ADDITIONS AGENDA FOR THE REGULAR MEETING OF THE COUNCIL OF THE TOWN OF ONOWAY HELD ON FRIDAY, FEBRUARY 18, 2022 IN THE COUNCIL CHAMBERS OF THE ONOWAY CIVIC CENTRE AND VIRTUALLY VIA ZOOM COMMENCING AT 9:30 A.M.
MEETING IS BEING AUDIO/VIDEO RECORDED
DUE TO PANDEMIC, PUBLIC PARTICIPATION IS ONLY AVAILABLE VIRTUALLY

7. ACTION ITEMS

h) Darwell Lagoon Commission – Lac Ste. Anne County has made application for construction, operation and reclamation of the Darwell wastewater system under the Environmental Protection and Enhancement Act. The Commission is applying for approval to discharge a portion of their lagoon effluent to the Sturgeon River near Alberta Beach, anticipated to be once every three to five years. Anyone directly affected by this application can submit a written statement to Alberta Environment, and the deadline is February 24, 2022. Additional information from Lac Ste. Anne County about their application is attached.

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Recommendation:

direction as given by Council at meeting time

i) Corporate Planning and Finance Course – Elected Officials Education Program (EOEP) – this is being offered over four evening sessions: February 16, February 23, March 2 and March 9. Some members of Council have indicated an interest in attending this virtual course taught by a municipal finance expert.

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Recommendation:

that the attendance of Councillors for the four sessions, beginning February 16, 2022 be ratified

or

some other direction as given by Council at meeting time

PUBLIC NOTICE

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT

NOTICE OF APPLICATION

LAC STE. ANNE COUNTY

In accordance with the Environmental Protection and Enhancement Act (EPEA), Darwell Lagoon Commission has applied for an approval for the construction, operation and reclamation of the Darwell wastewater system. The existing Darwell wastewater lagoon is currently operating as an evaporative lagoon and is regulated under a Code of Practice Registration No. 590-02-00 (as amended). The wastewater system is located in the Hamlet of Darwell at NW 17-054-04-W5M.

With the changes proposed in this application, the Darwell lagoon will be regulated under an EPEA approval. The proposed changes include:

- construction of a regional wastewater lift station and septage receiving station at the existing Darwell lagoon system;
- a new pipeline (26.5 km, 200mm HOPE DR 11) to transfer wastewater effluent from the Darwell lagoon to the Sturgeon River near the Summer Village of Alberta Beach; and
- a wastewater outfall structure to discharge treated effluent to the Sturgeon River.

The Darwell Lagoon Commission is applying for approval to discharge a portion of their lagoon effluent to the Sturgeon River as part of this application. The frequency of lagoon discharge is anticipated to be once every three to five years.

A directly affected person may provide input into certain regulatory decisions, as allowed by the Environmental Protection and Enhancement Act (section 73). Specifically, any person who is directly affected by this application may submit a written statement of concern within 30 days of the date of this notice to:

Environment and Parks Regulatory Approvals Center
5th Floor, South Petroleum Plaza
9915 – 108 Street
Edmonton, AB T5K 2G8
Fax: 780.422.0154
Email: aep.epeaapplications@gov.ab.ca

The written statement of concern should include the following:

- the application number 008-590
- describe concerns that are relevant to matters regulated by the Environmental Protection and Enhancement Act
- explain how the filer of the concern will be directly affected by the activities proposed in the application
- provide the legal land location of the land owned or used by the filer where the concerns described are believed to be applicable
- state the distance between the land owned or used by the filer and the site in the application
- contact information including the full name and mailing address of the filer.
- Please provide a telephone number and/or email address for ease of contact.

Environment and Parks will review each written statement of concern, seek more information if needed, and notify each filer by letter of the decision to accept or reject their written submission as a valid statement of concern. The Public Notice of this application will also be posted on the Department's website at https://avw.alberta.ca/PublicNoticesViewer.aspx.

Statements of concern submitted regarding this application are public records which are accessible by the public and the applicant. Failure to file a statement of concern may affect the right to file a Notice of Appeal with the Environmental Appeals Board.

Copies of the application and additional information can be obtained from:

Lac Ste. Anne County
Attention: Joe Duplessie
56521 RGE RD 65
Box 219
Sangudo, AB T0E 2A0
Phone: 780.785.3411 (Ext. 260)
Email: jduplessie@LSAC.ca

(1)

Stantec Consulting Ltd.
1100-4900 50 Street, Red Deer AB T4N1X7

November 17, 2021
File: 110170008

Attention: Parmjit Roopral, Municipal Approvals Engineer
Regulatory Approvals Centre
Alberta Environment and Parks
Main Floor, Oxbridge Place
9820 – 106 Street
Edmonton, Alberta T5K 2J6

Dear Parmjit,

Reference: Darwell Lagoon Commission – Darwell Regional Wastewater Transmission Line – Darwell Wastewater System Notification of Extension

Please accept this letter on behalf of the Darwell Lagoon Commission for the above noted project. The project particulars for the Notification of Extension are as follows:

1. **Owner's Name:** Darwell Lagoon Commission.

   Contact Info: Joe Duplessie
   Phone: (780) 785-3411
   jduplessie@lsac.ca

2. **Project Name:** Darwell Regional Wastewater Transmission Line.

3. **Project Type:** Regional wastewater lift station, conveyance pipe, and new wastewater outfall.

4. **Project Description:** Construction of a regional wastewater lift station and septage receiving station located at the existing Darwell lagoon system, 26.5 km of 200mm HDPE DR 11 pipeline from Darwell to the Sturgeon River near the Summer Village of Alberta Beach, and a wastewater outfall structure to discharge treated effluent to the watercourse. This system is a temporary measure to alleviate AEP's concern of the Darwell lagoons overflowing during uncharacteristically high rainfall events and negatively impacting the environment. The construction of regional pipeline will ultimately become part of the Capital Region's long-term wastewater treatment system and the temporary outfall will be decommissioned. The Darwell Commission is applying for approval to discharge a small portion of their treated effluent storage volume to the Sturgeon River as part of this application. At which time discharge becomes necessary, the Darwell commission will conduct effluent sampling and receiving waterbody analysis to submit for AEP approval.

5. **Approval or Registration Number for Existing Facilities:**

   Registration Holder: Hamlet of Darwell, Wastewater System

   Registration No. 590-01-00

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Reference: **Darwell Lagoon Commission – Darwell Regional Wastewater Transmission Line – Darwell Wastewater System Notification of Extension**

6. **Project Location**

   Lift Station: NW 17-54-4-5

   Pipeline: Hamlet of Darwell to the Sturgeon River

   Wastewater Outfall: SE 36-54-3-5

7. **Material Standards and Specifications:** The design utilizes the Standards and Specifications, which meet or exceed AWWA and/or CSA Standards.

8. **Construction Schedule:** Construction for this project is anticipated from February 2022 to October 2022.

9. **Confirmation:** I confirm that the installation of the wastewater main is within the flow design capacity of the wastewater collection systems, and that provisions are in place for the storage of excessive wet weather flows.

Enclosed are the preliminary engineered plans for the proposed wastewater line construction and the Code of Practice Notification for Extension of a Wastewater System.

Please contact us immediately if you have any questions.

Regards,

Stantec Consulting Ltd.

Stephan Lorne Weninger -- P. Eng. - APEGA

Digitally signed by Stephan Lorne Weninger -- P. Eng. - APEGA
Date: 2021.11.19 11:31:54 -07'00'

Stephan Weninger, P.Eng.
Principal
Phone: (403) 341-3320
Fax: (403) 342-0969
Stephan.Weninger@stantec.com

Attachment: Issued for Approval Design Drawings

c. Mike Yakemchuk – Darwell Lagoon Commission
Joe Duplessie – Darwell Lagoon Commission

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Alberta Government

Application Form and Guide for an EPEA Registration Code of Practice for Wastewater Systems Using a Wastewater Lagoon

Introduction

The attached form and guidelines outline the information required for an application for a registration for wastewater systems using a wastewater lagoon. The application has been prepared in accordance with the *Environmental Protection and Enhancement Act* (EPEA) *RSA 2000, cE-12,* the *Approvals and Registrations Procedure Regulation 113/1993,* and the *Wastewater and Storm Drainage Regulation 119/1993.* Please ensure that each section of the application is completed in a concise and clear manner.

