONLY</b>	Application number <u>RA24019</u>	Legal land description <u>NW 35-42-25 W4M</u>
<input type="checkbox"/> Approval <input type="checkbox"/> Registration <input checked="" type="checkbox"/> Authorization <input type="checkbox"/> Amendment		

### 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.

August 1 - 2024  
Date of signing

  
Signature

Westcoast Hoistiens Ltd  
Corporate name (if applicable)

Darren Plesman  
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)
<u>New liner for Ems</u>	<u>106.7<sup>ft</sup> m x 45.7<sup>m</sup> x 6.09<sup>m</sup></u>
<u>AO note: the 2-cell EMS is to be relined into a synthetically lined liquid manure storage (LMS), each cell consisting of the following dimensions: 106.7 m x 45.7 m x 6.1 m deep</u>	

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
<u>milk cow barn</u>	<u>110 m x 30 m</u>	<u>Existing facilities confirmed</u>
<u>dry cow barn</u>	<u>110 m x 30 m</u>	
<u>milking / hospital barn</u>	<u>100 m x 40 m</u>	
<b>NRCB USE ONLY</b>		

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Existing facilities continued	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
green manure building	25.3 x 29.3 m	
calf barns x 5	40.69 m x 12.9 m	Existing facilities confirmed
lagoon x 2	100 m x 40m	
AO note: Veal calf barn (9.1 m x 10.9 m) also permitted under RA19043A		

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

N/A

See Attached Envirowest Engineering Plan.

Construction completion date for proposed facilities July 1 / 2025

**Additional information**

AO note: Application is a result of Compliance Directive CD 23-04

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

Livestock category and type (Available in the Schedule 2 of the Part 2 Matters Regulation)	Permitted number	Proposed increase or decrease in number (if applicable)	Total
No change in Numbers	724	0	724



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### **DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE**

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

*Date and sign one of the following four options*

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

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

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
*Signature of Applicant or Agent*

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

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

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
*Signature of Applicant or Agent*

#### **OPTION 3: Additional water licence not required**

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

Signed this 12 day of August, 2024.

\_\_\_\_\_  
*Signature of Applicant or Agent*





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

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

\_\_\_\_\_

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
*Signature of Applicant or Agent*

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## 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: lagoon Proposed 1: Retine lagoon.  
 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?	<input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	Not in known flood plain
	Surface water information						
	How many springs are within 100 m of the manure storage facility or manure collection area?	0	0			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	None identified
	How many water wells are within 100 m of the manure storage facility or manure collection area?	1	1			<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES with exemption	One well ~90m south of existing EMS
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	3 m	3 m			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	Slough ~530 m west of the EMS
Groundwater information	What is the depth to the water table?		23.2 m			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	>5.8 meters * see note
	What is the depth to the groundwater resource/aquifer you draw water from?	23.2 m	23.2 m			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	30.5 m using WWID 40136

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

\* AO note: water table appears to fluctuate according to previous leak detection monitoring results. The past 2 years, the monitoring wells have been dry which indicates a water table below the depth of the monitoring wells (5.8 m). In previous years (2022), the water table had been indicated at 2.59 m. Conditions will be added to the permit to ensure construction above the water table.





2-cell EMS

Water well 40136

East field well

South field well

Abandoned well  
(285473)

Westcoast Holsteins

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**NRCB USE ONLY**  
**WATER WELL AND SURFACE WATER INFORMATION**

Well IDs: 40136 285473 (abandoned) East field well  
South field well

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
40136	Exemption more likely; continue to next section	Exemption more likely	LMS
AO note: for further details regarding water well exemption, refer to DS RA24019			

**Groundwater or surface water related comments:**



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**NRCB USE ONLY**  
**ENVIRONMENTAL RISK SCREENING INFORMATION**

**ERST** for proposed facilities

Facility	Groundwater score	Surface water score	File number
Synthetically lined LMS	Low	Low	RA24019

**ERST** for existing facilities

Facility	Groundwater score	Surface water score	File number
Existing 2-cell EMS (to be relined)	High	low	RA19043
Dairy barns	Moderate	low	RA19043
Green manure building	Low	low	RA19043
Calf barns 1-5	Low	low	RA19043
Veal calf barn	Low	low	RA19043

**ERST related comments:**

Approval RA05006 includes a condition that requires leak detection monitoring to address the high environmental risk posed by the existing EMS.



