



# AGENDA

## Council Meeting

9:00 AM - Thursday, November 3, 2022  
Council Chambers

Page

	<b>A. CALL TO ORDER</b>
	<b>B. ADOPTION OF AGENDA</b>
	<b>C. ADOPTION OF MINUTES</b>
4 - 8	1. <b><u>County Council Meeting Minutes</u></b> <a href="#">Council Meeting - 20 Oct 2022 - Minutes</a>
9 - 12	2. <b><u>Organizational Meeting Minutes</u></b> <a href="#">Organizational Meeting - 20 Oct 2022 - Minutes</a>
	<b>D. SUBDIVISION APPLICATIONS</b>
13 - 23	1. <b><u>Subdivision Application #2022-0-147 – Double O Farms - N1/2 11-9-19-W4M</u></b> <a href="#">Subdivision Application #2022-0-147 – Double O Farms - N1/2 11-9-19-W4M</a>
24 - 30	2. <b><u>Subdivision Application #2022-0-152 – Lethbridge County - Block 11, Plan 6510AE within NW1/4 6-10-21-W4M (Hamlet of Diamond City)</u></b> <a href="#">Subdivision Application #2022-0-152 – Lethbridge County - Block 11, Plan 6510AE within NW1/4 6-10-21-W4M (Hamlet of Diamond City)</a>
31 - 38	3. <b><u>Subdivision Application #2022-0-157 – De Valois - SE1/4 1-13-24-W4M</u></b> <a href="#">Subdivision Application #2022-0-157 – De Valois - SE1/4 1-13-24-W4M</a>
	<b>E. PUBLIC HEARINGS - 10:00 A.M.</b>
39 - 388	1. <b><u>Bylaw 22-009 MacLaine Acres Area Structure Plan and Bylaw 22-010 Land Use Bylaw Amendment Lethbridge Urban Fringe to Grouped Country Residential - Public Hearing</u></b> <a href="#">Bylaw 22-009 MacLaine Acres Area Structure Plan and Bylaw 22-010 Land Use Bylaw Amendment LUF to GCR - Public Hearing</a>

## F. DELEGATIONS

- 389 - 478
1. **10:30 a.m. - Shane Jarokosky**
  2. **11:00 a.m. - Peter Casurella & Kim Welby - Link Pathway**  
[Public Consultation - All phases compressed](#)  
[Combined Approvals Compressed](#)  
[MoU - Link Pathway Revised for Full Route](#)  
[Link Pathway Alignment MPE Overview](#)

## G. CLOSED SESSION

1. **11:30 a.m. Delegation - Development Discussion (FOIP Section 25 - Disclosure Harmful to Economic and Other Interests of a Public Body)**
2. **Fire Services Provision (FOIP Section 21 - Disclosure Harmful to Intergovernmental Relations)**
3. **Economic Development Interest Discussion (FOIP Section 25 - Disclosure Harmful to Economic and Other Interests of a Public Body)**
4. **Chinook Intermunicipal Subdivision and Development Appeal Board - Board Appointments (2022-2025 term)**

## H. DEPARTMENT REPORTS

### H.1. COMMUNITY SERVICES

- 479 - 481
- H.1.1. **Planning and Development Department - 3rd Quarter Report 2022**  
[Planning and Development Department 3rd Quarter Report 2022](#)

### H.2. INFRASTRUCTURE

- 482 - 486
- H.2.1. **Range Road 22-5 Gravel Conversion**  
[Range Road 22-5 Gravel Conversion](#)

### H.3. CORPORATE SERVICES

- 487 - 501
- H.3.1. **Lethbridge & District Exhibition Request**  
[Lethbridge & District Exhibition Request](#)

### H.4. ADMINISTRATION

- 502 - 505
- H.4.1. **Invitation - 2022 University of Alberta Celebration of Planning Fundraiser - Edmonton Convention Centre - November 17, 2022**

[Invitation - 2022 University of Alberta Celebration of Planning Fundraiser - Edmonton Convention Centre - November 17, 2022](#)

H.4.2. **Declaration of Sufficiency of Petition**

**H.5. MUNICIPAL SERVICES**

**I. NEW BUSINESS**

**J. COUNTY COUNCIL AND COMMITTEE UPDATES**

**K. ADJOURN**



# MINUTES

## Council Meeting

11:00 AM - Thursday, October 20, 2022  
Council Chambers

The Council Meeting of Lethbridge County was called to order on Thursday, October 20, 2022, at 11:00 AM, in the Council Chambers, with the following members present:

**PRESENT:** Reeve Tory Campbell  
Deputy Reeve John Kuerbis  
Councillor Lorne Hickey  
Councillor Mark Sayers  
Councillor Eric Van Essen  
Councillor Klaas VanderVeen  
Councillor Morris Zeinstra  
Chief Administrative Officer, Ann Mitchell  
Director of Community Services, Larry Randle  
Director of Public Operations, Jeremy Wickson  
Infrastructure Manager, Devon Thiele  
Manager of Finance & Administration, Jennifer Place  
Executive Assistant, Candice Robison

**A. CALL TO ORDER**

Reeve Tory Campbell called the meeting to order at 11:01 a.m.

**B. ADOPTION OF AGENDA**

The following items were added:

G.3.1. - Farming Smarter 10 Year Celebration Invitation

J.1. - Meeting Start Times Discussion

K.1. - Closed Session - ASB Member At Large Application Review - FOIP Section 19 - Confidential Evaluations

272-2022 Councillor MOVED that the October 20, 2022 Lethbridge County Council  
VanderVeen Meeting Agenda be adopted as amended.

CARRIED

**C. ADOPTION OF MINUTES**

**C.1. County Council Meeting Minutes**

273-2022 Deputy MOVED that the October 6, 2022 Lethbridge County Council Meeting  
Reeve Minutes be adopted as presented.  
Kuerbis

CARRIED

**D. SUBDIVISION APPLICATIONS**

**E. PUBLIC HEARINGS**

**G. DEPARTMENT REPORTS**

**G.1. MUNICIPAL SERVICES**

**G.1.1. 2022-23 Level of Service - Public Works Winter Maintenance Level of Service**

274-2022 Deputy Reeve Kuerbis That Council adopt the new Level of Service (LOS) Policy for Public Works Winter Maintenance, based on the budget approved for 2022 operations and subsequent budget for 2023.

CARRIED

**G.1.2. Bylaw 22-018 - Speed Limit Bylaw**

275-2022 Councillor Hickey MOVED that Item G.1.2 be tabled to allow the 11:30 a.m. delegation to present.

CARRIED

**F. DELEGATIONS**

**F.1. 11:30 a.m. - Mike Warkentin - Lethbridge & District Exhibition**

Mike Warkentin, Chief Executive Officer for the Lethbridge & District Exhibition was present to request funding towards project capital for the Agri-food Hub & Trade Centre.

276-2022 Councillor Sayers MOVED to direct administration to bring back a report regarding Lethbridge & District Exhibition's funding request to an upcoming council meeting.

CARRIED

Reeve Campbell recessed the meeting at 11:56 a.m.

Reeve Campbell reconvened the meeting at 1:00 p.m.

**G. DEPARTMENT REPORTS**

**G.1. MUNICIPAL SERVICES**

**G.1.2. Bylaw 22-018 - Speed Limit Bylaw**

277-2022 Councillor Hickey MOVED to lift item G.1.2 from the table.

CARRIED

278-2022 Councillor Van Essen MOVED that Bylaw 22-018 be read a first time.

CARRIED

**G.2. CORPORATE SERVICES**

**G.2.1. Audit Services Contract**

279-2022 Deputy Reeve Kuerbis MOVED that Council extends the appointment of KPMG LLP Chartered Accountants as the auditors for Lethbridge County to December 31, 2023, and that the extension included the 2023 audit which will take place in March and April of 2024.

CARRIED

**G.2.2. Assessment Overview Project Reallocation**

280-2022 Councillor Sayers MOVED to direct administration to bring back a further report on the Assessment Overview Project to a future Council meeting.

CARRIED

**G.3. ADMINISTRATION**

**G.3.1. Farming Smarter 10 Year Celebration Invitation**

281-2022 Deputy Reeve Kuerbis MOVED that any member of Council wishing to attend the Farming Smarter 10 Year Celebration on November 4 at the Norland Historic Estates be authorized to do so. CARRIED

**G.4. COMMUNITY SERVICES**

**G.5. INFRASTRUCTURE**

**H. CORRESPONDENCE**

**H.1. Coaldale & District Emergency Service Awards Ceremony Invitation**

282-2022 Deputy Reeve Kuerbis MOVED that any member of Council wishing to attend the Coaldale & District Emergency Services Awards Ceremony on November 26 at the Gem of the West Museum be authorized to do so. CARRIED

**I. COUNTY COUNCIL AND COMMITTEE UPDATES**

**I.1. Lethbridge County Council Attendance Update - September 2022**

Council reviewed the highlights from the Lethbridge County Council Attendance Update for September 2022.

**Division 1  
Councillor Lorne Hickey**

- September 1 Lethbridge County Council Meeting
- September 7 FCSS Meeting
- September 8 Agricultural Service Board Meeting
- September 10 Iron Springs Parade
- September 15 Lethbridge County Council Meeting
- September 16 Foothills Little Bow Municipal Association
- September 16 Employee Recognition Night
- September 21 Green Acres Finance Meeting
- September 28 Green Acres Board Meeting
- September 28 KAIROS Blanket Exercise

**Division 2  
Reeve Tory Campbell**

- September 1 Lethbridge County Council Meeting
- September 2 Exhibition Park, Ownership Engagement Committee Meeting
- September 8 Agricultural Service Board Meeting
- September 14 Meeting with ASBG Executive Director, Melody Garner-Skiba
- September 15 Lethbridge County Council Meeting
- September 16 Employee Recognition Night
- September 19 RMA Members Virtual Townhall on LGFF & APPS
- September 22 Media, Re: Physician Attraction/Retention
- September 22 Emergency Program Exercise
- September 23 CAO/Reeve Meeting
- September 26 Truth and Reconciliation Survivors Flag Raising
- September 26 Vulcan County Virtual Meeting, Re: EMS Servicing
- September 26 Federal Electoral Boundary Redistribution Public Hearing
- September 28 KAIROS Blanket Exercise
- September 29 Team Lethbridge Mission Planning Meeting

**Division 3**  
**Councillor Mark Sayers**

September 1	Lethbridge County Council Meeting
September 8	Agricultural Service Board Meeting
September 15	Lethbridge County Council Meeting
September 22	Emergency Program Exercise
September 29	SouthGrow Board Meeting

**Division 4**  
**Deputy Reeve John Kuerbis**

September 1	Lethbridge County Council Meeting
September 8	Agricultural Service Board Meeting
September 12	Lethbridge Regional Waste Management Meeting
September 13	Lethbridge County/Town of Coalhurst IDP
September 15	Lethbridge County Council Meeting
September 21	Community Futures Monthly Meeting

**Division 5**  
**Councillor Eric Van Essen**

September 1	Lethbridge County Council Meeting
September 8	Agricultural Service Board Meeting
September 15	Lethbridge County Council Meeting
September 16	Employee Recognition Night

**Division 6**  
**Councillor Klaas VanderVeen**

September 1	Lethbridge County Council Meeting
September 8	Boundary Changes Round Table
September 8	Agricultural Service Board Meeting
September 12	Lethbridge Regional Waste Management Meeting
September 13	Lethbridge County/Town of Coalhurst IDP
September 15	Lethbridge County Council Meeting

**Division 7**  
**Councillor Morris Zeinstra**

September 1	Lethbridge County Council Meeting
September 8	Agricultural Service Board Meeting
September 10	Iron Springs Parade
September 13	Lethbridge County/Town of Coalhurst IDP
September 15	Lethbridge County Council Meeting
September 16	Foothills Little Bow Municipal Association
September 16	Employee Recognition Night
September 22	Emergency Program Exercise
September 28	KAIROS Blanket Exercise

**J. NEW BUSINESS**

**J.1. Meeting Start Times Discussion**

283-2022	Councillor Van Essen	MOVED to adopt a 9:00 a.m. start time for all meetings of Council.	CARRIED
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**K. CLOSED SESSION**

***K.1. - ASB Member at Large Application Review (FOIP Section 19 - Confidential Evaluations)***

284-2022 Councillor Sayers MOVED that the Lethbridge County Council Meeting move into Closed Session, pursuant to Section 197 of the *Municipal Government Act*, the time being 1:50 p.m. for the discussion on the following:

K.1. - ASB Member at Large Application Review (FOIP Section 19 - Confidential Evaluations)

Present during the Closed Session:  
Lethbridge County Council  
Senior Management  
Administrative Staff  
CARRIED

285-2022 Councillor VanderVeen MOVED that the Lethbridge County Council Meeting move out of the closed session at 2:18 p.m.

CARRIED

***K.1. ASB Member at Large Application Review (FOIP Section 19 - Confidential Evaluations)***

286-2022 Councillor Sayers MOVED that Ken Coles, Dan Chapman and Logan Miller be appointed as the Agricultural Service Board members-at-large.

CARRIED

287-2022 Deputy Reeve Kuerbis MOVED that Wilf Scholten be appointed to the Act Appeals Committee.

CARRIED

**L. ADJOURN**

288-2022 Councillor Zeinstra MOVED that the Lethbridge County Council Meeting adjourn at 2:20 p.m.

CARRIED

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO





# MINUTES

## Organizational Meeting

9:30 AM - Thursday, October 20, 2022  
Council Chambers

The Organizational Meeting of the Lethbridge County was called to order on Thursday, October 20, 2022, at 9:30 AM, in the Council Chambers, with the following members present:

**PRESENT:** Lorne Hickey  
Tory Campbell  
Mark Sayers  
John Kuerbis  
Eric Van Essen  
Klaas VanderVeen  
Morris Zeinstra  
Chief Administrative Officer, Ann Mitchell  
Director of Community Services, Larry Randle  
Director of Public Operations, Jeremy Wickson  
Infrastructure Manager, Devon Thiele  
Manager of Finance & Administration, Jennifer Place  
Executive Assistant, Candice Robison  
Municipal Intern – Finance, Jeremy Vander Meulen

**EXCUSED:**

**A. CALL TO ORDER BY CHIEF ADMINISTRATIVE OFFICER**

Chief Administrative Officer Ann Mitchell called the meeting to order at 9:30 a.m.

**B. VOTING PROCEDURES**

**B.1. Nominations and Voting by Secret Ballot**

261-2022 Councillor Hickey MOVED that Council utilize the voting procedures of secret ballot when there is more than the required number of nominations for the Office of Reeve, Deputy Reeve and Committees.

CARRIED

Seconded by John Kuerbis

**B.2. Destruction of Ballots**

262-2022 Councillor Sayers MOVED that all the ballots are destroyed at the end of the meeting.

CARRIED

Seconded by Lorne Hickey

**B.3. Appointment of Scrutineers**

263-2022 Councillor Kuerbis MOVED that Council appoint Larry Randle, Director of Community Services and Jennifer Place, Manager of Finance and Administration as Scrutineers.

CARRIED

Seconded by Klaas VanderVeen

**C. ELECTION OF REEVE FOR ENSUING YEAR AND OATH OF OFFICE**

CAO Ann Mitchell explained the next item on the agenda would be the nomination and election of the Reeve for the ensuing year and called for nominations for Reeve by Secret Ballot.

Nominations were taken by secret ballot, and CAO Ann Mitchell declared that there were three nominations for Reeve: Tory Campbell, Klaas VanderVeen, John Kuerbis.

Tory Campbell accepted the nomination. Klaas VanderVeen and John Kuerbis declined.

CAO Ann Mitchell declared that Tory Campbell is elected Reeve for the 2022/2023 year.

**C.1. Appointment of Reeve**

264-2022 Councillor MOVED that Tory Campbell be appointed as Reeve of Lethbridge VanderVeen County for the 2022/2023 year.

CARRIED

The Oath of Office was administered by Candice Robison, Commissioner of Oaths to Reeve Tory Campbell for the 2022/2023 year.

**D. ELECTION OF DEPUTY REEVE FOR ENSUING YEAR AND OATH OF OFFICE**

Reeve Tory Campbell explained the next item on the agenda would be the nomination and election of the Deputy Reeve for the ensuing year and called for nominations for Deputy Reeve by Secret Ballot.

Nominations were taken by secret ballot, and Reeve Tory Campbell declared that there were three nominations for Deputy Reeve: Lorne Hickey, Klaas VanderVeen and John Kuerbis.

John Kuerbis and Klaas VanderVeen accepted their nominations. Lorne Hickey declined.

Ballots were distributed to Council who then voted by secret ballot for the office of Deputy Reeve.

Reeve Tory Campbell declared that the majority of votes were for John Kuerbis who is elected Deputy Reeve for the 2022/2023 year.

**D.1. Appointment of Deputy Reeve**

265-2022 Councillor MOVED that John Kuerbis be appointed as Deputy Reeve of Hickey Lethbridge County for the 2022/2023 year.

CARRIED

The Oath of Office were administered by Candice Robison, Commissioner of Oaths to Deputy Reeve John Kuerbis for the 2022/2023 year.

**E. APPOINTMENT OF INTERNAL COMMITTEES**

**Voting Required for each Committee Voting Required for each Committee**

**E.1. *Agricultural Service Board (At Least 4 Members of Council & up to 3 Public Members)***

***Members: Klaas, Lorne, John, Eric***

**E.2. *Audit Committee (3 Members)***

***Members: Lorne, John, Eric***

**E.3. *Emergency Advisory Committee (3 Members)***

***Members: Mark, John, Eric***

266-2022 Councillor VanderVeen MOVED that County Council confirm the results of the Council Internal Committee appointments for 2022-2023.

CARRIED

**F. REPRESENTATIVE FOR EXTERNAL COMMITTEES**

**No Voting Required No Voting Required**

**F.1. ASB Delegates with Voting Privileges (2 Members + 1 Alternate)  
Members: Lorne, Klaas**

267-2022 Deputy Reeve Kuerbis MOVED that the two current ASB Delegates with voting privileges, being Lorne Hickey and Klaas VanderVeen, remain in place until the next ASB meeting when the board can revisit the ASB delegates at that time.

CARRIED

**F.2. FCSS (1 Member)  
Member: Lorne**

**F.3. Chinook Arch Regional Library System (1 Member)  
Member: Tory**

**F.4. Coaldale Chamber of Commerce (1 Member)  
Member: Mark**

**F.5. Community Futures (1 Member)  
Member: John**

**F.6. County of Lethbridge Co-op Seed Cleaning Plant (1 Member)  
Member: Morris**

**F.7. Economic Development Lethbridge (1 Member)  
Member: Tory**

**F.8. Foothills Little Bow - Director (1 Member)  
Member:**

**F.9. Green Acres Foundation (1 Member)  
Member: Lorne**

**F.10. Highway 3 Twinning (1 Member + 1 Alternate)  
Member: Eric, John (Alternate)**

**F.11. Intermunicipal Committee - City of Lethbridge (3 Members)  
Member: Tory, Lorne, John**

**F.12. Intermunicipal Committee - Coaldale (3 Members)  
Member: Tory, Lorne, Mark**

**F.13. Intermunicipal Committee - Coalhurst (3 Members)  
Member: Klaas, John, Morris**

**F.14. Intermunicipal Committee - Picture Butte (3 Members)  
Member: Klaas, Eric, Morris**

**F.15. Lethbridge & District Exhibition (1 Member)  
Member: Tory**

**F.16. Lethbridge Regional Water Commission (2 Members)  
Member: Mark, John**

**F.17. ORRSC (1 Member)  
Member: Morris**

**F.18. SAEWA (1 Member)  
Member: Klaas**

268-2022 Councillor Hickey MOVED that County Council confirm the results of the Council External Committee appointments F.2 - F.18 for 2022-2023 and that F.8 - Foothills Little Bow Municipal Association remain vacant until further information is received.

CARRIED

**G. REPRESENTATIVE FOR EXTERNAL COMMITTEES**

**Voting Required for each Committee Voting Required for each Committee**

**G.1. County Irrigation & AIPA (2 Members)**

**Members: Klaas, Morris**

**G.2. Intermunicipal Committee - Barons (1 Member)**

**Member: Morris**

**G.3. Intermunicipal Committee - Nobleford (3 Members)**

**Members: Eric, Morris, John**

**G.4. Lethbridge Regional Waste Commission (2 Members)**

**Members: Klaas, John**

**G.5. Malloy Drain Steering Committee (2 Members + 1 Alternate)**

**Members: Tory, Lorne, Mark (Alternate)**

**G.6. Picture Butte Chamber of Commerce (1 Member)**

**Member: Eric**

**G.7. SouthGrow (1 Member)**

**Member: Mark**

**G.8. Southern Regional Stormwater Drainage Committee (1 Member + 1 Alternate)**

**Members: Tory, Eric (Alternate)**

269-2022 Councillor Zeinstra MOVED that County Council confirm the results of the Council External Committee appointments G.1 - G.8 for 2022-2023  
CARRIED

**I. APPOINTMENT OF OFFICIALS**

**I.1. Acts Appeal Committee (Soil Conservation, Weed & Pest Control Appeal Committee (4 Members at Large)**

270-2022 Deputy Reeve Kuerbis MOVED that County Council appoint the following Members-at-Large to the Acts Appeal Committee (Soil Conservation, Weed & Pest Control Appeal Committee): Bryan Harbers, Rob Van Diemen and Steve Campbell beginning January 1, 2023.  
CARRIED

**J. ADJOURN**

271-2022 Councillor Zeinstra MOVED that the Lethbridge County Council Meeting adjourn at 10:21 p.m.  
CARRIED

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

# AGENDA ITEM REPORT



**Title:** Subdivision Application #2022-0-147 – Double O Farms  
- N1/2 11-9-19-W4M  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** ORRSC  
**Report Author:** Steve Harty

## APPROVAL(S):

Hilary Janzen, Supervisor of Planning & Development	Approved - 20 Oct 2022
Larry Randle, Director of Community Services,	Approved - 20 Oct 2022
Ann Mitchell, Chief Administrative Officer,	Approved - 20 Oct 2022

## STRATEGIC ALIGNMENT:

 <b>Governance</b>	 <b>Relationships</b>	 <b>Region</b>	 <b>Prosperity</b>
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## EXECUTIVE SUMMARY:

The application is to reconfigure two adjacent ¼-section boundaries within the N½-11-9-19-W4 comprising a total of 272.80-acres by subdividing and consolidating land thereby creating agricultural titles 200.82 & 71.98-acres respectively in size. The proposal meets the subdivision criteria of the Land Use Bylaw.

## RECOMMENDATION:

That S.D. Application #2022-0-147 be approved subject to the conditions as outlined in the draft resolution.

## REASON(S) FOR RECOMMENDATION(S):

The proposed subdivision meets the provincial Subdivision and Development Regulations and the municipal reconfiguration of title subdivision policies as stated in the Land Use Bylaw.

## PREVIOUS COUNCIL DIRECTION / POLICY:

- LUB No. 1404 contains subdivision for a realignment/reconfiguration of titles and property lines provided there is not an increase in titles of what would normally be permitted.
- The LUB No. 1404 realignment/reconfiguration of titles policy enables land boundaries to be realigned based on topography, constraints, use, access, and the rationale of the land swap, with consideration for the final minimum parcel sizes being met.
- The resulting agricultural parcel sizes both comply with the land use bylaw’s minimum size stipulations of 70-acres where there are exceptions on title.

- The Subdivision Authority has the ability to impose a condition that the subdivided land be consolidated by a registered plan of survey so it cannot be resubdivided without the Subdivision Authority approval.

**BACKGROUND INFORMATION:**

Located adjacent and east of Highway 512, approximately 1/2-mile due west of the Stafford Reservoir. The proposal is to enable a land reconfiguration between the two adjacent agricultural 1/4-sections and align the boundary to the division of the irrigated cultivated land and the pastureland.

A canal R/W ditch (South Malloy Drain) intersects the southern pasture portion of the N1/2-section and fragments the agricultural land. There is an established farmyard with a dwelling and other various improvements located on the very west end of the proposed southern 71.98-acre title. The yard area is built up from ditch/drain and has not historically experienced any flooding. There are no buildings on the north agricultural portion. As a result of the reconfiguration, the north agricultural parcel will be enlarged to 200.82-acres of irrigated, cultivated land. Access is unaffected and will remain from the west Highway 512 for the yard, and from the north municipal road (Township Road 9-2) for the north agricultural parcel. There is also an undeveloped road allowance along the east side. An agricultural bridge crossing is in place over the R/W canal/drain to provide physical access to the rear pastureland. The N1/2-section is already affected by the registration of a canal drain right-of-way, excepted from the titled land area, and this situation will not change with the reconfiguration. There is an abandoned gas well located on the pastureland just on the north-side of the canal R/W, but it will not be impacted by the subdivision reconfiguration.

Overall, the proposal meets the criteria of the County's Land Use Bylaw No. 1404 for a reconfiguration/realignment of titles or boundaries subdivision and the Rural Agriculture land use district standards. The application was circulated to the required external agencies with no concerns expressed and no utility easements are requested. Alberta Transportation has no objections. The land is identified as potentially containing Historical Resources of a category HRV 5 but the province determined that in this instance *Historical Resources Act* approval is not necessary, and submission of a Historic Resources application is not required.

**ALTERNATIVES / PROS / CONS:**

The Subdivision Authority could decide to not approve if it is determined the proposed reconfiguration is not suitable and the titles would remain as is.

Pros:

- there are no advantages to denying the subdivision as the County's bylaws are met and the minimum agricultural parcel size is exceeded

Cons:

- the agricultural land titles will not follow the physical use of the actual cultivated and pasture agricultural land, and a refusal would likely be appealed by the applicants

**FINANCIAL IMPACT:**

None, and the existing tax situation will remain the same.

**LEVEL OF PUBLIC PARTICIPATION:**

- Inform
  Consult
  Involve
  Collaborate
  Empower

**ATTACHMENTS:**

[5A 2022-0-147 Lethbridge County APPROVAL  
Diagrams for Lethbridge County 2022-0-147](#)

## RESOLUTION

2022-0-147

**Lethbridge County**                      **Agricultural** subdivision of N1/2 11-9-19-W4M

THAT the Agricultural subdivision of N1/2 11-9-19-W4M (Certificate of Title No. 841 047 255A), to reconfigure two adjacent ¼-sections boundaries within the N½-11-9-19-W4 comprising a total of 272.80-acres (110.40 ha) by subdividing and consolidating land thereby creating agricultural titles 200.82 & 71.98-acres (81.27 & 29.13 ha) respectively in size; BE APPROVED subject to the following:

### CONDITIONS:

1. That, pursuant to Section 654(1)(d) of the Municipal Government Act, all outstanding property taxes shall be paid to Lethbridge County.
2. That, pursuant to Section 655(1)(b) of the Municipal Government Act, the applicant or owner or both enter into and comply with a Development Agreement with Lethbridge County which shall be registered concurrently with the final plan against the title(s) being created.
3. That the titles and portions of land to be subdivided and consolidated to reconfigure the boundaries (property line) of the two (2) adjacent agricultural parcels be done by a plan prepared by a certified Alberta Land Surveyor in a manner such that the resulting titles cannot be further subdivided without approval of the Subdivision Authority.
4. That any easement(s) as required by utility companies or the municipality shall be established.

### REASONS:

1. The proposed subdivision is consistent with the South Saskatchewan Regional Plan and complies with both the Municipal Development Plan and Land Use Bylaw.
2. The Subdivision Authority is satisfied that the proposed subdivision with a consolidation is suitable for the purpose for which the subdivision is intended pursuant to Section 9 of the Matters Related to Subdivision and Development Regulation.
3. The subdivision proposal conforms to the County's subdivision criteria as a realignment/reconfiguration of titles without an increase in titles of what would normally be permitted in the N½ of the section. The resulting agricultural parcel sizes both comply with the land use bylaw's minimum size stipulations of 70-acres where there are exceptions on title.
4. The N½ of 11-9-19-W4M is already affected by the registration of a canal drain right-of-way, excepted from the titled land area, and this situation will not change with the reconfiguration.

### INFORMATIVE:

- (a) Since the proposed subdivision complies with Section 663(b) of the Municipal Government Act, Reserve is not required.
- (b) That a legal description for the proposed parcel be approved by the Surveys Branch, Land Titles Office, Calgary.
- (c) The applicant/owner is advised that other municipal, provincial or federal government or agency approvals may be required as they relate to the subdivision and the applicant/owner is responsible for verifying and obtaining any other approval, permit, authorization, consent or license that may be required to subdivide, develop and/or service the affected land (this may include but is not limited to Alberta Environment and Parks, Alberta Transportation, and the Department of Fisheries and Oceans.)
- (d) Telus Communications Inc has no objection.

2022-0-147  
Page 1 of 3



- (e) Thank you for contacting FortisAlberta regarding the above application for subdivision. We have reviewed the plan and determined that no easement is required by FortisAlberta.

FortisAlberta is the Distribution Wire Service Provider for this area. The developer can arrange installation of electrical services for this subdivision through FortisAlberta. Please have the developer contact 310-WIRE (310-9473) to make application for electrical services.

Please contact FortisAlberta land services at [landserv@fortisalberta.com](mailto:landserv@fortisalberta.com) or by calling (403) 514-4783 for any questions.

- (f) In reference to the above request, please be advised of ATCO Gas' response and notify the landowner of the following:

ATCO Gas has no objection

ATCO Gas would also like to make the MD/County and Landowner/Developer aware of the following:

- If conducting any ground disturbance on the subject property, the landowner/developer must ensure the location of all utilities by contacting Utility Safety Partners at 1-800-242-3447 or <https://utility-safety.ca/>
- For any ground disturbance within 30m of an existing gas line please contact [Crossings@atcogas.com](mailto:Crossings@atcogas.com) to obtain permission (submit locate slip as back up)
- ATCO Gas requires a minimum of 6 months' notice to design and construct a new gas line, or alter an existing gas line. New Service installations, pipeline alterations, and Main extensions will be performed at the landowner/developers expense.
- If the landowner requires a single gas service please visit <https://gas.atco.com/en-ca/products-services-rates/new-services-changes/new-natural-gas-line.html>

Any further questions please email [southlandadmin@atco.com](mailto:southlandadmin@atco.com).

- (g) Alberta Health Services has no objection.

- (h) Alberta Transportation – Leah Olsen, Development/Planning Technologist:

"This will acknowledge receipt of your circulation regarding the above noted proposal. The subsequent subdivision application would be subject to the requirements of Sections 18 and 19 of the Matters Related to Subdivision and Development Regulation (The Regulation), due to the proximity of Highway(s) 512.

Alberta Transportation offers the following comments with respect to this application:

The requirements of Section 18 are met, therefore no variance is required. While no variance is required, the department expects the municipality will mitigate the impacts from this proposal to the highway system, pursuant to Policy 7 of the Provincial Land Use Policies and Section 648(2)(c.2) of the Municipal Government Act.

The requirements of Section 19 of the Regulation are not met. Notwithstanding the foregoing, the applicant is advised that no additional direct access to highway will be allowed as a result of this application and the existing direct access could remain on a temporary basis for limited agricultural purposes only.

Alberta Transportation has the following additional comments and/or requirements with respect to this proposal:

1. The department expects that the municipality will mitigate the impacts of traffic generated by developments approved on the local road connections to the highway system, pursuant to Policy 7 of the Provincial Land Use Policies and Section 618.4 of the Municipal Government Act."

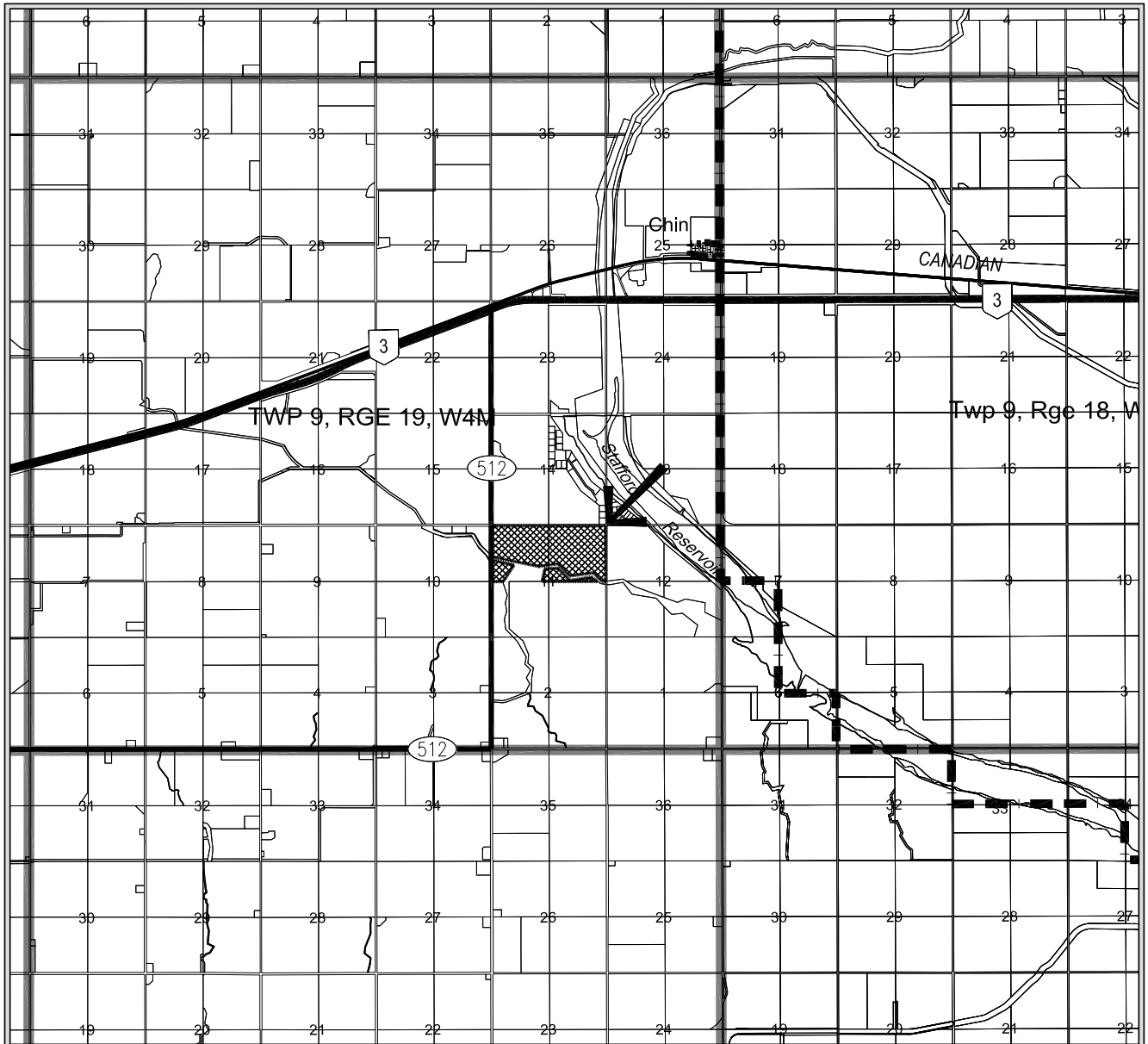
(i) Historical Resources – Barry Newton, Land Use Planner:

“We have reviewed the captioned subdivision application and determined that in this instance formal *Historical Resources Act* approval is not necessary, and submission of a Historic Resources application is not required.”