Wastewater systems using a wastewater lagoon consists of one or more designed and constructed surface impoundments used for biological and physical treatment of wastewater, but does not include such a plant where it uses mechanical aeration. Wastewater lagoon systems also include sewers, valves, fittings, pumping / lift stations, and collection systems. For your information, the general steps and procedures that are followed when reviewing and issuing a Registration for a municipal wastewater lagoon is illustrated by the attached flow chart (Figure 1).

Application for a new Registration under the Code of Practice for systems using a wastewater lagoon must contain written confirmation, by a Professional Engineer, that all aspects of the wastewater lagoon design (including cell liner(s)) conform to the requirements of the Code of Practice, the Regulations under the Act, or a statement identifying and justifying any deviation. The plans and specifications submitted in support of the Code of Practice registration must also be signed and stamped by a Professional Engineer.

All information spaces in this application must be filled in or marked not applicable (N/A). Failure to provide all necessary information may cause the application to be rejected and returned to the applicant. All applications must be forwarded to:

Alberta Environment and Parks
Regulatory Approvals Center
5th Floor, South Petroleum Plaza
9915 108 Street
Edmonton, AB T5K 2G8
Phone: 780-427-6311
Fax: 780-422-0154
E-mail: aep.epeaapplications@gov.ab.ca

FOIP STATEMENT: Personal information on this form is collected under the authority of section 33(c) of the Freedom of Information and Protection of Privacy (FOIP) Act and will be used to administer the *Environmental Protection and Enhancement Act* and its associated regulations. This form is a public record that is available to anyone. All information contained on this form (including personal information) is disclosed by Alberta Environment and Parks to anyone requesting a copy in accordance with Section 2 of the *Environmental Protection and Enhancement Act,* Disclosure of Information Regulation. For further information about the collection and use of this information please contact Alberta Environment and Parks – Regulatory Approvals Centre at aep.epeaapplications@gov.ab.ca or call 780-427-6311.

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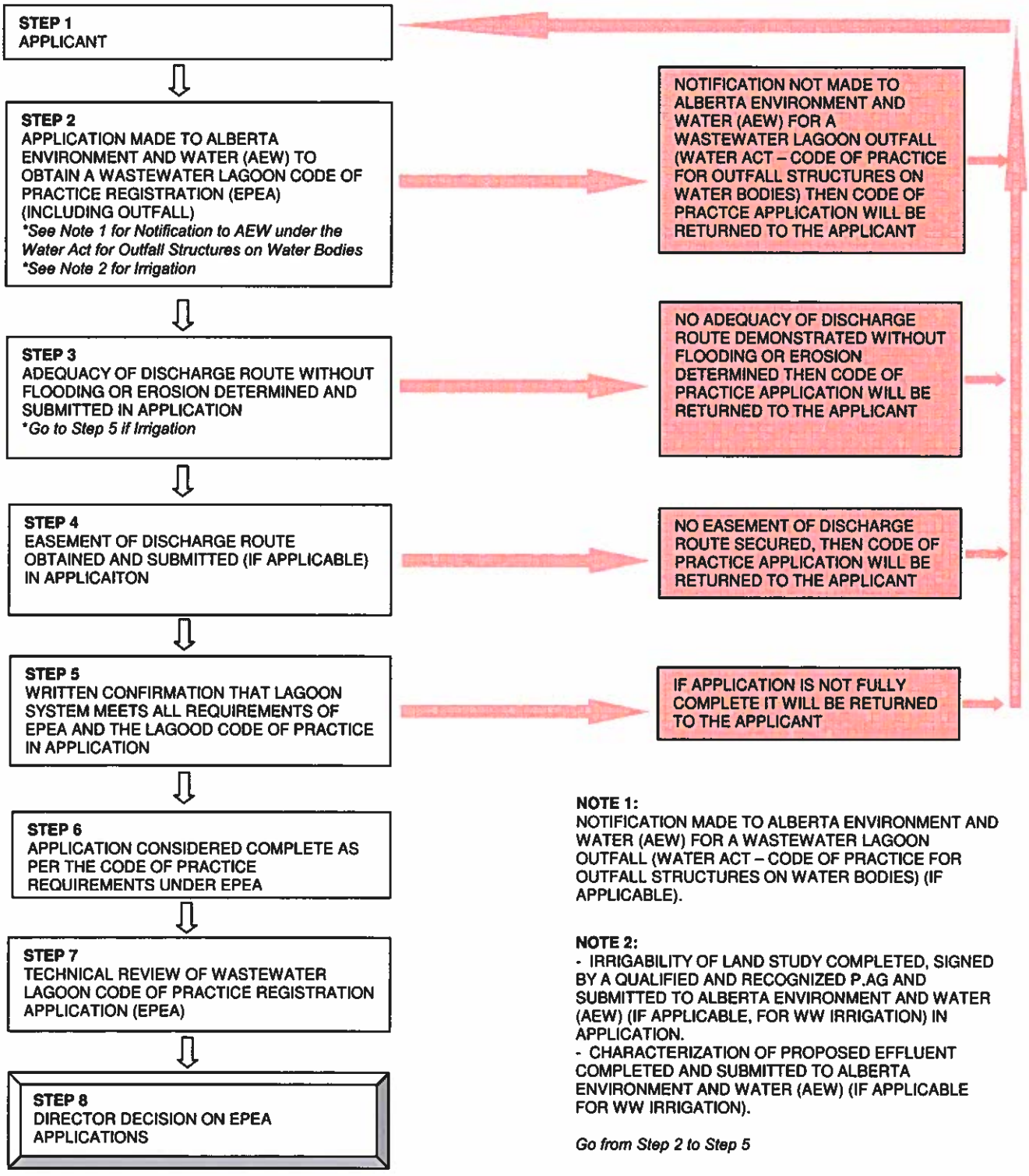
FIGURE 1: THE PROCEDURE FOR A CODE OF PRACTICE REGISTRATION FOR WASTEWATER SYSTEMS USING A WASTEWATER LAGOON



NOTE 1:
NOTIFICATION MADE TO ALBERTA ENVIRONMENT AND WATER (AEW) FOR A WASTEWATER LAGOON OUTFALL (WATER ACT – CODE OF PRACTICE FOR OUTFALL STRUCTURES ON WATER BODIES) (IF APPLICABLE).

NOTE 2:
- IRRIGABILITY OF LAND STUDY COMPLETED, SIGNED BY A QUALIFIED AND RECOGNIZED P.AG AND SUBMITTED TO ALBERTA ENVIRONMENT AND WATER (AEW) (IF APPLICABLE, FOR WW IRRIGATION) IN APPLICATION.
- CHARACTERIZATION OF PROPOSED EFFLUENT COMPLETED AND SUBMITTED TO ALBERTA ENVIRONMENT AND WATER (AEW) (IF APPLICABLE FOR WW IRRIGATION).