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

Neighbour name(s)	Legal land description	Distance (m)	NRCB USE ONLY				
			Zoning (LUB) category	MDS category (1-4)	Distance (m)	Waiver attached (if required)	Meets regulations
OHo Zerbi	NW-35-42-25	400 m	Ag	1	370 m	N/A	See comment below *
West Coast (north residence)	SE 34-42-25 W4	200 m			Owned by Westcoast Holsteins		
West Coast	SE 34-42-25 W4	450 m	Ag	1	870	N/A	Yes
West Coast	SW 35-42-25 W4				Owned by Westcoast Holsteins		

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

Name of land owner(s)* X	Legal land description	Usable area** (ha)	Soil zone ***	NRCB USE ONLY	
				Usable area (ha)	Agreement attached (if required)
N/A for authorization applications					
Total					

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

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

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

### Additional information (attach any additional information as required)

\*AO note: The proposed relining of the EMS will be done within the existing footprint of the dairy CFO, and the same distance from the closest residence, without encroaching outside the MDS circle established under Approval RA05006. There will be no increase in livestock numbers or annual manure production and therefore, according to section 3(5)(c) of the Standard and Administration Regulation, an Authorization can be issued even if the application does not meet the MDS.





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## NRCB USE ONLY

### MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): Google Earth

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

Requirements (m): Category 1: 519 m Category 2: 692 Category 3: 865 Category 4: 1384

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: \_\_\_\_\_

Land base listed: N/A for authorization applications

Area not suitable: \_\_\_\_\_

Available area: \_\_\_\_\_

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 See RA05006

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## LIQUID MANURE STORAGE: Synthetic liner

(complete a copy of this section for **EACH** proposed liquid manure storage facility with a synthetic liner)

Facility description / name (as indicated on site plan)

1. Re lined LMS cell one
2. LMS cell two

Manure storage capacity (use one row in the table for **EACH** cell of the synthetic lined storage, attach additional pages if you require more rows)

	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 <sup>3</sup> )	Filled in lower ¼? Y/N
1.	<u>106.18</u>	<u>45.72</u>	<u>6.06</u>	<u>5.6</u> <del>4.87</del>	<u>3:1</u>	<u>3:1</u>	<u>3:1</u>	13,055 m <sup>3</sup>	y
2.	106.7	45.7	6.1	5.6	3:1	3:1	3:1	13,055 m <sup>3</sup>	y
TOTAL CAPACITY								26,110 m <sup>3</sup>	

AO note: information in blue added by AO to represent relining of both LMS cells

### Surface water control systems

Describe the run-on and runoff control system

Burn around lagoon

### Sealing

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

see note below\*

See Attached Envirowest Engineering Plan

#### NRCB USE ONLY

Requirements met:  YES  NO

### Liner protection

Describe how the inside walls, bottom and outside walls are protected from erosion

Synthetic liner - See Attached Envirowest Engineering Plan

Describe how the physical integrity of the liner will be maintained from other damage

see note below\*

#### NRCB USE ONLY

Requirements met:  YES  NO



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## LIQUID MANURE STORAGE: Synthetic liner (cont.)

### Synthetic liner details

Provide synthetic liner material details

- See Attached Envirowest Engineering Plan

**Additional information** (attach copies of design/engineering reports)

\*Attached engineering report recommends an HDPE 60 mil synthetic liner, and that each seam be tested following installation to ensure a complete seal has been achieved. A condition will be included in the permit requiring the synthetic liner to meet AOPA requirements.