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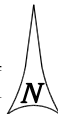


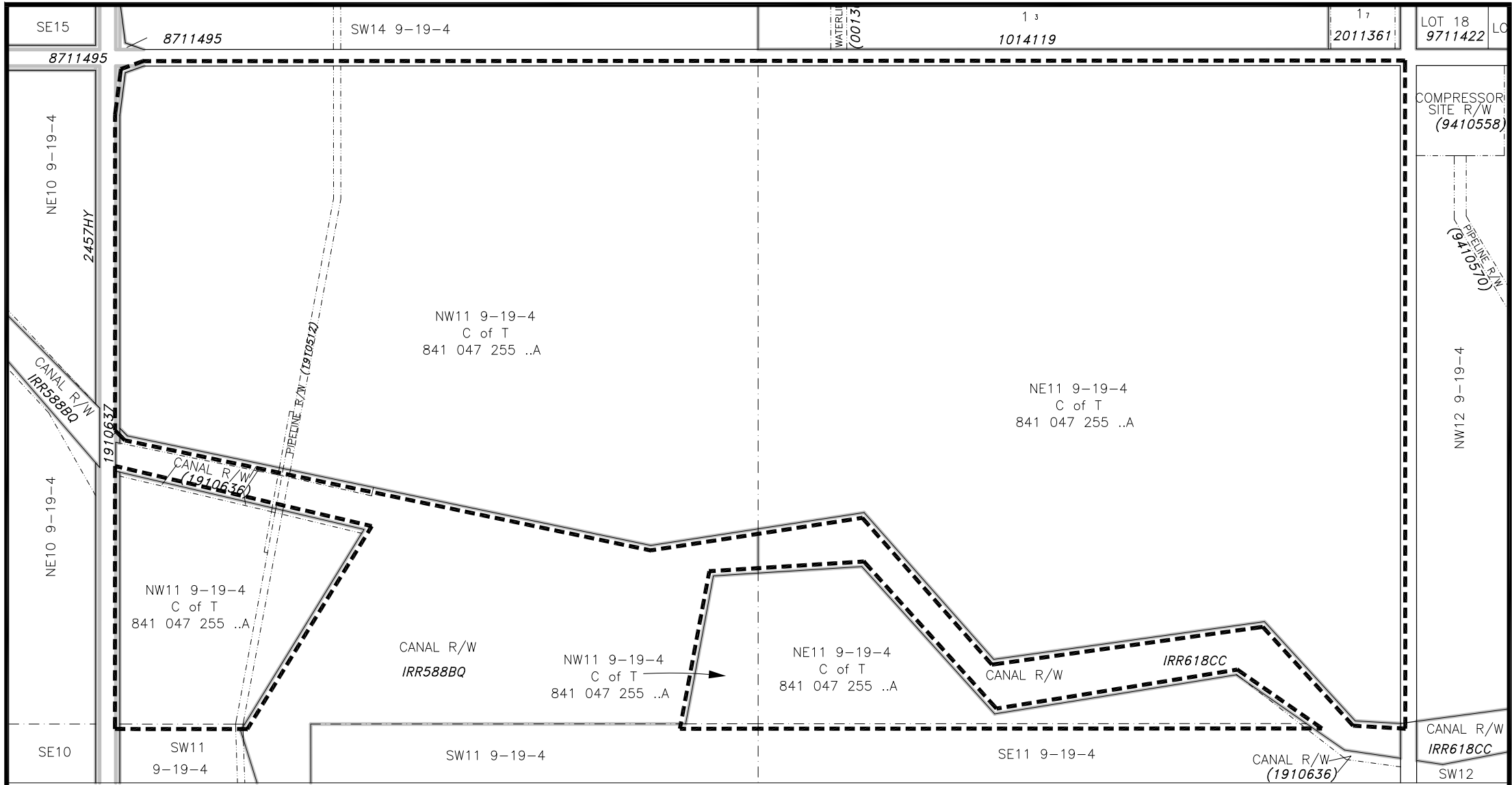
**SUBDIVISION LOCATION SKETCH**  
**WITHIN N 1/2 SEC 11, TWP 9, RGE 19, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: SEPTEMBER 12, 2022**  
**FILE No: 2022-0-147**

MAP PREPARED BY:  
 OLDMAN RIVER REGIONAL SERVICES COMMISSION  
 3715 18th AVENUE NORTH, LETHBRIDGE, AB T1V 2E2  
 \*NOT RESPONSIBLE FOR ERRORS OR OMISSIONS\*



September 13, 2022 N:\Subdivision\2022\2022-0-147.dwg



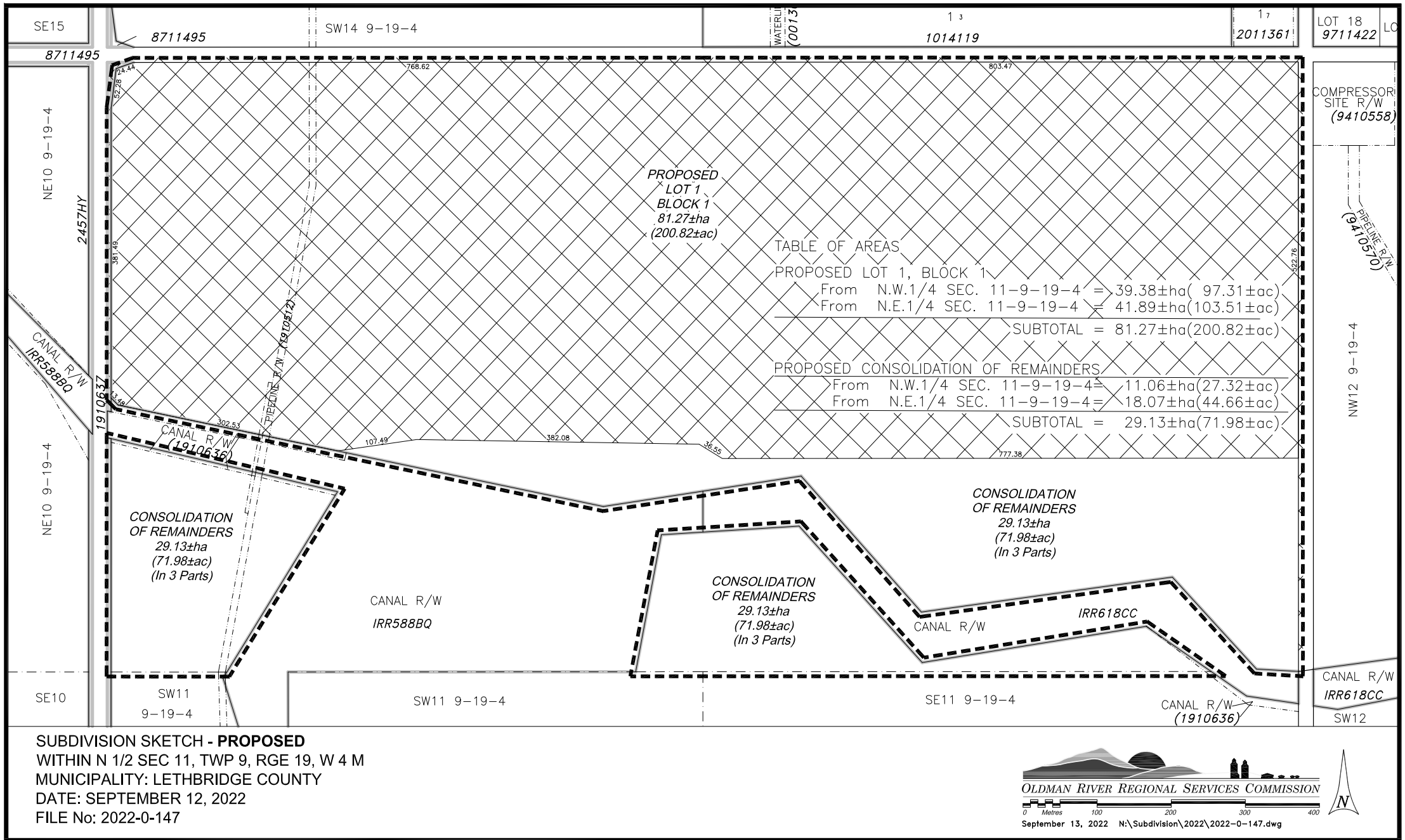


**SUBDIVISION SKETCH - EXISTING**  
 WITHIN N 1/2 SEC 11, TWP 9, RGE 19, W 4 M  
 MUNICIPALITY: LETHBRIDGE COUNTY  
 DATE: SEPTEMBER 12, 2022  
 FILE No: 2022-0-147

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 Metres 100 200 300 400

September 13, 2022 N:\Subdivision\2022\2022-0-147.dwg



PROPOSED  
 LOT 1  
 BLOCK 1  
 81.27±ha  
 (200.82±ac)

TABLE OF AREAS		
PROPOSED LOT 1, BLOCK 1		
From N.W.1/4 SEC. 11-9-19-4	=	39.38±ha (97.31±ac)
From N.E.1/4 SEC. 11-9-19-4	=	41.89±ha (103.51±ac)
		SUBTOTAL = 81.27±ha (200.82±ac)

PROPOSED CONSOLIDATION OF REMAINDERS		
From N.W.1/4 SEC. 11-9-19-4	=	11.06±ha (27.32±ac)
From N.E.1/4 SEC. 11-9-19-4	=	18.07±ha (44.66±ac)
		SUBTOTAL = 29.13±ha (71.98±ac)

CONSOLIDATION  
 OF REMAINDERS  
 29.13±ha  
 (71.98±ac)  
 (In 3 Parts)

CONSOLIDATION  
 OF REMAINDERS  
 29.13±ha  
 (71.98±ac)  
 (In 3 Parts)

**SUBDIVISION SKETCH - PROPOSED**  
 WITHIN N 1/2 SEC 11, TWP 9, RGE 19, W 4 M  
 MUNICIPALITY: LETHBRIDGE COUNTY  
 DATE: SEPTEMBER 12, 2022  
 FILE No: 2022-0-147





PROPOSED  
LOT 1,  
BLOCK 1  
81.27±ha  
(200.82±ac)

TABLE OF AREAS

PROPOSED LOT 1, BLOCK 1

From N.W.1/4 SEC. 11-9-19-4	=	39.38±ha( 97.31±ac)
From N.E.1/4 SEC. 11-9-19-4	=	41.89±ha(103.51±ac)
		<b>SUBTOTAL = 81.27±ha(200.82±ac)</b>

PROPOSED CONSOLIDATION OF REMAINDERS

From N.W.1/4 SEC. 11-9-19-4	=	11.06±ha(27.32±ac)
From N.E.1/4 SEC. 11-9-19-4	=	18.07±ha(44.66±ac)
		<b>SUBTOTAL = 29.13±ha(71.98±ac)</b>

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OF REMAINDERS  
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(71.98±ac)  
(In 3 Parts)

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OF REMAINDERS  
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(In 3 Parts)

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OF REMAINDERS  
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(71.98±ac)  
(In 3 Parts)

**SUBDIVISION SKETCH - PROPOSED**  
 WITHIN N 1/2 SEC 11, TWP 9, RGE 19, W 4 M  
 MUNICIPALITY: LETHBRIDGE COUNTY  
 DATE: SEPTEMBER 12, 2022  
 FILE No: 2022-0-147

AERIAL PHOTO DATE: 2018

OLDMAN RIVER REGIONAL SERVICES COMMISSION

September 13, 2022 N:\Subdivision\2022\2022-0-147.dwg

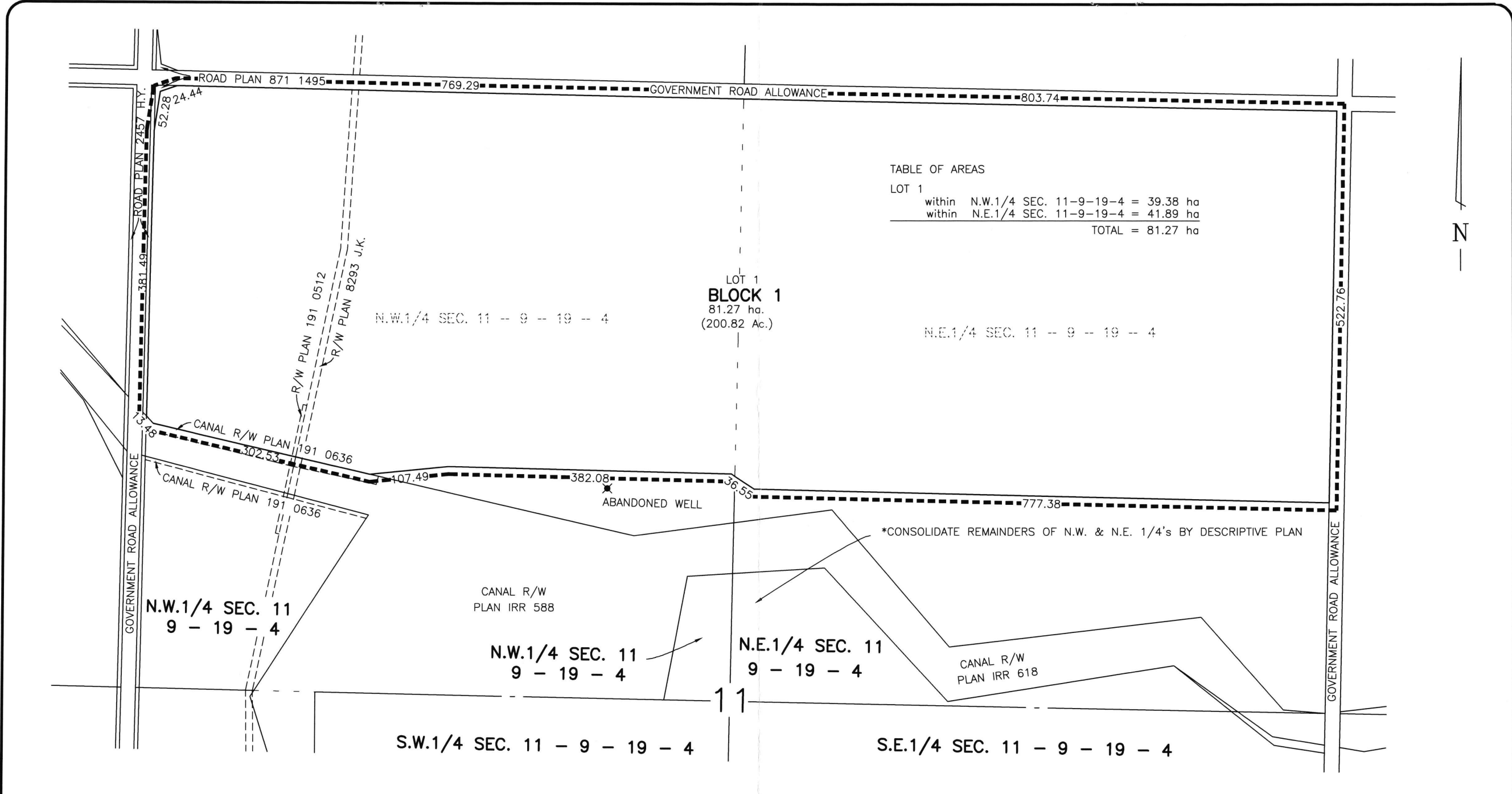


TABLE OF AREAS

LOT 1	within N.W.1/4 SEC. 11-9-19-4	= 39.38 ha
	within N.E.1/4 SEC. 11-9-19-4	= 41.89 ha
	<b>TOTAL</b>	<b>= 81.27 ha</b>

LOT 1  
**BLOCK 1**  
81.27 ha.  
(200.82 Ac.)

\*CONSOLIDATE REMAINDERS OF N.W. & N.E. 1/4's BY DESCRIPTIVE PLAN

1	ADDED ABANDONED WELL	SEPT 2/22	MJ
NO.	REVISION	DATE	BY

NOTE : Portion to be approved is outlined thus **-----** and contains approximately 81.27 ha. Distances are in metres and decimal parts thereof. Distances and areas are approximate and are subject to change upon final survey.

**DOUBLE O FARMS LTD.**

TENTATIVE PLAN SHOWING SUBDIVISION  
of part of  
N.1/2 SEC. 11, TWP. 9, RGE. 19, W.4 M.

Lethbridge County



**brown okamura & associates ltd.**  
Professional Surveyors  
2830 - 12 Avenue North, Lethbridge, Alberta

APPROVED  Z.J. Prosper, A.L.S.	DRAWN MJ	DATE AUG 22/22
	CHECKED ZJP	JOB 22-15735
	SCALE 1:5000	DRAWING 22-15735TA

# AGENDA ITEM REPORT



**Title:** Subdivision Application #2022-0-152 – Lethbridge County  
- Block 11, Plan 6510AE within NW1/4 6-10-21-W4M (Hamlet of Diamond City)

**Meeting:** Council Meeting - 03 Nov 2022

**Department:** ORRSC

**Report Author:** Steve Harty

## APPROVAL(S):

Hilary Janzen, Supervisor of Planning & Development	Approved - 20 Oct 2022
Larry Randle, Director of Community Services,	Approved - 20 Oct 2022
Ann Mitchell, Chief Administrative Officer,	Approved - 20 Oct 2022

## STRATEGIC ALIGNMENT:

 <b>Governance</b>	 <b>Relationships</b>	 <b>Region</b>	 <b>Prosperity</b>
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## EXECUTIVE SUMMARY:

The application is to subdivide an existing 3.81-acre title and create a 0.72-acre (or 157 x 199 ft.), sized lot for hamlet public-institutional (community hall) use. The proposal meets the subdivision criteria of the Land Use Bylaw.

## RECOMMENDATION:

That S.D. Application #2022-0-152 be approved subject to the conditions as outlined in the draft resolution.

## REASON(S) FOR RECOMMENDATION(S):

The subdivision meets the Hamlet Public/Institutional land use district standards, the provincial Subdivision and Development Regulations, the hamlet growth study strategy, and the municipal subdivision policies as stated in the Land Use Bylaw.

## PREVIOUS COUNCIL DIRECTION / POLICY:

- Lethbridge County has entered into an agreement with the Diamond City Citizens Association to take ownership of the land and building the community hall is sited on.
- The parcel is designated as Hamlet Public/Institutional (HP/I) and the lot sizes are at the discretion of the Subdivision Authority as deemed appropriate for the use.
- Lethbridge County installed water and sewage infrastructure in Diamond City and this subdivision is possible with the municipal services in the hamlet.
- This application supports the County’s hamlet growth initiatives and strategies to support community and public-institutional uses and services in the hamlet.



**BACKGROUND INFORMATION:**

The lot is located within the Hamlet of Diamond City, at the corner of Underwood Ave and 3 St. The purpose is to subdivide the 0.72-acre site containing the community hall, situated in the very northwest corner, to facilitate a land transfer from the County to the hamlet citizen (community) association.

The parent parcel title is owned by Lethbridge County and is a multi-use site containing the hamlet community hall, a playground, and a utility (water fill-station). The County will retain ownership of the larger remnant 3.09-acre parcel containing municipal infrastructure. The area to be included in the 0.72-acre subdivision encompasses the hall and the graveled parking lot on the east side of the building. The lot for the hall will continue to have direct access to the north Underwood Ave. The community hall has access to the hamlet municipal water and sewer service.

The proposal meets the requirements of the Land Use Bylaw Hamlet Public/Institutional (HP/I) land use district. As the title is owned by Lethbridge County, the subdivision may be approved with minimal conditions.

The application was circulated to the required external agencies with no concerns expressed and no utility easements are requested (at time of agenda report). The land area is identified by the province has potentially containing a Historical Resource category 5ap. However, the Historical Resource Administrator has indicated that they have reviewed the application and determined that in this instance formal *Historical Resources Act* approval is not necessary, and submission of a Historic Resources application is not required.

**ALTERNATIVES / PROS / CONS:**

The Subdivision Authority could decide to not approve and the parcel would remain as is.

Pros:

- there are no advantages to denying the subdivision as it meets the subdivision criteria of the County

Cons:

- this would negate on the County's agreement with the hamlet citizens association and result in the community hall continuing to be located on a land title owned by Lethbridge County

**FINANCIAL IMPACT:**

None direct, other than the County's time and cost associated with the land transfer.

**LEVEL OF PUBLIC PARTICIPATION:**

- Inform     Consult     Involve     Collaborate     Empower

**ATTACHMENTS:**

[5A 2022-0-152 Lethbridge County APPROVAL Diagrams for Lethbridge County 2022-0-152](#)

## RESOLUTION

2022-0-152

**Lethbridge County**

**Hamlet Public Institutional** subdivision of Block 11, Plan 6510AE within NW1/4 6-10-21-W4M

THAT the Hamlet Public Institutional subdivision of Block 11, Plan 6510AE within NW1/4 6-10-21-W4M (Certificate of Title No. 861 006 496), to subdivide an existing title 3.81-acres (1.54 ha) in size and create a 0.72-acre (0.297 ha), or 157 x 199 ft., sized lot for hamlet public-institutional use; BE APPROVED subject to the following:

### CONDITIONS:

1. That a final plan of survey be prepared by an Alberta Land Surveyor to create the 0.72-acre lot for final endorsement and registration.
2. That any easement(s) as required by the utility agencies or the municipality shall be established.

### REASONS:

1. The proposed subdivision is consistent with the South Saskatchewan Regional Plan and complies with both the Municipal Development Plan and Land Use Bylaw.
2. The Subdivision Authority is satisfied that the proposed subdivision is suitable for the purpose for which the subdivision is intended pursuant to Section 9 of the Matters Related to Subdivision and Development Regulation.
3. The parcel is designated as Hamlet Public/Institutional (HP/I) and the lot sizes are at the discretion of the Subdivision Authority as deemed appropriate for the use.
4. This subdivision is possible with the provision of municipal water and sewage in the hamlet.

### INFORMATIVE:

- (a) With respect to Section 663 of the Municipal Government Act, Reserve is not required as Block 11, Plan 6510AE is designated Hamlet Public/Institutional and is used as public community park space.
- (b) That a legal description for the proposed parcel be approved by the Surveys Branch, Land Titles Office, Calgary.
- (c) The applicant/owner is advised that other municipal, provincial or federal government or agency approvals may be required as they relate to the subdivision and the applicant/owner is responsible for verifying and obtaining any other approval, permit, authorization, consent or license that may be required to subdivide, develop and/or service the affected land (this may include but is not limited to Alberta Environment and Parks, Alberta Transportation, and the Department of Fisheries and Oceans.)
- (d) Telus Communications Inc has no objection.
- (e) Thank you for contacting FortisAlberta regarding the above application for subdivision. We have reviewed the plan and determined that no easement is required by FortisAlberta.

FortisAlberta is the Distribution Wire Service Provider for this area. The developer can arrange installation of electrical services for this subdivision through FortisAlberta. Please have the developer contact 310-WIRE (310-9473) to make application for electrical services.

Please contact FortisAlberta land services at [landserv@fortisalberta.com](mailto:landserv@fortisalberta.com) or by calling (403) 514-4783 for any questions.

2022-0-152  
Page 1 of 2

- (f) In reference to the above request, please be advised of ATCO Gas' response and notify the landowner of the following:

ATCO Gas has no objection

ATCO Gas would also like to make the MD/County and Landowner/Developer aware of the following:

- If conducting any ground disturbance on the subject property, the landowner/developer must ensure the location of all utilities by contacting Utility Safety Partners at 1-800-242-3447 or <https://utility-safety.ca/>
- For any ground disturbance within 30m of an existing gas line please contact [Crossings@atcogas.com](mailto:Crossings@atcogas.com) to obtain permission (submit locate slip as back up)
- ATCO Gas requires a minimum of 6 months' notice to design and construct a new gas line, or alter an existing gas line. New Service installations, pipeline alterations, and Main extensions will be performed at the landowner/developers expense.
- If the landowner requires a single gas service please visit <https://gas.atco.com/en-ca/products-services-rates/new-services-changes/new-natural-gas-line.html>

Any further questions please email [southlandadmin@atco.com](mailto:southlandadmin@atco.com).

- (g) ATCO Transmission high pressure pipelines has no objections. Questions or concerns can be forwarded to [hp.circulations@atco.com](mailto:hp.circulations@atco.com).

- (h) Alberta Health Services has no objection.

- (i) Lethbridge Northern Irrigation District (LNID) has no concerns.

- (j) Alberta Transportation – Leah Olsen, Development/Planning Technologist:

“This will acknowledge receipt of your circulation regarding the above noted proposal. The subdivision application would be subject to the requirements of Sections 18 and 19 of the Matters Related to Subdivision and Development Regulation, due to the proximity of Highway 25.

Alberta Transportation offers the following comments with respect to this application:

- The requirements of Section 18 of the Regulation is not met.
- The requirements of Section 19 of the Regulation is not met.

Pursuant to Section 20 of the Matters Related to Subdivision and Development Regulation, Alberta Transportation authorizes the subdivision authority to vary the requirements of Section 18 and/or Section 19 of the Regulation to accommodate the proposed subdivision.

Pursuant to Section 678 of the Municipal Government Act, Alberta Transportation is varying the distance for appeals for this subdivision application. Therefore, from the departments perspective, any appeals can be heard by the local Subdivision and Development Appeal Board.

If you have any questions or require additional information, please contact the undersigned.”

- (k) Historical Resources – Barry Newton, Land Use Planner:

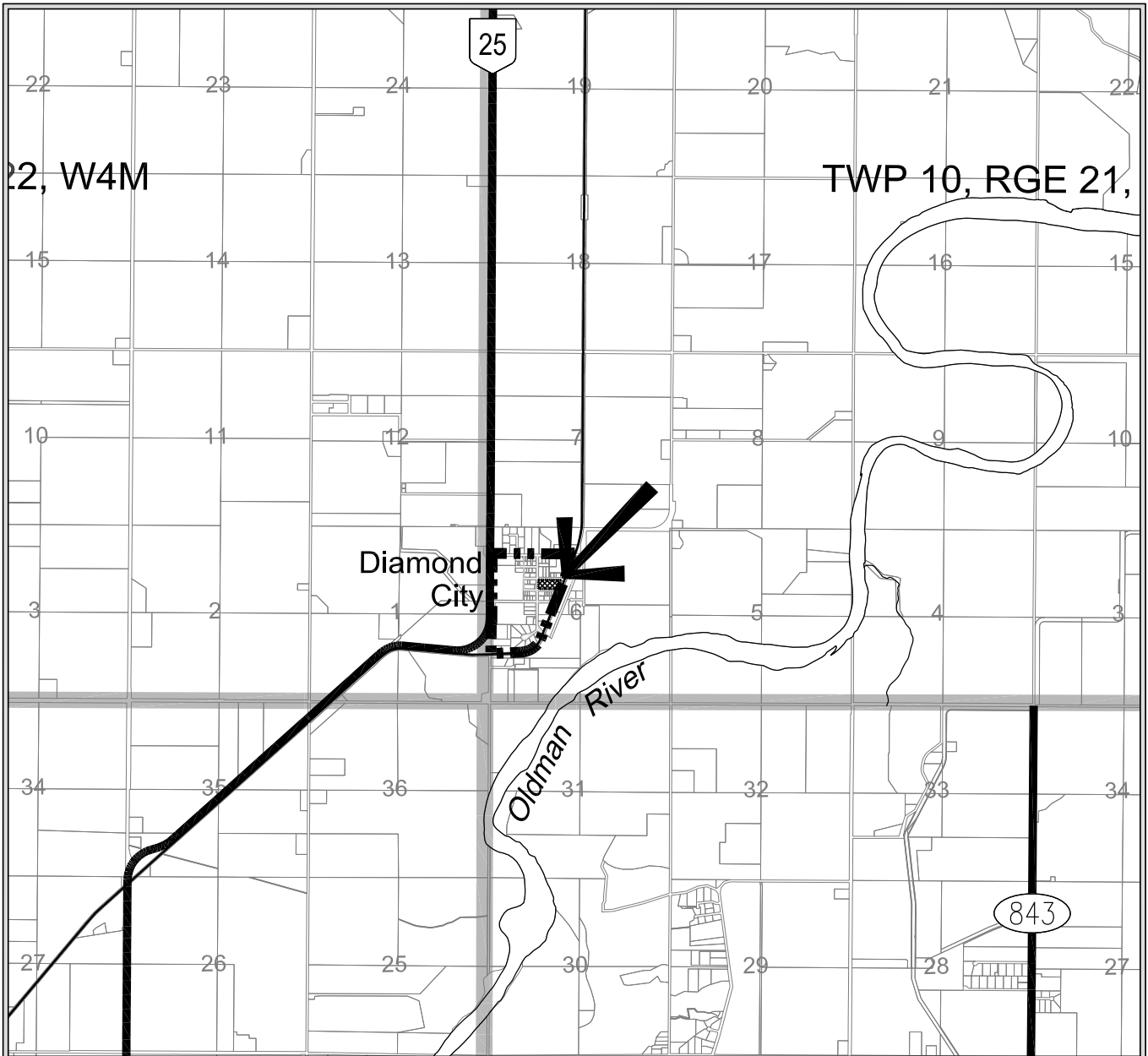
“We have reviewed the captioned subdivision application and determined that in this instance formal *Historical Resources Act* approval is not necessary, and submission of a Historic Resources application is not required.”

- (l) Canada Post has no comment.

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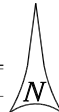


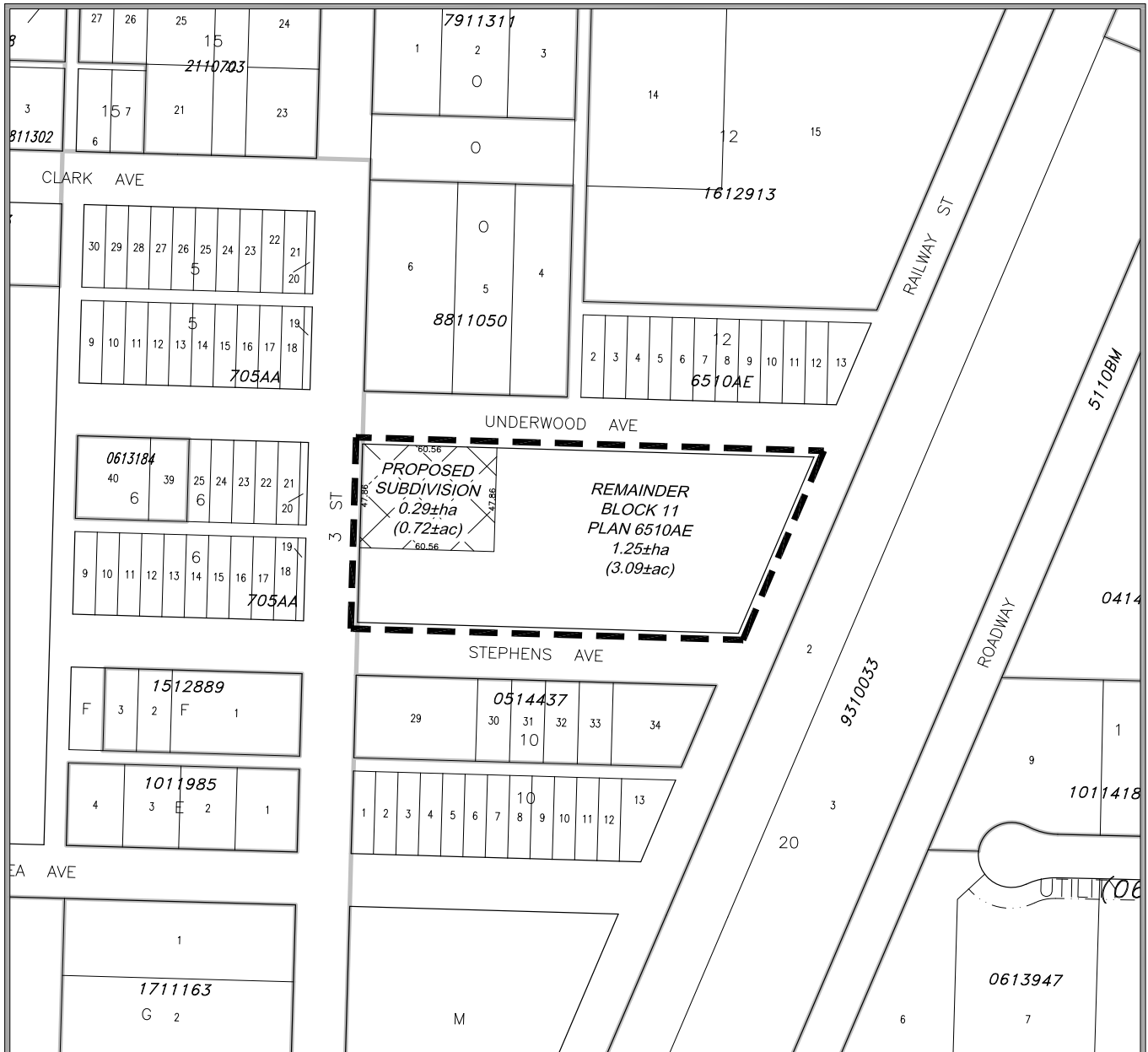
**SUBDIVISION LOCATION SKETCH**  
**BLOCK 11; PLAN 6510AE**  
**WITHIN NW 1/4 SEC 6, TWP 10, RGE 21, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: SEPTEMBER 21, 2022**  
**FILE No: 2022-0-152**

MAP PREPARED BY:  
 OLDMAN RIVER REGIONAL SERVICES COMMISSION  
 3102 16th AVENUE NORTH, LETHBRIDGE, AB T1M 3E6  
 \*NOT RESPONSIBLE FOR ERRORS OR OMISSIONS\*



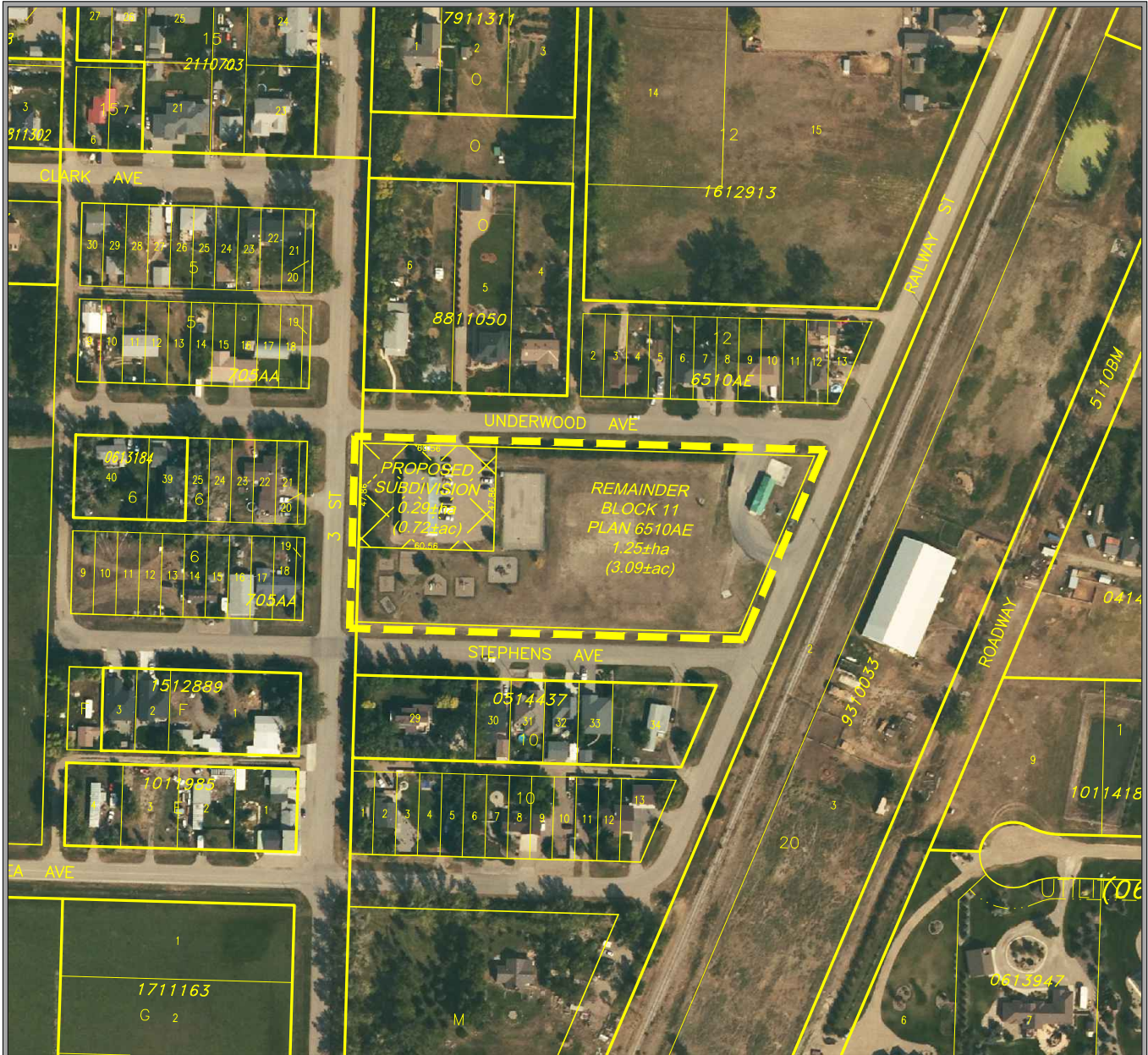
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**SUBDIVISION SKETCH**  
**BLOCK 11; PLAN 6510AE**  
**WITHIN NW 1/4 SEC 6, TWP 10, RGE 21, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: SEPTEMBER 21, 2022**  
**FILE No: 2022-0-152**





**SUBDIVISION SKETCH**  
**BLOCK 11; PLAN 6510AE**  
**WITHIN NW 1/4 SEC 6, TWP 10, RGE 21, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: SEPTEMBER 21, 2022**  
**FILE No: 2022-0-152**



September 21, 2022 N:\Subdivision\2022\2022-0-152.dwg

**AERIAL PHOTO DATE: 2018**

# AGENDA ITEM REPORT



**Title:** Subdivision Application #2022-0-157 – De Valois  
- SE1/4 1-13-24-W4M  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** ORRSC  
**Report Author:** Steve Harty

## APPROVAL(S):

Hilary Janzen, Supervisor of Planning & Development	Approved - 20 Oct 2022
Larry Randle, Director of Community Services,	Approved - 20 Oct 2022
Ann Mitchell, Chief Administrative Officer,	Approved - 20 Oct 2022

## STRATEGIC ALIGNMENT:

 <b>Governance</b>	 <b>Relationships</b>	 <b>Region</b>	 <b>Prosperity</b>
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## EXECUTIVE SUMMARY:

The application is to subdivide a 5.93-acre first parcel out farmstead subdivision from a unsubdivided ¼-section title of 156.00 acres for country residential use. The proposal meets the subdivision criteria of the Land Use Bylaw.

## RECOMMENDATION:

The proposed subdivision meets the provincial Subdivision and Development Regulations and the municipal subdivision policies as stated in the Land Use Bylaw.

## REASON(S) FOR RECOMMENDATION(S):

That S.D. Application #2022-0-157 be approved subject to the conditions as outlined in the draft resolution.

## PREVIOUS COUNCIL DIRECTION / POLICY:

- The isolated country residential parcel policies are within Land Use Bylaw (LUB) No. 1404 that allows a first parcel out farmstead subdivision from a ¼-section.
- LUB No. 1404 stipulates a minimum 2.0-acre to maximum 10.0-acre parcel size for a country residential use, which the 5.93-acre parcel size complies with.
- The application complies with the subdivision criteria regarding existing servicing and there are no CFOs or abandoned gas wells located in proximity.

## BACKGROUND INFORMATION:

Located approximately 3½-miles northwest of the Village of Barons, 1-mile west of Highway 23. The proposal is to subdivide an existing long-established farmyard located in the very southeast corner of the ¼-section adjacent to the municipal road intersection.

The yard contains a dwelling, garage, shop building, multiple sheds, number of grain bins, and a well-developed shrub/tree shelter belt. The proposed parcel boundary is irregular shaped to account for the trees, grain bin locations, and cultivated/irrigated agricultural land crop line. There will be no encroachment issues with the proposed property line. Services are in place, including water which is hauled to a private cistern system and sewage that is treated by an individual on-site septic field system on the west side of the dwelling. The septic system will remain well within the confines of the property once subdivided. Access is provided from an approach to the adjacent east municipal road allowance.

Overall, the proposal meets the criteria of the County's Land Use Bylaw No. 1404 regarding as a first parcel out subdivision. The application was circulated to the required external agencies with no objections or requests for utility easements (at time of agenda report).

**ALTERNATIVES / PROS / CONS:**

The Subdivision Authority could decide to not approve if it is not satisfied with the servicing or configuration of the proposed parcel.

Pros:

- there are no advantages to denying the subdivision as it meets the subdivision criteria of the County

Cons:

- a refusal would likely be appealed by the applicants as the County's subdivision criteria have been met

**FINANCIAL IMPACT:**

None, and the existing tax situation will remain as is.

**LEVEL OF PUBLIC PARTICIPATION:**

Inform       Consult       Involve       Collaborate       Empower

**ATTACHMENTS:**

[5A 2022-0-157 Lethbridge County APPROVAL Diagrams for Lethbridge County 2022-0-157](#)



## RESOLUTION

2022-0-157

**Lethbridge County**                      **Country Residential** subdivision of SE1/4 1-13-24-W4M

THAT the Country Residential subdivision of SE1/4 1-13-24-W4M (Certificate of Title No. 041 027 097), to subdivide a 5.93-acre (2.40 ha) first parcel out subdivision from a title of 156.00-acres (63.13 ha), for country residential use; BE APPROVED subject to the following:

### CONDITIONS:

1. That, pursuant to Section 654(1)(d) of the Municipal Government Act, all outstanding property taxes shall be paid to Lethbridge County.
2. That, pursuant to Section 655(1)(b) of the Municipal Government Act, the applicant or owner or both enter into and comply with a Development Agreement with Lethbridge County which shall be registered concurrently with the final plan against the title(s) being created.
3. That the applicant submits a final subdivision plan as prepared by an Alberta Land Surveyor that certifies the boundaries of the parcel being subdivided as approved by the Subdivision Authority.
4. That any easement(s) as required by utility companies or the municipality shall be established.

### REASONS:

1. The proposed subdivision is consistent with the South Saskatchewan Regional Plan and complies with both the Municipal Development Plan and Land Use Bylaw.
2. The Subdivision Authority is satisfied that the proposed farmstead subdivision is suitable for the purpose for which the subdivision is intended pursuant to Section 9 of the Matters Related to Subdivision and Development Regulation.
3. The Subdivision Authority has determined the application conforms to the County's subdivision criteria as a first parcel out farmstead subdivision and the proposed parcel size complies with the criteria for a developed yard with improvements maximum size of 3-10 acres.

### INFORMATIVE:

- (a) Since the proposed subdivision complies with Section 663(a) of the Municipal Government Act, Reserve is not required.
- (b) That a legal description for the proposed parcel be approved by the Surveys Branch, Land Titles Office, Calgary.
- (c) The applicant/owner is advised that other municipal, provincial or federal government or agency approvals may be required as they relate to the subdivision and the applicant/owner is responsible for verifying and obtaining any other approval, permit, authorization, consent or license that may be required to subdivide, develop and/or service the affected land (this may include but is not limited to Alberta Environment and Parks, Alberta Transportation, and the Department of Fisheries and Oceans.)
- (d) Telus Communications Inc has no objection.
- (e) Alberta Health Services has no objection
- (f) Canada Post has no comment.

2022-0-157  
Page 1 of 2

- (g) Thank you for contacting FortisAlberta regarding the above application for subdivision. We have reviewed the plan and determined that no easement is required by FortisAlberta.

FortisAlberta is the Distribution Wire Service Provider for this area. The developer can arrange installation of electrical services for this subdivision through FortisAlberta. Please have the developer contact 310-WIRE (310-9473) to make application for electrical services.

Please contact FortisAlberta land services at [landserv@fortisalberta.com](mailto:landserv@fortisalberta.com) or by calling (403) 514-4783 for any questions.