Go from Step 2 to Step 5

Alberta Government

Application Form and Guide for an EPEA Registration Code of Practice for Wastewater Systems Using a Wastewater Lagoon

1.0 Administrative Information

1.1 Name of the proposed wastewater lagoon system:
Darwell Wastewater System

1.2 Name and Address of wastewater lagoon system owner (Municipality / Commission / Utility / Water Co-op / Company):

Name: Darwell Lagoon Commission
Address: c/o Lac Ste Anne County - 56521 Rge Rd 65, Box 219 Sangundo, AB T0E 2A0
Contact Person: Joe Duplessie *Position:* Commission Manager
Telephone: (780) 785-3411 *Fax:*
Email Address: jduplessie@lsac.ca

Is your organization listed and in good standing on the Corporate Registry?
Yes ☒ No ☐

1.3 Legal land description of the existing or proposed wastewater lagoon system:
Land Location: NW SEC 17 TWP 54 RG 4 M 5
Land Location: _____ SEC_____ TWP_____ RG_____ M_____
Land Location: _____ SEC_____ TWP_____ RG_____ M_____
Land Location: _____ SEC_____ TWP_____ RG_____ M_____

1.4 Submission of a map / plan of the area showing the location of the following landmarks must be submitted in support of the lagoon application. The map should show the following:

(a) all sanitary lift stations;

(b) the wastewater lagoon relative to the subdivision / Town / Village / Hamlet; (including a 300 meter setback circumference from the lagoon);

(c) the overall specific cell layout of the lagoon, with cell types, and a flow diagram through the lagoon cells;

(d) any and all flow meter(s) in the proposed lagoon system;

(e) any disinfection and or dechlorination facility (if applicable); N/A

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(f) any and all treated effluent pump stations (if applicable);

(g) any and all agricultural fields, golf courses or parks that will receive wastewater through wastewater irrigation (if applicable); N/A

(h) the treated effluent outfall from the final storage cell (if applicable); and

(i) the wastewater collection piping in the present or proposed treated wastewater collection system for the development that are or will be part of the lagoon system. N/A

1.5 Have setbacks under the *Municipal Government Act* and / or the *Environmental Protection and Enhancement Act* been applied for and issued by the local Subdivision Approving Authority relative to this existing or proposed wastewater lagoon system?
Yes ☐ No ☒

If Yes to Section 1.5, then please provide copies of all setbacks variances that have been issued for this wastewater system:
Setback Waiver #1: Issued N/A
Setback Waiver #2: Issued _____
Setback Waiver #3: Issued _____

1.6 If Yes to Section 1.5, then please provide a map detailing the location of all properties and corresponding legal land locations relating to the setback variances that have been issued relative to this wastewater system.

1.7 Operating staff and person(s) that will be responsible for the day to day operation of the lagoon system:

Lagoon Treatment

NAME OF OPERATOR(S)	POSITION	AEW CERTIFICATION		WORK PHONE #
		CERT. #	CLASS	
Joe Dupessie	Commission Manager / Utilities Manager	2864	I	(780) 785-3411

1.8 Operating staff and person(s) that will be responsible for the day to day operation of the lagoon wastewater collection system:

Wastewater Collection

NAME OF OPERATOR(S)	POSITION	AEW CERTIFICATION		WORK PHONE #
		CERT. #	CLASS	
Joe Dupessie	Commission Manager / Utilities Manager	2864	I	(780) 785-3411
*All wastewater is delivered to the Darwell lagoons by haulers. Haulers are managed by Joe Duplessie.				

2.0 Wastewater System (Technical Data)

2.1 Present or projected population served by the wastewater lagoon system: 3,481

2.2 Projected life of the wastewater treatment plant: 25 Years

2.3 Projected population at end of life for the wastewater lagoon system: 4,928

Due to the seasonal nature of the population serviced by the Darwell Wastewater System, wastewater generation is proven lower then standard private wastewater design guidelines

2.4 Are there any other Municipality(ies), Development(s) Commissions / Co-ops / or Companies outside the municipal boundaries that discharge raw or partially treated wastewater into the wastewater collection system (other than septic truck haul)?
Yes ☐ No ☒

If Yes, please provide a list of the systems, the name and phone number of the contact person(s) and approximate annual flows or population.

NAME OF SYSTEM	CONTACT PERSON	PHONE NUMBER	ANNUAL FLOW (M^3) OR POPULATION
N/A			

2.5 Does your wastewater lagoon system receive septic tank waste? Yes ☒ No ☐

If Yes, please detail the septage management plan: (including septage hauler agreements, annual volume of septage, conditions of wastewater facility use, limitation of access, surveillance, sampling):

The Darwell wastewater system currently accepts septic tank waste from approved haulers around Darwell and the greater portion of Isle Lake. Historically, haulers have paid on a per load basis and wastewater was not metered or sampled. However, a temporary Septage Receiving Station Unit was placed to gather data for the purpose of projecting wastewater volumes. This unit, equipped with a pH probe and chemical sampling, is intended to be installed permanently to alleviate limitations in sampling, billing, and flow monitoring. The anticipated accepted annual flow from haulers is 45,000m3

If No, please detail the concerns or circumstances that preclude septage from being received:

N/A

Is the septic waste metered? Yes ☐ No ☒ Average monthly flows (m^3) 3,750 (125m3/day)

2.6 Submission of engineering drawings and specifications for the wastewater lagoon (including cell capacities) (signed and stamped by a Professional Engineer) of the proposed wastewater lagoon system. Yes ☒

2.7 Submission of engineering drawings and specification including piping profiles and design capacity (signed and stamped by a Professional Engineer) of the proposed wastewater collection system. Yes ☒

2.8 All aspects of the design of the wastewater collection systems complies with the design requirements of:

(a) this Code of Practice; and

(b) the regulations under the Act.

Yes ☐ No ☒

If No, identification and justification of the deviation from this Code of Practice and/or the regulations under the Act: (with Engineer's signature and stamp)

The Darwell wastewater system does not currently include anaerobic lagoon treatment. The current daily flow volume accepted into the Darwell Wastewater System is under 250m3 per day and does not require anaerobic cells. At the 25-year design horizon of the wastewater system, the flows accepted are not expected to exceed 250m3 per day also precluding the requirement of anaerobic cells onsite.

If Yes, *Environmental Protection and Enhancement Act* Project sign-off sheet must be signed, stamped and included at the end of this application form.

3.0 Raw Wastewater Collection System

3.1 Are there sanitary sewer use bylaw(s) in place to ensure the integrity of the wastewater treatment process? Yes ☒ No ☐

3.2 Do the sanitary sewer use bylaw(s) either preclude discharge of some waste(s) or require pre-treatment for industrial or non-compatible waste? Yes ☒ No ☐

If No, please explain:

3.3 Raw Wastewater Pumping Stations (lift stations):

LIFT STATION NUMBER AND LOCATION	EMERGENCY OVERFLOW / DISCHARGE ROUTE	POWER RATING (KW)	CAPACITY (L/S)
N/A			
*All wastewater is delivered to the Darwell Wastewater System by haulers, hence there are no raw water collection lift stations connected to the Darwell wastewater system.			

WASTEWATER LAGOON REQUIREMENTS

Average Daily Design Flow (m^3/day)	Number of Anaerobic Cells (2 day retention/cell)	Requirement for Facultative Cell(s) (60 day retention/cell)	Requirement for 12 Month Storage Cell(s) (average daily design flow)
≤ 250	0	Yes, maximum depth 1.5 meters	Yes, maximum depth 3.0 meters
250 to ≤ 500	2 in series minimum depth 3.0 meters	Yes, maximum depth 1.5 meters	Yes, maximum depth 3.0 meters
> 500	4 in series minimum depth 3.0 meters	Yes, maximum depth 1.5 meters	Yes, maximum depth 3.0 meters

3.4 Lagoon system description and capacities:

Proposed Wastewater Lagoon System

Receiving - 125 m3/day average currently
Planned - 175 m3/day average to be received at 25-year design horizon

Proposed or existing Average Daily Flow (m3 / day): _____
Anaerobic cells – number of cells: _____, volume / cell (m^3): _____
Facultative cells – number of cells: 2, volume / cell (m^3): total 94,000
Final storage cell – number of cells: 1, volume / cell (m^3): 278,575

3.5 Are there any septage dump stations? Yes ☒ No ☐
If Yes, how many 1 locations Within the Darwell Wastewater System, directly entering the receiving Cell

Are the septage dump stations metered? Yes ☐ No ☒ However, it is proposed to meter all wastewater entering the facility.
Average monthly flows (m^3) 3,750

3.6 Wastewater system metering:

Wastewater flow monitoring location(s): Darwell lagoons

3.7 Wastewater pumping: Yes ☒ No ☐

UNIT	POWER RATING (KW)	CAPACITY (L/S)
Duplex Pumping System	54 KW	21 L/s

Total pumping capacity 21 L/s (L/s).