**NRCB USE ONLY**

Requirements met:  YES  NO

Condition required:  YES  NO

Report attached:  YES  NO

**NRCB USE ONLY**

Liquid manure storage volume calculator attached:  YES  NO

Depth to water table: > 5.8 m

Depth to uppermost groundwater resource: 30.5 m

Requirements met:  YES  NO

Requirements met:  YES  NO

ERST completed:  see ERST page for details

**Surface water control systems**

Requirements met:  YES  NO      Details/comments:

**Synthetic liner requirements**

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

Leak detection monitoring already in place as per a condition in Approval RA05006.

Construction plans approved by professional engineer:  YES  NO

Will liner be installed by manufacturer approved contractor and qualified third party?:  YES  NO

Preparation of liner bed (comments):

Condition required:  YES  NO

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<b>NRCB USE ONLY</b>	
<b>LIQUID MANURE STORAGE VOLUME CALCULATOR (if applicable)</b>	
<b>Facility 1</b> LMS Cell 1	
Name / description	Capacity 13,131 m <sup>3</sup>
<b>Facility 2</b> LMS Cell 2	
Name / description	Capacity 13,131 m <sup>3</sup>
<b>Facility 3</b>	
Name / description	Capacity
<b>Facility 4</b>	
Name / description	Capacity
<b>TOTAL CAPACITY</b>	
	26,262 m <sup>3</sup>
<b>REQUIRED 9 MONTH STORAGE CAPACITY</b>	
	23,132 m <sup>3</sup>
<b>MEETS THE REQUIREMENTS FOR A MINIMUM OF 9 MONTHS STORAGE</b>	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO



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**NRCB USE ONLY**

**ALL SIGNATURES IN FILE**

YES  NO

**DATES OF APPROVAL OFFICER SITE VISITS**

July 29, 2024	

**CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES**

Date deeming letters sent: September 10, 2024

Municipality: Ponoka County

letter sent       response received       written/email       verbal       no comments received

**Alberta Health Services:**  N/A

letter sent       response received       written/email       verbal       no comments received

**Alberta Environment and Parks:**  N/A

letter sent       response received       written/email       verbal       no comments received

**Alberta Transportation:**  N/A

letter sent       response received       written/email       verbal       no comments received

**Alberta Regulatory Services:**  N/A

letter sent       response received       written/email       verbal       no comments received

**Other:** Atco Gas and Pipelines Ltd. and Battle River Power Coop  N/A

letter sent       response received       written/email       verbal       no comments received

**Other:** \_\_\_\_\_  N/A

letter sent       response received       written/email       verbal       no comments received

July 12, 2024

Westcoast Holsteins Ltd.  
c/o Darren Plesman

Delivered via email: [REDACTED]

**Re: Lagoon Design – Synthetic Liner  
Application RA24019  
NW¼-35-042-25-W4M  
Ponoka County, Alberta**

Envirowest Engineering (Envirowest) was retained by Darren Plesman of Westcoast Holsteins Ltd. to provide the following design for the improvement of a current manure storage lagoon associated with a current 724 head dairy operation located at NW-35-42-25 W4M.

The current lagoon is a two stage, unlined earthen lagoon. A former permit (RA04025) states the following:

*Each cell of the existing two stage liquid manure storage is 350 feet long, 150 feet wide, and 20 feet deep with interior side slopes of 3:1 (horizontal to vertical). Using a freeboard depth of 1.7 feet (0.5 metres), the volume of each cell would be 461,000 cubic feet (13,055 cubic metres). Total storage available at this site would be 26,110 cubic metres.*

It is recommended that the lagoon be prepared for the installation of a synthetic liner using the current structure. All organics are to be removed and disposed of appropriately. A sand or clay pack, free of sharp rock or cobble, should be installed to maintain the above dimensions following removal of all organic and impacted material.