- (h) Lethbridge Northern Irrigation District (LNID) – Alan Harrold, General Manager:

“The above noted *Application for Subdivision* has been reviewed by the Lethbridge Northern Irrigation District (LNID) and is approved subject to the following conditions:

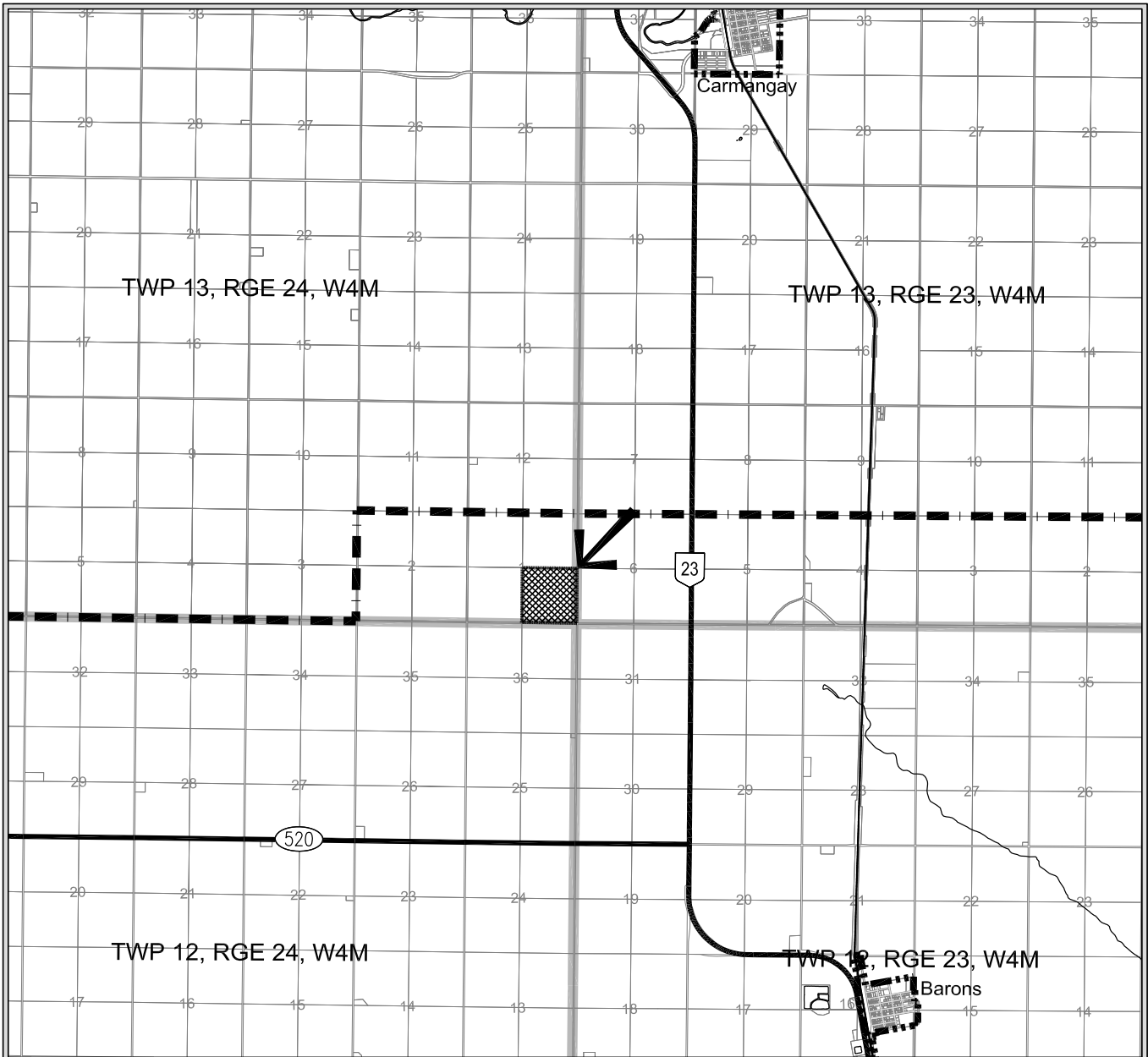
1. Payment in full of any outstanding irrigation rates that may be assessed on the original parcel at the time of finalization of the subdivision.
2. Payment of the District's subdivision administration fee. The current fee is **\$630.00** (includes GST).
3. A water agreement suitable to meet the needs of the proposed 5.93-acre subdivision is required if the proposed new subdivision requires the use of irrigation water. In addition, since the delivery would be from the Keho Barons Pipeline, a landowner construction contribution would be required at the time of signing a water agreement for this parcel. The current 2022 one-time construction contribution pipeline rate is **\$5,000 plus GST**.
4. An Easement for the subdivided parcel for access to water from the District's works must be in place prior to the supply of domestic/yard usage water.
5. Any alteration to District works, including the cost of a water delivery turnout, if required, as a result of this subdivision is subject to District approval and payment by the applicant of all applicable costs.

Thank you for the opportunity to comment. If you require more information or would like to set up an appointment to discuss the conditions above, please contact Janet Beck, Administration & Land Manager, at the LNID Office, 403-327-3302.”

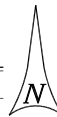
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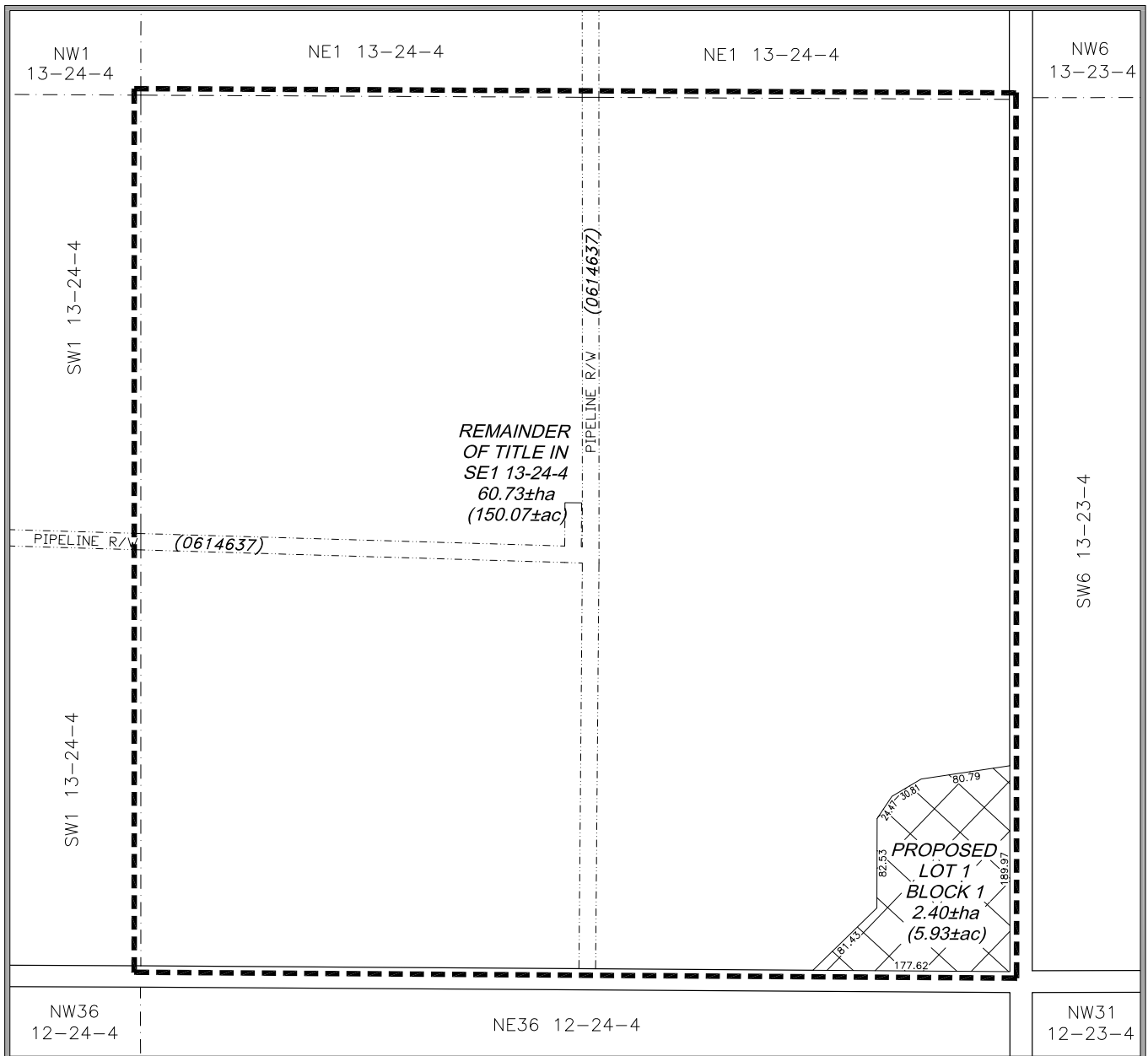
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DATE



**SUBDIVISION LOCATION SKETCH**  
**WITHIN SE 1/4 SEC 1, TWP 13, RGE 24, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: OCTOBER 4, 2022**  
**FILE No: 2022-0-157**





**SUBDIVISION SKETCH**  
**WITHIN SE 1/4 SEC 1, TWP 13, RGE 24, W 4 M**  
**MUNICIPALITY: LETHBRIDGE COUNTY**  
**DATE: OCTOBER 4, 2022**  
**FILE No: 2022-0-157**



October 04, 2022 N:\Subdivision\2022\2022-0-157.dwg





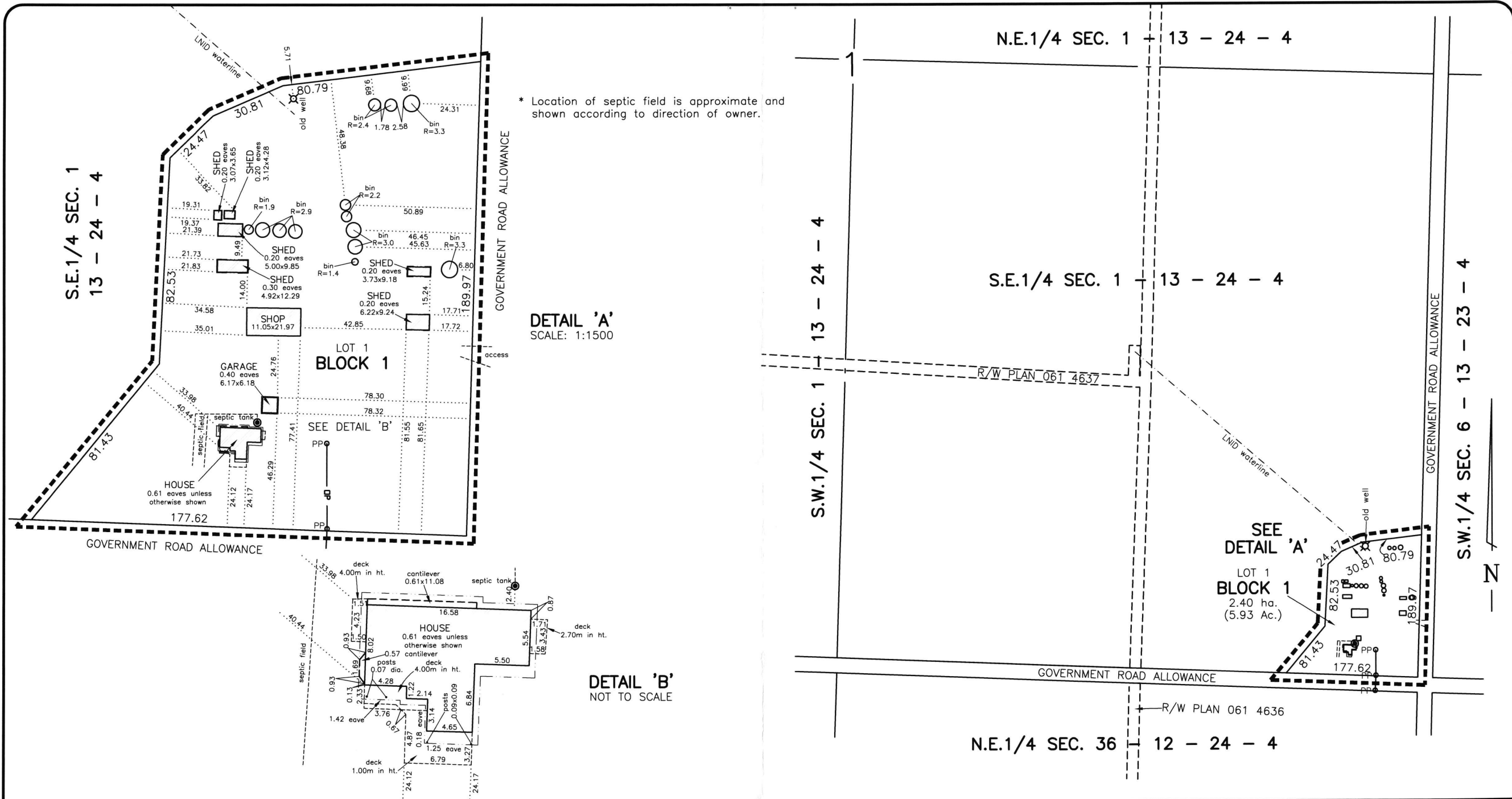
**SUBDIVISION SKETCH**  
 WITHIN SE 1/4 SEC 1, TWP 13, RGE 24, W 4 M  
 MUNICIPALITY: LETHBRIDGE COUNTY  
 DATE: OCTOBER 4, 2022  
 FILE No: 2022-0-157



October 04, 2022 N:\Subdivision\2022\2022-0-157.dwg



**AERIAL PHOTO DATE: 2018**



\* Location of septic field is approximate and shown according to direction of owner.

DETAIL 'A'  
SCALE: 1:1500

DETAIL 'B'  
NOT TO SCALE

NO.	REVISION	DATE	BY
	Improvements shown were surveyed on August 22nd, 2022		
	NOTE : Portion to be approved is outlined thus <b>-----</b> and contains approximately 2.40 ha. Distances are in metres and decimal parts thereof. Overhead line is shown thus <b>— DP — DP —</b> PP stands for utility pole.		
	Distances and areas are approximate and are subject to change upon final survey.		

AIMEE DEVALOIS

TENTATIVE PLAN SHOWING SUBDIVISION  
of part of  
S.E.1/4 SEC. 1; TWP. 13; RGE. 24; W.4 M.  
(13004 RGE RD 24-0)

LETHBRIDGE COUNTY

**boa** brown okamura & associates ltd.  
Professional Surveyors  
2830 - 12th Avenue North, Lethbridge, Alberta

APPROVED  Z. J. Prosper A.L.S.	DRAWN CJB	DATE SEPT. 8/22
	CHECKED ZJP	JOB 22-15751
	SCALE 1:5000	DRAWING 22-15751

# AGENDA ITEM REPORT



**Title:** Bylaw 22-009 MacLaine Acres Area Structure Plan and Bylaw 22-010 Land Use Bylaw Amendment Lethbridge Urban Fringe to Grouped Country Residential - Public Hearing

**Meeting:** Council Meeting - 03 Nov 2022

**Department:** Community Services

**Report Author:** Hilary Janzen

## APPROVAL(S):

Larry Randle, Director of Community Services,  
Ann Mitchell, Chief Administrative Officer,

Approved - 19 Oct 2022  
Approved - 20 Oct 2022

## STRATEGIC ALIGNMENT:



Governance



Relationships



Region



Prosperity

## EXECUTIVE SUMMARY:

An application was received for the MacLaine Acres Area Structure Plan (Bylaw 22-009) and to re-designate Plan 927LK, Block 1 Lots 1 and 3, Plan 8010198 Block 2 Lot 1 and a portion of NW 28-9-21-W4 from Lethbridge Urban Fringe to Grouped Country Residential (Bylaw 22-010). This would allow for the phased subdivision and development of the parcels for Country Residential use.

## RECOMMENDATION:

- That Bylaw 22-009 be read a second time as amended.
  - That the lots (23, 37 and 38) noted within the future service road and future highway bypass be removed as potential lots and be noted as non-developable areas.
  - That the Bylaw be noted as an Amendment to Bylaw 1231 being the Plowman Area Structure Plan.
- That Bylaw 22-009 be read a third time.
- That Bylaw 22-010 be read a second time as amended. With the areas noted as future service road and future highway bypass removed from the rezoning area and remain as Lethbridge Urban Fringe.
- That Bylaw 22-010 be read a third time.

## REASON(S) FOR RECOMMENDATION(S):

The proposed Area Structure Plan and Rezoning adhere to the policies of the Intermunicipal Development Plan and allow for the orderly subdivision and development of an area that has been historically developed as a country residential area.

### **PREVIOUS COUNCIL DIRECTION / POLICY:**

- Bylaw 22-009 and 22-010 received first reading on September 15, 2022
- The Lethbridge County and City of Lethbridge Intermunicipal Development Plan allow for the subdivision of parcels in the area north of the City if the applicant submits an updated Area Structure Plan and re-designates the property to the Grouped County Residential Land Use District.
- The Lethbridge County Municipal Development Plan requires that where there will be more than 4 adjacent titles that the applicant submit an Area Structure Plan for County Council consideration and that the parcels be re-designated to the Grouped Country Residential Land Use District.
- The Grouped Country Residential Land Use Strategy encourages subdivision in areas close to urban areas and where the lands are fragmented and considered poor quality agricultural lands.
- Bylaw 1231 being the Plowman Area Structure Plan was approved by County Council on June 3, 2022.

### **BACKGROUND INFORMATION:**

An application was received for the MacLaine Acres Area Structure Plan (Bylaw 22-009) and to re-designate Plan 927LK, Block 1 Lots 1 and 3, Plan 8010198 Block 2 Lot 1 and portion of NW 28-9-21-W4 from Lethbridge Urban Fringe to Grouped Country Residential (Bylaw 22-010). This would allow for the phased subdivision of the parcels for Country Residential use. The area in question has an Area Structure Plan that showed the future subdivision of these parcels (Plowman Area Structure Plan - Bylaw 1231).

The MacLaine Acres Area Structure Plan provides a plan for the future subdivision of the subject lands in a manner that to meet the County's current policies and requirements. This area is within the Intermunicipal Development Plan area with the City of Lethbridge and some of the lands are subject to the County's Industrial/Commercial Land Use Strategy.

The application has been circulated to all County Departments, the City of Lethbridge, and external agencies for review. Alberta Transportation, St.Mary River Irrigation District, Alberta Health Services, ORRSC, and ACTO Gas all provided comments. None of these agencies had concerns with the proposed Area Structure Plan but provided comments as attached to this report. Notable comments include:

- Alberta Health Services recommends that potable water be from an approved system such as the water co-op.
- Alberta Transportation noted that at the time that the Canamex highway is constructed access in this area will change and may be less convenient.

The City of Lethbridge submitted comments and has the following concerns:

- the potential subdivision of country residential lots on the area noted to be future highway bypass and future highway service.
- that future industrial and commercial development may occur around this area in the future if the City annexes the area
- that this area (due to the proximity to the Canamex Interchange) has been identified as suitable for industrial and commercial development (versus residential development) and that the area structure plan and rezoning do not align with the County's strategic documents
- that no special study has been completed for this area around the Canamex Interchange as per policy 3.4.3.18, 3.4.3.19, and 3.4.3.20.



The proposed bylaws were advertised in the October 11 and 18 editions of the Sunny South News and notices were sent directly to the affected landowners. At the time of this report three comments were received from an adjacent landowner with concerns with regards to the additional traffic on the roads, paving of the roads, and architectural controls.

The Planning and Development Department has the following comments with regards to the proposed bylaws:

The proposed Area Structure Plan falls within the Policy Area 3 of the Lethbridge County/City of Lethbridge Intermunicipal Development Plan (IDP). This area includes policies with regards to the future subdivision and development and it is noted that this is an area that the City and the County have identified as a future growth area (Map 5 of the IDP). This policy section identified the area south of the future Canamex and west of Highway 843 as a logical area for future city growth for residential development. In addition, Policy 3.4.3.15 of the IDP expressly states that:

*"Existing grouped country residential areas may be completed or further subdivided provided they follow current County bylaw and engineering standards including an Area Structure Plan. The Area Structure Plan must outline the design, servicing, access and urban densities and development in the future".*

This area had been previously identified for country residential development in Bylaw 1231 being the Plowman Area Structure Plan adopted by County Council in 2002. The MacLaine Acres Area Structure Plan will amend the Plowman Area Structure Plan providing an update to meet the current standards, revised layout plan, and engineering information. This fulfills Policy 3.4.3.15 of the Intermunicipal Development Plan.

There are additional policies within the IDP that apply to this area including Policies 3.4.3.18, 3.4.3.19, and 3.4.3.20. These policies refer to a Functional Design Study and Special Study being completed for the area around the Canamex Interchange.

- With regards to the functional design study (Policy 3.4.3.18)– the county, consultant and Alberta Transportation met regarding the proposed development prior to the application being submitted and it was determined at that time that functional design study did not need to be completed as the time frame for the CANAMEX was too far off on the horizon and may realistically never happen at this location. A Functional Design Study would be under the jurisdiction of Alberta Transportation as it is their highway and interchange.
- With regards to policy 3.4.3.19 and 3.4.3.20 – the special study noted would be premature until a Functional Design Study is completed (which AT has determined is not needed at this time for this development). The purpose of the special study is to look to undeveloped areas and inform the use. In this case the “use” is already informed for the area which was determined by the adopting of the Plowman ASP and confirmed by Policy 3.4.3.15 as being country residential.

The proposed application complies with siting criteria of the the Municipal Development Plan and the Grouped Country Residential Land Use Strategy:

- the area is fragmented with existing country residential development and historical subdivisions
- the lands are poor agricultural/non-agricultural
- there are no conflicts with the adjacent land uses, which are mainly country residential

The proposal is in proximity to the future Canamex Interchange which has been broadly identified for commercial/industrial uses as per the Industrial-Commercial Land Use Strategy. The area identified in that strategy was not intended to be specific and the strategy is a guideline for County Council to

consider, not a statutory plan. For this area, higher consideration would be placed on the Intermunicipal Development Plan which states: "This area has been identified as a logical area for future City growth for residential development (up to the CANAMEX) on the west side of 43 Street (Highway 843)". As the Intermunicipal Development is the highest-level statutory plan in the County, it prevails over the Industrial-Commercial Land Use Strategy. Therefore, county administration has determined that the proposed bylaws that would allow for future country residential development are appropriate for this area based on the policies of the Intermunicipal Development Plan and the Municipal Development Plan.

In reviewing the City's comments and concerns with regards to development of the future highway by-pass and service road, County administration agrees that those areas should be identified as non-developable areas and also removed from the rezoning area, this will prevent future conflicts with regards to the development of the interchange.

With regards to the comments submitted from the adjacent landowners, County Administration would not propose to amend the road network as a looped road system is desirable from an emergency services and access perspective in a country residential development. With regards to the other comments, at the time of subdivision, County Administration would require detailed architectural controls and look at the condition and possible upgrades to the existing roads.

If the proposed Area Structure Plan is approved further details with regards to the provision of potable water, the specific road design (and surface type), detailed storm-water design, and architectural controls will be addressed at the subdivision stage of development. It is noted that the Municipal Development Plan Grouped Country Residential Land Use Strategy and require that any proposed subdivision with more than four lots will have to have potable water provided by a water co-op or similar organization. The applicant/landowners will have to work with the water co-op to determine if there is a capacity to provide water this subdivision at the time of subdivision.

**ALTERNATIVES / PROS / CONS:**

County Council may refuse 2nd reading of Bylaws 22-009 and 22-010

Pros: This may alleviate concerns expressed by the City of Lethbridge and concerns expressed by the adjacent landowners.

Cons: The refusal would not adhere to the policies of the Lethbridge County/City of Lethbridge Intermunicipal Development Plan which the applicant considered in proceeding to prepare the ASP.

**FINANCIAL IMPACT:**

If the bylaws were approved, future development would be taxed at the County's residential tax rate. There would be additional costs to the County (i.e. maintenance of infrastructure) that would arise if the bylaws are approved.

**LEVEL OF PUBLIC PARTICIPATION:**

Inform       Consult       Involve       Collaborate       Empower

**ATTACHMENTS:**

[Maclaine Acres ASP Compiled PDF -August 30-2022 - reduced size](#)  
[Appendix 2,3,6 - Seperate Cover - Aug30-2022 reduced file size](#)

[Bylaw 22-009- MacLaine Acres - ASP](#)  
[Bylaw 22-009- MacLaine Acres - ASP as AMENDED](#)  
[Bylaw 22-010 - Signed Bylaw First Reading](#)  
[Bylaw 22-010 - MacLaine Acres - Amendment to LUB AS AMENDED](#)  
[ORRSC Comments](#)  
[Alberta Health Services Comments](#)  
[Alberta Transportation Comments](#)  
[City Comments - October 17 2022](#)  
[SMRID Comments](#)  
[ATCO Comments](#)  
[Simon Hughes Comments](#)  
[Marco Pagliericci Comments](#)  
[Neal and Peggy Dekens comments](#)  
[Sandra and Kevin Jockims comments](#)  
[Letter from Ken Smith](#)  
[MacLaine Acres Support Letter - smith](#)  
[Brian Lindsay - Letter of support for MacLaine Acres ASP](#)  
[Letter of support - robbins](#)  
[Letter-for-MacLaine Acres - horlings](#)  
[Sherry Walker - Letter of support for MacLaine Acres ASP](#)

# MacLaine Acres

## AREA STRUCTURE PLAN

Sec. 28 - 9-21-W4M



**MARTIN**  
GEOMATIC CONSULTANTS

208645CE

# MacLaine Acres

## AREA STRUCTURE PLAN

Sec. 28 - 9-21-W4M



**Prepared for:** Rick & Carol Aldoff  
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**File No. 208645CE**

MACLAINE ACRES AREA STRUCTURE PLAN

TABLE OF CONTENTS

**1.0. INTRODUCTION ..... 4**

1.1. PURPOSE OF THE PLAN ..... 4

1.2. ASP LAND OWNERSHIP ..... 4

1.3. BACKGROUND TO THE AREA STRUCTURE PLAN ..... 4

1.4. INTERPRETATION..... 4

1.5. THE APPROVAL PROCESS ..... 4

1.6. PLAN PREPARATION..... 5

**2.0. LEGISLATIVE FRAMEWORK ..... 6**

2.1. THE MUNICIPAL GOVERNMENT ACT ..... 6

2.2. THE SOUTH SASKATCHEWAN REGIONAL PLAN..... 6

2.3. LETHBRIDGE COUNTY MUNICIPAL DEVELOPMENT PLAN ..... 6

2.4. INTERMUNICIPAL DEVELOPMENT PLAN (CITY & COUNTY) ..... 7

2.4.1. Policies 3.4.3.14 and 3.4.3.15..... 7

2.4.2. Policy 3.4.3.16..... 7

2.4.3. Policy 3.4.3.17..... 7

2.4.4. Policy 3.4.3.18 and 3.4.3.19 ..... 7

2.4.5. Policy 3.4.3.20..... 7

2.4.6. Policy 3.5.1 and 3.5.2 ..... 7

2.5. LETHBRIDGE COUNTY GROUPED COUNTRY RESIDENTIAL LAND USE STRATEGY ..... 8

2.5.1. Siting ..... 8

2.5.2. Land Use Conflicts ..... 8

2.5.3. Servicing..... 8

2.5.4. Roads..... 8

2.5.5. Fire Suppressions..... 8

**3.0. THE PLAN AREA AND SITE ANALYSIS ..... 9**

3.1. LOCATION AND DEFINITION OF PLAN AREA ..... 9

3.2. SITE CHARACTERISTICS ..... 9

3.3. SOILS ..... 10

3.4. TOPOGRAPHY ..... 10

3.4.1. East Catchment Area ..... 10

3.4.2. West Catchment Area ..... 10

3.5. WATER AND HYDROLOGY ..... 10

3.6. HABITAT AND VEGETATION ..... 10

3.7. ENVIRONMENTAL, HISTORICAL AND ARCHAEOLOGICAL SIGNIFICANCE ..... 11

3.8. EXISTING LAND USE..... 11

**4.0. SITE FEATURES..... 12**

4.1. LOCATION..... 12

4.2. HIGHWAY ACCESS ..... 12

4.3. EASE OF DEVELOPMENT..... 12

4.4. SURROUNDING USES OF LAND..... 12

4.5. LIFESTYLE ..... 12

MACLAINE ACRES AREA STRUCTURE PLAN

**5.0. PLAN GOALS AND OBJECTIVES ..... 13**

**5.1. PLAN GOALS ..... 13**

5.1.1. .... 13

5.1.2. .... 13

5.1.3. .... 13

5.1.4. .... 13

**5.2. PLAN OBJECTIVES ..... 13**

5.2.1. .... 13

**6.0. DESIGN AND LAND USE ..... 14**

**6.1. PROPOSED LAND USE ..... 14**

**6.2. DENSITY AND POPULATION ..... 14**

**6.3. RESERVE REQUIREMENTS ..... 14**

**7.0. ROADS ..... 15**

**7.1. SITE ACCESS AND CIRCULATION ..... 15**

**7.2. PHASES OF ROADWAY CONSTRUCTION ..... 15**

7.2.1. Phase 1A ..... 15

7.2.2. Phase 1B ..... 15

7.2.3. Phase 2 ..... 15

**8.0. SERVICING ..... 16**

**8.1. POTABLE WATER SUPPLY AND DISTRIBUTION ..... 16**

8.1.1. Potable Water Supply, Alternative 1 ..... 16

8.1.2. Potable Water Supply, Alternative 2 ..... 16

8.1.3. Potable Water Supply, Alternative 3 ..... 16

8.1.4. Determination of Final Potable Water Sources ..... 16

8.1.5. Government Requirements ..... 16

8.1.6. Home Owner Association ..... 16

**8.2. SEWAGE DISPOSAL ..... 16**

8.2.1. Licensed Design ..... 16

8.2.2. Alberta Regulations ..... 17

8.2.3. Septic Feasibility Assessment ..... 17

8.2.4. Location of Septic Field ..... 17

**8.3. STORM WATER MANAGEMENT ..... 17**

8.3.1. Existing Conditions ..... 17

8.3.2. Drainage Concept ..... 18

8.3.3. Site Grading ..... 18

**8.4. UTILITIES ..... 18**

8.4.1. Electricity ..... 18

8.4.2. Natural gas ..... 18

8.4.3. Telecommunications/Cable Service ..... 19

8.4.4. Solid waste management ..... 19

**8.5. IRRIGATION SYSTEM ..... 19**

8.5.1. Community Irrigation ..... 19

8.5.2. Fire Protection Water ..... 19

8.5.3. SMRID Approval ..... 19

8.5.4. Operation of System ..... 19

**9.0. PROTECTIVE SERVICES ..... 20**

9.1.1. Fire protection ..... 20

9.1.2. Police protection ..... 20

**10.0. DEVELOPMENT AGREEMENT ..... 21**

## MACLAINE ACRES AREA STRUCTURE PLAN

---

<b>11.0. ARCHITECTURAL CONTROLS .....</b>	<b>22</b>
11.1. PURPOSE OF CONTROLS .....	22
11.2. TYPICAL CONTROLS THAT WILL BE IN EFFECT WITHIN MACLAINE ACRES INCLUDE THE FOLLOWING: .....	22
11.3. DEVELOPER FENCING AND LANDSCAPING.....	22
<b>12.0. IMPLEMENTATION AND DEVELOPMENT CONTROL .....</b>	<b>23</b>
<b>13.0. PHASING.....</b>	<b>24</b>
<b>14.0. ADJACENT LANDOWNER CONSULTATION AND OTHER CORRESPONDENCE .....</b>	<b>25</b>
14.1. NOTICE SENT TO ADJACENT LAND OWNERS.....	25
14.2. NEIGHBOURHOOD COMMENTS .....	25
14.3. OTHER RELATED CORRESPONDENCE .....	25
<b>15.0. MARKET DEMAND .....</b>	<b>26</b>

### TABLE OF FIGURES

1. GENERAL LOCATION PLAN
2. LAND USE CONCEPT
3. EXISTING SITE
4. AERIAL PHOTOGRAPH
5. LOT LAYOUT - PHASE 1
6. LOT LAYOUT – PHASE 2
7. STORMWATER MANAGEMENT

### APPENDICES

1. PROPERTY OWNERSHIP TITLES
2. GEOTECHNICAL EVALUATION (PROVIDED UNDER SEPARATE COVER)
3. ENVIRONMENTAL SITE ASSESSMENT (PROVIDED UNDER SEPARATE COVER)
4. HISTORICAL RESOURCE ASSESSMENT
5. ADJACENT LANDOWNER CONSULTATION AND OTHER CORRESPONDENCE
  - MAP & LETTER SENT TO NEIGHBORS
  - NEIGHBORHOOD COMMENTS
  - MAP FROM SMRID
  - MAP FROM FORTIS
  - MAP FROM ALBERTA ENERGY REGULATOR
  - MAP FROM ATCO GAS
  - MAP FROM COUNTY OF LETHBRIDGE RURAL WATER ASSOCIATION
  - LETHBRIDGE COUNTY MAP “DEVELOPMENT CONSIDERATION”
6. SEPTIC FEASIBILITY ASSESSMENT (PROVIDED UNDER SEPARATE COVER)
7. STORMWATER MANAGEMENT PLAN
8. SUNNY VIEW ASP CONCEPT DESIGN
9. ALBERTA TRANSPORTATION-PORION OF FIGURE 5.2.3 (LETHBRIDGE AND AREA NHS & NSTC FUNCTIONAL PLANNING STUDY, MARCH 12, 2004 – STANTEC)



## 1.0. INTRODUCTION

### 1.1. PURPOSE OF THE PLAN

The purpose of the MacLaine Acres Area Structure Plan (ASP) is to provide a comprehensive planning framework for development of the land within Sec. 28-9-21-W4. The Plan Area is located in Lethbridge County and is shown on **Figure 1- General Location Plan**. Prior to consideration of subdividing or re-subdividing a property, Lethbridge County requires preparation of an Area Structure Plan to address all planning issues related thereto. The purpose of this area structure plan is thus to provide all pertinent information to the County and its advisors that will enable development of the subject property.

### 1.2. ASP LAND OWNERSHIP

The properties represented by the MacLaine Acres ASP encompass four separate parcels with the following ownerships. Refer to **Figure 2 – Land Use Concept, Appendix 1 – Property Ownership Titles**.

C of T 161 045 741, 1946291 Alberta Ltd.

C of T 161 154 313, Kenneth Dale Smith

C of T 091 049 136, Ryan Garret Van Eeden Petersman, Karen Virginia Van Eeden Petersman

C of T 911 153 848, Richard Michael Aldoff and Carol Ann Aldoff

### 1.3. BACKGROUND TO THE AREA STRUCTURE PLAN

The conceptual design for the subject property is part of the Area Structure plan for Sunny View Estates. (Lethbridge County Bylaw No.1231)

The designs presented in the MacLaine Acres ASP generally follow the intent of the Sunny View conceptual design. (See **Appendix 8 – Sunny View ASP Concept Design**). Changes have been made to reflect the current owner's vision as well it reflects current conditions and standards (particularly the proposed CANAMEX Highway).

The subject property containing approximately 79.36 acres (32.12 ha) more or less is proposed for re-zoning from Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR). This will allow the development to proceed with subdivision of the area into smaller parcels with a minimum lot size of 2 acres (0.8 ha).

### 1.4. INTERPRETATION

This document shall be referred to as "*The MacLaine Acres Area Structure Plan*".

All terms referred to in this Bylaw shall have the same meaning as in the Municipal Government Act, the Municipal Development Plan or the Land Use Bylaw unless otherwise indicated.

### 1.5. THE APPROVAL PROCESS

Lethbridge County requires submission of planning documents that are of sufficient detail and clarity to permit comprehensive review by the various agencies, government departments, and utility companies which provide community planning advice to the County.

## MACLAINE ACRES AREA STRUCTURE PLAN

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The plan is submitted for approval according to provincial statutory requirements. This plan will also be used to support a land use reclassification pursuant to Lethbridge County Land Use Bylaw #1404.

The plan should be submitted to the City of Lethbridge for comments and verification that the plan adheres to the relevant Intermunicipal Development plans.

### **1.6. PLAN PREPARATION**

During the preparation of the area structure plan document, Martin Geomatic Consultants Ltd. (MGCL) corresponded with:

- the landowners and some of the neighbors of the proposed plan area,
- Lethbridge County staff,
- County of Lethbridge Rural Water Association,
- Alberta Transportation staff,
- Saint Mary River Irrigation District,
- Fortis Alberta,
- ATCO Gas,
- Shaw Cable,
- Telus Communications.

## **2.0. LEGISLATIVE FRAMEWORK**

### **2.1. THE MUNICIPAL GOVERNMENT ACT**

The MacLaine Acres Area Structure Plan has been produced in accordance with Section 633 of the Municipal Government Act. It is the intention of this plan to create a framework for the development of a portion of 28-9-21-W4 into Grouped Country Residential classified area.

### **2.2. THE SOUTH SASKATCHEWAN REGIONAL PLAN**

The MacLaine Acres ASP aims to follow the Alberta Government South Saskatchewan Regional Plan (SSRP) 2014 – 2024, Amended May 2018.

Strategic Outcomes of the SSRP aligned with the MacLaine Acres ASP include: sustainable development wherein economic development takes into account environmental sustainability and social outcomes, promoting efficient use of land, and strengthening communities.

### **2.3. LETHBRIDGE COUNTY MUNICIPAL DEVELOPMENT PLAN**

The MacLaine Acres ASP aims to follow the Lethbridge County Municipal Development Plan (MDP) Bylaw No. 22-001

The MDP outlines specific requirements with respect to land use and developments. The MacLaine Acres ASP has adhered to the intent of Part 4, Plan Policies. More specifically, this ASP has endeavored to meet the requirements as detailed in Part 4, Section 8 Grouped Country Residential. The ASP meets the specific requirements of Policies 8.0, 8.1, 8.3 and 8.5 of the MDP. With respect to Policy 8.5 Potable Water, the source of potable water has not yet been finalized. The ASP presents three alternatives for the potable water supply and the Developer is endeavoring to obtain water through the water co-op. The water source must be finalized and approved by Lethbridge County prior to subdivision.

The Grouped Country Residential Land Use District (GCR) is intended to provide for a high quality clustered residential development in areas where no conflict to agriculture can be anticipated pursuant to the municipal development plan.

The minimum lot size is 2 acres (0.8 ha) to facilitate on-site sewage disposal systems.

Additional requirements of the Land Use Bylaw will be noted in subsequent sections of the plan where necessary.

### **2.4. COUNTY LAND USE BYLAW**

The Grouped Country Residential Land Use District (GCR) is intended to provide for a high quality clustered residential development in areas where no conflict to agriculture can be anticipated pursuant to the municipal development plan.

The minimum lot size is 2 acres (0.8 ha) to facilitate on-site sewage disposal systems.

Additional requirements of the Land Use Bylaw will be noted in subsequent sections of the plan where necessary

### 2.5. INTERMUNICIPAL DEVELOPMENT PLAN (CITY & COUNTY)

The plan area is located in Policy Area 3 – North, as shown in the City of Lethbridge & Lethbridge County Intermunicipal Development Plan.

The following Land Use policies may affect the MacLaine Acres ASP, while measures to address each constraint are provided:

#### 2.5.1. POLICIES 3.4.3.14 AND 3.4.3.15

This policy indicates that new grouped country residential should not generally be considered unless it is to complete an existing grouped country residential development and an ASP is prepared. MacLaine Acres falls into this category as what is presented in this ASP is a completion of the existing Sunnyview Estates grouped country residential development. The ASP for Sunny View Estates shows the intent to develop the surrounding land as grouped country residential. This is clearly shown in the concept plan that is part of the Sunny View ASP (see **Appendix 8- Sunny View Concept Plan**).

#### 2.5.2. POLICY 3.4.3.16

This policy requires that the City of Lethbridge provides comments and input to the County for Policy Area 3 – North. As such this ASP should be sent to the City for their review.

#### 2.5.3. POLICY 3.4.3.17

This policy requires that residential development not occur within the provincial setback from landfills. MacLaine Acres is not within the setback distance and therefore adheres to this policy.

#### 2.5.4. POLICY 3.4.3.18 AND 3.4.3.19

These policies suggest that the City, the County and Alberta Transportation work collaboratively on a Functional Design Study and a subsequent Special Study and that future land uses take into consideration these studies.

#### 2.5.5. POLICY 3.4.3.20

This policy states that the ASP's should not be considered within limits of the CANAMEX Development Node until the above noted Special studies is completed. The north easterly portion of the MacLaine ASP falls on the fringe of the CANAMEX Development Node. Although the Special Study has not yet been commenced, Alberta Transportation has addressed the planning needs for the interchange through various consultations during the preparation of the ASP. Their comments have been integrated into the design and planning of this ASP. Their comments include:

- Provide sufficient land in the planning to allow for the future widening of Highway 843 and for the future CANAMEX interchange tapering. This is reflected in the ASP.
- Provide allowance for a future service road within the plan area that runs parallel with and adjacent to the future highway tapering. Also, when the service road is built, there should be only a single connection point to Highway 843. The service road will be constructed when the CANAMEX interchange is built. This ASP makes provisions for the service road and reflects a future single connection point to Highway 843.