Description and location of fuel source for pumping: Fortis 3PH Power, with Distribution connection from Township Road 542.

3.8 Inventory of all water treatment chemicals used. (Please identify all the chemicals used seasonally or continuously, including pH adjusters, oxidants or disinfectants).

CHEMICAL NAME	NSF APPROVED Y/N	CHEMICAL TYPE	POINT OF INJECTION	SEASONAL / CONTINUOUS
N/A				

4.0 Treated Effluent Discharge

4.1 Treated effluent discharge method:

(a) Batch discharge to watercourse or water body:

Description, volume and location of the treated effluent storage:
The Darwell Wastewater System has a single storage cell with a volume of 278,575m3, which is the third cell in series in the treatment facility. Since the volume of wastewater received by the facility is currently 45,000 m3/year, annual discharges will not be required. Discharges can be timed and volume adjusted to the requirements of the receiving stream.

Land Location NW SEC 17 TWP 54 RG 4 M 5
or other (i.e.: street address)
GPS Co-ordinates: Latitude: 53.667030 Longitude: -114.5572717

Description and location of the treated effluent outfall:
Overland type outfall to the bank of the Sturgeon River, east of Alberta Beach.

Land Location SW SEC 25 TWP 54 RG 3 M 5
or other (i.e.: street address)
GPS Co-ordinates: Latitude: 53.702247 Longitude: -114.296643

Description of the existing or proposed discharge times and durations from the treated effluent storage:

The discharge period will occur in spring or fall over a maximum three week period, or until the maximum loading limit assigned to the receiving Sturgeon River Waterbody is reached. It is anticipated that the Darwell wastewater system will require discharge from storage once every 3-5 years, at which time effluent and receiving waterbody reporting will be submitted. The anticipated maximum batch treated effluent discharge will be 38,000 m3 at a rate of 21 L/s or 1,814m3/day. At the time of discharge, the Commission will coordinate the offset of discharge timing with TriVillage Regional Sewage Commission to ensure overlap does not occur.

Description and determination of adequate outlet regarding the discharge route:
Immediate:

Termination of the wastewater outfall line will be to an overland type outlet, complete with concrete dispersion headwall to rip-rap on the Sturgeon River bank.

Ultimately to:

The Sturgeon River

Have easement(s) been obtained for the discharge route? Yes ☐ No ☒
If No please explain:

Any required easements will be obtained at the final confirmation of environmental approval.

Description, volume and location of the treated effluent storage:

The Darwell Wastewater System has a single storage cell with a volume of 278,575m3, which is the third cell in series in the treatment facility. Any discharge will be monitored for quality and quantity meeting acceptable limits for the receiving stream.

Land Location NW SEC 17 TWP 54 RG 4 M 5
or other (i.e.: street address)
GPS Co-ordinates: Latitude: 53.667030 Longitude: -114.5572717

(b) ~~Wastewater irrigation~~

Type of the irrigation system:

Permanent in-ground	☐
Hand move	☐
Wheel move	☐
Pivot	☐
Other:	☐

Topographical description of the irrigated land(s):

_____

_____

_____

_____

Total land area irrigated: _____hectares
Land Locations of the irrigated land(s):
Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____

Land irrigability study (as per EPEA Guidelines for Municipal Wastewater Irrigation) must be submitted for irrigated lands in support of this application:
Date of study completion:_____

Existing or Projected wastewater irrigation application volume (annual total):
_____mm (total).

Existing or Projected wastewater irrigation application rate:
_____mm/hr or mm/irrig. event

(c) Continuous or batch discharge to landlocked wetland. ☐

Description, approximately area (hectares) and location of the wetland:

_____

_____

_____

_____

Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____

(d) Continuous or batch discharge to a wetland with subsequent discharge to a watercourse or water body. ☐

Type of wetland: Natural ☐ Man Made/designed ☐ Hybrid ☐

Purpose of wetland:
Wastewater treatment (recognized part of treatment train) ☐
Wastewater Polishing ☐
Additional Wastewater storage ☐
Other: ☐ _____

Wetland Management Plans in place: Yes ☐ No ☐
Volume and water level management ☐
Aquatic plant management ☐
Phosphorus management ☐

Description, volume and location of the treated effluent storage:
(pre-wetland - if applicable)

_____

_____

_____

_____

Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____

Description, approximately area (hectares^2) and location of the wetland:

_____

_____

_____

_____

Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
Land Location _____SEC_____TWP_____RG_____M_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____
GPS Co-ordinates: Latitude:_____ Longitude:_____

Description and location of the treated effluent outfall to watercourse from wetland:

_____

_____

_____

_____

Land Location _____SEC_____TWP_____RG_____M_____

GPS Co-ordinates: Latitude:_____ Longitude:_____

5.0 Groundwater Monitoring Program

5.1 Groundwater wells: (around lagoon site)

Number of groundwater wells: 7 distributed around the Darwell Wastewater System lagoon site

Well No.	Legal Land Location GPS Co-ordinates
Wells No.: 02-02, 02-04, 02-05, 02-06 02-07, 03-02, and 08-03	NW 17-54-4-W5M

5.2 Confirmation that water samples will be taken and analyzed from groundwater wells prior to putting lagoon into operation: Yes ☒

5.3 Confirmation that water samples will be taken and analyzed from groundwater wells three (3) times, three months apart during the first year of operation: Yes ☐ Wells are existing for the Darwell Wastewater System. Sampling will be maintained annually.

5.4 Groundwater Analyses / monitoring (prior to lagoon start-up and during first year of operation):

Parameters	Monitoring Frequency (in each groundwater well)
pH	Once before operational, 3 times, 3 months apart during first year
Electrical Conductivity	
Calcium	
Magnesium	
Total Hardness	
Sodium	
Potassium	
Iron	
Total Phosphorus	
Nitrate-Nitrogen	

Parameters	Monitoring Frequency (in each groundwater well)
Nitrite-Nitrogen	Once before operational, 3 times, 3 months apart during first year
Ammonia-Nitrogen	
Chloride	
Fluoride	
Sulphate	
Carbonate	
Bicarbonate	
Total Alkalinity	
Total Dissolved Solids (TDS)	
Total Kjeldahl Nitrogen	
Chemical Oxygen Demand	
Depth to groundwater level	

5.5 Groundwater Analyses / monitoring (after first year and for subsequent years of operation):

Parameters	Monitoring Frequency (in each groundwater well)
Depth to groundwater level	Immediately before lagoon discharge
	Immediately after lagoon discharge is complete
	Approximately one month after lagoon discharge(s)

6.0 Treated Effluent Limits and Monitoring

6.1 Lagoon Discharge – Monitoring

Direct Discharge - Monitoring

Parameters	Sample Type	Sampling Location	Minimum Monitoring Frequency
Carbonaceous Biochemical Oxygen Demand (CBOD)	Grab	Point at which treated wastewater is discharged from the wastewater lagoon	Once during discharge, after the first day of discharge
Total Suspended Solids (TSS)			

6.2 Wastewater Irrigation - Limits

Wastewater Irrigation - Treated Wastewater Limits

Parameter	Limit
Carbonaceous Biochemical Oxygen Demand (CBOD)	< 100 mg/L
Chemical Oxygen Demand (COD)	< 150 mg/L
Total Suspended Solids (TSS)	< 100 mg/L