The base of both cells are to be excavated to remove organics, a minimum of 1.0 meters of fill is required to be placed above the bedrock. Should this decrease the overall depth of the lagoon from that stated above, berms are required.

Two types of synthetic liner which are readily available in the market and are suitable for such an installation are polyvinyl chloride (PVC) and high density polyethylene (HDPE). Both materials are resistant to degradation from animal manures. The suitability of these materials in this application will be somewhat dependent on the intended operation of the facility. Operational practices for the lagoon will need to be considered to determine the potential for mechanical damage to the liner. Some suppliers also offer specially blended materials for such an installation. The use and suitability of these materials should be discussed directly with the supplier.



Liners constructed of HDPE are more rigid and more resistant to damage. Both seams completed in the field and repairs to the liner require the use of special equipment to “weld” the material. The material is not degraded by ultraviolet light and does not require a soil backfill.

Should damage occur to the liner after installation, repair can be time consuming and costly, particularly with respect to HDPE liners. The liner construction should consider areas of high risk (areas of manure removal and agitation) to reduce the potential for damage. There are various methods for securing these higher risk areas such as double liner installation or concrete filled geofabrics which allow equipment to enter and exit the lagoon with less risk of damage.

Liner material is available in a range of thicknesses from 20 mil to 100 mil (1 mil= 0.001 inches or 1 mm = 39 mils). The selection of liner thickness should consider material availability, cost, durability and operational procedures. Thicker liners are less prone to damage but are more costly.

Based on the liquid level fluctuation in the lagoon and the need to periodically access the lagoon for manure and solid withdrawal, a HDPE liner is recommended as no soil covering is required. A thickness of 60 mil is suggested to reduce the potential for liner damage. The thickness of the material could be reduced to 40 mil with additional design consideration in high risk areas of the lagoon.

On site preparation is required for the installation of a synthetic liner. The sub-grade must be compacted and stable. It should be smooth and uniform, must be free of sharp fragments, stones, roots or other material which could damage the liner and should not have any rapid changes in elevation. Care is required during the installation of synthetic liners to ensure damage does not result from vehicular activity or improper installation. Supervision by the supplier is recommended.

Applicable material and workmanship warranties should be discussed prior to installation.

To improve the sub-grade preparation and to again reduce the risk of liner damage, a geotextile may be installed under the geomembrane liner. The placement of this textile over the sub-grade provides a clean working area for field seams, provides added puncture resistance when loads are applied, improves the geomembrane to soil interface and can allow for the lateral and upward escape of subsurface water and gases that rise up beneath the geomembrane during its service life.

Upward moving water is caused by high groundwater levels. Upward moving gases are caused by biodegradation of organic material in the subsurface soils and from rising water table levels which expel the air from the soil voids. Vapour “strips” can be placed to allow for trapped vapours to be released from beneath the liner.

Following installation of the liner, each seam and repair area should be tested to ensure a complete seal has been achieved. The supplier/installer should provide an installation report detailing the testing of the material, the seams and any required repairs.

Envirowest Engineering is pleased to submit the report to Darren Plesman of Westcoast Holsteins Ltd. The information and conclusions contained in this report are for their sole use. No other party is to rely upon the information contained within the report without the express written authorization of Envirowest Engineering.

We trust that this report meets your present needs. Please feel free to contact the undersigned with any questions or should you require additional information.

Respectfully submitted



2024-07-12  
Emily J. Low, P.Eng.  
Envirowest Engineering  
403-783-8229

<b>PERMIT TO PRACTICE</b> <b>2206165 ALBERTA LTD</b>
RM SIGNATURE: [Redacted]
RM APEGA ID #: 110373
DATE: July 7, 2024
<b>PERMIT NUMBER: P014810</b> The Association of Professional Engineers and Geoscientists of Alberta (APEGA)