#### 2.5.6. POLICY 3.5.1 AND 3.5.2

These policies identify the need to provide and maintain enhanced development and landscaping at highway entrances and along the highways that are identified in the policy area. The easterly portion of MacLaine Acres falls within an identified highway corridor. The Architectural Controls for MacLaine Acres will address these policies with respect to landscaping that is consistent with the intent of these policies and the Highway Enhance Design Guidelines. The land developer will also address landscaping at the visible points along the highway and at the entrances.

## 2.6. LETHBRIDGE COUNTY GROUPED COUNTRY RESIDENTIAL LAND USE STRATEGY

### 2.6.1. SITING

This development meets the following criteria for these preferred locations of GCR developments from the County Municipal Development Plan and the Land Use Strategy.

Poor quality agricultural land with three parcels of less than 20 acres each resulting in difficulty to farm.

- The site consists of cut-off and fragmented parcels.
- The site is made up of existing titles/ parcels.
- The site is the completion of a grouped country residential site that is located adjacent to 2 existing and a building GCR development.
- This development generally correlates with the concept plan prepared in conjunctive with the adjacent Sunnyview Grouped Country Residential Development

### 2.6.2. LAND USE CONFLICTS

This ASP site has no land use conflicts as outlined in GCR land use strategy.

### 2.6.3. SERVICING

This site meets the following criteria from the GCR land strategy

- Supply of potable water
- Supply of irrigation water from SMRID
- Suitable soils for multiple private septic field use for treatment of waste water. (refer to **Appendix 6, Septic Field Feasibility**)
- A Storm Management Plan has been completed and is attached as **Appendix 7- Stormwater Management Plan.**
- The various shallow utility companies have been contacted and they have verified that gas, electrical and telephone services are available to the site.

### 2.6.4. ROADS

- Legal and physical access is available to all lots by way of a dedicated municipal road.
- The municipal access roads known as Twp – Rd. 94A and 94B are not paved but have been identified as gravel roads under the provisions of their approval for the developments at the time when these roads were created.
- Highway 843 which is the access road for both Twp-Rd 94A and 95B is not paved. The maintenance and improvements to this road are the responsibility of Alberta Transportation.

### 2.6.5. FIRE SUPPRESSIONS

- Lots are a minimum of 2 acres in size which will enable the houses to be setback a considerable distance from each other thereby help minimize fire spreading
- The responding fire department is in Coaldale which is about 20 minutes from the site. The Lethbridge fire department in north Lethbridge is 10 minutes away and can provide assistance when deemed necessary.

### 3.0. THE PLAN AREA AND SITE ANALYSIS

#### 3.1. LOCATION AND DEFINITION OF PLAN AREA

The plan area is located in Lethbridge County within Sec. 28-9-21-W4. The plan area is situated along Highway 843 and approximately 0.9 km north of the City of Lethbridge boundary which is 62 Ave. North. It is bordered on the north by farmland; on the east, by Range Road 213, on the south by a grouped country residential community, and on the west by irrigation canal and farmland (*refer to Figure 2 - Land Use Concept*). The plan area includes four land parcels: (Refer to **Appendix 1 Property Ownership Titles**)

- Lot 1 Block 2 Plan 8010198, 34.843 acres (14.1 ha), owner(s): Richard Michael Aldoff, Carol Ann Aldoff;
- Lot 2 Block 1 Plan 927LK, 20.02 acres (8.1 ha), owner(s): Kenneth Dale Smith;
- Lot 1 Block 1 Plan 927LK, 24.65 acres (9.98 ha), owner(s): 1946291 Alberta Ltd.;
- Title number 091 049 136, owner(s): Ryan Garret Van Eeden Petersman, Karen Virginia Van Eeden Petersman.

#### 3.2. SITE CHARACTERISTICS

The existing site features and contours are shown on **Figure 3.0 Existing Site**.

- Access to the plan area is from Lethbridge County Township Road 94A, Township Road 94B, and Highway 843.
- There are existing potable waterlines owned by the County of Lethbridge Rural Water Association (C.O.L.R.W.A.), which run adjacent to the site along Township Roads 94-A and 94-B, and along the north boundary of the plan area.
- There is an existing Saint Mary River Irrigation District (S.M.R.I.D.) canal along the west boundary of the plan area,
- There is an existing S.M.R.I.D. buried pipeline running along the south and center portions of the plan area. The south portion of this buried pipeline is planned to be re-aligned to accommodate the extension of Township Road 94-A,
- There are two existing dugouts located in the north and east areas of the site, with irrigation water supplied by (S.M.R.I.D.),
- There is an active high pressure gas line owned by ATCO, running north to south along the eastern site boundary,
- There are existing 60 mm and 42 mm gas distribution lines owned by ATCO, which run across the site to service the existing dwellings,
- There is an abandoned gas well located in the northwest part of the site which has been reclaimed. The well was abandoned in 1999 and the reclamation was completed in 2002. The licensee is Husky Oil Operations Limited.
- Overhead power follows the County Roads along Range Road 213, Township Road 94-A, and Township Road 94-B.
- Five existing residential dwellings are located in the plan area which currently use septic field disposal of wastewater.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 3.3. SOILS

According to the Alberta Soils Information System, the site soils are characterized as a “Lethbridge (LET) Series” soil - “...Orthic Dark Brown Chernozem on medium textured ([loam], [silt-loam]) sediments deposited by wind and water.”

The “Geotechnical Evaluation, MacLaine Acres Area Structure Plan, Section 28 Twp 9 Rge 21 W4M, Lethbridge County, Alberta” report prepared by Tetra Tech Canada Inc., October 2021, (refer to the attached **Appendix 2- Geotechnical Evaluation**) indicates that the soil stratigraphy was found to have topsoil underlain by clay and clay till deposits.

This report provides more information on the soil and ground water candidates with recommendations on the excavations, site grading, dewatering, buried services and trench backfill, concrete, pavement, stormwater management, residential construction, sewage disposal, and testing and inspections.

The report cautions that challenges may be encountered due to soil and ground water conditions. The report further provides recommendations with respect to the groundwater.

### 3.4. TOPOGRAPHY

The site is relatively flat with ground slopes at 0.5 % to 2 %. A slight ridge splits the site into two general drainage areas as shown in **Figure 3 - Existing Site**:

#### 3.4.1. EAST CATCHMENT AREA

East catchment: drains from west to east across the site and released to the west ditch of Highway 843. The high point of this catchment area is located along the west catchment boundary, at an approximate elevation of 907.2 m. The low point is located at the east end of the site at an approximate elevation of 900.0 m.

#### 3.4.2. WEST CATCHMENT AREA

West catchment: runoff is trapped in a topographical depression located in the western area of the site. The highpoint of this catchment area is along the west boundary at an approximate elevation of 908.6 m. The low point is located near the center of this catchment area at an approximate elevation 905.2 m.

### 3.5. WATER AND HYDROLOGY

- The above noted Geotechnical Evaluation found that the depth to ground water varied from 0.7 meters to 5.2 meters.
- There are no natural bodies of water within the plan area.
- Two man-made dugouts exist within the plan area and are filled by a pipeline owned by SMRID.

### 3.6. HABITAT AND VEGETATION

The plan area consists mainly of cultivated mixed grasses that produce a hay crop.

### 3.7. ENVIRONMENTAL, HISTORICAL AND ARCHAEOLOGICAL SIGNIFICANCE

The “Phase 1 Environmental Site Assessment, MacLaine Acres, Portions of Section 28 Twp 9 Rge 21 W4M, Lethbridge County, Alberta” report prepared by Tetra Tech Canada Inc., September 2021 (refer to the attached **Appendix 3 – Environmental Site Assessment**) indicates:

- The site and surrounding area has historically been used for agriculture,
- A SMRID canal formerly transected the property.
- A large dugout was formerly situated in the property.
- One (1) potential source of on-site contamination has been identified which is a group of old barrels. If soil staining is encountered when the barrels are removed, then it is recommended that further assessment is completed.
- No offsite sources of environmental impairment are apparent.
- A hazardous building material assessment is recommended prior to building demolition.
- No further environmental investigation is required at this time.
- MGCL consulted the Alberta Culture and Tourism’s Listing of Historic Resources to determine that the lands within the plan area have not been identified as having a Historic Resource Value. (Refer to the attached **Appendix 4 – Historical Resource Assessment**).

### 3.8. EXISTING LAND USE

- The plan area is mainly used for agriculture with cultivated crops and horse grazing. The land cover has a mix of natural grasslands and irrigated cropland (*refer to Figures 3-Existing Site & 4-Aerial Photograph*);
- There are five houses within the plan area, four of which are inhabited. These four inhabited houses are intended to remain in place and are incorporated in the development layout (*refer to Figure 5A&B - Lot Layout - Phases 1&2*);
- Township Roads 94-A and 94-B and Highway 843 provide access to the plan area.
- The land use for the site is currently Lethbridge Urban Fringe (LUF).



## 4.0. SITE FEATURES

### 4.1. LOCATION

- The site is within the rural agricultural area of Lethbridge County thereby giving residents the rural atmosphere that many people desire.
- The site is within close proximity to the City of Lethbridge where a wide variety of educational, medical, commercial, recreational and community services exist.

### 4.2. HIGHWAY ACCESS

Provincial Highway 843 provides access to the development area from the city of Lethbridge.

### 4.3. EASE OF DEVELOPMENT

Basic utilities such as potable and non potable water, storm water drainage channel, gas and electrical are located at or near the site boundary and therefore the servicing and development of the site will be generally simple, efficient and economical.

### 4.4. SURROUNDING USES OF LAND

The land within and surrounding the ASP area is fragmented with a mix of agriculture and grouped country residential uses. The plan area is comprised of four small land parcels which makes agriculture difficult. The development of the MacLaine Acres Land would complete Sunny View Estates which is an existing clustering of grouped country residential homes. This development would also enhance and complement the existing Sunny View Estates and Myndio Chollak subdivisions. Several other country residences with larger parcel sizes are also in the area surrounding the MacLaine Acres area. There are two existing group country residential developments approximately 2 km west of the plan area which are consistent with the proposed development style. The Edgewood and Deerview Estates communities have approximately 30 or more existing grouped country residential lots.

### 4.5. LIFESTYLE

The proposed development provides for a type of residential land use that would allow families to build and live in a community offering rural lifestyle and still enjoy urban type utility services.

## 5.0. PLAN GOALS AND OBJECTIVES

### 5.1. PLAN GOALS

#### 5.1.1.

The MacLaine Acres Area Structure Plan will respond to the needs, issues and requirements identified by the owners, Lethbridge County as well as those agencies and organizations having an interest in the planning of this area.

#### 5.1.2.

The goals of this Area Structure Plan follow the planning policies outlined through the legislative framework.

#### 5.1.3.

When adopted by Lethbridge County Council, this Area Structure Plan will create the framework for subdividing and developing the subject property.

#### 5.1.4.

This document will function as the required plan and as such will outline:

- proposed land use,
- proposed lot layout,
- the road access and circulation,
- the location of public utilities,
- supply of potable water,
- sanitary sewage disposal,
- drainage and stormwater management,
- supply of community irrigation water,
- other related matters.

### 5.2. PLAN OBJECTIVES

#### 5.2.1.

The MacLaine Acres Area Structure Plan will adhere to the following objectives:

- create lots with a minimum size of 2 acres (0.8 ha),
- institute a storm water management system for the planned development,
- if available, utilize potable water from the County of Lethbridge Rural Water Association,
- consider road access and circulation for the development,
- investigate the suitability of on-site septic systems for wastewater treatment and disposal,
- allow for a community irrigation system,
- identify electrical, gas, and communications servicing.

## 6.0. DESIGN AND LAND USE

### 6.1. PROPOSED LAND USE

A total of approximately 27 residential lots with a minimum size of 2 acres (0.8 ha) and 3 PUL lots for storm water management purposes will be created on the proposed development. It is proposed to have the Land Use changes to Grouped Country Residential, as shown on **Figure 2 - Land Use Concept**. Additionally, 3 lots are proposed along Highway 843 to allow for future highway widening and a service road. At the time of subdivision, if required by the county, caveats will be placed on these 3 lots that would prevent construction on the lots.

### 6.2. DENSITY AND POPULATION

The housing density within the proposed development comprises 27 residential lots plus 3 PUL lots or 0.34 units per acre (0.84 units per ha.) of net area (*refer to **Figure 5 - Lot Layout - Phase 1 and Figure 6 - Lot Layout - Phase 2***),

Based on an average occupancy of 3 persons per household, the population within the plan area is estimated to be approximately 81 persons.

The number of lots may vary by plus or minus a few lots during the final design. Additionally there may be minor layout changed resulting from the final design process. Any changes would need to be approved by Lethbridge County, during the subdivision approval process.

### 6.3. RESERVE REQUIREMENTS

If the County does not want land dedicated as municipal reserve, cash-in-lieu would be provided to achieve the 10% municipal reserve requirement.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 7.0. ROADS

#### 7.1. SITE ACCESS AND CIRCULATION

Access into the proposed development area will be via Highway 843. A local road is proposed to extend west from Twp-Rd. 94-A, and extend north and loop back to Hwy 843, to provide access to the proposed community. A cul-de-sac will come off of the loop road to the west *refer to **Figure 5 - Lot Layout - Phase 1 and Figure 6 - Lot Layout - Phase 2***. The type of road surface will be determined at the time of subdivision depending on the status of Highway 843. Future site access will be via a service road from Twp-Rd. 94-A which will be built at the time of the future Hwy 3 / Hwy 843 interchange.

Lands required for Canamex, which includes right of ways for highways or roads and services roads will be taken in the future.

Alberta Transportation has indicated that a TIA is not required prior to ASP approval. Alberta Transportation shall be consulted prior to any subdivision to determine if and when a TIA might be required.

#### 7.2. PHASES OF ROADWAY CONSTRUCTION

There are three phases of construction anticipated for the site:

##### 7.2.1. PHASE 1A

Phase 1A would include seven residential lots located at the center of the site. Access to Phase 1A would be along TWP-94B with no additional land dedicated to road right of way.

##### 7.2.2. PHASE 1B

Phase 1B would include thirteen residential lots located at the west portion of the site. Access to Phase 1B would be through a westerly extension of Township Road 94A which would then be extended northerly with two cul-de-sacs. A temporary emergency access would be provided along the north boundary of the site, extending to Hwy 843.

##### 7.2.3. PHASE 2

Phase 2 would include seven residential lots located at the north portion of the site. A County road would be developed, with a connection from Hwy 843, which would extend through Phase 2 and connect to Phase 1B, the cul-de-sac at the end of the Phase 1B road. This would then provide a looped road through the subdivision. The Phase 1B emergency access would be removed upon completion of the looped road.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 8.0. SERVICING

#### 8.1. POTABLE WATER SUPPLY AND DISTRIBUTION

It is envisioned that the domestic potable water requirements for the subdivision will be met by one of the following alternatives or by a combination of these alternatives.

##### *8.1.1. POTABLE WATER SUPPLY, ALTERNATIVE 1*

The first alternative is to have the water supplied by the County of Lethbridge Rural Water Association via extensions from an existing potable water pipe running through the site. Each lot will be supplied with a trickle system to fill individual cisterns. The Water Co-op is in the process of finalizing their water supply plans for this area.

##### *8.1.2. POTABLE WATER SUPPLY, ALTERNATIVE 2*

The second alternative is the provision of ground water well(s) which will supply each lot via a trickle system to fill individual cisterns. Pre-chlorination and/or other treatment may be required prior to distribution to each lot. The feasibility of this alternative will be determined if it is required by Lethbridge County.

##### *8.1.3. POTABLE WATER SUPPLY, ALTERNATIVE 3*

The third alternative is use SMRID supplied irrigation water that will be treated as required by each individual lot owner. The feasibility of this alternative will be determined as required by Lethbridge County.

##### *8.1.4. DETERMINATION OF FINAL POTABLE WATER SOURCES*

The final method of water supply will be dependent on the Water Co-op's final plans and the costs associated with each of the alternatives. The ultimate method of supply could be by a combination of these alternatives which would be subject to Lethbridge County administrative approval.

The County may consider allowing four lots in Phase 1A to haul potable water pending the final determination of a potable water supply for the balance of the lots.

##### *8.1.5. GOVERNMENT REQUIREMENTS*

The water supply and cisterns will be installed in accordance with requirements of the Chinook Health Region, the Safety Codes Council of Alberta and Lethbridge County.

##### *8.1.6. HOME OWNER ASSOCIATION*

The potable water and irrigation systems will not be taken over by Lethbridge County. A separate entity will be created to manage these facilities. The entity and management requirements shall be approved by Lethbridge County.

#### 8.2. SEWAGE DISPOSAL

Each lot will have its own on site waste water treatment and dispersal system.

##### *8.2.1. LICENSED DESIGN*

The detailed design of each septic system shall be completed by a licensed designer at the time of the house construction.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 8.2.2. ALBERTA REGULATIONS

Alberta Regulations AR229/97 and AR196/2015, the *Alberta Private Sewage Systems Standard of Practice 2015* (the "SOP") describes the requirements for the design of on-site wastewater treatment and disposal systems.

### 8.2.3. SEPTIC FEASIBILITY ASSESSMENT

The "Preliminary Septic Disposal Field Feasibility Assessment, Proposed MacLaine Acres Subdivision, Section 28 Range 9 Township 21 West of the 4<sup>th</sup> Meridian, Lethbridge County, Alberta" report prepared by Tetra Tech Canada Inc., October 08, 2021 (refer to the attached **Appendix 6- Septic Feasibility Assessment**) indicates:

- Twelve (12) test pits were excavated to a depth of 3 m to observe soil profiles and collect samples which found silty clay loam, silty loam, clay loam, loam, silty loam.
- The soil textures are feasible for soil base treatment, or soil based treatment with treatment mound.
- The majority of soil textures are suitable for septic effluent quality 2 or better with pressure distribution lateral pipe.
- Restrictive soil layers encountered may require further assessment, depending on site grading, location of septic field and efficient loading.

### 8.2.4. LOCATION OF SEPTIC FIELD

No on-site wastewater management system components shall be installed in areas designated for conveyance or detention of runoff or behind the development setback lines.

## 8.3. STORM WATER MANAGEMENT

- Stormwater within the development will be managed such that runoff will be stored on-site to attenuate peak discharge and directed to an existing discharge location on a road right-of-way, which is the ditch on the west side of Hwy-843 (refer to **Figure 7 - Stormwater Management**).
- Post-development runoff will be stored and released at controlled rate that is the lower of, the pre-development rate at the discharge point and 2.0 liters per second from developed land. This is better than the Alberta Environment and Parks requirements and the Lethbridge County Engineering Guidelines and Minimum Service Standards. A summary of the existing and proposed drainage systems follows, and a more detailed description of the site drainage is included in the Stormwater Management Plan, which is appended to this document in **Appendix 7- Stormwater Management Plan**.

### 8.3.1. EXISTING CONDITIONS

- The land is generally flat with ground slopes of 0.5% to 2.0% with majority of the site runoff draining the east into the Highway 843 ditch system. Analysis of the terrain shows the site has six overland catchment areas.
- East sub-catchment - drains from west to east across the site and released to the west ditch of Highway 843. The high point of this catchment area is located on the south end of the west catchment boundary, at an approximate elevation of 907.2 m, and the low point is located at the northeast end of the site at an approximate elevation of 900.0 m.
- Dugout sub-catchment – this is the area of the existing water dugout for farm use, that drains to itself. It does not have a discharge location.
- West-NW sub-catchment drains from south to north and discharges to the property to the north.
- West-SE sub-catchment drains from the NW to the SE and discharges to the Township road 94A ditch.

## MACLAINE ACRES AREA STRUCTURE PLAN

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- West SW sub-catchment drains from south to north and discharges to the property to the south.
- West Central sub-catchment – drains to a topographical depression located in the center of the sub-catchment. The highpoint of this catchment area is along the west boundary at an approximate elevation of 908.6 m. The low point is located near the center of this catchment area at an approximate elevation 905.0 m. Calculations show that this catchment will not spill overland during a major storm event and empties through infiltration and evaporation. This area, if it spills, is to the east the topographical depression.

### 8.3.2. DRAINAGE CONCEPT

- The stormwater management concept is detailed in the attached Stormwater Management Plan. Refer to **Appendix 7- Stormwater Management Plan**.
- Storm water runoff from the site will be directed into storage pond(s), which will be designed to store runoff up to a 24 hour duration, 1 in 100 year frequency event. Although three ponds are shown in the concept drawings the County wants only one pond. During the design phase only one pond will be considered unless circumstance at the time indicates additional ponds may be necessary. Any changes from one pond will be at the County's discretion. The stormwater ponds will not be used as a source for irrigation purposes.
- The ponds will be drained either by gravity or pumped at the Counties discretion into the west Highway 843 ditch. This ditch currently directs all runoff northerly to ultimately end up in the Oldman River. Flow from this site will be restricted as outlined above and stored. The 2.0 litres per second per ha release rate from developed areas is approximately 43% of the predevelopment release rate to Highway 843 ditch. The maximum release will match existing conditions.
- Lethbridge County has undertaken a master drainage study for the entire area around MacLaine Acres. The Storm Water Management plan for this site can be adjusted in order to be compliant with the County's study.
- All of the designated drainage conveyance routes and storage facilities will either be on public rights-of-way, Public Utility Lots, or be protected by Utility right-of-way in favor of Lethbridge County, or easement or caveat.

### 8.3.3. SITE GRADING

- The subdivision will be graded to be consistent with the overall Stormwater Management Plan as shown on **Figure 7 - Stormwater Management**. Individual lots will generally be graded such that surface runoff will be directed to perimeter swales designed to carry the stormwater runoff into the ditches and then into the stormwater detention facilities.

## 8.4. UTILITIES

### 8.4.1. ELECTRICITY

Epcor is the electricity provider for Lethbridge County and the distributor is Fortis Alberta. It is planned that electrical service to individual lots will be distributed underground. Internal roadways will be serviced with street lights. All necessary applications for the detailed design and installation of electric utilities will be submitted to Fortis for their approval.

### 8.4.2. NATURAL GAS

Natural gas is available through ATCO Gas, who have has advised that there are no known capacity issues with servicing the proposed development.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### *8.4.3. TELECOMMUNICATIONS/CABLE SERVICE*

Telus Communications provides telephone and cable service for the area. Cellular phone service is also available.

Shaw Cable does not offer services in this area and does not plan to be servicing the proposed development at this time.

### *8.4.4. SOLID WASTE MANAGEMENT*

Individual solid waste will be disposed of at a local transfer station.

## **8.5. IRRIGATION SYSTEM**

### *8.5.1. COMMUNITY IRRIGATION*

A community irrigation system will provide SMRID supplied non-potable water to each lot for watering lawns and gardens. This irrigation water will be supplied by SMRID to the irrigation water storage pond. This pond is separate from the storm water management pond. The water will be pumped from the pond through a communal pipeline system with lateral connections supplying each lot. The current plan is to have a central irrigation water storage pond. During the final design, the necessity for a central pond may be eliminated and water will be supplied to ponds on each lot directly from the SMRID turnout.

### *8.5.2. FIRE PROTECTION WATER*

Water for fire protection will be available through this central irrigation water storage pond or individual ponds, which will have their level maintained with irrigation water supplied by SMRID.

### *8.5.3. SMRID APPROVAL*

This irrigation water supply system will require approval for SMRID.

### *8.5.4. OPERATION OF SYSTEM*

A separate entity will be created to own and operate the irrigation system within the development. The irrigation piping will be installed in an easement through the lots in favor this entity. '



## MACLAINE ACRES AREA STRUCTURE PLAN

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### 9.0. PROTECTIVE SERVICES

#### 9.1.1. FIRE PROTECTION

- The Lethbridge Fire Department is the responding station with the north Lethbridge station being about 10 minutes from the ASP site.
- Lots are a minimum of 2 acres in size which will enable the houses to be setback a considerable distance from each other thereby helping to minimize fire spreading/
- Several water sources exist within and surrounding the plan area which may be available for fire protection water use.
- 

#### 9.1.2. POLICE PROTECTION

Policing in Lethbridge County is provided by the Royal Canadian Mounted Police (R.C.M.P.) which has a detachment located in the Town of Coaldale, approximately 21 km from the plan area.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 10.0. DEVELOPMENT AGREEMENT

The Developer will enter into a Development Agreement with Lethbridge County regarding the following matters:

- Runoff conveyance and detention as per the Stormwater Management Plan,
- Roadway construction,
- Potable water installation,
- Irrigation system,
- Shallow utilities,
- Other services or matters considered necessary by Lethbridge County.

The ownership and management of the potable water system and the irrigation water system will be by a separate entity; and will not be provided by Lethbridge County.

The roadways and stormwater management system will be owned and managed by Lethbridge County.

The ownerships of the shallow utilities will be by the respective provider of each utility (i.e. electric, gas, telephone and telecommunication systems).

Lethbridge County may determine that pre-grading of some lots is required. If a lot is designated for pre-grading by the County the individual lot owner will be required to a clause to the grades as set. Adhere with respect to this requirement will be included in the Architectural Control.

## **MACLAINE ACRES AREA STRUCTURE PLAN**

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### **11.0. ARCHITECTURAL CONTROLS**

#### **11.1. PURPOSE OF CONTROLS**

The developer of MacLaine Acres will establish a set of Architectural Controls in order to achieve standards, an appropriate level of house design compatibility, and development limitations within the plan area.

#### **11.2. TYPICAL CONTROLS THAT WILL BE IN EFFECT WITHIN MACLAINE ACRES INCLUDE THE FOLLOWING:**

1. Minimum dwelling unit area and site coverage (building footprint),
2. Diversity in home design,
3. Incorporation of energy efficiency features,
4. Roof pitch & materials,
5. Exterior finishing materials,
6. Fencing materials,
7. Minimum landscaping requirements in which xeriscaping will be considered,
8. Hobby farm animals such as horses,
9. Accessory building and vehicle storage.
10. Building and lot drainage and grading requirements

#### **11.3. DEVELOPER FENCING AND LANDSCAPING**

The developer may undertake construction of certain stretches of fencing or installation of certain aspects of landscaping to establish the character of the development.

## MACLAINE ACRES AREA STRUCTURE PLAN

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### 12.0. IMPLEMENTATION AND DEVELOPMENT CONTROL

- This Area Structure Plan will become a Bylaw of Lethbridge County.
- All subsequent subdivision applications must adhere to provisions of this A.S.P. Bylaw and the Land Use Bylaw.
- Development applications, within the boundaries of the plan area, must comply with the requirements of the respective land use districts for which they are proposed.
- Building permits must be reviewed through a safety codes process approved by Lethbridge County.
- Lethbridge County may utilize other bylaws and policies that will regulate aspects of activity within the boundaries of the Area Structure Plan.
- The Land Use Bylaw must be amended to Grouped Country Residential to reflect this ASP.
- The lot owner or his builder must follow the Architectural Controls.
- There are several references within this ASP that refer to the formation of a Landowners Association. An alternative management and operating entity may be designated instead of the Homeowners Association. Any changes must be approved by the Lethbridge County administration. Formal amendments to the ASP would not be required if this change was to be implemented.

## MACLAINE ACRES AREA STRUCTURE PLAN

---

### 13.0. PHASING

There are three phases of construction anticipated for the site:

- Phase 1A located in the S.E. portion of the ASP would include seven residential lots and a PUL lot.
- Phase 1B located in the west portion of the site, would include thirteen residential lots and a PUL lot.
- Phase 2 located in the N.E. portion of the ASP would include seven residential lots and a PUL lot.
- Smaller sub-phases may be proposed at the detailed design and subdivision stage of the project. This will be determined based on future consumer demand for lots.

## MACLAINE ACRES AREA STRUCTURE PLAN

---

### 14.0. ADJACENT LANDOWNER CONSULTATION AND OTHER CORRESPONDENCE

#### 14.1. NOTICE SENT TO ADJACENT LAND OWNERS

A letter and drawings were hand delivered to the residences in the immediate vicinity of the ASP. (See **Appendix 5- Adjacent Landowner and Consultation and Other Correspondence**)

#### 14.2. NEIGHBOURHOOD COMMENTS

Two written comment was received and one telephone comment was received.

- The telephone comment expressed the concern that when they built their house they were advised that there would be no future development to impair their views. Additionally, they were concerned about the increased traffic and resulting dust. In particular their concern was regarding the condition of poor maintenance of Highway 843.
- One written comment expressed concern with higher density resulting from the development. They were told when they purchased their lot that no one would build across from their lot. This higher density would also lead to increased traffic, and increased number of dogs. Concern with the effect on the water table was also expressed. (Refer to **Appendix 5 - Adjacent Landowner Consultation and Other Correspondence**)
- The other written comment expressed concern about the lack of water available from the water co-op. They also wanted Hwy 843 to be paved as soon as possible due to the poor maintenance currently being experienced. He also would like to have Twp. Road 94A and 94B paved at the same time construction occurs on this development. . (Refer to **Appendix 5 - Adjacent Landowner Consultation and Other Correspondence**)
- 

#### 14.3. OTHER RELATED CORRESPONDENCE

- Map & Letter Sent to neighbors
- Neighborhood Comments
- Map from SMRID
- Map from Fortis
- Map from Alberta Energy Regulator
- Map from ATCO Gas
- Map from County of Lethbridge Rural Water Association
- Lethbridge County Map "Development Consideration"

## 15.0. MARKET DEMAND

The County's Group Residential strategy requires that a market demand study be included with the ASP. After discussing this with some land appraisers and realtors it was determined that such a study is very difficult to undertake, it's also very inaccurate and requires a "crystal ball" approach.

It is possible that the lots in this ASP could take anywhere up to 10 or 15 years to be all sold. Estimating the market conditions over that period of time would be impossible. The best measure of market demand is the number of lots that are serviced at one time. Even though the ASP may contain 30 lots, the developers of MacLaine Acres will only service lots that they can foresee will be sold in relatively a short time period.

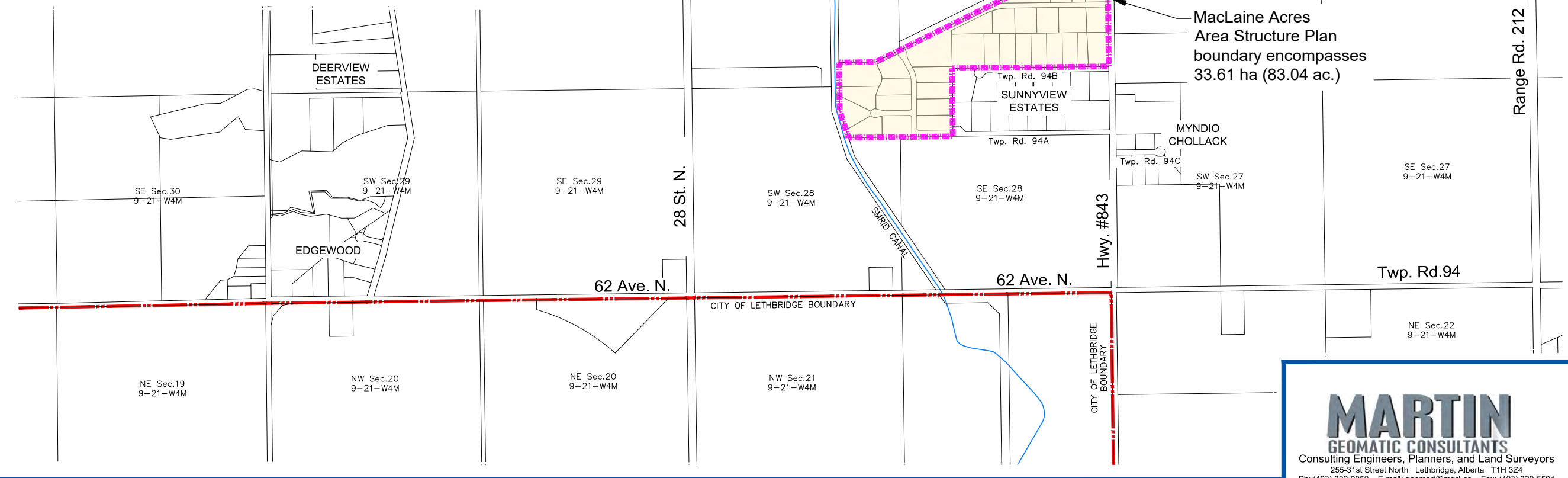
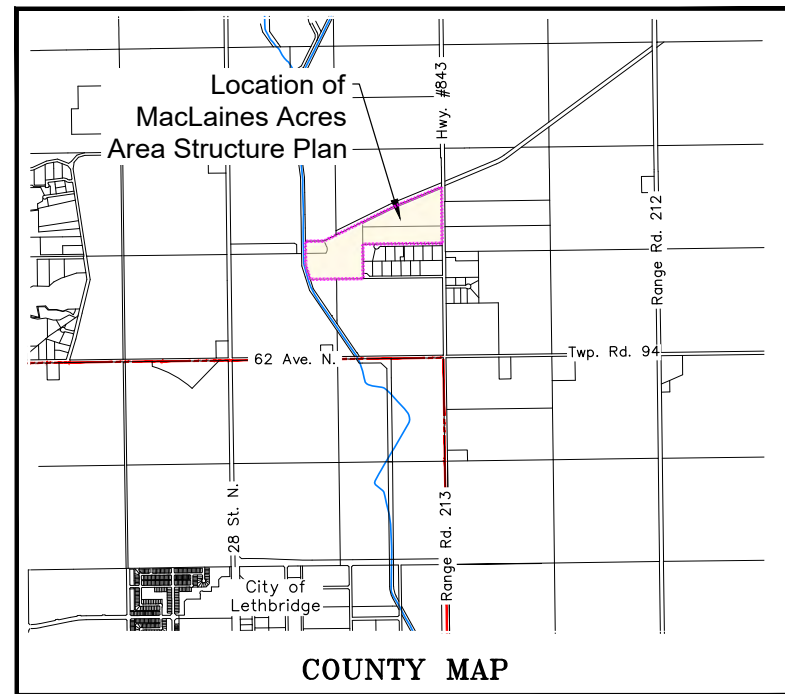
The ASP provides the framework for how the development is to proceed. Just because the ASP is approved it does not mean servicing all the lots at one time. With respect to this development, the owner of Phase 1A has about 5 buyers that are interested in purchasing now. As such his plan is to service all 7 lots right away. The owner of Phase 1B has indicated he would not be servicing any lots for about 3 years. Even then he will not start servicing until he has purchaser interest in approximately 5 lots. The balance would be serviced based on market demand at that time. The owner of Phase 2 has no plans for servicing the lots. It could be 5 to 10 years before he gets started. The developers will regulate putting lots on the market only when there is purchaser interest and even then the servicing will be done in small phases.