Parameter	Limit
Electrical Conductivity (EC)	< 2.5 dS/m
Sodium Absorption Ratio (SAR)	< 9 (*SAR greater than 9 is unacceptable) *consult WW irrigation guidelines for corresponding unrestricted and restricted SAR values
pH	6.5 to 8.5

6.3 Wastewater Irrigation – Monitoring

Wastewater Irrigation - Treated Wastewater Monitoring

TREATED WASTEWATER USED FOR IRRIGATION FOR EACH IRRIGATIONSITE			
Parameters	**Minimum Monitoring Frequency**	**Sample Type**	**Sample Location**
Carbonaceous Biochemical Oxygen Demand (CBOD) Chemical Oxygen Demand (COD) Total Suspended Solids (TSS) Electrical Conductivity (EC) Sodium Absorption Ratio (SAR) pH	One sample each: (a) prior to each irrigation application season, and (b) at the mid point of each irrigation season	Grab	At the treated wastewater irrigation intake point

Additional Wastewater Irrigation Treated Wastewater Limits for Golf Course and Park Irrigation

Parameter	Limit
Total coliform counts	< 1000 per 100 ml, based on the monthly geometric mean
Fecal coliform counts	< 200 per 100 ml, based on the monthly geometric mean
Total Chlorine Residual	< 2.0 mg/L, based on the monthly arithmetic mean of daily grab samples

7.0 Wastewater Application Signature (Owner)

7.1 The *Environmental Protection and Enhancement Act* and Regulations, provide a specific definition for the "owner" and "person responsible for a wastewater system". Therefore, the person(s) responsible/person signing this document should be familiar with the applicable sections of the *Environmental Protection and Enhancement Act* and the Regulations.

The sections of the *Environmental Protection and Enhancement Act* and Regulations that are of particular relevance to wastewater systems are:

(a) *Environmental Protection and Enhancement Act* (EPEA) *RSA 2000, cE-12;*

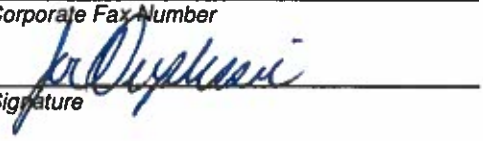
(b) *Activities Designation Regulation* 276/2003;

(c) *Approvals and Registrations Procedure Regulation* 113/1993;

(d) *Wastewater and Storm Drainage Regulation* 119/1993;

(e) *Code of Practice for Wastewater Systems Using a Wastewater Lagoon* September 2003.

I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete and accurate.

Joe Duplessie *Printed Name of Person Signing*	Commission Manager *Title*
56521 Range Road 65, Box 219 *Corporate Address*	T0E 2A0 *Corporate Postal Code*
(780) 785-3411 *Corporate Telephone Number*	 *Corporate Fax Number*
November 17, 2021 *Date of Application*	 *Signature*

EPEA Code of Practice for Wastewater Systems Using a Wastewater Lagoon

Project Name/Type Darwell Regional Wastewater Transmission Line

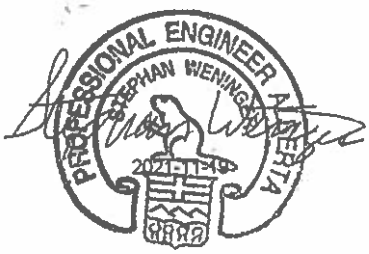
Location NW 17-54-4-5 to SW25-54-3-5

Municipality Lac Ste Anne County

I acknowledge that I have reviewed the *Standards and Guidelines for Municipal Wastewater, Wastewater, and Storm Drainage Systems*, January 2006, and the Code of Practice for Wastewater Systems Using a Wastewater Lagoon, and certify that the design of the above noted project complies with all of the design requirements noted specified.

SIGNED AND STAMPED by a professional engineer.
NAME
COMPANY

Submissions that are found to not be in accordance with the Standards and Guidelines may result in enforcement action and/or referral to APEGGA.
For projects that do not comply with all of the Standards and Guidelines please submit a detailed explanation of the deficiency and why it is necessary.



ID 65821

590-02-00

Alberta
ENVIRONMENT

Environmental Management
Central Region

Suite #1, 250 Diamond Ave
Spruce Grove, Alberta
Canada T7X 4C7

Telephone: (780) 960-8600
Fax: (780) 960-8605

May 1, 2007

File No. 005 - 590

Len Szybunka, County Manager
Lac Ste Anne County
PO Box 219
Sangudo, AB T0E 2A0

RE: Registration Holder: Hamlet of Darwell, Wastewater System,
Registration 590-02-00 Application No. 005-590
Notice - *Code of Practice for Wastewater Systems Using a Wastewater Lagoon*

The Darwell wastewater system operated by the Lac Ste Anne County is currently operating under a registration under the *Environmental Protection and Enhancement Act*, and required to follow the requirements of the latest approval No. 590-01-00, as amended, issued for the facility.

In accordance with section 3.2(2) of the *Wastewater and Storm Drainage Regulation*, the Director is providing notice that the *Code of Practice for Wastewater Systems Using a Wastewater Lagoon*, as amended or replaced from time to time, will now be applied to the operation of the Darwell wastewater system.

Pursuant to section 3.2(3) of the *Wastewater and Storm Drainage Regulation*, all of the Code of Practice applies effective May 1, 2007.

If you have any questions regarding this Notice, please contact David Dowhaniuk at (780) 960-8626.

Sincerely,

Tom Slater, P.Eng.
District Approvals Manager
Designated Director under the Act

cc: Regulatory Approvals Centre
David Dowhaniuk, Spruce Grove

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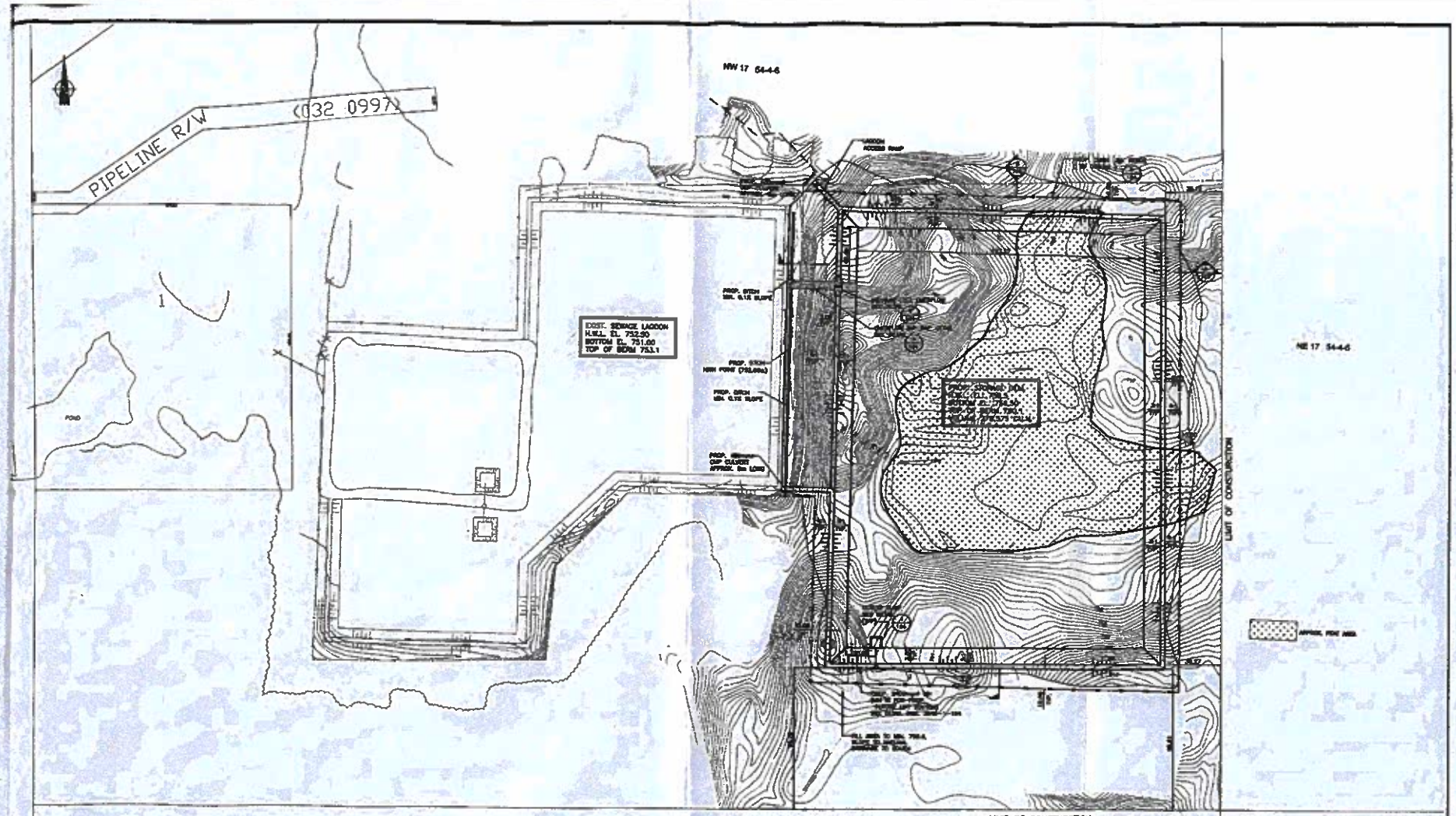