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# FIGURES

1. GENERAL LOCATION PLAN
2. LAND USE CONCEPT
3. EXISTING SITE
4. AERIAL PHOTOGRAPH
5. LOT LAYOUT - PHASE 1
6. LOT LAYOUT – PHASE 2
7. STORMWATER MANAGEMENT





**MARTIN**  
**GEOMATIC CONSULTANTS**  
 Consulting Engineers, Planners, and Land Surveyors  
 255-31st Street North Lethbridge, Alberta T1H 3Z4  
 Ph: (403) 329-0050 E-mail: geomart@mgd.ca Fax: (403) 329-6594

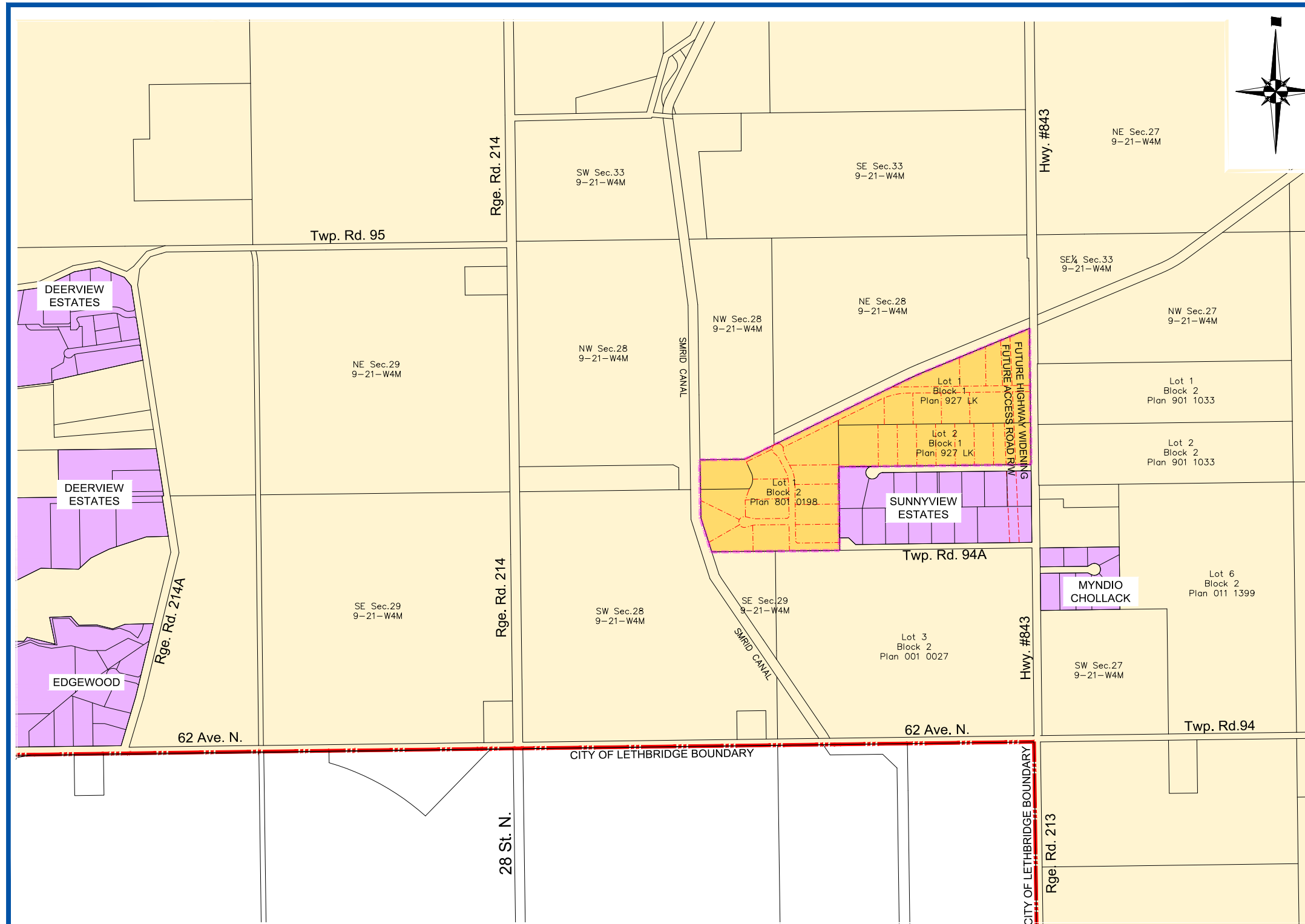
# MacLaine Acres

# AREA STRUCTURE PLAN

# GENERAL LOCATION PLAN FIGURE 1.0

May 11, 2022

208645CE



**LEGEND**

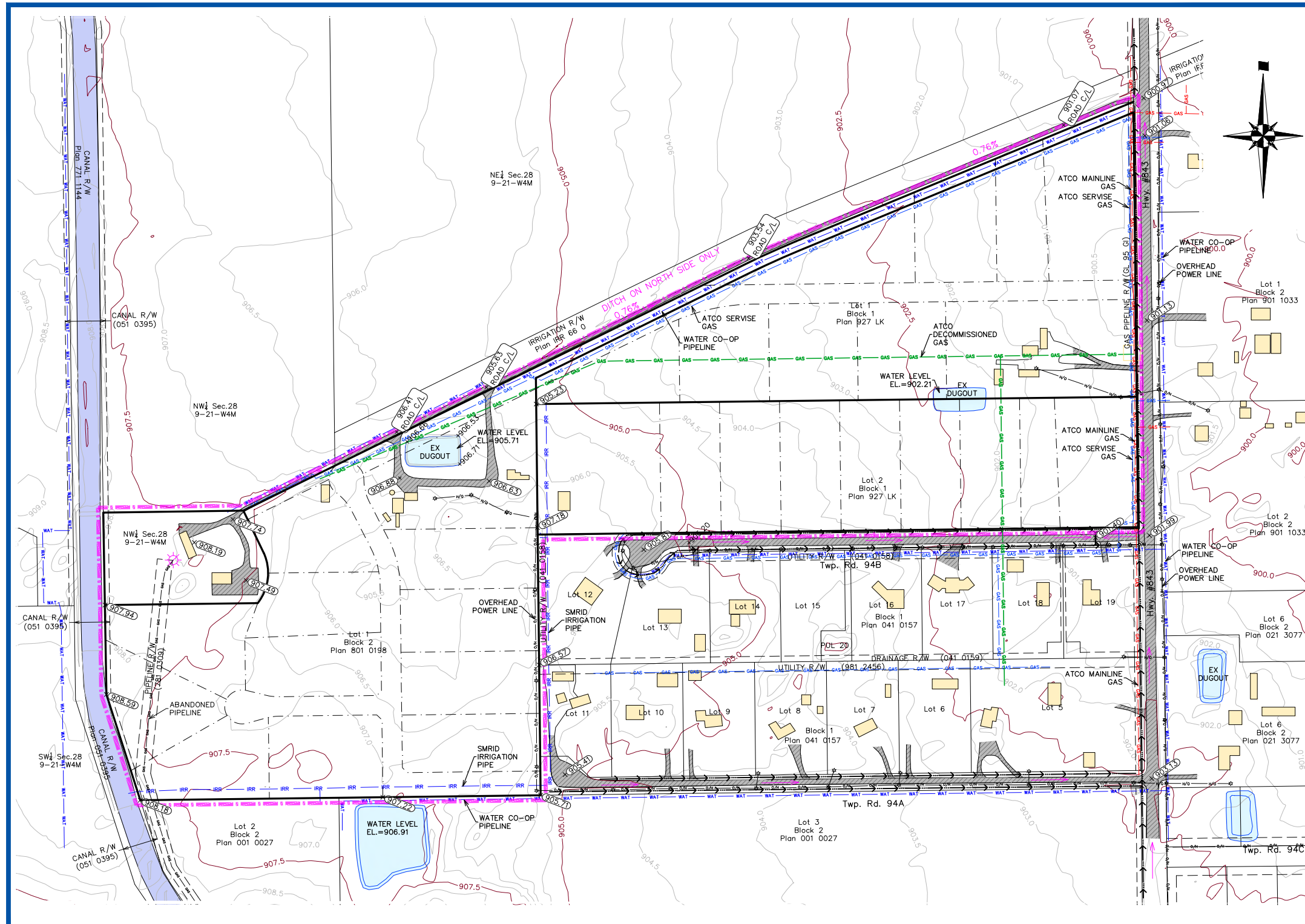
ASP BOUNDARY

	GROUPED COUNTRY RESIDENTIAL - GCR
	LETHBRIDGE URBAN FRINGE - LUF
	LETHBRIDGE URBAN FRINGE TO GROUP COUNTRY RESIDENTIAL

**MARTIN**  
**GEOMATIC CONSULTANTS**  
 Consulting Engineers, Planners, and Land Surveyors  
 255-31st Street North Lethbridge, Alberta T1H 3Z4  
 Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594

**MacLaine Acres** **AREA STRUCTURE PLAN** **LAND USE CONCEPT**  
 FIGURE 2.0

May 11, 2022 208645CE

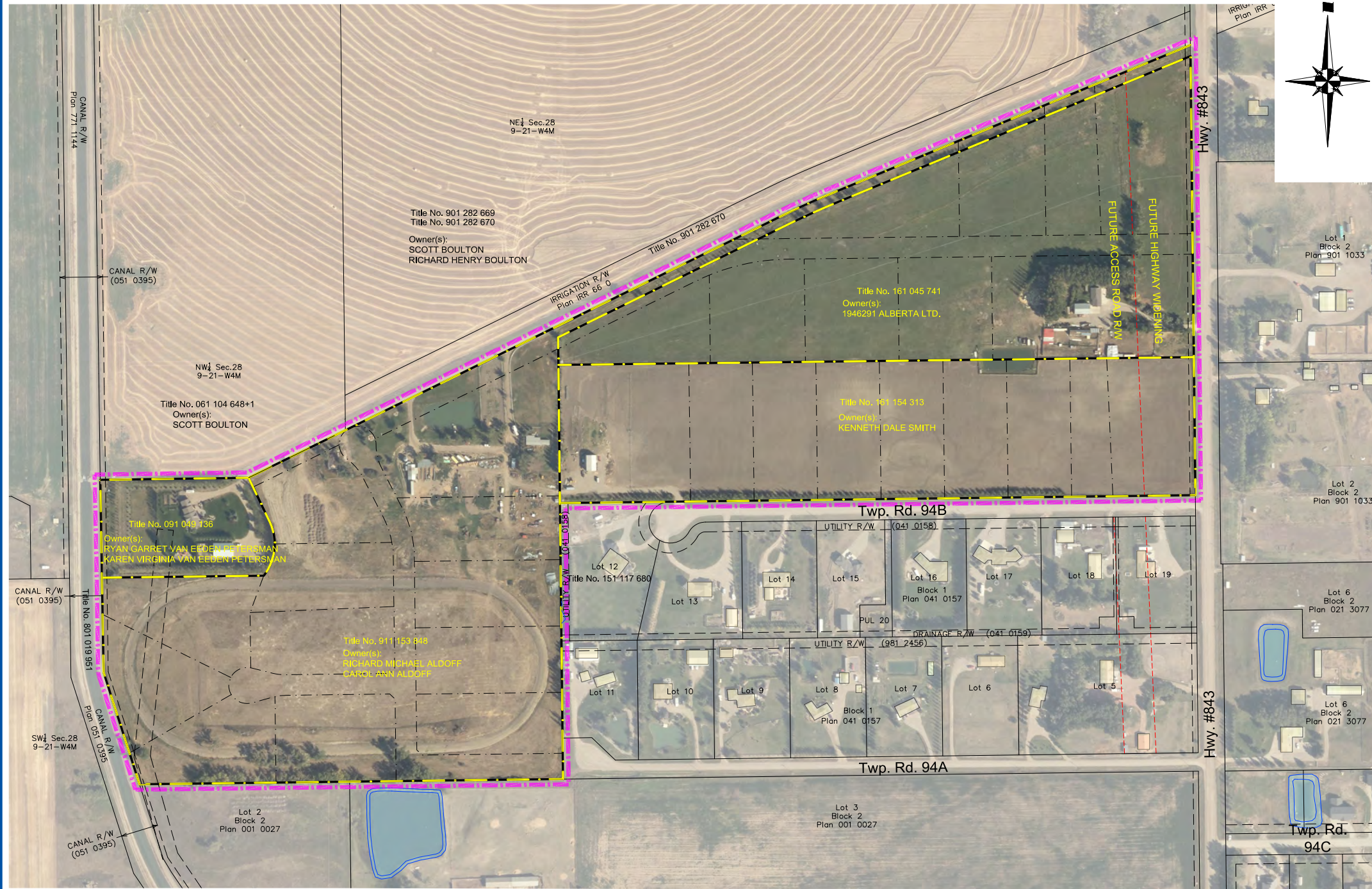


LEGEND	
	ASP BOUNDARY
	EX. MAJOR CONTOUR LINE
	WATER CO-OP PIPELINE
	SMRID IRRIGATION PIPE
	GASLINE
	OVERHEAD POWERLINE
	ABANDONED GAS WELL (RECLAIMED)
	EXISTING DITCH DRAINAGE
	SPOT ELEVATION ON SURFACE
	PROPOSED LOT BOUNDARIES
	ATCO SERVICE GAS
	ATCO DECOMMISSIONED GAS
	ATCO MAINLINE GAS
	FLOW DIRECTION

**MARTIN**  
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 Consulting Engineers, Planners, and Land Surveyors  
 255-31st Street North Lethbridge, Alberta T1H 3Z4  
 Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594

**MacLaine Acres** **AREA STRUCTURE PLAN** **EXISTING SITE**  
**FIGURE 3.0**

May 11, 2022 208645CE



**LEGEND**  
 - - - - - ASP BOUNDARY  
 - - - - - TITLE BOUNDARY

**MARTIN**  
**GEOMATIC CONSULTANTS**  
 Consulting Engineers, Planners, and Land Surveyors  
 255-31st Street North Lethbridge, Alberta T1H 3Z4  
 Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594

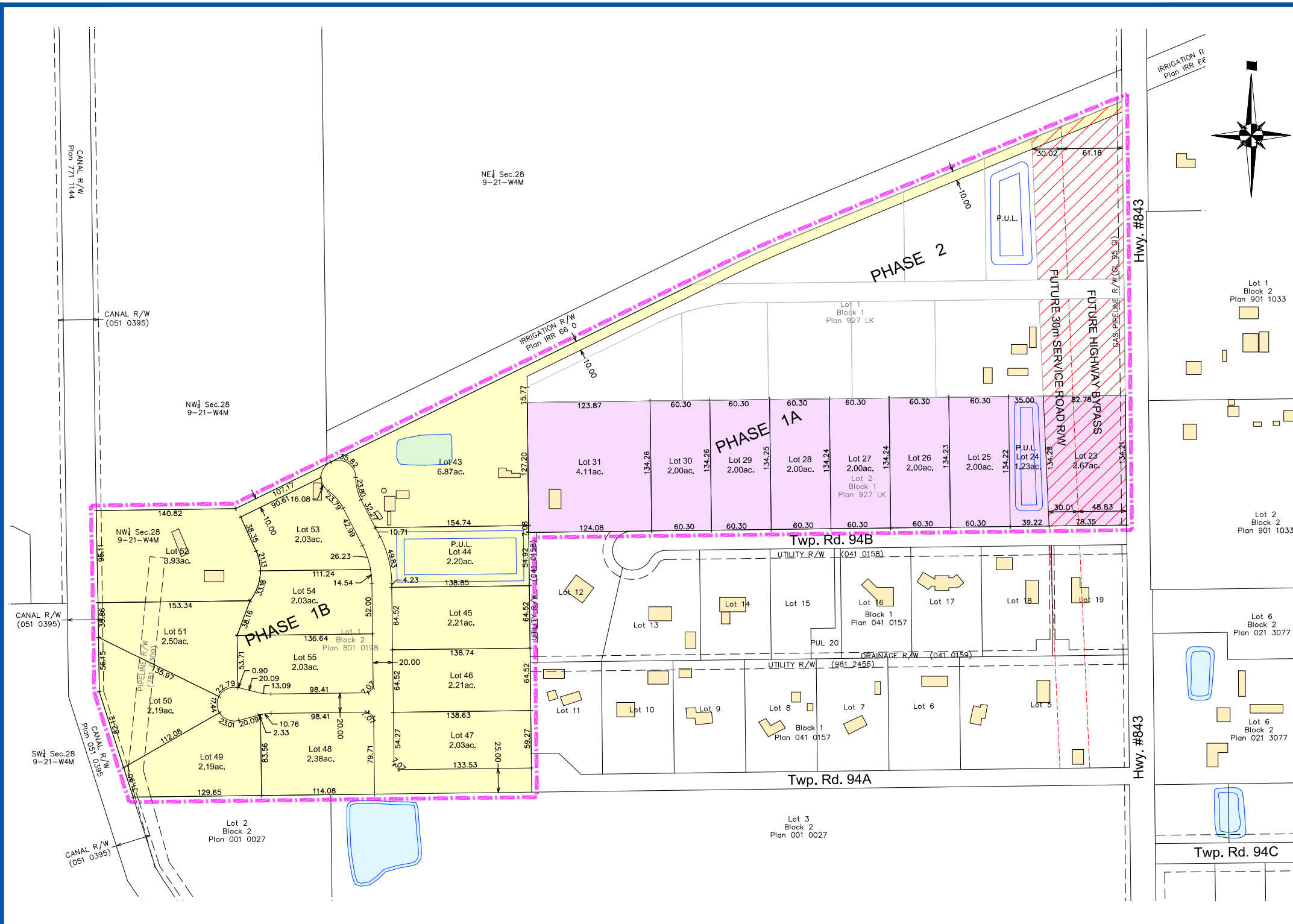
# MacLaine Acres

## AREA STRUCTURE PLAN





AERIAL PHOTO  
 FIGURE 4.0

May 11, 2022

208645CE



**LEGEND**

-  ASP BOUNDARY
-  PHASE 1A
-  PHASE 1B
-  IF REQUIRED BY COUNTY, CAVEATS TO BE PLACED ON THESE LOTS TO PREVENT CONSTRUCTION

**NOTES:**

- PHASE 1A, 1B & 2 MAY BE DEVELOPED IN SMALLER SUB PHASES
- LOT SIZES AND CONFIGURATION MAY VARY SLIGHTLY AT THE TIME OF FINAL DESIGN. CHANGES WILL BE SUBJECT TO COUNTY APPROVAL.

	NUMBER OF LOTS	
	RESIDENTIAL	PUL
PHASE 1A	8	1
PHASE 1B	12	1
PHASE 2	9	1

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 Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594

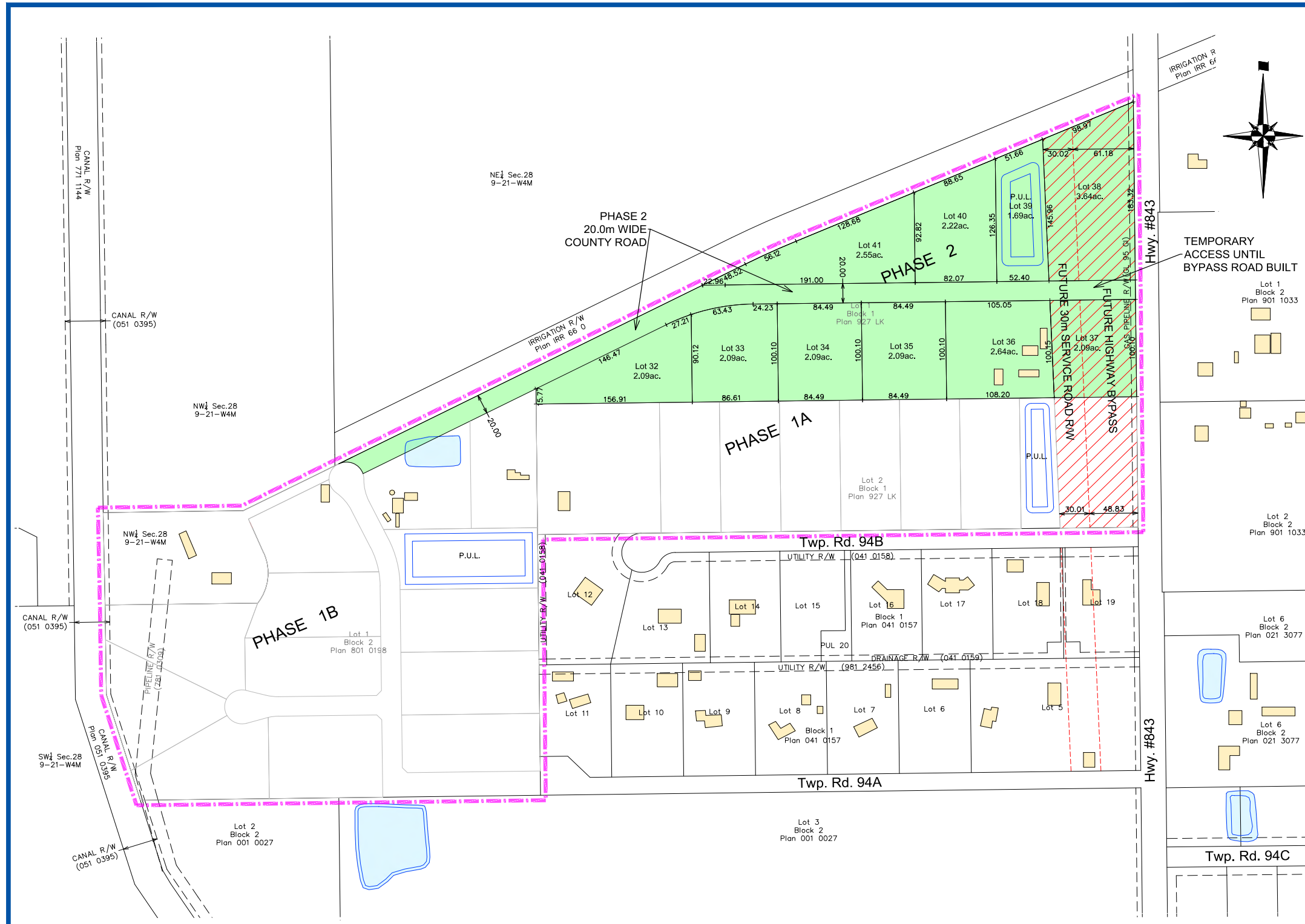
**MacLaine Acres**

**AREA STRUCTURE PLAN**

**LOT LAYOUT - PHASE 1**  
**FIGURE 5.0**

May 11, 2022

208645CE



**LEGEND**

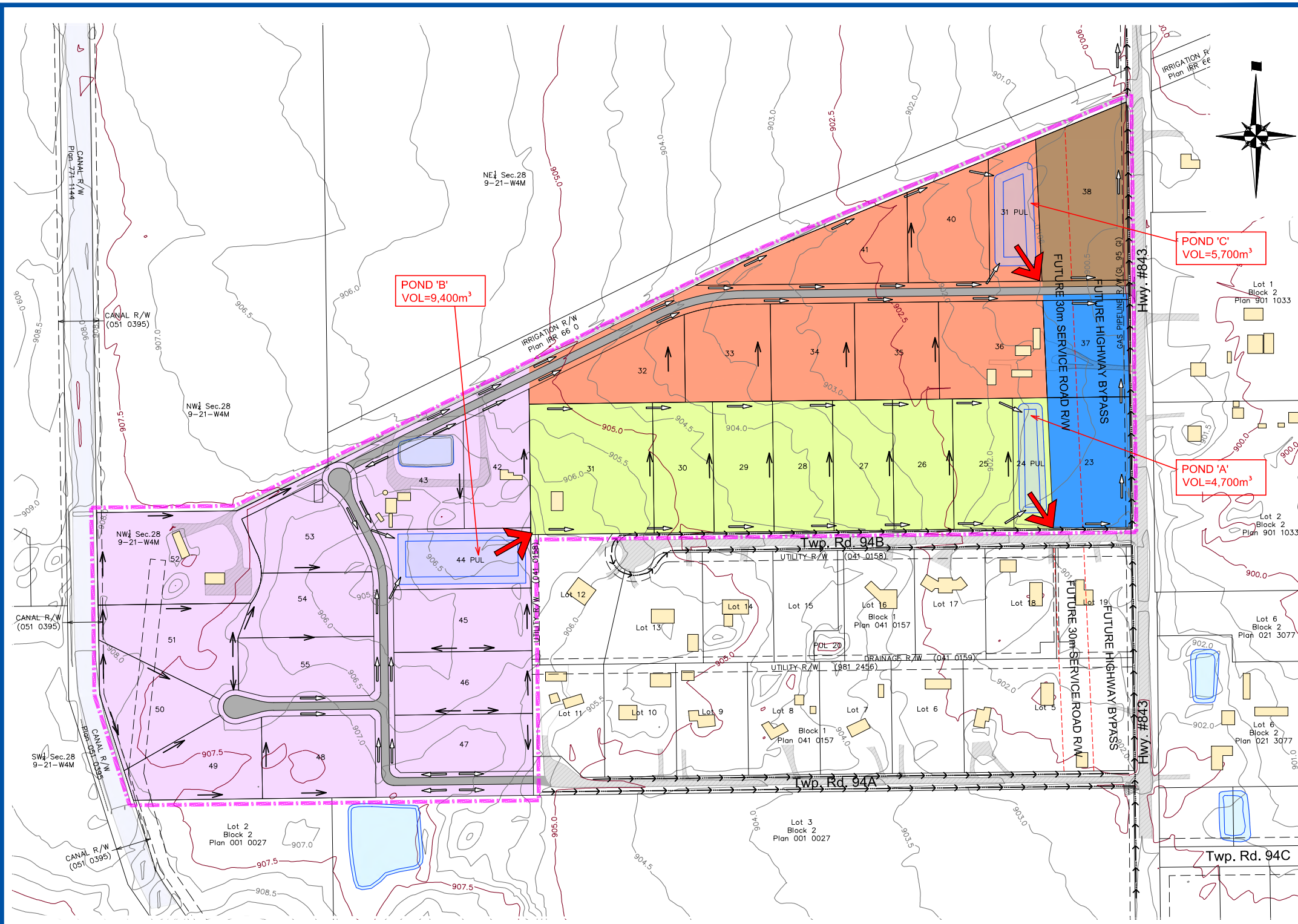
- ASP BOUNDARY
- PHASE 2
- IF REQUIRED BY COUNTY, CAVEATS TO BE PLACED ON THESE LOTS TO PREVENT CONSTRUCTION

- NOTES:**
- PHASE 1A, 1B & 2 MAY BE DEVELOPED IN SMALLER SUB PHASES
  - LOT SIZES AND CONFIGURATION MAY VARY SLIGHTLY AT THE TIME OF FINAL DESIGN. CHANGES WILL BE SUBJECT TO COUNTY APPROVAL.

	NUMBER OF LOTS	
	RESIDENTIAL	PUL
PHASE 1A	8	1
PHASE 1B	12	1
PHASE 2	9	1

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 Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594

**MacLaine Acres** **AREA STRUCTURE PLAN** **LOT LAYOUT - PHASE 2**  
 FIGURE 6.0



**LEGEND**

- ASP BOUNDARY
- POND OUTLET
- EXISTING DITCH DRAINAGE
- SURFACE DRAINAGE
- PROPOSED DITCH DRAINAGE

CATCHMENT	'A'	'B'	'C'
AREA (ha)	7.42	14.84	8.97
POND VOLUME (m³)	4,700	9,400	5,700

**NOTE:**  
THREE STORAGE PONDS ARE SHOWN CONCEPTUALLY TO IDENTIFY STORAGE VOLUMES FOR EACH PHASE. IT IS PLANNED THAT THE FINAL DESIGN WILL INCLUDE ONE POND. (IF FEASIBLE)

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 Ph: (403) 329-0050 E-mail: geomart@mgc.ca Fax: (403) 329-6594

**MacLaine Acres**

**AREA STRUCTURE PLAN**

**STORMWATER MANAGEMENT**  
**FIGURE 7.0**

May 11, 2022

208645CE

---

# APPENDIX

1. **PROPERTY OWNERSHIP TITLES**
2. **GEOTECHNICAL EVALUATION** (PROVIDED UNDER SEPARATE COVER)
3. **ENVIRONMENTAL SITE ASSESSMENT** (PROVIDED UNDER SEPARATE COVER)
4. **HISTORICAL RESOURCE ASSESSMENT**
5. **ADJACENT LANDOWNER CONSULTATION & OTHER CORRESPONDENCE**
  - MAP & LETTER SENT TO NEIGHBORS
  - NEIGHBORHOOD COMMENTS
  - MAP FROM SMRID
  - MAP FROM FORTIS
  - MAP FROM ALBERTA ENERGY REGULATOR
  - MAP FROM ATCO GAS
  - MAP FROM COUNTY OF LETHBRIDGE RURAL WATER ASSOCIATION
  - LETHBRIDGE COUNTY MAP "DEVELOPMENT CONSIDERATION"
6. **SEPTIC FEASIBILITY ASSESSMENT** (PROVIDED UNDER SEPARATE COVER)
7. **STORMWATER MANAGEMENT PLAN**
8. **SUNNY VIEW ASP CONCEPT DESIGN**
9. **ALBERTA TRANSPORTATION-PORION OF FIGURE 5.2.3 (LETHBRIDGE AND AREA NHS & NSTC FUNCTIONAL PLANNING STUDY, MARCH 12, 2004 – STANTEC)**



# APPENDIX 1

---

## Property Ownership Titles



LAND TITLE CERTIFICATE

S  
LINC                      SHORT LEGAL                      TITLE NUMBER  
0031 401 425            4;21;9;28;NW                      091 049 136

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 21 TOWNSHIP 9  
SECTION 28  
THAT PORTION OF THE SOUTHERLY 313 FEET IN PERPENDICULAR WIDTH THROUGHOUT OF  
THE NORTH WEST QUARTER WHICH LIES BETWEEN THE EAST LIMIT OF CANAL RIGHT OF WAY  
ON PLAN 0510395 AND THE EAST LIMIT OF CANAL RIGHT OF WAY ON PLAN IRR55  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 061 010 978

---

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
091 049 136	23/02/2009	TRANSFER OF LAND	\$345,000	\$345,000

---

OWNERS

RYAN GARRET VAN EEDEN PETERSMAN  
  
AND  
KAREN VIRGINIA VAN EEDEN PETERSMAN  
BOTH OF:  
R.R. 8, SITE 41, COMP 15  
LETHBRIDGE  
ALBERTA T1J 4P4  
AS JOINT TENANTS

---

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
7586LJ	03/11/1972	CAVEAT

---

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 091 049 136

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY  
LIMITED.

731 064 400    22/10/1973    UTILITY RIGHT OF WAY  
GRANTEE - FORTISALBERTA INC.  
320 - 17 AVENUE S.W.  
CALGARY  
ALBERTA T2S2Y1  
"PORTION DESCRIBED"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 001299373)  
                  (DATA UPDATED BY: CHANGE OF NAME 051006146)

761 094 355    26/07/1976    IRRIGATION ORDER/NOTICE  
THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER  
IRRIGATION DISTRICT

911 208 327    17/09/1991    CAVEAT  
RE : EASEMENT  
CAVEATOR - THE BOARD OF DIRECTORS OF THE ST. MARY  
RIVER IRRIGATION DISTRICT  
BOX 278  
LETHBRIDGE  
ALBERTA J1J3Y7

001 070 445    15/03/2000    EASEMENT  
OVER AND FOR BENEFIT OF: (SEE INSTRUMENT)

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 22 DAY OF JULY,  
2020 AT 04:31 P.M.

ORDER NUMBER:    39774534

CUSTOMER FILE NUMBER:    208645



\*END OF CERTIFICATE\*

( CONTINUED )

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S  
LINC                      SHORT LEGAL                      TITLE NUMBER  
0015 110 463            927LK;1;1                      161 045 741

LEGAL DESCRIPTION  
PLAN 927LK  
BLOCK 1  
LOT 1  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME  
AREA: 9.98 HECTARES (24.65 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
ATS REFERENCE: 4;21;9;28;E

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 121 127 186

---

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 045 741	18/02/2016	TRANSFER OF LAND	\$600,000	\$600,000

---

OWNERS

1946291 ALBERTA LTD.  
OF 94054 HWY 843  
LETHBRIDGE  
ALBERTA T1J 5R2  
(DATA UPDATED BY: CHANGE OF ADDRESS 171243340)

---

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
8048GH .	02/01/1952	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:GL95 "16.5 FT. STRIP"
1648LO .	07/07/1972	CAVEAT

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 161 045 741

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		RE : EASEMENT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
851 074 023	08/05/1985	CAVEAT RE : EASEMENT CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER IRRIGATION DISTRICT. P.O. BOX 278, LETHBRIDGE ALBERTA T1J3Y7 AGENT - F J BREWIN
111 123 556	19/05/2011	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD.
161 045 742	18/02/2016	MORTGAGE MORTGAGEE - SERVUS CREDIT UNION LTD. 151 KARL CLARK RD NW EDMONTON ALBERTA T6N1H5 ORIGINAL PRINCIPAL AMOUNT: \$450,000
161 045 743	18/02/2016	CAVEAT RE : ASSIGNMENT OF RENTS AND LEASES CAVEATOR - SERVUS CREDIT UNION LTD. 151 KARL CLARK RD NW EDMONTON ALBERTA T6N1H5 AGENT - SARAH A BAINBRIDGE
171 029 546	01/02/2017	WRIT CREDITOR - FRIEDA SANFORD 1601-25 AVE NORTH LETHBRIDGE ALBERTA T1H4N8 DEBTOR - PATRICK WAGNER RR 8, SITE 41, COMP 18 LETHBRIDGE ALBERTA T1J4P4 AMOUNT: \$1,976 AND COSTS IF ANY ACTION NUMBER: 1606 00837

TOTAL INSTRUMENTS: 007

( CONTINUED )

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 1 DAY OF  
SEPTEMBER, 2020 AT 03:05 P.M.

ORDER NUMBER: 40022907

CUSTOMER FILE NUMBER: 208645LS



\*END OF CERTIFICATE\*

---

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED  
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,  
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM  
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,  
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS  
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING  
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S  
LINC                                      SHORT LEGAL                                      TITLE NUMBER  
0019 482 926                                      927LK;1;2                                      161 154 313

LEGAL DESCRIPTION  
PLAN 927LK  
BLOCK 1  
LOT 2  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME  
AREA: 8.1 HECTARES (20.02 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
ATS REFERENCE: 4;21;9;28;E

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 121 127 186 +1

---

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 154 313	05/07/2016	TRANSFER OF LAND	\$405,000	\$405,000

---

OWNERS  
KENNETH DALE SMITH  
OF 5710-57 ST  
TABER  
ALBERTA T1G 1L1

---

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
8048GH .	02/01/1952	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:GL95 "16.5 FT STRIP"
1648LO .	07/07/1972	CAVEAT

---

( CONTINUED )



-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2  
# 161 154 313

REGISTRATION  
NUMBER      DATE (D/M/Y)      PARTICULARS  
-----

RE : EASEMENT  
CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY  
LIMITED.

851 073 950    08/05/1985 CAVEAT  
RE : EASEMENT  
CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER  
IRRIGATION DISTRICT.  
P.O. BOX 278, LETHBRIDGE  
ALBERTA T1J3Y7  
AGENT - F J BREWIN

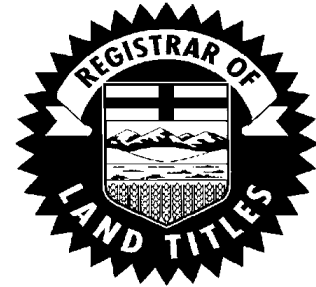
111 123 556    19/05/2011 UTILITY RIGHT OF WAY  
GRANTEE - ATCO GAS AND PIPELINES LTD.

TOTAL INSTRUMENTS: 004

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 1 DAY OF  
SEPTEMBER, 2020 AT 03:31 P.M.

ORDER NUMBER:    40023326

CUSTOMER FILE NUMBER:    208645LS



\*END OF CERTIFICATE\*

-----  
THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED  
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,  
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM  
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,  
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS  
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING  
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S  
LINC                      SHORT LEGAL                      TITLE NUMBER  
0016 608 770            8010198;2;1                      911 153 848

LEGAL DESCRIPTION  
PLAN 8010198  
BLOCK 2  
LOT 1  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AREA: 14.1 HECTARES (34.84 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
ATS REFERENCE: 4;21;9;28

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 861 107 528

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
911 153 848	16/07/1991	TRANSFER OF LAND	\$45,000	SEE INSTRUMENT

OWNERS  
RICHARD MICHAEL ALDOFF

AND  
CAROL ANN ALDOFF  
BOTH OF:  
S S 1-2-49  
LETHBRIDGE  
ALBERTA T1J 4B3  
AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
741 021 660	08/03/1974	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC. 320 - 17 AVENUE S.W.

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 911 153 848

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

CALGARY  
ALBERTA T2S2Y1  
"30 FT STRIP"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 001298059)  
                  (DATA UPDATED BY: CHANGE OF NAME 051006321)

761 133 668    29/10/1976 CAVEAT  
CAVEATOR - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
P.O. BOX 4365, POSTAL STATION C  
CALGARY  
ALBERTA T2T5N2  
AGENT - KATHY M TROFIN  
                  (DATA UPDATED BY: CHANGE OF ADDRESS 031242905)  
                  (DATA UPDATED BY: TRANSFER OF CAVEAT  
                  091085519)  
                  (DATA UPDATED BY: TRANSFER OF CAVEAT  
                  091210804)

791 020 979    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205485)

791 020 980    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4 OF SEC 28-9-21-4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205451)

791 020 981    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4 SEC 28-9-21-4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205485)

971 093 143    05/04/1997 CAVEAT  
RE : EASEMENT  
CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER  
IRRIGATION DISTRICT.  
P.O. BOX 278, LETHBRIDGE  
ALBERTA T1J3Y7

991 292 262    07/10/1999 MORTGAGE  
MORTGAGEE - ALBERTA TREASURY BRANCHES.  
601 MAYOR MAGRATH DR.S  
LETHBRIDGE  
ALBERTA

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 3

# 911 153 848

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

ORIGINAL PRINCIPAL AMOUNT: \$55,000

001 225 359    12/08/2000 AMENDING AGREEMENT  
AMOUNT: \$77,300  
AFFECTS INSTRUMENT:    991292262

021 035 034    29/01/2002 UTILITY RIGHT OF WAY  
GRANTEE - COUNTY OF LETHBRIDGE RURAL WATER  
ASSOCIATION LIMITED.

021 365 728    18/10/2002 CAVEAT  
RE : OPTION TO PURCHASE  
CAVEATOR - ST MARY RIVER IRRIGATION DISTRICT.  
P.O. BOX 278  
LETHBRIDGE  
ALBERTA T1J3Y7

111 222 936    31/08/2011 UTILITY RIGHT OF WAY  
GRANTEE - ATCO GAS AND PIPELINES LTD.

TOTAL INSTRUMENTS: 011

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 22 DAY OF JULY,  
2020 AT 04:31 P.M.

ORDER NUMBER:    39774534

CUSTOMER FILE NUMBER:    208645



\*END OF CERTIFICATE\*

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED  
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,  
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM  
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,  
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS  
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING  
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

# APPENDIX 2

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## Geotechnical Evaluation

**PROVIDED UNDER SEPARATE COVER**

# APPENDIX 3

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## Environmental Site Assessment

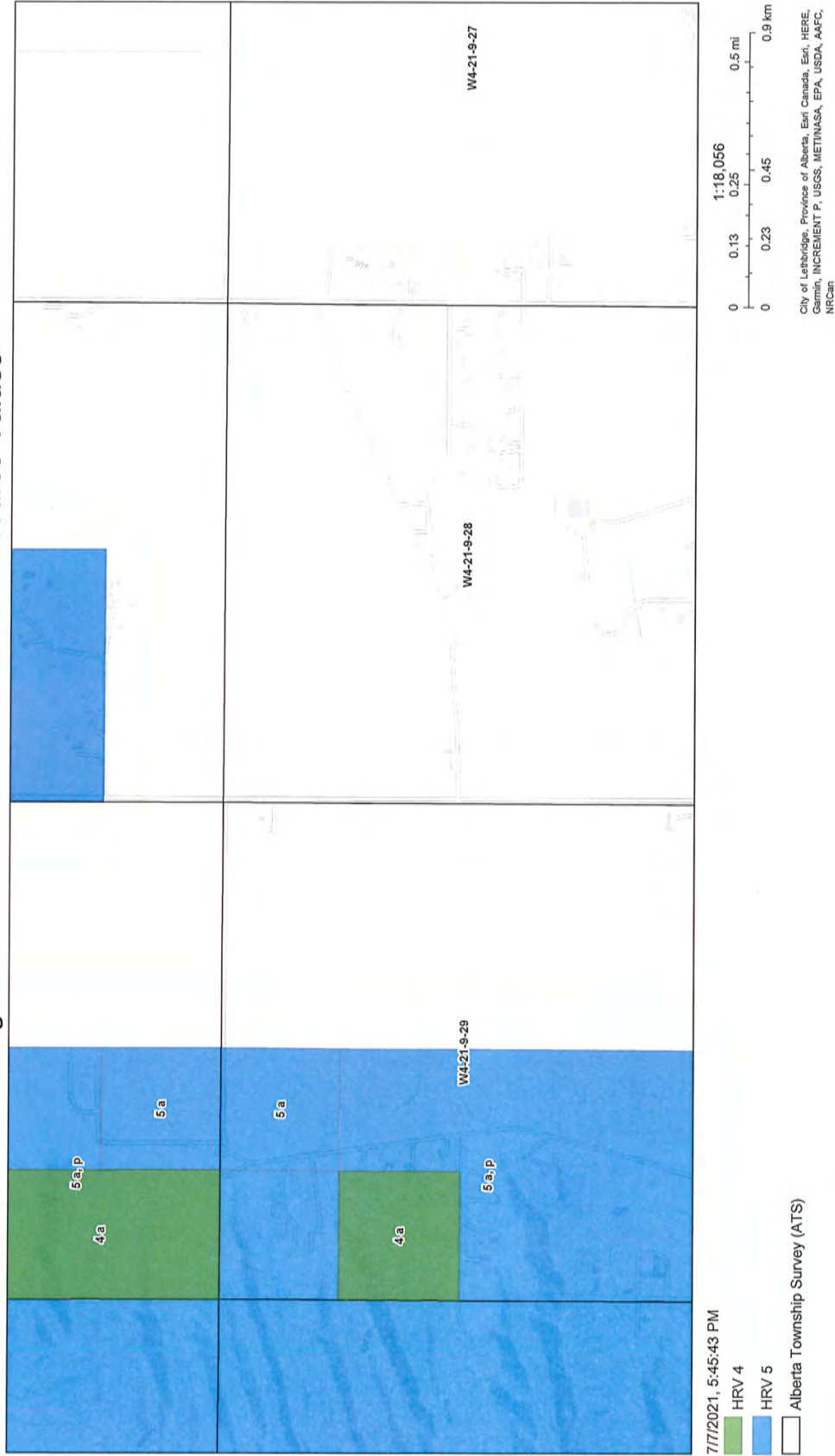
**PROVIDED UNDER SEPARATE COVER**

# APPENDIX 4

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## Historical Resource Assessment

# Listing of Historic Resources - Historic Resource Values



Activities planned for lands not included in the Listing of Historic Resources may still require Historical Resources Act approval. The results of a Listing search MUST be used in conjunction with the information provided in the Instructions for Use of the Listing of Historic Resources.



## Subdivision *Historical Resources Act* Compliance

**PURPOSE:** To identify the circumstances under which proposed subdivisions require *Historical Resources Act* approval and to provide guidelines for the submission of applications to obtain approval.

**SCOPE:** Subdivision applicants, developers, municipalities, and other planning authorities in Alberta.

**BACKGROUND:** In accordance with Section 5(5) of the [Subdivision and Development Regulation](#), applications for subdivision of areas containing or likely to contain historic resources must be referred to Alberta Culture and Tourism. This applies equally to private and public lands.

### PROCEDURES - ROUTINE:

#### Subdivision

The subdivision authority and/or the owner/developer must consult Alberta Culture and Tourism's *Listing of Historic Resources*<sup>1</sup> to determine if the lands that are subject to subdivision have been flagged as having a **Historic Resource Value (HRV)**.

1. **If the subject lands do not overlap areas identified in the *Listing of Historic Resources*, *Historical Resources Act* approval is not required, although the provisions of Section 31 of the *Historical Resources Act* still apply.<sup>2</sup>**

---

<sup>1</sup> Alberta Culture and Tourism's *Listing of Historic Resources* is a publicly available list of lands that contain, or are likely to contain, significant historic resources. Updated twice yearly, the *Listing* is an information resource for residential, commercial, and industrial developers and can guide the regulatory approval process. The *Listing* and Instructions for Use are available at: <https://www.alberta.ca/listing-historic-resources.aspx>.

<sup>2</sup> It is important to note that, even if *Historical Resources Act* approval is not required prior to the initiation of land surface disturbance activities, or if *Historical Resources Act* approval has been granted, Section 31 of the *Act* requires that anyone who discovers a historic resource, such as an archaeological, palaeontological, historic structures or Aboriginal Traditional Use site, during the course of development activities must cease work and notify Alberta Culture and Tourism immediately for further direction on the most appropriate action. Details about who to contact can be found in [Standard Requirements under the \*Historical Resources Act\*. Reporting the Discovery of Historic Resources](#).

2. **If the subject lands wholly or partially overlap areas identified as having an HRV of 1, 2, 3, or 4 in the *Listing of Historic Resources*, *Historical Resources Act* approval is required.** A Historic Resources (HR) Application must be submitted to Alberta Culture and Tourism via the Online Permitting and Clearance ([OPaC](#)) system.<sup>3</sup> Development activities, including any land disturbance, may not proceed until *Historical Resources Act* approval has been obtained in writing.<sup>4</sup>
3. **If the subject lands wholly or partially overlap areas identified as having an HRV of 5 (and no other value) in the *Listing of Historic Resources*, *Historical Resources Act* approval must be obtained through the submission of an HR Application, with the following exceptions:**
  - First parcel out
  - 80-acre split
  - Lot line/boundary adjustment
  - Parcel consolidation

Subdivisions for these four purposes do not require *Historical Resources Act* approval if situated in lands assigned an HRV of 5 only. Subdivision of HRV 5 lands for all other purposes do require *Historical Resources Act* approval, and development, including any land disturbance, may not proceed until this approval has been obtained in writing.

Lands that contain, or are likely to contain, significant historic resources may require the conduct of a [Historic Resources Impact Assessment](#) (HRIA) prior to development. If required, this direction will be communicated in Alberta Culture and Tourism's response to the HR application. An HRIA must be conducted by a qualified heritage consultant on behalf of the developer, at the developer's expense. Results of the HRIA must be reported to Alberta Culture and Tourism and subsequent *Historical Resources Act* approval must be granted before development proceeds.

Where a proposed subdivision includes lands that overlap areas with HRVs on the Listing, a Subdivision Authority may choose to submit the details for review in an HR Application prior to subdivision approval or condition *Historical Resource Act* approval as part of their subdivision approval. In these instances, no development activities are to commence until *Historical Resources Act* approval has been granted.

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<sup>3</sup> Information regarding Historic Resources Applications and the OPaC system can be found at: <https://www.alberta.ca/online-permitting-clearance.aspx>.

<sup>4</sup> Where *Historical Resources Act* approval is required, the Historic Resources Application must include all lands in the subdivision area, not just those identified as having an HRV.

## **Area Structure and Redevelopment Plans**

Alberta Culture and Tourism recommends that municipalities and/or developers submit for review through the OPaC system, all Area Structure Plans, Area Redevelopment Plans, and other long-term planning documents. The outcome of this review will provide the applicant with information about historic resource concerns in the planning areas and may offer guidance for developing strategies to address these concerns.

### **PROCEDURES – NON-ROUTINE:**

Notwithstanding the instruction provided above, if Alberta Culture and Tourism is made aware of historic resource concerns associated with lands not included in the *Listing of Historic Resources*, direction may be given to submit an HR application. This direction is made under Section 37(2) of the [Historical Resources Act](#) and can be applied to any type of project.

For further information please contact:

[Head, Regulatory Approvals & Information Management](#)  
Historic Resources Management Branch  
Alberta Culture and Tourism

**Approved by:** Darryl Bereziuk, Director, Archaeological Survey

**Date:** January 22, 2019

# APPENDIX 5

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## Adjacent Landowner Consultation and other Correspondence

- Map & Letter Sent To Neighbors
- Neighborhood Comments
- Map from SMRID
- Map from Fortis
- Map from Alberta Energy Regulator
- Map from ATCO Gas
- Map from County of Lethbridge Rural Water Association
- Lethbridge County Map “Development Consideration”

# Map & Letter Sent To Neighbors



**CONSULTING ENGINEERS, PLANNERS & LAND SURVEYORS**  
255 – 31st Street North, Lethbridge, Alberta, T1H 3Z4  
PH: (403) 329-0050 FAX: (403) 329-6594  
*Email: [geomart@mgcl.ca](mailto:geomart@mgcl.ca)*

May 2<sup>nd</sup>, 2022

File: 208645CE

Dear Neighbor:

Re: Proposed Subdivision – Area Structure Plan  
Lethbridge County, Alberta  
Sec. 28-9-21-W4

---

We are writing to provide notification and to seek feedback regarding a new country residential development being planned in your community. We are preparing an Area Structure Plan report in support of a twenty-seven lot subdivision located at the properties of Rick Aldoff, Ken Smith, and Pat Wagner along Highway 843, Township roads 94-A and 94-B. The development would follow the Lethbridge County Land Use Bylaw for Group Country Residential zoning. The concept drawings are attached for your reference.

A brief description of the planned development follows:

The 27 lot country residential subdivision is located along Highway 843, approximately 1 kilometer north of 62 Avenue North which is the City of Lethbridge boundary. Existing rural residential properties border the development area to the south, the Saint Mary River Irrigation District (SMRID) canal borders the property to the west, and an SMRID pipeline right-of-way borders the north of the property. Each of the 27 lots would be a minimum of 2 acres in area. There would be a graveled public roadway constructed as an extension to Township Road 94A, which would loop through the development and ultimately connect with Highway 843. In order to manage runoff, three storm water ponds would be built within the development. Surrounding the ponds would be landscaped areas to function as public green spaces. Potable water servicing is anticipated to be provided by the County of Lethbridge Rural Water Association or an approved alternate system. Private septic systems will be used to provide on-site wastewater treatment and disposal for each individual lot. Utility servicing would be provided to each lot, including electricity, natural gas, and telecommunications. A community irrigation system is planned to supply untreated irrigation water to each lot for lawn and garden use. Architectural controls are intended to help ensure a high quality development. A phased development plan is anticipated with about 3 phases of construction. The demands of the housing market would influence the timing of each phase.

If you have any comments or concerns about the proposed development, please feel free to contact one of the owners or Martin Geomatic Consultants Ltd. (MGCL) at the contact information listed below. (Please note that if your comment or concerns are technical in nature please contact Matt Redgrave or Ray Martin at MGCL for further assistance)



Owners:

Rick and Carol Aldoff  
3601 Redwood Road South,  
Lethbridge County, Alberta, T1J 5R2  
(403)382-1136  
silverspurex@hotmail.com

Ken Smith  
3494046 Highway 843  
Lethbridge County, Alberta, T1J 5R3  
(587)220-4290  
Medieval.ken@outlook.com

Pat Wagner  
94054 Highway 843,  
Lethbridge County, Alberta, T1J 5R2  
(403)359-0858  
carbonfiberresin@gmail.com

Consultant:

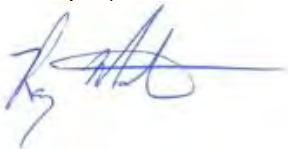
Martin Geomatic Consultants Ltd. (MGCL):

Attention: Ray Martin, P.Eng.,  
255 – 31<sup>st</sup> Street North, Lethbridge, Alberta, T1H 3Z4  
(403) 329-0050  
[raym@mgcl.ca](mailto:raym@mgcl.ca)

It would be appreciated if we could receive your comments by May 10<sup>th</sup>, 2022. We will respond to and address any comments received.

If you do not have any concerns with the proposed development, please read and sign the box below, and provide a copy to one of the contacts above.

Thank you,



Ray Martin, P.Eng  
Civil Engineer

I, \_\_\_\_\_ (print names),

of \_\_\_\_\_ (address),

have received the letter and concept drawings from MGCL, dated May 2<sup>nd</sup>, 2022 outlining the planned 27 lot rural residential development (Aldoff, Smith, Wagner) in Sec-28-9-21 W4M, Lethbridge County.

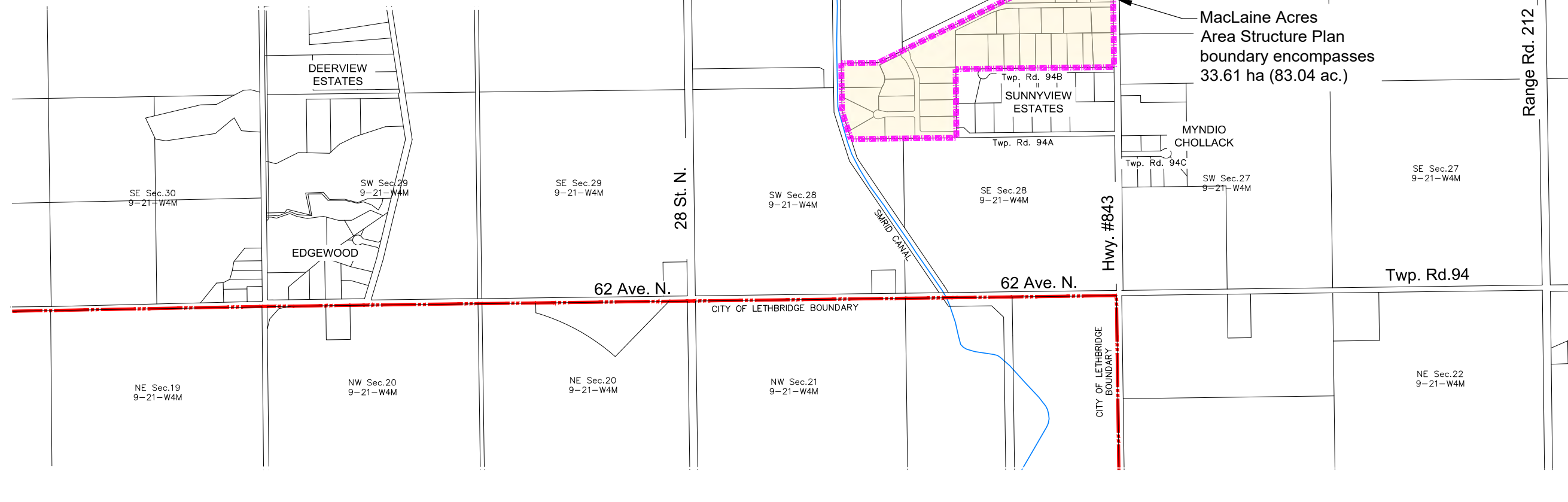
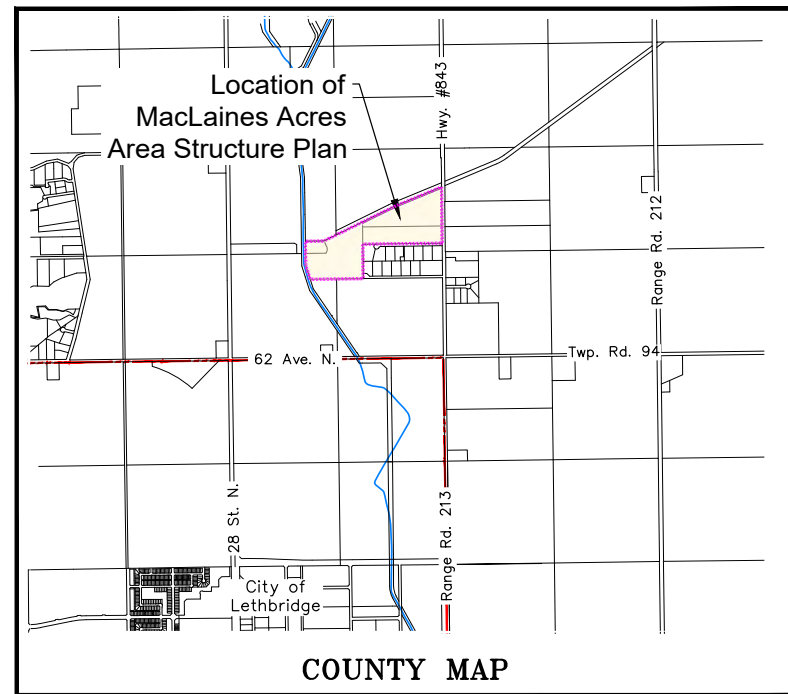
I have reviewed the letter and concept plans and have no concerns with the proposed development at this time, based on the information received.

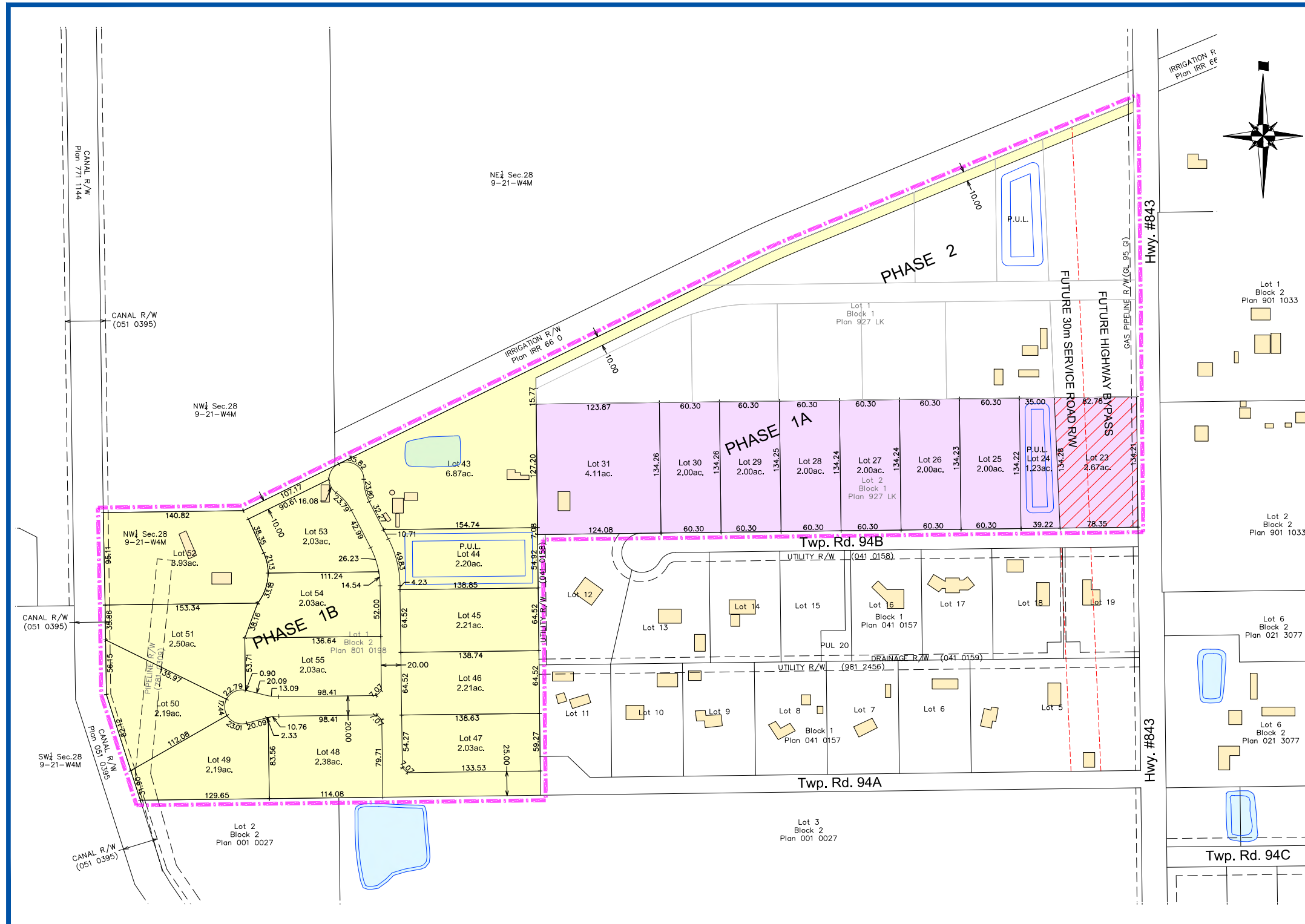
Regards,

\_\_\_\_\_ (sign names)





\_\_\_\_\_ (date)







**LEGEND**

-  ASP BOUNDARY
-  PHASE 1A
-  PHASE 1B
-  IF REQUIRED BY COUNTY, CAVEATS TO BE PLACED ON THESE LOTS TO PREVENT CONSTRUCTION

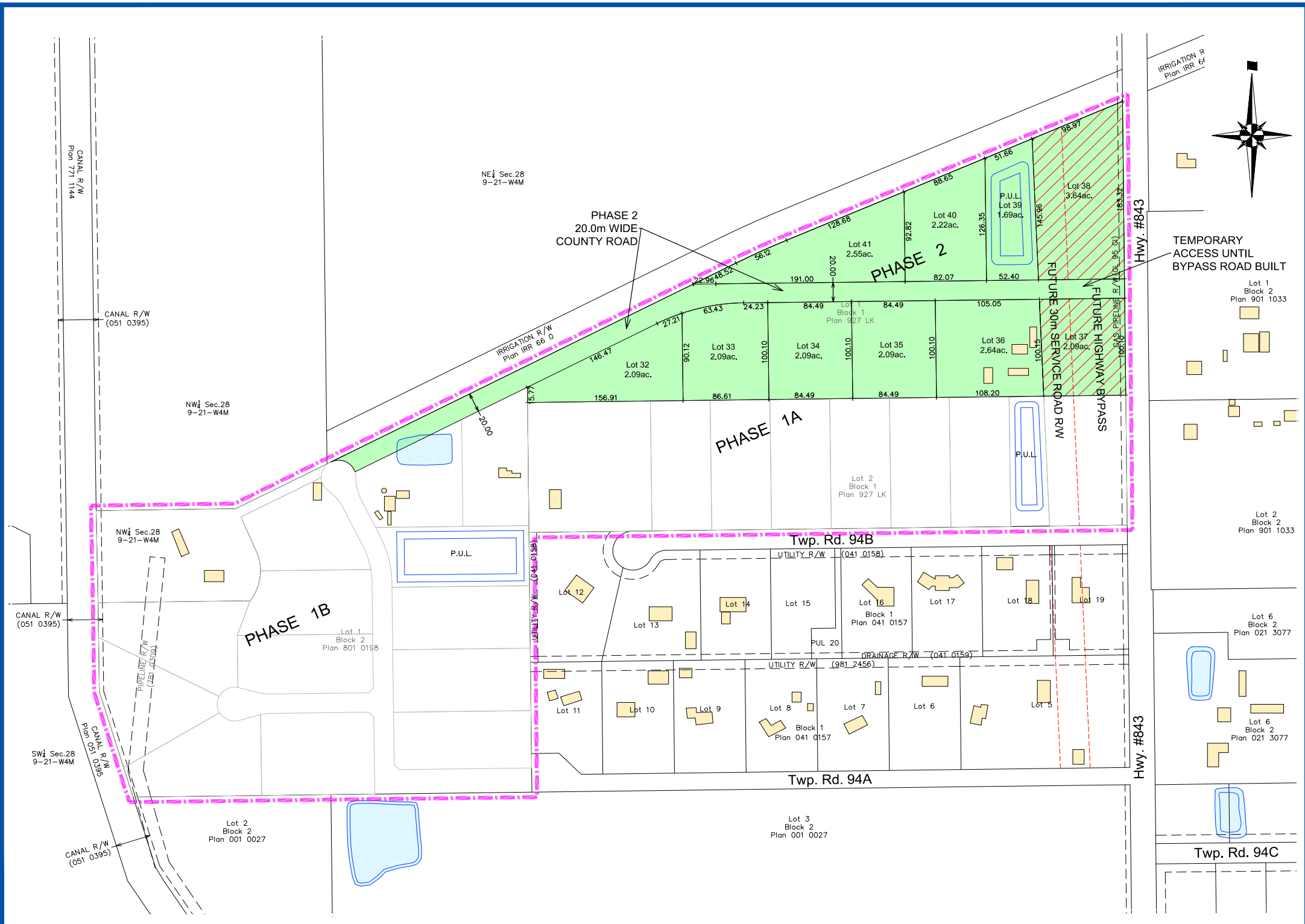
- NOTES:**
- PHASE 1A, 1B & 2 MAY BE DEVELOPED IN SMALLER SUB PHASES
  - LOT SIZES AND CONFIGURATION MAY VARY SLIGHTLY AT THE TIME OF FINAL DESIGN. CHANGES WILL BE SUBJECT TO COUNTY APPROVAL.

MacLaine Acres  
 AREA STRUCTURE PLAN  
 Nov 30, 2021

LOT LAYOUT - PHASE 1  
 FIGURE 5A

208645CE

**MARTIN**  
 GEOMATIC CONSULTANTS  
 Consulting Engineers, Planners, and Land Surveyors  
 255-31st Street North Lethbridge, Alberta T1H 3Z4  
 Ph: (403) 329-0050 E-mail: geomart@mgc.ca Fax: (403) 329-6594

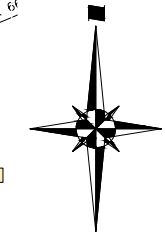


**LEGEND**

- ASP BOUNDARY
  
- PHASE 2
- IF REQUIRED BY COUNTY, CAVEATS TO BE PLACED ON THESE LOTS TO PREVENT CONSTRUCTION

**NOTES:**

- PHASE 1A, 1B & 2 MAY BE DEVELOPED IN SMALLER SUB PHASES
- LOT SIZES AND CONFIGURATION MAY VARY SLIGHTLY AT THE TIME OF FINAL DESIGN. CHANGES WILL BE SUBJECT TO COUNTY APPROVAL.



# Neighborhood Comments

**raym@mgcl.ca**

---

**From:** bhuizing@xplornet.com  
**Sent:** Thursday, December 30, 2021 6:48 PM  
**To:** mattr@mgcl.ca  
**Cc:** raym@mgcl.ca  
**Subject:** Proposed Subdivision

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

1. We are very concerned about the proposed subdivision! We first bought an acreage to get away from the city. Now this will become a high density living area. Not what we had anticipated in our future.
2. The water table in our area is high enough now with the way things are. Our sump pump runs too much now, especially when our neighbor to the north (proposed developer) waters his field endlessly for no apparent reason.
3. The previous owner of the farm assured us that no one will build across from us. As stated previously, we came to the country to get away from people. We do not want more here to add to traffic, dogs and other animals. When we first purchased our acreages, we had to sign off that there were not to be any farm animals allowed. We know there are dogs in the area that wander in packs, and create damage. We don't need to have more dogs running around and defecating in our yards!

Sincerely,

Bernie & Holly Huizing

285 - 31st. North

I, Neal Dekens (print names),  
of #28-94032 Hwy 843 (address),  
have received the letter and concept drawings from MGCL, dated May 2<sup>nd</sup>, 2022 outlining the planned 27 lot rural residential development (Aldoff, Smith, Wagner) in Sec-28-9-21 W4M, Lethbridge County.

I have reviewed the letter and concept plans and have ~~no~~ <sup>\*</sup> concerns with the proposed development at this time, based on the information received.

Regards,  
Neal Dekens (sign names)  
May 31/2022 (date)  
403-635-5323

① you cannot put in any new access until Hwy 843 is Paved, at the present time it can not be maintained as is.

② also there isn't enough water Coop permits

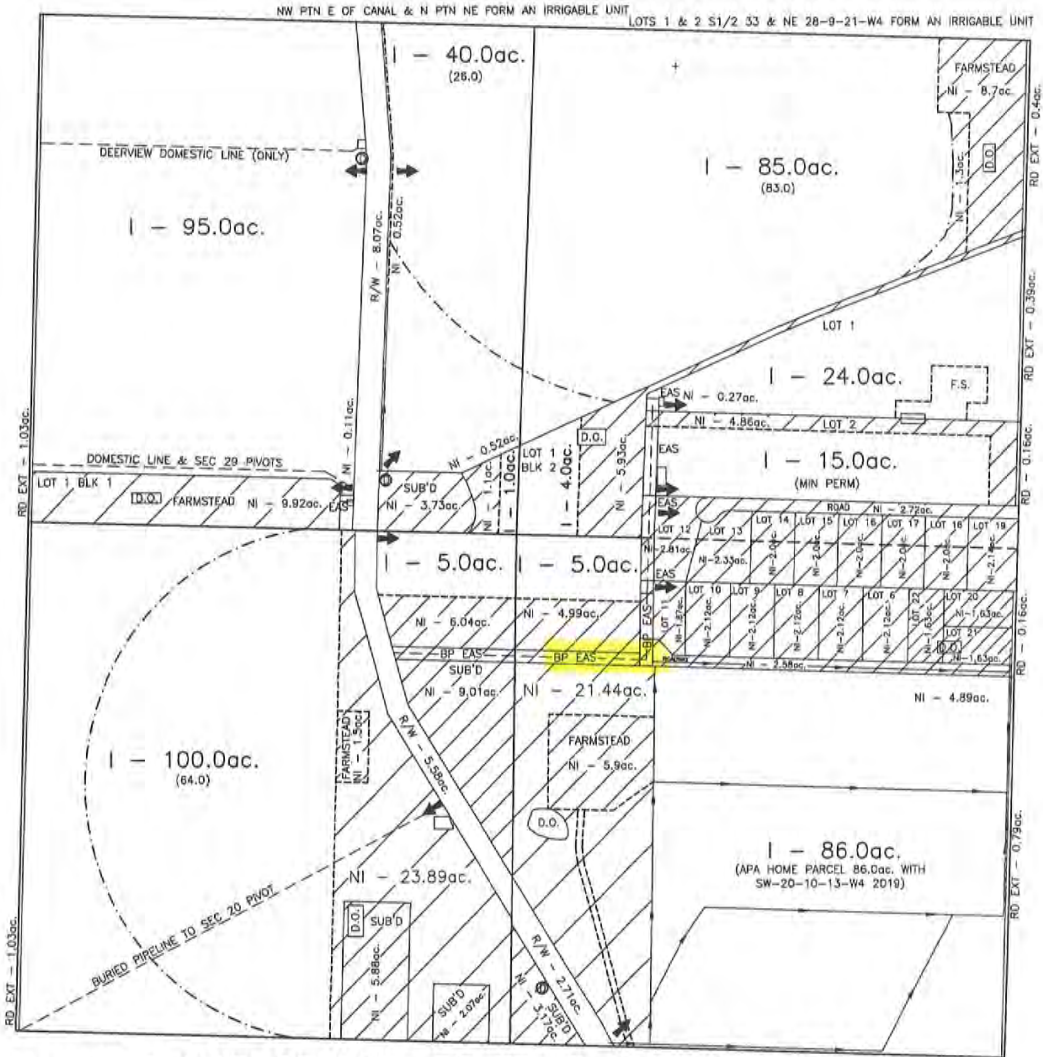
③ if + when development happens has to be paved. be paved. it shows 16 should be paved. 94A Twp Rd 94032

④ in your Report, Sunnyview estates ~~is~~ 8 parcels, Myndio's is also - 8 parcels not ~~Myndio's~~ - chollack parcels is a cross Hwy 843

⑤ it is to close to



# Map from SMRID



ST. MARY RIVER  
IRRIGATION DISTRICT  
WSU # 3

### IRRIGATED ACRES MAP OF SEC. 28 TP. 9 RG. 21 W.4

LEGEND			
I - 0.0ac.	IRRIG. AREAS (CLEAR)		DOMESTIC TURNOUT
NI - 0.0ac.	NOT IRRIGATED		PUMP SITE
	ALTERNATE PARCEL AGREEMENT		F.S. FARMSTEAD
	POINT OF DELIVERY		DUGOUT
	DRAINAGE CHANNEL		FIELD BOUNDARY
	BURIED PIPE		BURIED PIPELINE EAS
	BOUNDARY OF SPRINKLED AREA		

	S.E.	S.W.	N.W.	N.E.
IRR.	91.0	105.0	136.0	128.0
N.I.	65.34	48.39	15.9	31.05
R/W	2.71	5.58	8.07	
RD EXT	0.95	1.03	1.03	0.95
TOTAL	160.0	160.0	161.0	160.0

REPLACING IRRIGATED ACRES MAP DATED DEC. 2018.

JULY 1, 2019.  
DATE



# Map from Fortis

Overhead Residential Subdivision - 19 Lots

**FORTISALBERTA INC. TO SUPPLY/INSTALL:**

- Approx. 120m of #1AL underground single phase primary conductor
- Primary method of installation is road push
- Approx. 1070m of #2ACSR overhead single phase primary conductor
- 2 - 15kVA(14/4-120/240V) pole-mount transformers
- 7 - 25kVA(14/4-120/240V) pole-mount transformers
- 1 - 50kVA(14/4-120/240V) pole-mount transformers
- Type of Metering - Self contained metering (200A)

**CUSTOMER RESPONSIBLE FOR:**

- All secondary conductors and work
- Providing meter socket within Fortis' required distance\*
- \*Please refer to the Service and Metering Guide
- Providing a civic address if available.

Quote contingent to all outside approvals  
 Cost does not include brushing or easements  
 Final location of structures to be determined at time of design

**Note:**  
 Budgetary Estimate. Cost cannot be accepted  
 A Site Check will need to be performed  
 to provide a firm-cost estimate.

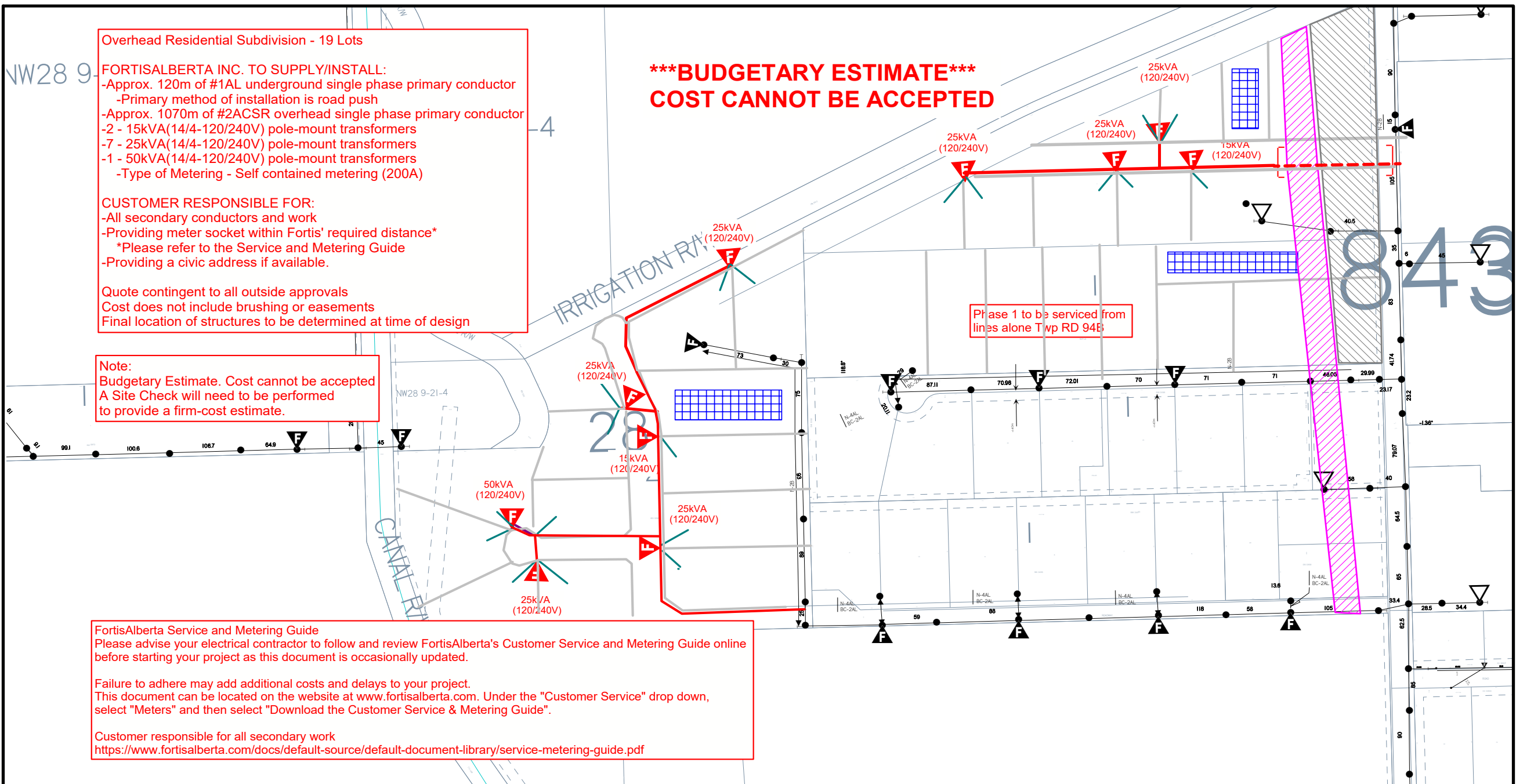
FortisAlberta Service and Metering Guide  
 Please advise your electrical contractor to follow and review FortisAlberta's Customer Service and Metering Guide online before starting your project as this document is occasionally updated.

Failure to adhere may add additional costs and delays to your project.  
 This document can be located on the website at [www.fortisalberta.com](http://www.fortisalberta.com). Under the "Customer Service" drop down, select "Meters" and then select "Download the Customer Service & Metering Guide".

Customer responsible for all secondary work  
<https://www.fortisalberta.com/docs/default-source/default-document-library/service-metering-guide.pdf>

**\*\*\*BUDGETARY ESTIMATE\*\*\*  
 COST CANNOT BE ACCEPTED**

Phase 1 to be serviced from lines along Twp RD 94E



Preliminary Not For Construction

NOTES:  
 Budgetary Print

CONTACT FORTISALBERTA TO CONFIRM ON-SITE ALIGNMENTS AND POWER SOURCE LOCATION

LAND ONLY TO SCALE 1:4,000  
 Print

**FORTIS ALBERTA**

Designer: Yau, Chris Date: 9/8/2021  
 Customer: Maclaine Acres Residential Development  
 Location: NE28-09-21-W4 W0#/01# 500096840

**LEGEND:**  
 RED: NEW PRIMARY  
 PURPLE: NEW SECONDARY  
 BLUE: SALVAGE  
 GREEN: BRUSHING  
 BLACK: EXISTING FACILITIES  
 MAGENTA: POSTED PROPOSED

# Map from Alberta Energy Regulator



Asset: Well Licences

Description

Well Licence Number: 0056743  
Current Licensee Name: Husky Oil Operations Limited

Hyperlinks

[Asset Report](#)

Details

Well Licence Number  
0056743  
Well Name  
HUSKY ETAL LETH. 11-28-9-21  
Well Type  
N/A  
Well Symbol  
Abandoned Gas  
Is Well Sour  
N  
Current Licence Status  
RecCertified  
Current Licence Status Date

Search...

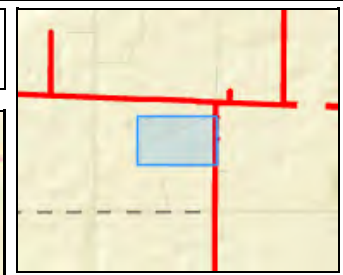
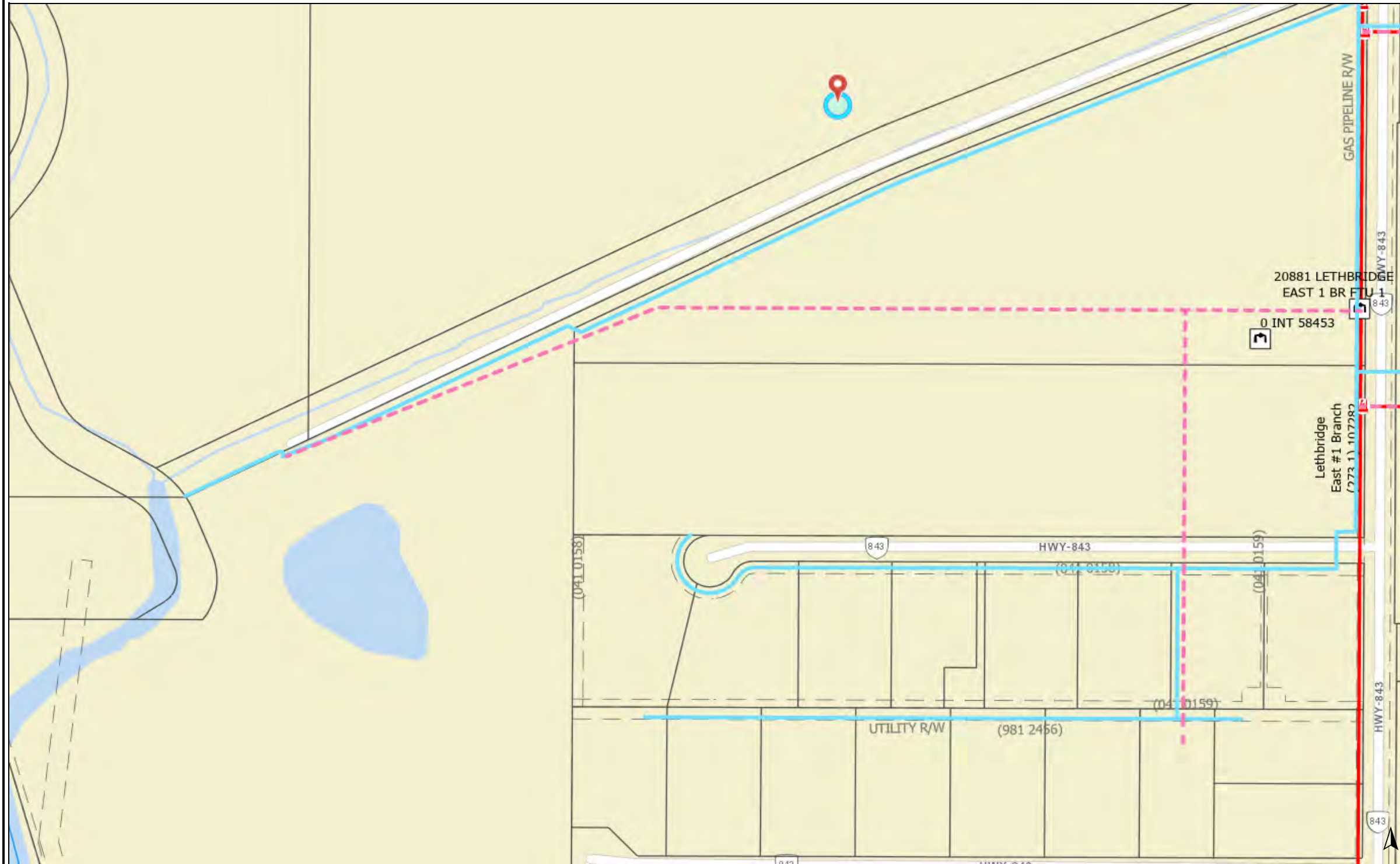
Tools

Basemaps

Scale 1: 9,028

Go

# Map from ATCO Gas



**Legend**

**Distribution**

- - - AB
- LP
- MP
- M1
- M2
- IP
- IP1
- IP2
- IP3
- IP4
- IP5
- IP6
- HP

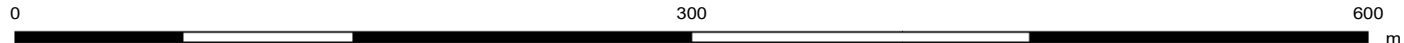
Regulator Station  
 Rural Tap  
 Controllable Valve  
 Distribution Capital Project

**Transmission**

- - - Abandoned
- Decommissioned
- Operating

Transmission Station  
 Transmission Capital Project

Notes



THIS MAP IS NOT TO BE USED FOR NAVIGATION

# Map from County of Lethbridge Rural Water Association

**Plan 2 - Hydraulic Analysis of Possible Additional Demand Units**

On Jan 15, 2021 COLRWA requested that we complete a hydraulic analysis to check if there is capacity in the existing distribution system to add an 30units to the MacLaine Acres in Sec 28-9-21.

On Jan 26, 2021 we modeled and added the following demands (units) into the existing base model (See Plan 1):

- Total of 30units (15 Imp gpm) in NE28-9-21, 15 units to existing J-189 and 15units to existing J-347, Area immediately north of Lethbridge.

**This Hydraulic Scenario:**

- Existing water system at Max Demand (refer to Plan 1) plus the proposed additional unit demand noted above.

**Results:**

- Adding the above 30 unit (15 lgpm) results in approx 3psi pressure drop in the water distribution system north and NE of the City. This results in J-2932 falling below the recommended minimum pressure of 20psi, from 21.7 psi to 19.6psi.

**Options to maintain a minimum 20psi in the distribution system:**

- Option 1** - Reduce the amount of units from 30 to 25 available to the MacLaine Acres Development.
- Option 2** - Install piping from 4" distribution main on the west side of canal, under canal, and tie to MacLaine Acres Development water looped main.