ENG.	BY	SUBJECT
R.T.	AL.	RECORD DRAWING
R.T.	B.B.	CONSTRUCTION ISSUE
R.T.	B.B.	DESIGN ISSUE
R.T.	B.B.	PRELIMINARY ISSUE

REVISIONS

RECORD DRAWING

AS CONSTRUCTED SURVEYING, MEASUREMENTS AND OTHER DETAILS CONTAINED IN THIS RECORD DRAWING WERE OBTAINED BY ASSOCIATED ENGINEERING ALBERTA LTD. (AEAL) FROM VARIOUS SOURCES. SUCH INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO AEAL AT THE TIME OF PREPARATION OF THIS RECORD DRAWING. AEAL DOES NOT IN ANY WAY WARRANT THAT SUCH INFORMATION IS ACCURATE AND ASSUMES NO RESPONSIBILITY FOR ANY ERRORS OR OMISSIONS CONTAINED THEREIN.

Associated Engineering

PROJECT No.	20083545	
SCALE	1 : 2500	
DRAWN	S. Wong	
DESIGNED	R. Thompson	
CHECKED	J. Fetter	
APPROVED		
DATE	2008-05	INITIAL

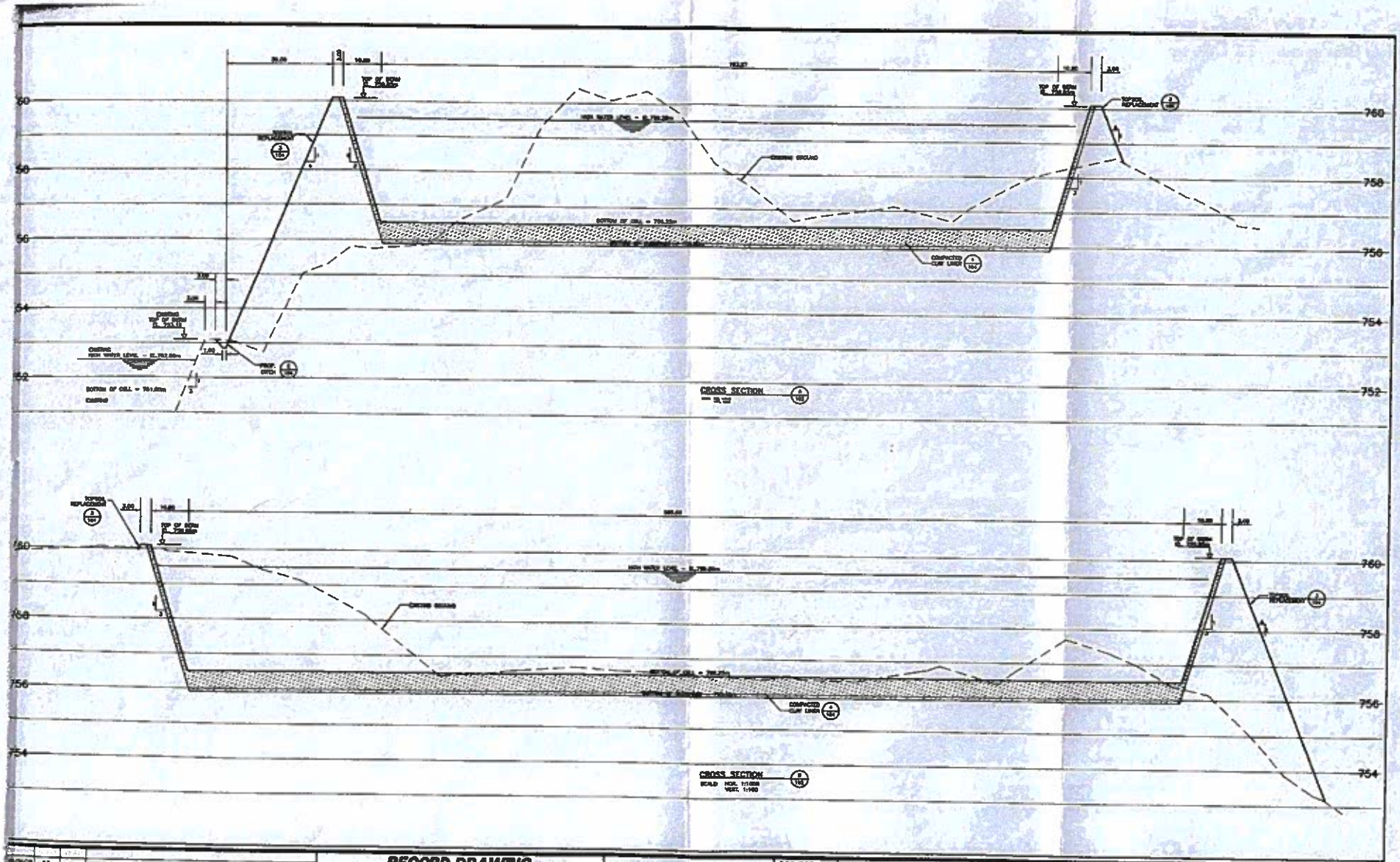
LAC STE ANNE COUNTY
DARWELL LAGOON COMMISSION

SITE PLAN

2008 DARWELL LAGOON EXPANSION

DRAWING NUMBER	REV. NO.	SHEET
3545-1-102	2	2 / 4

21



DATE	ENG.	BY	SUBJECT
			REVISIONS

RECORD DRAWING

AS CONSTRUCTED DIMENSIONS, MEASUREMENTS AND OTHER DETAILS CONTAINED IN THIS RECORD DRAWING HAVE BEEN OBTAINED BY ASSOCIATED ENGINEERING ALBERTA LTD (AEAL) FROM VARIOUS SOURCES. SUCH INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO AEAL AT THE TIME OF PREPARATION OF THIS RECORD DRAWING. AEAL DOES NOT IN ANY WAY WARRANT THAT SUCH INFORMATION IS ACCURATE AND ASSUMES NO RESPONSIBILITY FOR ANY ERRORS OR OMISSIONS CONTAINED THEREIN.