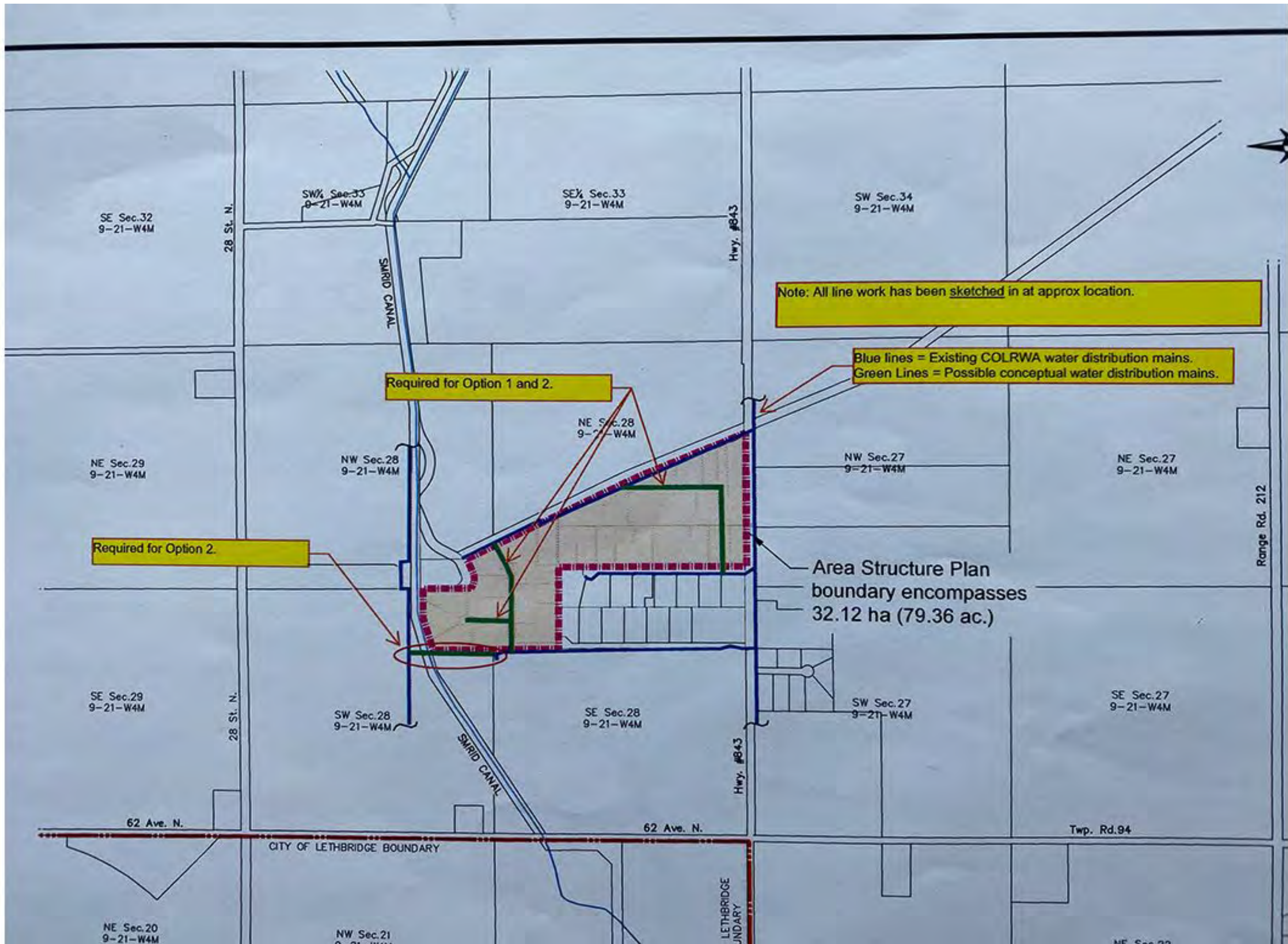
Barry Way  
Jan 26, 2021

**Scenario: CLRWA-Phase 2, Max Demand, Chin c/w Booster Pump**

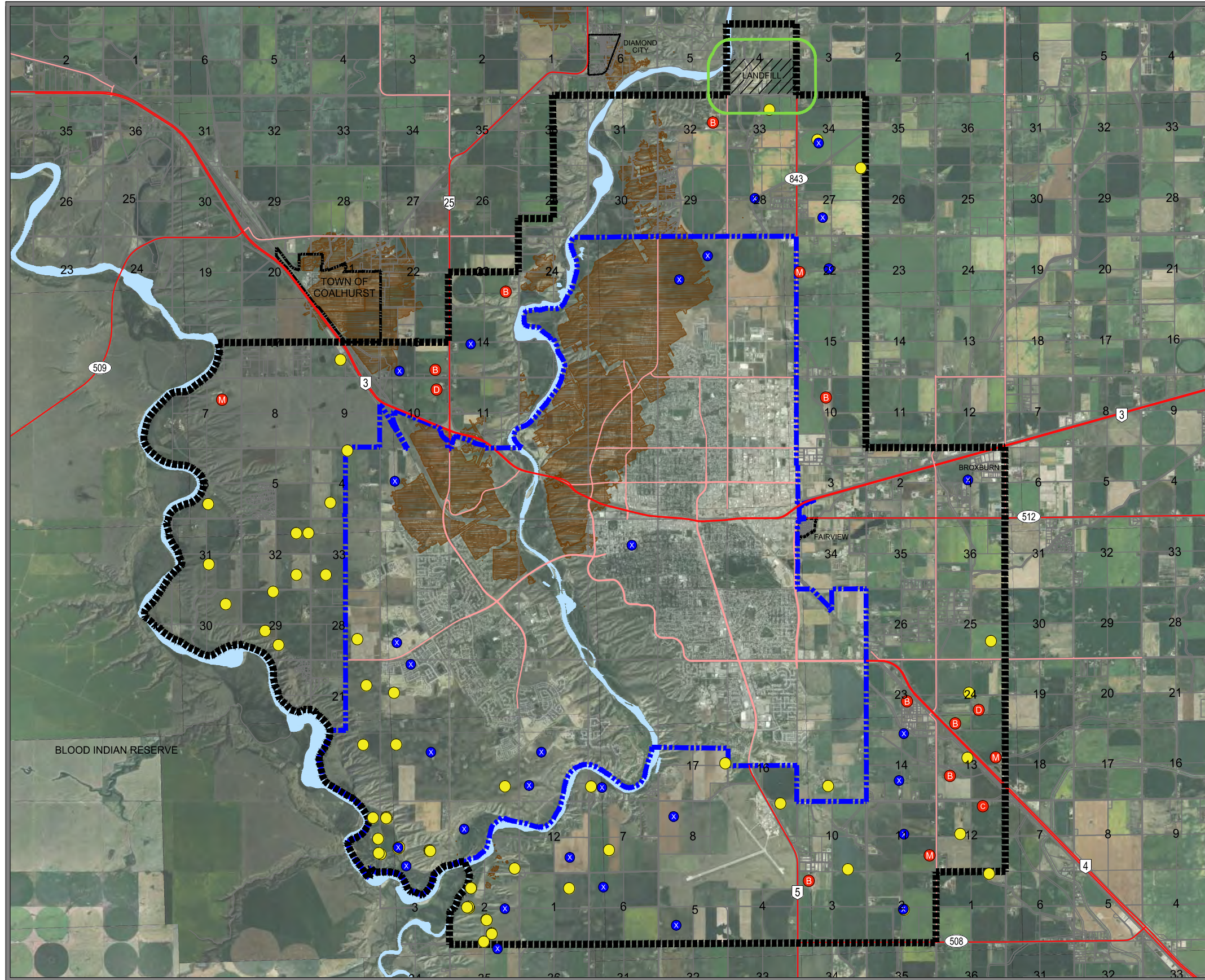


*MacLaine Acres*










# Lethbridge County Map “Development Consideration”






## DEVELOPMENT CONSIDERATIONS

### LEGEND

-  CITY OF LETHBRIDGE
-  IDP PLAN AREA
-  PROVINCIAL HIGHWAY
-  MAJOR ROAD
-  LANDFILL
-  450m BUFFER FROM LANDFILL

ALBERTA ENERGY REGULATOR (AER) DATA - APRIL 2016

-  UNDERGROUND COAL MINE
-  GAS WELL
-  GAS WELL - ABANDONED

### CONFINED FEEDING OPERATION

-  BEEF
-  CHICKEN
-  DAIRY
-  MIXED

**MAP 17**  
 LETHBRIDGE COUNTY  
 (BYLAW NO. 1478)  
 & CITY OF LETHBRIDGE  
 (BYLAW NO. 6015)  
 INTERMUNICIPAL DEVELOPMENT PLAN

AERIAL PHOTO DATE: 2015  
 SCALE 1 : 85,000



September 08, 2016  
 N:\Lethbridge\County\Leth-City Leth-City IDP\Lethbridge City&County IDP 2016.dwg

# APPENDIX 6

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## Septic Feasibility Assessment

**PROVIDED UNDER SEPARATE COVER**

# APPENDIX 7

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## Stormwater Management Plan



**STORMWATER MANAGEMENT PLAN  
(SWMP)  
MACLAINE ACRES SUBDIVISION  
SEC. 28-9-21-W4M  
Lethbridge County  
Alberta**

**Prepared for:** Rick Aldoff  
Pat Wagner  
Ken Smith

**File Number:** 208645CE

**Dated:** May 2022

**TABLE OF CONTENTS**

I. Project Background and Drainage Features ..... 3  
    A. Existing Site Features ..... 3  
    B. Existing Drainage Features ..... 3  
    C. Predevelopment Sub-Catchments ..... 3  
II. Proposed Development and Drainage ..... 5  
    A. Proposed Development ..... 5  
    B. Proposed Development Sub-catchments ..... 5  
    C. Proposed Stormwater Management Plan ..... 6  
    D. Stormwater Storage Ponds ..... 6  
III. Methodology ..... 7  
IV. Results ..... 7  
    A. Pre-Development Runoff ..... 7  
    A. Existing Storage ..... 8  
    B. Post-Development Runoff ..... 8  
    C. Post Development Release Rates ..... 8  
    D. Proposed Storage ..... 9  
    E. Analysis ..... 9  
V. Recommendations ..... 10  
VI. Closing ..... 10

**LIST OF TABLES (Included in body of report)**

Table 1 - Pre-Development Sub-Catchment Parameters ..... 4  
Table 2 - Pre-Development West-Trap ..... 5  
Table 3 - Post Development Sub-Catchment Parameters ..... 6  
*Table 4 - Pre-Development Runoff* ..... 7  
*Table 5 - Existing Storage Unit* ..... 8  
*Table 6 - Post-Development Runoff* ..... 8  
Table 7 - Comparison of Release Rates ..... 9  
Table 8 - Pond Storage Volumes and Release Rates ..... 9

**LIST OF FIGURES**

*Figure 1 - Aerial Photo* ..... 11  
*Figure 2 - Existing Site & Drainage Features* ..... 11  
*Figure 3 - Stormwater Management Plan* ..... 11

**APPENDIX**

- Appendix A - Figures
- Appendix B - SWMM Model Results

## I. PROJECT BACKGROUND AND DRAINAGE FEATURES

The MacLaine Acres Subdivision is a proposed group country residential subdivision located along Highway #843 in Lethbridge County, approximately 1 km north of the Lethbridge City Limits. The legal property description is Section 28, Township 9, Range 21 West of the 4<sup>th</sup> Meridian. The irregularly shaped plan area is bound by an irrigation right of way and cropland to the north, Hwy-843 to the east, group country residential and cropland to the south, and an irrigation canal to the west. The plan location is illustrated in **Figure 1 – Aerial Photo** and provides context for the site and the surrounding lands.

This drainage report is being submitted in support of The MacLaine Acres Area Structure Plan (ASP) and rezoning application, for consideration by the Lethbridge County. The ASP plan area is 83.04 acres (33.61 ha). The proposal is to subdivide into 27 residential lots, 3 Public Utility Lots and road rights-of-way and to rezone the land from Lethbridge Urban Fringe (LUF) to Group Country Residential (GCR). The purpose of this report is to provide stormwater management strategies to guide the future development of the MacLaine Acres Subdivision.

### A. Existing Site Features

A topographical site survey has been completed by Martin Geomatic Consultants Ltd and an existing surface terrain model has been created.

The area presently includes 4 parcels zoned LUF with four dwellings, multiple accessory buildings and a dugout. The land is generally flat with ground slopes of 0.5% to 2.0% with the majority of the site draining overland to the east and into the Highway 843 ditch system, with the rest of the site draining to the adjacent property on the north and south, draining to the Township road 94A ditch and two areas that do not drain overland.

Existing soil descriptions for the area include Orthic Dark Brown Chernozem on medium textured (L, SiL) sediments deposited by wind and water (LET)<sup>a</sup>.

Fourteen boreholes<sup>b</sup> have been completed on site to determine soil conditions for the purpose of geotechnical investigations and general suitability of the proposed development. The fourteen boreholes were drilled to depths of 5.1m to 9.6m and generally found topsoil above clay, with groundwater depths ranging from 0.7m to 5.1m.

### B. Existing Drainage Features

Drainage boundaries, storage depressions and flow conveyance routes were interpreted and are shown on **Figure 2 – Existing Site & Drainage Features**.

### C. Predevelopment Sub-Catchments

Table 1 presents the existing site (pre-development) the sub-catchments and sub-catchment parameters assumed in the pre-development model.

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<sup>a</sup> *Alberta Soil Information Viewer*, Alberta Agriculture and Forestry, <http://www4.agric.gov.ab.ca/agrasidviewer>  
*MacLaine Acres Area Structure Plan, "Appendix 2, Geotechnical Evaluation"*, report prepared by Tetra Tech Canada Inc., October 2021. Which can be found attached to the ASP.



**Table 1 - Pre-Development Sub-Catchment Parameters**

Name	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Impervious (%)	Suction Head (mm)	Conductivity (mm/hr)	Initial Deficit (frac.)
Dugout	0.25	50	50	0.5	80	292.2	1	0.229
East	19.93	350	569	0.5	1	292.2	1	0.229
West-Central	10.66	300	355	0.5	10	292.2	1	0.229
West-NW	1.50	100	150	0.5	2	292.2	1	0.229
West-SE	0.68	80	85	0.5	0.5	292.2	1	0.229
West-SW	0.57	150	38	0.5	0.5	292.2	1	0.229
<b>Total</b>	<b>33.58</b>							

A brief description of the pre-development sub-catchment areas follows.

1. East sub-catchment - drains from west to east across the site and discharges to the west ditch of Highway 843. The high point of this catchment area is located on the south end of the west catchment boundary, at an approximate elevation of 907.2 m, and the low point is located at the northeast end of the site at an approximate elevation of 900.0 m. The East sub-catchment has two exiting dwellings and several accessory buildings, a water dugout for farm use, and a gravel access road along the northern boundary.
2. Dugout sub-catchment – this is the area of the existing a water dugout for farm use, that drains to itself. It does not have a discharge location.
3. West-NW sub-catchment drains from south to north and discharges to the property to the north.
4. West-SE sub-catchment drains from the NW to the SE and discharges to the Township road 94A ditch.
5. West SW sub-catchment drains from south to north and discharges to the property to the south.
6. West Central sub-catchment – drains to a topographical depression located in the center of the sub-catchment. The highpoint of this catchment area is along the west boundary at an approximate elevation of 908.6 m. The low point is located near the center of this catchment area at an approximate elevation 905.0 m. The stage storage curve for the depression is presented in Table 2. This sub-catchment spills over a low area to the east approximately where the drainage ROW is located on the properties to the east. Spill elevation is approximately 906.3. Calculations show that this catchment will not spill overland during a major storm event and empties through infiltration and evaporation. The West Central sub-catchment has two existing dwellings and several accessory buildings, a grass field area with a hobby horse track, and a gravel access road along the northern boundary.

**Table 2 – Pre-Development West-Trap**

Description	Elevation (m)	Depth (m)	Area (m <sup>2</sup> )	Volume (m <sup>3</sup> )
Bottom	905.0	0.0	0	0
	905.2	0.2	101	7
	905.4	0.4	535	65
	905.6	0.6	3367	414
	905.8	0.8	8015	1519
	906.0	1.0	14276	3718
	906.2	1.2	26001	7688
Spill	906.3	1.3	31539	10560
	906.4	1.4	38436	14054

## II. PROPOSED DEVELOPMENT AND DRAINAGE

### A. Proposed Development

The proposal is to create 27 Group Country Residential lots ranging from 2.5 to 3 acres (0.8 – 1.2 ha) in area by subdividing the lands.

Drainage patterns, runoff discharge rates and volumes will be affected by development. Development will increase the imperviousness within the plan area due to the addition of hard surfaces including roadways, building roofs, and driveways.

To mitigate increased runoff, the development will include detention storage on site with controlled release. Storage volumes and controlled release rates are to be designed not exceed:

- the pre-development release rate.
- 2.0 lps/ha release rate.

The proposed detention storage areas should be located in natural low areas to minimize material to be moved, area to be disturbed and simplify blending into the existing terrain. Table 3 shows the post - development catchment areas and the proposed stormwater storage pond locations.

Grass swales are planned as the primary conveyance of runoff and carry it away from the buildings and driving surfaces and towards the designated stormwater storage areas. **Figure 3 – Stormwater Management Plan** shows the location of proposed detention ponds, ditches and swales.

### B. Proposed Development Sub-catchments

The proposed post-development sub-catchments and there modeling parameters are presented in Table 3

**Table 3 – Post Development Sub-Catchment Parameters**

Name	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Impervious (%)	Suction Head (mm)	Conductivity (mm/hr)	Initial Deficit (frac.)
Phase_1A	7.02	160	439	0.5	40	292.2	1	0.229
Phase_1B	14.86	400	372	0.5	40	292.2	1	0.229
Phase_2	8.33	200	417	0.5	40	292.2	1	0.229
Undeveloped_1	1.92	180	107	0.5	1	292.2	1	0.229
Undeveloped_2	1.47	160	92	0.5	1	292.2	1	0.229
Total	33.60							

A brief description of the proposed post-development sub-catchments is provided below:

Phase 1A includes 7 proposed lots and 1 storm pond and lies east of Phase 1B, west of the undeveloped sub-catchments north of Township Rd. 94B and south of Phase 2. Phase 1A drains to Pond\_1A. Current level of detail is insufficient to determine how the pond will be drained.

Phase 1B includes the western area and includes 13 proposed lots and 1 storm pond and lies east and south of Irrigation Right-of-Ways, west of Phase 1A and Phase 2 and north of an agricultural site. Phase 1B drains to Pond\_1B. Pond\_1B is planned drain by gravity through the ditch network to Pond\_1A and or Pond\_2.

Phase 2 includes 7 proposed lots and 1 storm pond and lies west of the undeveloped sub-catchments, north of Phase 1A, east of Phase 1B, and south of an Irrigation Right-of-Way.

Undeveloped sub-catchments are two parcels of land that are on the east of the site and are undevelopable due to future highway plans. They discharge directly to the west ditch of Highway 843.

**C. Proposed Stormwater Management Plan**

The stormwater management plan for the MacLaine Acres Development is to drain all the site to the west ditch of Highway 843. All developed areas are proposed to discharge through a ditch system to stormwater detention ponds prior to release to the Highway 843 ditch. There will be some minor exceptions to this rule due to practical grading considerations which are beyond the detail of an ASP to explore. It is proposed that the release rate to the Highway 843 ditch from the whole development including the undevelopable areas immediately west of Highway 843 be less than existing.

**D. Stormwater Storage Ponds**

It is proposed to construct 3 stormwater storage ponds for the lands to be developed. These ponds are planned as dry ponds and designed following the Alberta Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems, Part 5, Stormwater Management Guidelines. Release from the ponds will be through a pipe and release rates controlled.

### III. METHODOLOGY

Drainage analysis of the proposed development was completed to determine runoff, storage, and discharge rates for pre-development and post-development conditions. The existing site runoff (pre-development) has been analyzed to determine a benchmark for allowable release rates at the post development conditions. A stormwater management model<sup>c</sup> has been utilized for the analysis. The following parameters are included in the modeling:

1. Synthetic Design Storm – Chicago Method: 24-hour duration, 100-year return period, (IDF Parameters A = 1019.20, B = 0, C = 0.731)<sup>d</sup>
2. Rainfall time step = 5 minutes
3. Simulation duration = 24 hrs
4. Routing Method: Dynamic Wave
5. No effect of Evaporation and Groundwater
6. Pre-development Catchment area = 33.61 ha
7. Post-development Catchment area = 33.61 ha
8. Infiltration Method: Green Ampt
9. Manning’s N Impervious = 0.015
10. Manning’s N Pervious = 0.15 (undeveloped), 0.1 (developed)
11. Depression Storage Pervious = 5mm (undeveloped), 3.8mm (developed)
12. Depression Storage Impervious =  $0.77*(S\%)^{-0.49}$

### IV. RESULTS

The model results are presented in the following tables. Details of the rainfall runoff modeling are included in **Appendix B – SWMM Model Results**.

#### A. Pre-Development Runoff

Table 3 presents the pre-development model results for the sub-catchment runoff generated from a 1 in 100-year storm, 24-hour storm event.

**Table 4 – Pre-Development Runoff**

Name	Area (ha)	Precipitation (mm)	Runon (mm)	Infiltration (mm)	Runoff Depth (mm)	Runoff Volume (ML)	Peak Runoff (m <sup>3</sup> /s)	Peak Runoff Offsite (m <sup>3</sup> /s)
Dugout	0.25	120.15	0	14.37	105.13	0.26	0.17	0
East	19.93	120.15	0	65.13	48.88	9.75	0.68	0.68
West-Central	10.66	120.15	0	59.41	56.04	5.97	0.62	0
West-NW	1.50	120.15	0	63.91	54.04	0.81	0.14	0.14
West-SE	0.68	120.15	0	64.66	54.39	0.37	0.1	0.1
West-SW	0.57	120.15	0	64.54	55.46	0.32	0.15	0.15

<sup>c</sup> EPA Storm Water Management Model – Version 5.0 (Build 5.0.22)

<sup>d</sup> 2016 Design Standards, City of Lethbridge.

**A. Existing Storage**

Table 6 presents the existing storage in response to the 1:100-year 24-hour storm event as shown on **Figure 2 – Existing Site & Drainage Features**.

**Table 5 – Existing Storage Unit**

Name	Invert Elev. (m)	Rim Elev. (m)	Full Depth (m)	Initial Depth (m)	Initial Volume (m <sup>3</sup> )	Max. Depth (m)	Max. Volume (m <sup>3</sup> )	Stored Runoff (m <sup>3</sup> )
SU1	905	906.5	1.5	0.71	680	0.93	957	277
SU2	905	906.4	1.4	0	0	1.12	5974	5974

**B. Post-Development Runoff**

As the stormwater management plan is to discharge at one location the pre-development runoff at that location governs the design of the stormwater management system. The total peak release rate off-site is limited to the predevelopment release from the East sub-catchment of 0.69 cubic metres per second.

Table 4 presents the sub-catchment model results for the post-development runoff generated from a 100-year 24-hour storm event. Proposed sub catchment areas are shown in the attached **Appendix C – SWMM Model Results**.

**Table 6 – Post-Development Runoff**

Name	Area (ha)	Precipitation (mm)	Runon (mm)	Infiltration (mm)	Runoff Depth (mm)	Runoff Volume (ML)	Peak Runoff* (m <sup>3</sup> /s)
Phase_1A	7.02	120.15	0	55.21	65.17	4.58	0.52
Phase_1B	14.86	120.15	0	54.8	65.61	9.75	1.23
Phase_2	8.33	120.15	0	55.07	65.32	5.44	0.64
Undeveloped_1	1.92	120.15	0	67.17	53.17	1.02	0.16
Undeveloped_2	1.47	120.15	0	66.93	53.44	0.79	0.13
Total	33.61					21.58	

\* Peak Runoff in this table is the runoff from a sub-catchment area and does not include any reduction in release rate due to the introduction of detention storage.

**C. Post Development Release Rates**

The post development release rate would be significantly higher than the predevelopment release rate if storage was not introduced.

For the MacLaine Acres Development two unique types of post development catchment areas are identified, first land that is to be developed and second land on the east side that is to remain undeveloped due to future transportation plans. Table 7 - Comparison of Release Rates Presents the various release rate options examined. It is proposed that for the undeveloped lands to not control the release rate, matching the current condition.

**Table 7 - Comparison of Release Rates**

	Discharge			Percent of Pre-development
	Undeveloped (lps)	Developed (lps)	Total (lps)	
1 in 100-year 24-hour Storm Event				
Pre-development	680	0	680	100%
2.0 lps/ha from Developed Areas	247	42	289	43%

**D. Proposed Storage**

Three storage ponds are proposed for the development that correspond to proposed phasing. These ponds are proposed to be constructed as dry ponds. Detailed design, location and sizing of the ponds will be determined at detailed design. There is a possibility that two or all the ponds could be combined into a single pond designed to meet the storage required to meet the desired release rate conditions. The number of ponds to be constructed will depend on timing of development for each of the three owners. All attempts will be made to reduce the number of ponds.

Table 8 presents the required storage volume and release rate for each pond.

**Table 8 - Pond Storage Volumes and Release Rates**

	Pond_1A		Pond_1B		Pond_2	
	Storage Required (m <sup>3</sup> )	Pond Release Rate (lps)	Storage Required (m <sup>3</sup> )	Pond Release Rate (lps)	Storage Required (m <sup>3</sup> )	Pond Release Rate (lps)
1 in 100-year 24-hour Storm Event						
2.0 lps/ha from Developed Areas	2418	43*	8415	29	4620	17

\* Pond\_1A is planned to receive flows from Pond\_1B. The release rate for Pond\_1A is for the total area draining to Pond1\_A.

**E. Analysis**

Considering the known drainage and flooding issues downstream of the sites release point, it is not recommended to discharge runoff from the site at a release rate that is comparable to the pre-development release rate. It is proposed to limit the release rate from developed areas to match the existing conditions.

If a larger impact on the downstream drainage is desired a greater impact would be realized by providing detention and a controlled release for the undeveloped areas than by moving to a zero release from the developed areas.

**V. RECOMMENDATIONS**

It is recommended that the MacLaine Acres Development provide approximately **15,500 m<sup>3</sup>** of active stormwater storage on-site to detain the runoff. Approval drawings including the detailed designs of detention ponds, outlets, swales, and grading plans are recommended prior to construction, which should generally follow the stormwater concepts outlined in this report.

**VI. CLOSING**

We trust that this report meets the requirements of the Area Structure Plan. Should you require any further information, please contact the undersigned.

Prepared by:



James Johansen, P.Eng.  
Civil Engineer, Project Manager

Reviewed by:



Ray Martin, P.Eng  
Vice President Engineering

**MARTIN GEOMATIC CONSULTANTS LTD.**

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Permit to Practice P05852



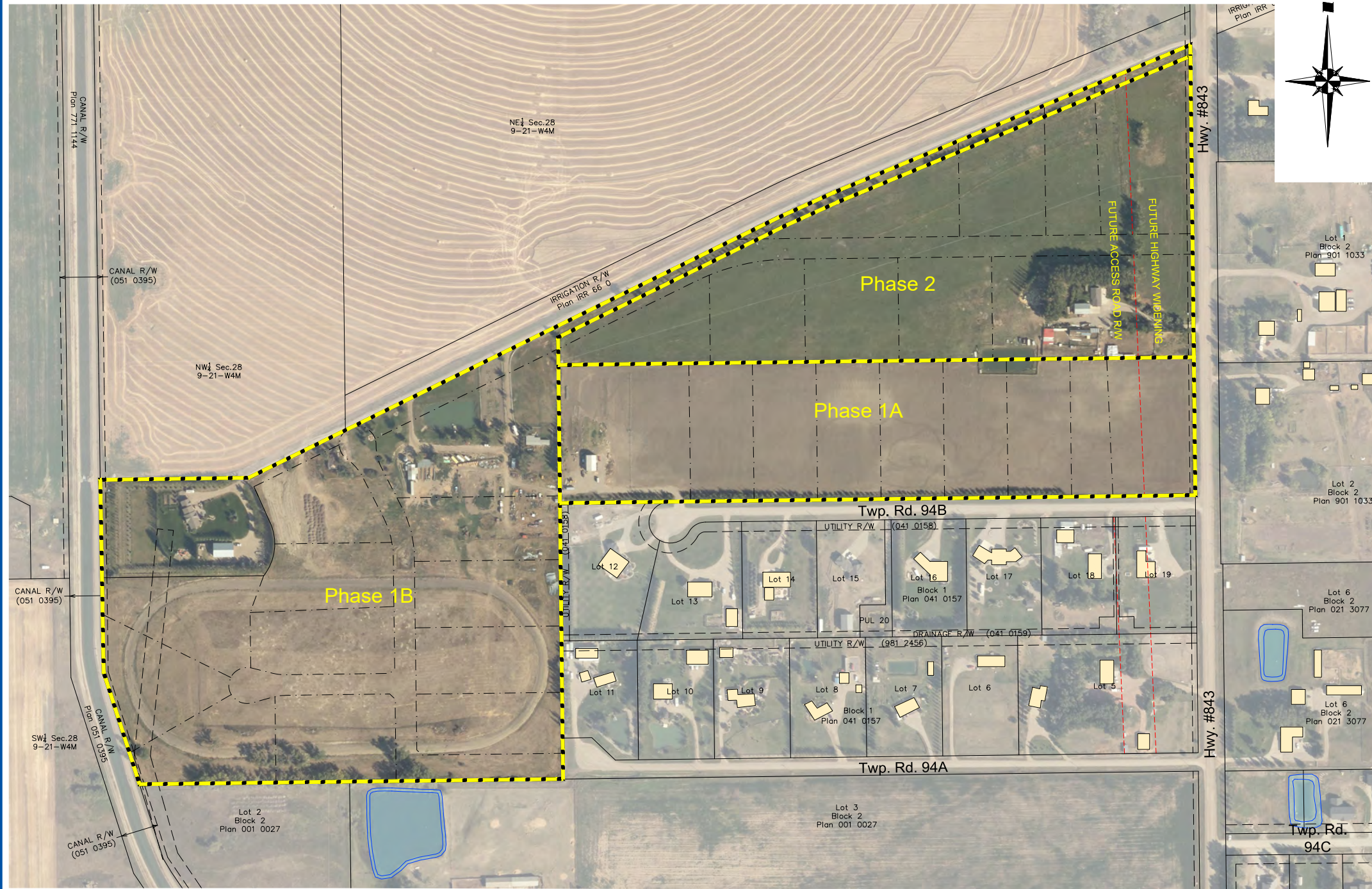
## Appendix A

*Figure 1 – Aerial Photo*

*Figure 2 – Existing Site & Drainage Features*

*Figure 3 – Stormwater Management Plan*





**LEGEND**  
 --- PHASE BOUNDARY

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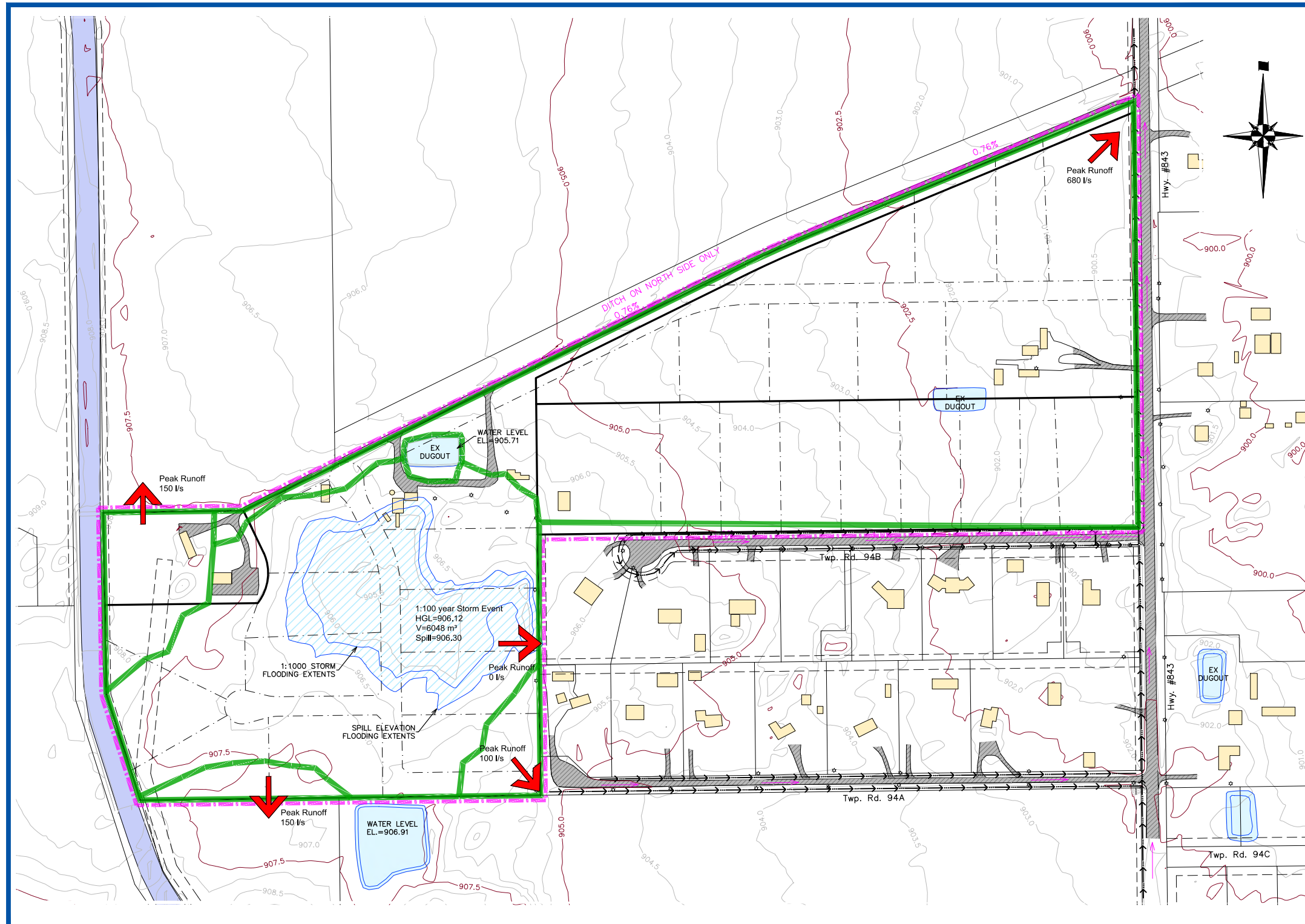
# MacLaine Acres

## STORMWATER MANAGEMENT PLAN

















AERIAL PHOTO  
 FIGURE 1.0

May 11, 2022

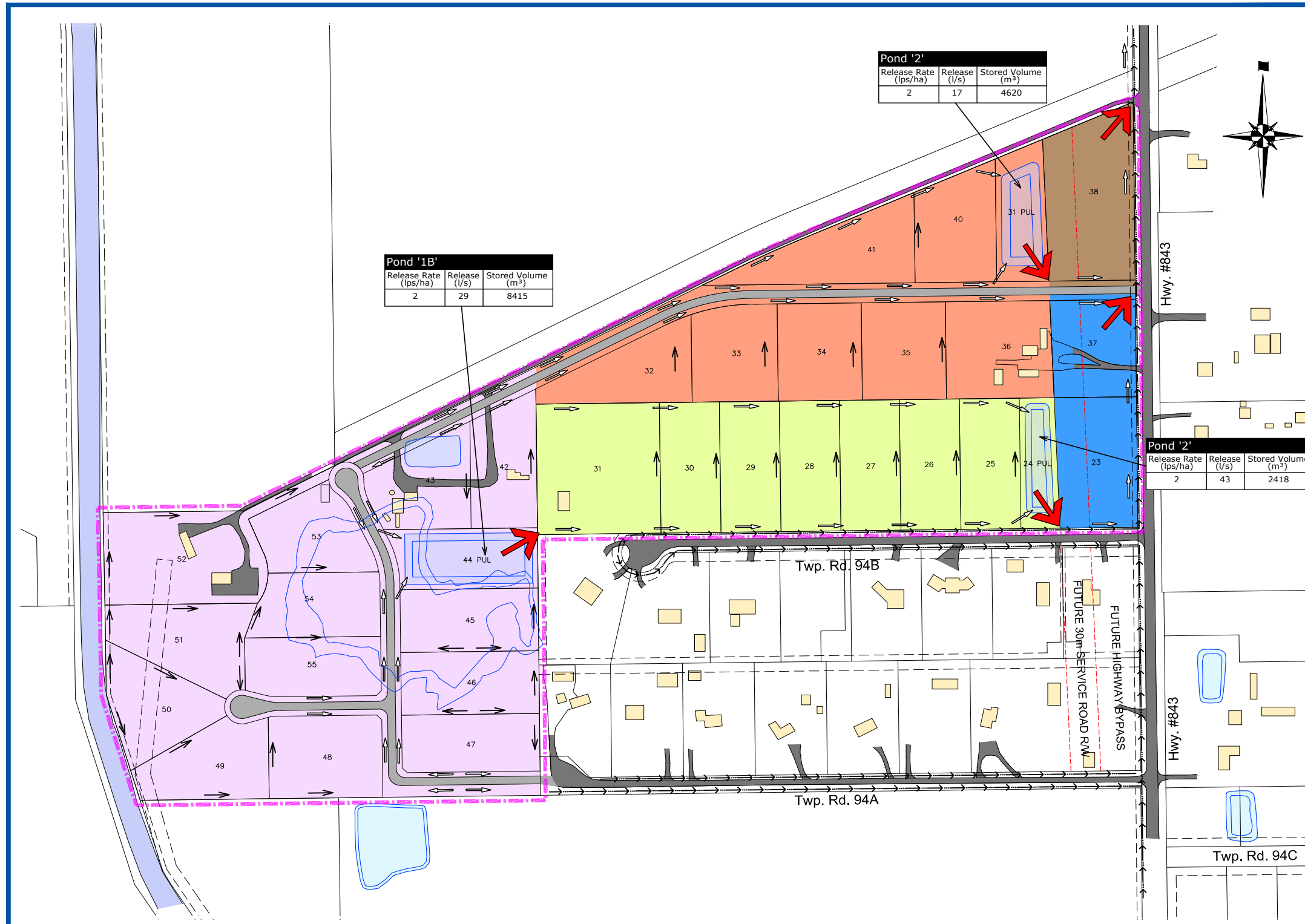
208645CE



**LEGEND**

-  DISCHARGE LOCATION
-  EX. MAJOR CONTOUR LINE
-  EX. MAJOR CONTOUR LINE
-  WATER CO-OP PIPELINE
-  SMRID IRRIGATION PIPE
-  GASLINE
-  OVERHEAD POWERLINE POWERPOLE
-  ABANDONED GAS WELL (RECLAIMED)
-  EXISTING DITCH DRAINAGE
-  SPOT ELEVATION ON SURFACE
-  PROPOSED LOT BOUNDARIES
-  ATCO SERVICE GAS
-  ATCO DECOMMISSIONED GAS
-  ATCO MAINLINE GAS
-  FLOW DIRECTION
-  PRE DEVELOPMENT CATCHMENT AREAS