Associated Engineering

PROJECT No.	20083645	
SCALE	AS SHOWN	
DRAWN	B. Wong	
DESIGNED	R. Thompson	
CHECKED	J. Fetter	
APPROVED		
DATE	2008-03	INITIAL

LAC STE ANNE COUNTY
DARWELL LAGOON COMMISSION

CROSS SECTIONS

2008 DARWELL LAGOON EXPANSION

DRAWING NUMBER	REV. NO.	SHEET
3545-1-103	2	3

KaizenLAB

333 -50 Avenue SE, Calgary, Alberta T2G 2B3
Phone: (403) 297-0699 Fax: (403) 297-0869
e-mail: kaizencsr@kaizenlab.ca

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

KaizenLAB Job #: 317767

SERVICE REQUESTED (3PM Cut off)

Service	Surcharge	TAT *Business days	
Regular	None	4 days	☐

RUSH TAT (3PM Cut off)

Rush	50%	2 - 3 days	☐
Priority	100%	Next day	☐
Emergency	200%	Weekend/Holiday Same day	☐

Report Date: 01-04-21

* Please call (403) 815-5615 to coordinate rush analysis

REPORT CONTACT

Company: LAC STE ANNE COUNTY
Contact: KYLE SWAYCHUK
Emails: KSWAYCHUK@LSAC.CA
JDUPLESSIE@LSAC.CA
Address: BOX 219 SANGUDO, AB T0E 2A0
Phone: 780 - 784-8221

INVOICE CONTACT

☑ Same as Report

Company:
Contact:
Email:
Address:
Phone:

PROJECT DETAILS

Project ID: WELL SAMPLE
Location ID: DARWELL LAGOON
P.O.
Quotation #

Guideline

☐ AB Tier 1 ☐ BC
☐ CCME ☐ MB
☐ SPIGEC
☐ Drinking Water
☐ D50
☐ Other

	Client	Depot	Lab
Rel. by:		Rec. by:	Rec. by: EW/BP
Date:	Sept 27/21	Date: 27-Sep-21	Date: 28 Sept 21
Time:	1:50 pm	Time: 650	Time: 8:50am

Additional Notes

LAB USE ONLY
Temp: 13.0 °C

LAB ID	SAMPLE IDENTIFICATION	DEPTH	DATE SAMPLED (DD/MM/YYYY)	TIME SAMPLED	MATRIX (SOIL / WATER)	POTASSIUM Cl	TOTAL METALS	NH3-N / TKN	HOLD ANALYSIS	SPECIAL INSTRUCTIONS
	~~02-03~~	~~1.8m~~	~~27/09/21~~	~~11:2AM~~	~~WATER~~					
1	02-04	1.8m	"	11:20am	"	✓	✓	✓		
2	02-05	0M	"	11:30am	"	✓	✓	✓		
3	02-06	1.3m	"	11:36Am	"	✓	✓	✓		
4	02-07	3.4m	"	11:43Am	"	✓	✓	✓		
	~~02-01~~		"		"					
5	03-02	4.8m	"	12:03pm	"	✓	✓	✓		
	~~02-03~~		"		"					
6	THOB-03	2.2m	"	11:57Am	"	✓	✓	✓		
7	02-02	2.3m	"	12:37Am	"	✓	✓	✓		

Fill out chain of custody completely to avoid processing delays. Gray fields are for lab use only.

Unit# 288, 2880 45 Ave S.E.
Calgary, AB, T2B 3M1
Phone (403) 297-0868
Fax: (403) 297-0869

KaizenLAB

ANALYTICAL REPORT

Client: Lac Ste. Anne County
Box 219
Sangudo, AB, T0E 2A0

Attention: Joe Duplessie - Lac Ste Anne Count

KaizenLAB JOB #:	317767
DATE RECEIVED:	28-Sep-2021
DATE REPORTED:	01-Oct-2021
PROJECT ID:	Well Sample
LOCATION:	Darwell Lagoon

KaizenLAB Sample #: 317767_001 **Sample ID:** 02-04
Date Sampled: 11:20 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	2160		
pH		7.5	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	1354	500 (AO)	Unacceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	2.16	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	953.0		
Bicarbonate (as HCO3)	mg/L	1162		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.22		
Chloride	mg/L	174.1	250 (AO)	Acceptable
Fluoride	mg/L	0.22	1.5 (MAC)	Pass
Nitrate-N	mg/L	<0.010	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	<0.015		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	115.4	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	296.7		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Phone (403) 297-0868
Fax: (403) 297-0869
e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

KaizenLAB Sample #: 317767_001 **Sample ID:** 02-04

Date Sampled: 11:20 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Dissolved Magnesium	mg/L	75.1		
Dissolved Manganese	mg/L	<0.05		
Dissolved Potassium	mg/L	7.5		
Dissolved Sodium	mg/L	103.4	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	1050		
Sodium Adsorption Ratio		1.39		
Ammonia in water				
Ammonia-N	mg/L	<0.05		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	<0.040		

Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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KaizenLAB

KaizenLAB Sample #: 317767_002 **Sample ID:** 02-05
Date Sampled: 11:30 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	1630		
pH		7.7	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	940	500 (AO)	Unacceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	5.11	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	713.4		
Bicarbonate (as HCO3)	mg/L	869.8		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.17		
Chloride	mg/L	142.0	250 (AO)	Acceptable
Fluoride	mg/L	0.30	1.5 (MAC)	Pass
Nitrate-N	mg/L	<0.010	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	<0.015		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	29.30	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	178.4		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	48.2		
Dissolved Manganese	mg/L	<0.05		
Dissolved Potassium	mg/L	7.3		
Dissolved Sodium	mg/L	99.0	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	644.0		
Sodium Adsorption Ratio		1.70		
Ammonia in water				
Ammonia-N	mg/L	0.10		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	0.047		

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Calgary, AB, T2B 3M1
Phone (403) 297-0868
Fax: (403) 297-0869
e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Calgary, AB, T2B 3M1
Phone (403) 297-0868
Fax: (403) 297-0869
e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

KaizenLAB Sample #: 317767_003 **Sample ID:** 02-06
Date Sampled: 11:36 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	1550		
pH		7.7	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	1046	500 (AO)	Unacceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	1.48	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	672.8		
Bicarbonate (as HCO3)	mg/L	820.3		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.12		
Chloride	mg/L	3.23	250 (AO)	Acceptable
Fluoride	mg/L	0.43	1.5 (MAC)	Pass
Nitrate-N	mg/L	<0.010	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	<0.015		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	306.5	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	213.8		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	66.9		
Dissolved Manganese	mg/L	<0.05		
Dissolved Potassium	mg/L	6.3		
Dissolved Sodium	mg/L	38.6	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	809.4		
Sodium Adsorption Ratio		0.59		
Ammonia in water				
Ammonia-N	mg/L	<0.05		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	<0.040		

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Calgary, AB, T2B 3M1
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Fax: (403) 297-0869
e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

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KaizenLAB

KaizenLAB Sample #: 317767_004 **Sample ID:** 02-07
Date Sampled: 11:43 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	2550		
pH		7.6	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	2173	500 (AO)	Unacceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	25.1	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	541.5		
Bicarbonate (as HCO3)	mg/L	660.3		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.1		
Chloride	mg/L	59.67	250 (AO)	Acceptable
Fluoride	mg/L	0.21	1.5 (MAC)	Pass
Nitrate-N	mg/L	0.044	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	0.044		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	1145	500 (AO)	Unacceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	433.3		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	96.7		
Dissolved Manganese	mg/L	0.48		
Dissolved Potassium	mg/L	13.3		
Dissolved Sodium	mg/L	94.2	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	1480		
Sodium Adsorption Ratio		1.07		
Ammonia in water				
Ammonia-N	mg/L	0.08		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	<0.040		

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Calgary, AB, T2B 3M1
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Fax: (403) 297-0869
e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Phone (403) 297-0868
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e-Mail: kaizenlab@kaizenlab.ca

KaizenLAB

KaizenLAB Sample #: 317767_005 **Sample ID:** 03-02
Date Sampled: 12:03 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	1070		
pH		7.5	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	626	500 (AO)	Unacceptable
True Colour	TCU	14	15 (AO)	Acceptable**
Turbidity	NTU	1.73	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	588.7		
Bicarbonate (as HCO3)	mg/L	717.8		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.14		
Chloride	mg/L	2.74	250 (AO)	Acceptable
Fluoride	mg/L	0.22	1.5 (MAC)	Pass
Nitrate-N	mg/L	<0.010	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	<0.015		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	42.97	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	163.1		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	37.9		
Dissolved Manganese	mg/L	2.57		
Dissolved Potassium	mg/L	1.8		
Dissolved Sodium	mg/L	17.8	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	563.5		
Sodium Adsorption Ratio		0.33		
Ammonia in water				
Ammonia-N	mg/L	0.09		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	<0.040		

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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KaizenLAB

Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

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KaizenLAB Sample #: 317767_006 **Sample ID:** TH08-03
Date Sampled: 11:51 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	1080		
pH		7.8	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	689	500 (AO)	Unacceptable
True Colour	TCU	12	15 (AO)	Acceptable
Turbidity	NTU	6.84	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	467.5		
Bicarbonate (as HCO3)	mg/L	570.0		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	<0.10		
Chloride	mg/L	0.65	250 (AO)	Acceptable
Fluoride	mg/L	0.43	1.5 (MAC)	Pass
Nitrate-N	mg/L	0.288	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	0.288		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	178.4	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	144.6		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	54.6		
Dissolved Manganese	mg/L	<0.05		
Dissolved Potassium	mg/L	4.7		
Dissolved Sodium	mg/L	18.9	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	585.8		
Sodium Adsorption Ratio		0.34		
Ammonia in water				
Ammonia-N	mg/L	<0.05		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	0.064		

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Notes:

- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

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KaizenLAB

KaizenLAB Sample #: 317767_007 **Sample ID:** 02-02
Date Sampled: 12:37 27-Sep-2021

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	1360		
pH		7.4	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	891	500 (AO)	Unacceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	6.12	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	569.7		
Bicarbonate (as HCO3)	mg/L	694.6		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	0.15		
Chloride	mg/L	31.27	250 (AO)	Acceptable
Fluoride	mg/L	0.19	1.5 (MAC)	Pass
Nitrate-N	mg/L	<0.010	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	<0.015		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	200.5	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	265.6		
Dissolved Iron	mg/L	<0.05	0.3 (AO)	Acceptable
Dissolved Magnesium	mg/L	35.1		
Dissolved Manganese	mg/L	2.23		
Dissolved Potassium	mg/L	1.9		
Dissolved Sodium	mg/L	9.2	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	808.0		
Sodium Adsorption Ratio		0.14		
Ammonia in water				
Ammonia-N	mg/L	0.06		
Total Kjeldahl Nitrogen	mg/L	<2.00		
Total Phosphorus	mg/L	0.135		

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Notes:

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Test Methodologies

Alkalinity in Water: Modified from SM 2320B
Ammonia in Water: Modified from SM 4500-NH3 F
Anions in Water: Modified from SM 4110B
Cations in Water: Modified from SM 3030B and SM 3120B
Electrical Conductivity in Water: Modified from SM 2510B
pH of Water: Modified from SM 4500-H+ B
Total Dissolved Solids (calculated): Modified from SM 1030E
Total Kjeldahl Nitrogen in Water: Modified from SM 4500-N(org) B and D
Total Metals in Water: Modified from EPA 200.2 and SM 3120B
True Colour in Water: Modified from SM 2120 C
Turbidity in Water: Modified from SM 2130B

Final Review by:

Shawni Turner
Client Services Representative

Pass/Acceptable: The measurement result conforms with the specification limit when the measurement uncertainty is taken into account.
Pass/Acceptable:** It is not possible to state conformance using a 95 % coverage probability for the expanded uncertainty although the measurement result is below the limit.
Fail/Unacceptable: The measurement result does not conform with the specification limit when the measurement uncertainty is taken into account.

The statement of conformity is based on a 95% coverage probability for the expanded uncertainty. The test results and the statement of conformance with specification in this report relate only to the test sample as analysed/tested and not to the sample/item from which the test sample was drawn.

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debbie@onoway.ca

From: Bridgitte Coninx <bconinx@onoway.ca>
Sent: February 3, 2022 12:11 PM
To: Debbie Giroux; Len Kwasny; Robert Winterford; Robin Murray; Lisa Johnson
Subject: Fwd: Register today for February's Corporate Planning and Finance Course

Looks to be of fantastic value to us.

Sent from my iPad

Begin forwarded message:

> **From:** "Exec. Assistant on behalf of Dan Rude" <EA_DRude@abmunis.ca>
> **Date:** February 3, 2022 at 8:43:05 AM MST
> **To:** Bridgitte Coninx <bconinx@onoway.ca>
> **Subject: Register today for February's Corporate Planning and Finance Course**
>
> Hello Mayors, Councillors and CAOs,
>
> Recognizing that budgeting is one of the most challenging aspects of municipal government, the Elected Officials Education Program (EOEP) is following on our Munis 101 course with a virtual offering of Corporate Planning and Finance.
>
> Register for the course which will be held on Zoom over four evening sessions.
>
> - Wednesday, February 16, from 6:30 to 8:30 p.m.
> - Wednesday, February 23, from 6:30 to 8:30 p.m.
> - Wednesday, March 2, from 6:30 to 8:30 p.m.
> - Wednesday, March 9, from 6:30 to 8:30 p.m.
>
> The course is taught by Rodney Boyko, a municipal finance expert with experience as a Chief Financial Officer. Rodney will guide participants through the role of elected officials in municipal financial planning, budgeting and monitoring, and how this differs from the role of administration. It will also help participants understand how the public financial processes differ from those you might be used to from the private sector.
>
> Don't miss out on this opportunity to learn about the essentials of municipal finance and work towards your Municipal Elected Leaders Certificate (MELC).
>
> EOEP's registrar is hard at work scheduling classes for the rest of the year, to ensure each course in our roster is offered at least once. Stay tuned for a full course schedule.
>
> **Dan Rude | Chief Executive Officer**
>
> **ALBERTA URBAN MUNICIPALITIES ASSOCIATION**

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D: 780.431.4535 | C: 780.951.3344 | E: drude@auma.ca

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Alberta Municipalities
Strength In Members

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Municipal Corporate Planning and Finance

Upcoming Courses

Municipal Corporate Pl and Finance - Feb 16

Council's Role in Servic Delivery - Mar 13 - Mar

Council's Role in Strate Planning - Mar 13 - Mar

all courses

Understanding municipal finances is fundamental to the job of an elected official. Municipal councils are expected to plan, govern and set policy for the best interests of their community. Sound financial planning and management is key to supporting a healthy municipality that can ensure that its current and future service commitments are funded in a sustainable manner.

It is important that elected officials understand how financial planning and monitoring align with the municipality's business cycle, including strategic planning, business planning and performance measurement. Elected officials need to understand their role in establishing and prioritizing competing service level demands on behalf of citizens and then determine strategies to fund those service level commitments.

Module 1: Setting the Strategic Context

After completing this module, participants will be able to:

- Understand what the elected official's role is in the strategic planning process, citizen participation and risk management

Module 2: Financial Planning Overview

After completing this module, participants will be able to:

- Understand service levels and performance measures
- Feel comfortable with the annual budget process
- Ask good questions regarding their operating budget and capital planning
- Identify the contents of a capital budget and understand multi-year financial and capital plans

Module 3: Revenue and Funding

After completing this module, participants will be able to:

- Understand property tax
- Identify debt versus reserves
- Have an understanding about debt servicing, grants and transfers

Module 4: Monitoring and Evaluation

After completing this module, participants will be able to:

- Identify the segregation of duties
- Understand cashflow and investments
- Understand accounting systems, records and internal controls
- Read financial statements