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**LEGEND**

- ASP BOUNDARY
- DISCHARGE LOCATION
- EXISTING DITCH
- SURFACE DRAINAGE
- PROPOSED DITCH DRAINAGE

**TOTAL SITE DISCHARGE**

Undeveloped (l/s)	Developed (l/s)	Total (m³)
247	44	291

CATCHMENT	'A'	'B'	'C'	'D'	'E'
AREA (ha)	7.42	14.84	8.97	1.56	2.01
POND VOLUME (m³)	4,700	9,400	5,700	N/A	N/A

**Pond '1B'**

Release Rate (lps/ha)	Release (l/s)	Stored Volume (m³)
2	29	8415

**Pond '2'**

Release Rate (lps/ha)	Release (l/s)	Stored Volume (m³)
2	17	4620

**Pond '2'**

Release Rate (lps/ha)	Release (l/s)	Stored Volume (m³)
2	43	2418

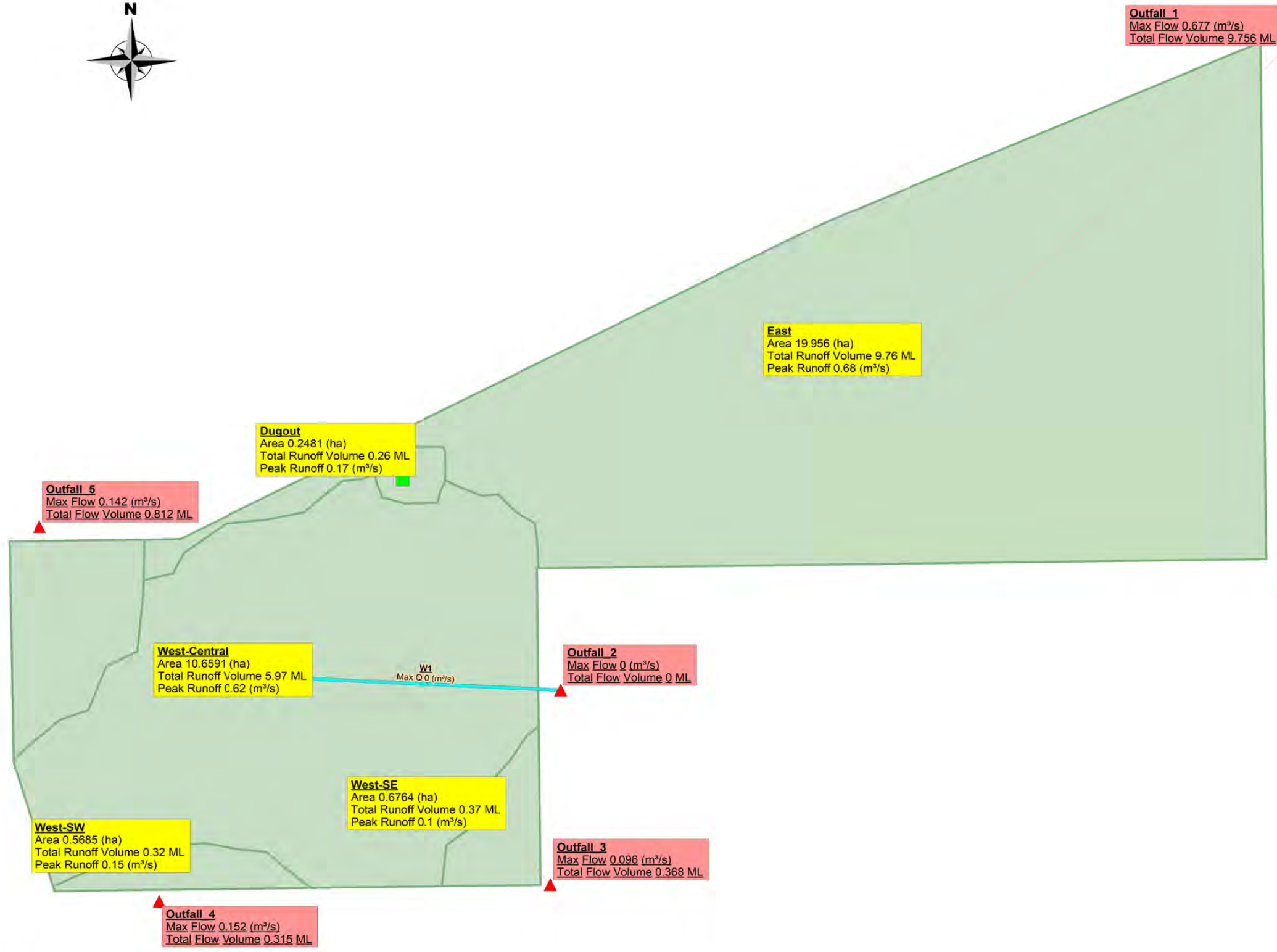
**NOTE:**  
THREE STORAGE PONDS ARE SHOWN CONCEPTUALLY TO IDENTIFY STORAGE VOLUMES FOR EACH PHASE. IT IS PLANNED THAT THE FINAL DESIGN WILL INCLUDE ONE POND. (IF FEASIBLE)

**MacLaine Acres** **STORMWATER MANAGEMENT PLAN** **STORMWATER MANAGEMENT PLAN** **FIGURE 3.0**

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## Appendix B

*PCSWWM OUTPUT FILES*



### Legend

- ▲ Outfalls
- Storages
- Weirs
- Subcatchments

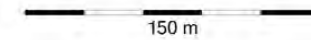
### Stormwater Management Plan

MacLaine Acres Subdivision

Sec. 28-9-21-W4M  
Lethbridge County  
Alberta

### Pre - Development

Lethbridge 1:100 year Chicago 24  
hour Rainfall Event



File Number: 208645CE

```

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;;Project Title/Notes

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INFILTRATION      GREEN_AMPT
FLOW_ROUTING      DYNWAVE
LINK_OFFSETS      DEPTH
MIN_SLOPE         0
ALLOW_PONDING     NO
SKIP_STEADY_STATE NO

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START_TIME        00:00:00
REPORT_START_DATE 05/17/2022
REPORT_START_TIME 00:00:00
END_DATE          05/20/2022
END_TIME          00:00:00
SWEEP_START       01/01
SWEEP_END         12/31
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WET_STEP          00:05:00
DRY_STEP          00:05:00
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INERTIAL_DAMPING  PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
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LENGTHENING_STEP  0
MIN_SURFAREA      0
MAX_TRIALS        8
HEAD_TOLERANCE    0.0015
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LAT_FLOW_TOL      5
MINIMUM_STEP      0.5
THREADS           4

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;;-----
CONSTANT         0.0
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format      Interval SCF      Source
;;-----
Lethbridge_1:100year_Chicago_24h INTENSITY 0:05      1.0      TIMESERIES Chicago_24h
Lethbridge_1:2year_Chicago_4h  INTENSITY 0:05      1.0      TIMESERIES
Lethbridge_1:2year_Chicago_4h
Lethbridge_County_1:100year_24hr INTENSITY 1:00      1.0      TIMESERIES
Lethbridge_County_1:100year_24hr

[SUBCATCHMENTS]
;;Name           Rain Gage      Outlet      Area      %Imperv Width      %Slop

```

```

;;-----
Dugout      Lethbridge_1:100year_Chicago_24h SU1 0.2481 80      50      0.5
0
East        Lethbridge_1:100year_Chicago_24h Outfall_1 19.956 1 350      0.5
0
West-Central Lethbridge_1:100year_Chicago_24h SU2 10.6591 10      300      0.5
0
West-NW     Lethbridge_1:100year_Chicago_24h Outfall_5 1.5023 2 100      0.5
0
West-SE     Lethbridge_1:100year_Chicago_24h Outfall_3 0.6764 0.5 80      0.5
0
West-SW     Lethbridge_1:100year_Chicago_24h Outfall_4 0.5685 0.5 150      0.5
0

[SUBAREAS]
;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo
PctRouted
;;-----
Dugout      0.015      0.15      1      5      25      PERVIOUS
100
East        0.015      0.15      1      5      25      PERVIOUS
100
West-Central 0.015      0.15      1      5      25      PERVIOUS
100
West-NW     0.015      0.15      1      5      25      PERVIOUS
100
West-SE     0.015      0.15      1      5      25      PERVIOUS
100
West-SW     0.015      0.15      1      5      25      PERVIOUS
100

[INFILTRATION]
;;Subcatchment Param1 Param2 Param3 Param4 Param5
;;-----
Dugout      292.2      1      0.229      0      0
East        292.2      1      0.229      0      0
West-Central 292.2      1      0.229      0      0
West-NW     292.2      1      0.229      0      0
West-SE     292.2      1      0.229      0      0
West-SW     292.2      1      0.229      0      0

[OUTFALLS]
;;Name Elevation Type Stage Data Gated Route To
;;-----
Outfall_1   0      FREE
Outfall_2   0      FREE
Outfall_3   0      FREE
Outfall_4   0      FREE
Outfall_5   0      FREE

[STORAGE]
;;Name Elev. MaxDepth InitDepth Shape Curve Name/Params
N/A Fevap Psi Ksat IMD
;;-----
SU1         905      1.5      0.71      TABULAR Dugout
0           0

```

SU2                    905            1.4            0            TABULAR        Predevelopment\_west\_Trap  
 0 0

[WEIRS]

```
;;Name            From Node            To Node            Type            CrestHt        Qcoeff
Gated    EndCon    EndCoeff    Surcharge    RoadWidth    RoadSurf    Coeff. Curve
;-----;
W1            SU2            Outfall_2        TRANSVERSE    1.3            3.33
NO            0            0            YES
```

[XSECTIONS]

```
;;Link            Shape            Geom1            Geom2            Geom3            Geom4
Barrels    Culvert
;-----;
W1            RECT_OPEN        1            10            0            0
```

[CURVES]

```
;;Name            Type            X-Value        Y-Value
;-----;
Dugout            Storage        0            800
Dugout                       1            1306
Dugout                       1.5          1541
```

```
Predevelopment_west_Trap Storage        0            0
Predevelopment_west_Trap            0.2          100.739
Predevelopment_west_Trap            0.4          534.763
Predevelopment_west_Trap            0.6          3367.153
Predevelopment_west_Trap            0.8          8014.551
Predevelopment_west_Trap            1            14275.847
Predevelopment_west_Trap            1.2          26000.83
Predevelopment_west_Trap            1.3          31539.26
Predevelopment_west_Trap            1.4          38436.106
```

[TIMESERIES]

```
;;Name            Date            Time            Value
;-----;
;Chicago design storm, a = 1019.2, b = 0, c = 0.731, Duration = 1440 minutes, r =
0.3, rain units = mm/hr.
Chicago_24h                       0:00          1.352
Chicago_24h                       0:05          1.364
Chicago_24h                       0:10          1.376
Chicago_24h                       0:15          1.388
Chicago_24h                       0:20          1.4
Chicago_24h                       0:25          1.413
Chicago_24h                       0:30          1.426
Chicago_24h                       0:35          1.439
Chicago_24h                       0:40          1.453
Chicago_24h                       0:45          1.466
Chicago_24h                       0:50          1.48
Chicago_24h                       0:55          1.495
Chicago_24h                       1:00          1.51
Chicago_24h                       1:05          1.525
Chicago_24h                       1:10          1.54
Chicago_24h                       1:15          1.556
Chicago_24h                       1:20          1.572
Chicago_24h                       1:25          1.589
```



Chicago_24h	1:30	1.606
Chicago_24h	1:35	1.624
Chicago_24h	1:40	1.641
Chicago_24h	1:45	1.66
Chicago_24h	1:50	1.679
Chicago_24h	1:55	1.698
Chicago_24h	2:00	1.718
Chicago_24h	2:05	1.739
Chicago_24h	2:10	1.76
Chicago_24h	2:15	1.782
Chicago_24h	2:20	1.804
Chicago_24h	2:25	1.828
Chicago_24h	2:30	1.851
Chicago_24h	2:35	1.876
Chicago_24h	2:40	1.901
Chicago_24h	2:45	1.928
Chicago_24h	2:50	1.955
Chicago_24h	2:55	1.983
Chicago_24h	3:00	2.012
Chicago_24h	3:05	2.042
Chicago_24h	3:10	2.073
Chicago_24h	3:15	2.105
Chicago_24h	3:20	2.138
Chicago_24h	3:25	2.173
Chicago_24h	3:30	2.209
Chicago_24h	3:35	2.247
Chicago_24h	3:40	2.286
Chicago_24h	3:45	2.326
Chicago_24h	3:50	2.369
Chicago_24h	3:55	2.413
Chicago_24h	4:00	2.46
Chicago_24h	4:05	2.508
Chicago_24h	4:10	2.559
Chicago_24h	4:15	2.612
Chicago_24h	4:20	2.669
Chicago_24h	4:25	2.728
Chicago_24h	4:30	2.79
Chicago_24h	4:35	2.856
Chicago_24h	4:40	2.925
Chicago_24h	4:45	2.999
Chicago_24h	4:50	3.077
Chicago_24h	4:55	3.16
Chicago_24h	5:00	3.249
Chicago_24h	5:05	3.344
Chicago_24h	5:10	3.446
Chicago_24h	5:15	3.555
Chicago_24h	5:20	3.673
Chicago_24h	5:25	3.801
Chicago_24h	5:30	3.939
Chicago_24h	5:35	4.091
Chicago_24h	5:40	4.257
Chicago_24h	5:45	4.44
Chicago_24h	5:50	4.642
Chicago_24h	5:55	4.868
Chicago_24h	6:00	5.122
Chicago_24h	6:05	5.409
Chicago_24h	6:10	5.738

Chicago_24h	6:15	6.119
Chicago_24h	6:20	6.565
Chicago_24h	6:25	7.098
Chicago_24h	6:30	7.745
Chicago_24h	6:35	8.553
Chicago_24h	6:40	9.594
Chicago_24h	6:45	10.997
Chicago_24h	6:50	13.01
Chicago_24h	6:55	16.203
Chicago_24h	7:00	22.264
Chicago_24h	7:05	40.822
Chicago_24h	7:10	314.277
Chicago_24h	7:15	62.374
Chicago_24h	7:20	38.336
Chicago_24h	7:25	28.645
Chicago_24h	7:30	23.295
Chicago_24h	7:35	19.837
Chicago_24h	7:40	17.393
Chicago_24h	7:45	15.56
Chicago_24h	7:50	14.128
Chicago_24h	7:55	12.973
Chicago_24h	8:00	12.02
Chicago_24h	8:05	11.217
Chicago_24h	8:10	10.531
Chicago_24h	8:15	9.937
Chicago_24h	8:20	9.416
Chicago_24h	8:25	8.956
Chicago_24h	8:30	8.545
Chicago_24h	8:35	8.177
Chicago_24h	8:40	7.844
Chicago_24h	8:45	7.542
Chicago_24h	8:50	7.265
Chicago_24h	8:55	7.012
Chicago_24h	9:00	6.778
Chicago_24h	9:05	6.563
Chicago_24h	9:10	6.362
Chicago_24h	9:15	6.176
Chicago_24h	9:20	6.002
Chicago_24h	9:25	5.839
Chicago_24h	9:30	5.687
Chicago_24h	9:35	5.543
Chicago_24h	9:40	5.408
Chicago_24h	9:45	5.28
Chicago_24h	9:50	5.159
Chicago_24h	9:55	5.045
Chicago_24h	10:00	4.936
Chicago_24h	10:05	4.833
Chicago_24h	10:10	4.735
Chicago_24h	10:15	4.641
Chicago_24h	10:20	4.552
Chicago_24h	10:25	4.466
Chicago_24h	10:30	4.385
Chicago_24h	10:35	4.307
Chicago_24h	10:40	4.231
Chicago_24h	10:45	4.159
Chicago_24h	10:50	4.09
Chicago_24h	10:55	4.024

Chicago_24h	11:00	3.96
Chicago_24h	11:05	3.898
Chicago_24h	11:10	3.839
Chicago_24h	11:15	3.781
Chicago_24h	11:20	3.726
Chicago_24h	11:25	3.673
Chicago_24h	11:30	3.621
Chicago_24h	11:35	3.571
Chicago_24h	11:40	3.523
Chicago_24h	11:45	3.476
Chicago_24h	11:50	3.43
Chicago_24h	11:55	3.386
Chicago_24h	12:00	3.344
Chicago_24h	12:05	3.302
Chicago_24h	12:10	3.262
Chicago_24h	12:15	3.223
Chicago_24h	12:20	3.185
Chicago_24h	12:25	3.148
Chicago_24h	12:30	3.112
Chicago_24h	12:35	3.077
Chicago_24h	12:40	3.043
Chicago_24h	12:45	3.01
Chicago_24h	12:50	2.977
Chicago_24h	12:55	2.946
Chicago_24h	13:00	2.915
Chicago_24h	13:05	2.885
Chicago_24h	13:10	2.856
Chicago_24h	13:15	2.827
Chicago_24h	13:20	2.799
Chicago_24h	13:25	2.772
Chicago_24h	13:30	2.745
Chicago_24h	13:35	2.719
Chicago_24h	13:40	2.693
Chicago_24h	13:45	2.669
Chicago_24h	13:50	2.644
Chicago_24h	13:55	2.62
Chicago_24h	14:00	2.597
Chicago_24h	14:05	2.574
Chicago_24h	14:10	2.552
Chicago_24h	14:15	2.53
Chicago_24h	14:20	2.508
Chicago_24h	14:25	2.487
Chicago_24h	14:30	2.466
Chicago_24h	14:35	2.446
Chicago_24h	14:40	2.426
Chicago_24h	14:45	2.407
Chicago_24h	14:50	2.388
Chicago_24h	14:55	2.369
Chicago_24h	15:00	2.35
Chicago_24h	15:05	2.332
Chicago_24h	15:10	2.315
Chicago_24h	15:15	2.297
Chicago_24h	15:20	2.28
Chicago_24h	15:25	2.263
Chicago_24h	15:30	2.247
Chicago_24h	15:35	2.23
Chicago_24h	15:40	2.214

Chicago_24h	15:45	2.199
Chicago_24h	15:50	2.183
Chicago_24h	15:55	2.168
Chicago_24h	16:00	2.153
Chicago_24h	16:05	2.138
Chicago_24h	16:10	2.124
Chicago_24h	16:15	2.11
Chicago_24h	16:20	2.095
Chicago_24h	16:25	2.082
Chicago_24h	16:30	2.068
Chicago_24h	16:35	2.055
Chicago_24h	16:40	2.042
Chicago_24h	16:45	2.029
Chicago_24h	16:50	2.016
Chicago_24h	16:55	2.003
Chicago_24h	17:00	1.991
Chicago_24h	17:05	1.979
Chicago_24h	17:10	1.966
Chicago_24h	17:15	1.955
Chicago_24h	17:20	1.943
Chicago_24h	17:25	1.931
Chicago_24h	17:30	1.92
Chicago_24h	17:35	1.909
Chicago_24h	17:40	1.898
Chicago_24h	17:45	1.887
Chicago_24h	17:50	1.876
Chicago_24h	17:55	1.865
Chicago_24h	18:00	1.855
Chicago_24h	18:05	1.844
Chicago_24h	18:10	1.834
Chicago_24h	18:15	1.824
Chicago_24h	18:20	1.814
Chicago_24h	18:25	1.804
Chicago_24h	18:30	1.795
Chicago_24h	18:35	1.785
Chicago_24h	18:40	1.776
Chicago_24h	18:45	1.766
Chicago_24h	18:50	1.757
Chicago_24h	18:55	1.748
Chicago_24h	19:00	1.739
Chicago_24h	19:05	1.73
Chicago_24h	19:10	1.721
Chicago_24h	19:15	1.713
Chicago_24h	19:20	1.704
Chicago_24h	19:25	1.696
Chicago_24h	19:30	1.687
Chicago_24h	19:35	1.679
Chicago_24h	19:40	1.671
Chicago_24h	19:45	1.663
Chicago_24h	19:50	1.655
Chicago_24h	19:55	1.647
Chicago_24h	20:00	1.639
Chicago_24h	20:05	1.631
Chicago_24h	20:10	1.624
Chicago_24h	20:15	1.616
Chicago_24h	20:20	1.608
Chicago_24h	20:25	1.601

Chicago_24h	20:30	1.594
Chicago_24h	20:35	1.587
Chicago_24h	20:40	1.579
Chicago_24h	20:45	1.572
Chicago_24h	20:50	1.565
Chicago_24h	20:55	1.558
Chicago_24h	21:00	1.551
Chicago_24h	21:05	1.545
Chicago_24h	21:10	1.538
Chicago_24h	21:15	1.531
Chicago_24h	21:20	1.525
Chicago_24h	21:25	1.518
Chicago_24h	21:30	1.512
Chicago_24h	21:35	1.505
Chicago_24h	21:40	1.499
Chicago_24h	21:45	1.493
Chicago_24h	21:50	1.487
Chicago_24h	21:55	1.48
Chicago_24h	22:00	1.474
Chicago_24h	22:05	1.468
Chicago_24h	22:10	1.462
Chicago_24h	22:15	1.456
Chicago_24h	22:20	1.451
Chicago_24h	22:25	1.445
Chicago_24h	22:30	1.439
Chicago_24h	22:35	1.433
Chicago_24h	22:40	1.428
Chicago_24h	22:45	1.422
Chicago_24h	22:50	1.417
Chicago_24h	22:55	1.411
Chicago_24h	23:00	1.406
Chicago_24h	23:05	1.4
Chicago_24h	23:10	1.395
Chicago_24h	23:15	1.39
Chicago_24h	23:20	1.384
Chicago_24h	23:25	1.379
Chicago_24h	23:30	1.374
Chicago_24h	23:35	1.369
Chicago_24h	23:40	1.364
Chicago_24h	23:45	1.359
Chicago_24h	23:50	1.354
Chicago_24h	23:55	1.349
Chicago_24h	24:00	0

;Chicago design storm, a = 370.49, b = 4.38, c = 0.736, Duration = 240 minutes, r = 0.3, rain units = mm/hr.

Lethbridge_1:2year_Chicago_4h	0:00	1.845
Lethbridge_1:2year_Chicago_4h	0:05	1.954
Lethbridge_1:2year_Chicago_4h	0:10	2.08
Lethbridge_1:2year_Chicago_4h	0:15	2.227
Lethbridge_1:2year_Chicago_4h	0:20	2.401
Lethbridge_1:2year_Chicago_4h	0:25	2.611
Lethbridge_1:2year_Chicago_4h	0:30	2.869
Lethbridge_1:2year_Chicago_4h	0:35	3.196
Lethbridge_1:2year_Chicago_4h	0:40	3.626
Lethbridge_1:2year_Chicago_4h	0:45	4.219
Lethbridge_1:2year_Chicago_4h	0:50	5.1

Lethbridge_1:2year_Chicago_4h	0:55	6.563
Lethbridge_1:2year_Chicago_4h	1:00	9.546
Lethbridge_1:2year_Chicago_4h	1:05	19.693
Lethbridge_1:2year_Chicago_4h	1:10	71.324
Lethbridge_1:2year_Chicago_4h	1:15	31.686
Lethbridge_1:2year_Chicago_4h	1:20	18.267
Lethbridge_1:2year_Chicago_4h	1:25	12.889
Lethbridge_1:2year_Chicago_4h	1:30	10.06
Lethbridge_1:2year_Chicago_4h	1:35	8.312
Lethbridge_1:2year_Chicago_4h	1:40	7.122
Lethbridge_1:2year_Chicago_4h	1:45	6.258
Lethbridge_1:2year_Chicago_4h	1:50	5.6
Lethbridge_1:2year_Chicago_4h	1:55	5.081
Lethbridge_1:2year_Chicago_4h	2:00	4.661
Lethbridge_1:2year_Chicago_4h	2:05	4.313
Lethbridge_1:2year_Chicago_4h	2:10	4.02
Lethbridge_1:2year_Chicago_4h	2:15	3.769
Lethbridge_1:2year_Chicago_4h	2:20	3.551
Lethbridge_1:2year_Chicago_4h	2:25	3.361
Lethbridge_1:2year_Chicago_4h	2:30	3.193
Lethbridge_1:2year_Chicago_4h	2:35	3.043
Lethbridge_1:2year_Chicago_4h	2:40	2.909
Lethbridge_1:2year_Chicago_4h	2:45	2.787
Lethbridge_1:2year_Chicago_4h	2:50	2.677
Lethbridge_1:2year_Chicago_4h	2:55	2.577
Lethbridge_1:2year_Chicago_4h	3:00	2.485
Lethbridge_1:2year_Chicago_4h	3:05	2.4
Lethbridge_1:2year_Chicago_4h	3:10	2.322
Lethbridge_1:2year_Chicago_4h	3:15	2.249
Lethbridge_1:2year_Chicago_4h	3:20	2.182
Lethbridge_1:2year_Chicago_4h	3:25	2.119
Lethbridge_1:2year_Chicago_4h	3:30	2.06
Lethbridge_1:2year_Chicago_4h	3:35	2.005
Lethbridge_1:2year_Chicago_4h	3:40	1.953
Lethbridge_1:2year_Chicago_4h	3:45	1.905
Lethbridge_1:2year_Chicago_4h	3:50	1.859
Lethbridge_1:2year_Chicago_4h	3:55	1.815
Lethbridge_1:2year_Chicago_4h	4:00	0
Lethbridge_County_1:100year_24hr	1	0.1
Lethbridge_County_1:100year_24hr	2	0.2
Lethbridge_County_1:100year_24hr	3	0.3
Lethbridge_County_1:100year_24hr	4	0.4
Lethbridge_County_1:100year_24hr	5	0.6
Lethbridge_County_1:100year_24hr	6	0.8
Lethbridge_County_1:100year_24hr	7	0.9
Lethbridge_County_1:100year_24hr	8	1.1
Lethbridge_County_1:100year_24hr	9	6.2
Lethbridge_County_1:100year_24hr	10	37
Lethbridge_County_1:100year_24hr	11	21.8
Lethbridge_County_1:100year_24hr	12	15.7
Lethbridge_County_1:100year_24hr	13	9
Lethbridge_County_1:100year_24hr	14	5.6
Lethbridge_County_1:100year_24hr	15	4.5
Lethbridge_County_1:100year_24hr	16	3.4
Lethbridge_County_1:100year_24hr	17	2.8
Lethbridge_County_1:100year_24hr	18	1.7

Lethbridge_County_1:100year_24hr	19	0
Lethbridge_County_1:100year_24hr	20	0
Lethbridge_County_1:100year_24hr	21	0
Lethbridge_County_1:100year_24hr	22	0
Lethbridge_County_1:100year_24hr	23	0
Lethbridge_County_1:100year_24hr	24	0

```
[REPORT]
;;Reporting Options
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

```
[TAGS]
```

```
[MAP]
DIMENSIONS      9945.1547      16495.9708      11105.4193      17296.0932
UNITS            Meters
```

```
[COORDINATES]
;;Node           X-Coord           Y-Coord
;;-----
Outfall_1        11052.68           17252.62
Outfall_2        10453.858          16711.232
Outfall_3        10445.385          16546.463
Outfall_4        10121.494          16532.34
Outfall_5        10022.632          16849.639
SU1              10322.984          16889.184
SU2              10229.772          16721.59
```

```
[VERTICES]
;;Link           X-Coord           Y-Coord
;;-----
```

```
[POLYGONS]
;;Subcatchment   X-Coord           Y-Coord
;;-----
Dugout           10309.728          16912.795
Dugout           10328.019          16917.215
Dugout           10356.632          16917.111
Dugout           10358.167          16913.465
Dugout           10358.407          16895.956
Dugout           10358.051          16887.175
Dugout           10354.593          16881.191
Dugout           10351.788          16869.772
Dugout           10324.561          16869.158
Dugout           10305.843          16874.547
Dugout           10301.39           16887.273
Dugout           10300.1            16893.227
Dugout           10299.837          16903.312
Dugout           10301.861          16910.964
Dugout           10309.728          16912.795
East             10432.533          16986.754
East             10234.451          16887.209
East             10138.696          16839.078
```

East	10109.454	16838.662
East	10108.65	16804.086
East	10132.858	16810.074
East	10141.665	16827.135
East	10176.779	16852.307
East	10209.47	16855.336
East	10241.517	16861.854
East	10250.424	16869.933
East	10273.179	16888.068
East	10289.867	16890.168
East	10300.068	16894.447
East	10299.837	16903.312
East	10301.861	16910.964
East	10309.728	16912.795
East	10328.019	16917.215
East	10356.632	16917.111
East	10358.167	16913.465
East	10358.407	16895.956
East	10358.132	16889.182
East	10367.964	16884.086
East	10375.427	16880.998
East	10388.551	16875.724
East	10402.118	16876.957
East	10416.238	16862.497
East	10432.662	16852.328
East	10434.517	16837.789
East	10435.65	16814.494
East	11037.777	16822.113
East	11033.059	17259.724
East	10694.241	17116.311
East	10691.891	17115.313
East	10689.545	17114.307
East	10687.201	17113.295
East	10684.86	17112.275
East	10682.523	17111.249
East	10680.188	17110.216
East	10677.857	17109.176
East	10675.528	17108.129
East	10673.203	17107.075
East	10670.881	17106.014
East	10668.562	17104.946
East	10666.246	17103.872
East	10663.933	17102.79
East	10661.624	17101.702
East	10659.317	17100.607
East	10657.014	17099.505
East	10654.715	17098.397
East	10652.418	17097.281
East	10650.125	17096.159
East	10647.835	17095.03
East	10645.549	17093.895
East	10643.265	17092.752
East	10643.265	17092.752
East	10432.533	16986.754
West-Central	10033.989	16544.952
West-Central	10077.293	16564.867
West-Central	10100.035	16574.872



West-Central	10128.003	16579.374
West-Central	10159.675	16581.448
West-Central	10186.822	16576.547
West-Central	10210.576	16574.285
West-Central	10223.207	16562.788
West-Central	10246.883	16543.852
West-Central	10355.488	16545.23
West-Central	10359.19	16579.614
West-Central	10378.557	16594.5
West-Central	10382.731	16618.765
West-Central	10411.157	16650.917
West-Central	10426.22	16672.638
West-Central	10435.888	16680.894
West-Central	10434.423	16814.478
West-Central	10435.65	16814.494
West-Central	10434.517	16837.789
West-Central	10432.662	16852.328
West-Central	10416.238	16862.497
West-Central	10402.118	16876.957
West-Central	10388.551	16875.724
West-Central	10375.427	16880.998
West-Central	10367.964	16884.086
West-Central	10358.132	16889.182
West-Central	10358.051	16887.175
West-Central	10354.593	16881.191
West-Central	10351.788	16869.772
West-Central	10324.561	16869.158
West-Central	10305.843	16874.547
West-Central	10301.39	16887.273
West-Central	10300.1	16893.227
West-Central	10300.068	16894.447
West-Central	10289.867	16890.168
West-Central	10273.179	16888.068
West-Central	10250.424	16869.933
West-Central	10241.517	16861.854
West-Central	10209.47	16855.336
West-Central	10176.779	16852.307
West-Central	10141.665	16827.135
West-Central	10132.858	16810.074
West-Central	10108.65	16804.086
West-Central	10108.395	16793.122
West-Central	10103.644	16744.225
West-Central	10077.795	16731.437
West-Central	10062.872	16694.137
West-Central	10039.688	16686.145
West-Central	10001.048	16653.236
West-Central	10001.104	16649.982
West-Central	10033.989	16544.952
West-NW	10109.454	16838.662
West-NW	9997.894	16837.075
West-NW	10001.048	16653.236
West-NW	10039.688	16686.145
West-NW	10062.872	16694.137
West-NW	10077.795	16731.437
West-NW	10103.644	16744.225
West-NW	10108.395	16793.122
West-NW	10109.454	16838.662

West-SE	10435.888	16680.894
West-SE	10426.22	16672.638
West-SE	10411.157	16650.917
West-SE	10382.731	16618.765
West-SE	10378.557	16594.5
West-SE	10359.19	16579.614
West-SE	10355.488	16545.23
West-SE	10437.364	16546.269
West-SE	10435.888	16680.894
West-SW	10246.883	16543.852
West-SW	10223.207	16562.788
West-SW	10210.576	16574.285
West-SW	10186.822	16576.547
West-SW	10159.675	16581.448
West-SW	10128.003	16579.374
West-SW	10100.035	16574.872
West-SW	10077.293	16564.867
West-SW	10033.989	16544.952
West-SW	10035.174	16541.165
West-SW	10246.883	16543.852

[SYMBOLS]

;;Gage	X-Coord	Y-Coord
;;-----	-----	-----

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

\*\*\*\*\*

Element Count

\*\*\*\*\*

Number of rain gages ..... 3  
 Number of subcatchments ... 6  
 Number of nodes ..... 7  
 Number of links ..... 1  
 Number of pollutants ..... 0  
 Number of land uses ..... 0

\*\*\*\*\*

Raingage Summary

\*\*\*\*\*

Name	Data Source	Data Type	Recording Interval
Lethbridge_1:100year_Chicago_24h	Chicago_24h		INTENSITY 5 min.
Lethbridge_1:2year_Chicago_4h	Lethbridge_1:2year_Chicago_4h		INTENSITY 5 min.
Lethbridge_County_1:100year_24hr	Lethbridge_County_1:100year_24hr		INTENSITY 60 min.

\*\*\*\*\*

Subcatchment Summary

\*\*\*\*\*

Name	Area	Width	%Imperv	%Slope	Rain Gage
Dugout	0.25	50.00	80.00	0.5000	
Lethbridge_1:100year_Chicago_24h SU1					
East	19.96	350.00	1.00	0.5000	
Lethbridge_1:100year_Chicago_24h Outfall_1					
West-Central	10.66	300.00	10.00	0.5000	
Lethbridge_1:100year_Chicago_24h SU2					
West-NW	1.50	100.00	2.00	0.5000	
Lethbridge_1:100year_Chicago_24h Outfall_5					
West-SE	0.68	80.00	0.50	0.5000	
Lethbridge_1:100year_Chicago_24h Outfall_3					
West-SW	0.57	150.00	0.50	0.5000	
Lethbridge_1:100year_Chicago_24h Outfall_4					

\*\*\*\*\*

Node Summary

\*\*\*\*\*

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Outfall_1	OUTFALL	0.00	0.00	0.0	
Outfall_2	OUTFALL	0.00	0.00	0.0	

Outfall_3	OUTFALL	0.00	0.00	0.0
Outfall_4	OUTFALL	0.00	0.00	0.0
Outfall_5	OUTFALL	0.00	0.00	0.0
SU1	STORAGE	905.00	1.50	0.0
SU2	STORAGE	905.00	1.40	0.0

\*\*\*\*\*  
Link Summary  
\*\*\*\*\*

Name	From Node	To Node	Type	Length	%
Slope Roughness					
-----	-----	-----	-----	-----	-----
W1	SU2	Outfall_2	WEIR		

\*\*\*\*\*  
Cross Section Summary  
\*\*\*\*\*

Full	Full	Full	Hyd.	Max.	No. of
Conduit	Shape	Depth	Area	Rad.	Width Barrels
Flow					
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----

\*\*\*\*\*  
NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.  
\*\*\*\*\*

\*\*\*\*\*  
Analysis Options  
\*\*\*\*\*

Flow Units ..... CMS  
Process Models:  
  Rainfall/Runoff ..... YES  
  RDII ..... NO  
  Snowmelt ..... NO  
  Groundwater ..... NO  
  Flow Routing ..... YES  
  Ponding Allowed ..... NO  
  Water Quality ..... NO  
Infiltration Method ..... GREEN\_AMPT  
Flow Routing Method ..... DYNWAVE  
Surcharge Method ..... EXTRAN  
Starting Date ..... 05/17/2022 00:00:00  
Ending Date ..... 05/20/2022 00:00:00  
Antecedent Dry Days ..... 0.0  
Report Time Step ..... 00:01:00  
Wet Time Step ..... 00:05:00  
Dry Time Step ..... 00:05:00  
Routing Time Step ..... 5.00 sec

Variable Time Step ..... YES  
 Maximum Trials ..... 8  
 Number of Threads ..... 1  
 Head Tolerance ..... 0.001500 m

```

*****
Volume          Depth
Runoff Quantity Continuity  hectare-m      mm
*****
Total Precipitation ..... 4.038      120.146
Evaporation Loss ..... 0.000      0.000
Infiltration Loss ..... 2.294      68.247
Surface Runoff ..... 1.749      52.025
Final Storage ..... 0.001      0.033
Continuity Error (%) ..... -0.133
  
```

```

*****
Volume          Volume
Flow Routing Continuity  hectare-m      10^6 ltr
*****
Dry Weather Inflow ..... 0.000      0.000
Wet Weather Inflow ..... 1.749      17.486
Groundwater Inflow ..... 0.000      0.000
RDII Inflow ..... 0.000      0.000
External Inflow ..... 0.000      0.000
External Outflow ..... 1.125      11.251
Flooding Loss ..... 0.000      0.000
Evaporation Loss ..... 0.000      0.000
Exfiltration Loss ..... 0.000      0.000
Initial Stored Volume ... 0.070      0.695
Final Stored Volume ..... 0.693      6.930
Continuity Error (%) ..... 0.004
  
```

```

*****
Time-Step Critical Elements
*****
None
  
```

```

*****
Highest Flow Instability Indexes
*****
All links are stable.
  
```

```

*****
Routing Time Step Summary
*****
Minimum Time Step      : 4.50 sec
Average Time Step      : 5.00 sec
Maximum Time Step      : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.00
Percent Not Converging  : 0.00
Time Step Frequencies  :
  5.000 - 3.155 sec    : 100.00 %
  
```

3.155 - 1.991 sec : 0.00 %  
 1.991 - 1.256 sec : 0.00 %  
 1.256 - 0.792 sec : 0.00 %  
 0.792 - 0.500 sec : 0.00 %

\*\*\*\*\*  
 Subcatchment Runoff Summary  
 \*\*\*\*\*

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Total	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	Runoff	Precip	Runoff	Runoff	mm	mm	mm
mm	mm	10^6 ltr	mm	mm	mm	mm	mm
			CMS	Coeff			
Dugout		120.15		0.00	0.00	15.85	96.57
105.44	105.44	0.26	0.17	0.878			
East		120.15		0.00	0.00	71.32	1.19
48.89	48.89	9.76	0.68	0.407			
West-Central		120.15		0.00	0.00	64.26	12.06
56.04	56.04	5.97	0.62	0.466			
West-NW		120.15		0.00	0.00	66.33	2.39
54.04	54.04	0.81	0.14	0.450			
West-SE		120.15		0.00	0.00	66.16	0.60
54.39	54.39	0.37	0.10	0.453			
West-SW		120.15		0.00	0.00	65.50	0.60
55.46	55.46	0.32	0.15	0.462			

\*\*\*\*\*  
 Node Depth Summary  
 \*\*\*\*\*

Node	Type	Average	Maximum	Maximum	Time of Max	Reported
		Depth	Depth	HGL	Occurrence	Max Depth
		Meters	Meters	Meters	days hr:min	Meters
Outfall_1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Outfall_2	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Outfall_3	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Outfall_4	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Outfall_5	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.90	0.93	905.93	1 01:05	0.93
SU2	STORAGE	0.99	1.12	906.12	1 00:15	1.12

\*\*\*\*\*  
 Node Inflow Summary  
 \*\*\*\*\*

Total Inflow Volume	Flow Balance Error	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence	Lateral Inflow Volume
ltr	Percent				days hr:min	10^6 ltr
9.76	0.000	OUTFALL	0.677	0.677	0 07:45	9.76
0	0.000 ltr	OUTFALL	0.000	0.000	0 00:00	0
0.368	0.000	OUTFALL	0.096	0.096	0 07:20	0.368
0.315	0.000	OUTFALL	0.152	0.152	0 07:15	0.315
0.812	0.000	OUTFALL	0.142	0.142	0 07:25	0.812
0.957	0.003	STORAGE	0.165	0.165	0 07:20	0.262
5.97	0.012	STORAGE	0.616	0.616	0 07:30	5.97

\*\*\*\*\*  
Node Surcharge Summary  
\*\*\*\*\*

No nodes were surcharged.

\*\*\*\*\*  
Node Flooding Summary  
\*\*\*\*\*

No nodes were flooded.

\*\*\*\*\*  
Storage Volume Summary  
\*\*\*\*\*

of Max Occurrence	Maximum Outflow Storage Unit	Average Volume	Avg Full	Evap Loss	Exfil Loss	Maximum Volume	Max Full	Time
hr:min	CMS	1000 m3				1000 m3		days
01:05	0.000	0.922	52	0	0	0.957	54	1
00:15	0.000	5.158	36	0	0	5.974	42	1

\*\*\*\*\*  
 Outfall Loading Summary  
 \*\*\*\*\*

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Outfall_1	24.30	0.155	0.677	9.756
Outfall_2	0.00	0.000	0.000	0.000
Outfall_3	14.49	0.010	0.096	0.368
Outfall_4	12.64	0.010	0.152	0.315
Outfall_5	17.08	0.018	0.142	0.812
System	13.70	0.193	0.948	11.251

\*\*\*\*\*  
 Link Flow Summary  
 \*\*\*\*\*

Link	Type	Maximum  Flow  CMS	Time of Max Occurrence days hr:min	Maximum  Veloc  m/sec	Max/ Full Flow	Max/ Full Depth
W1	WEIR	0.000	0 00:00			0.00

\*\*\*\*\*  
 Flow Classification Summary  
 \*\*\*\*\*

Inlet Conduit Ctrl	Adjusted /Actual Length	Fraction of Time in Flow Class								
		Dry	Dry	Up	Down	Sub	Sup	Up	Down	Norm Ltd

\*\*\*\*\*  
 Conduit Surcharge Summary  
 \*\*\*\*\*

No conduits were surcharged.

Analysis begun on: Wed May 25 17:12:26 2022  
 Analysis ended on: Wed May 25 17:12:26 2022  
 Total elapsed time: < 1 sec





### Legend

- Junctions
- ▲ Outfalls
- Storages
- Conduits
- Pumps
- Orifices
- Weirs
- Subcatchments

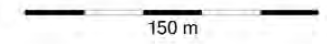
### Stormwater Management Plan

MacLaine Acres Subdivision

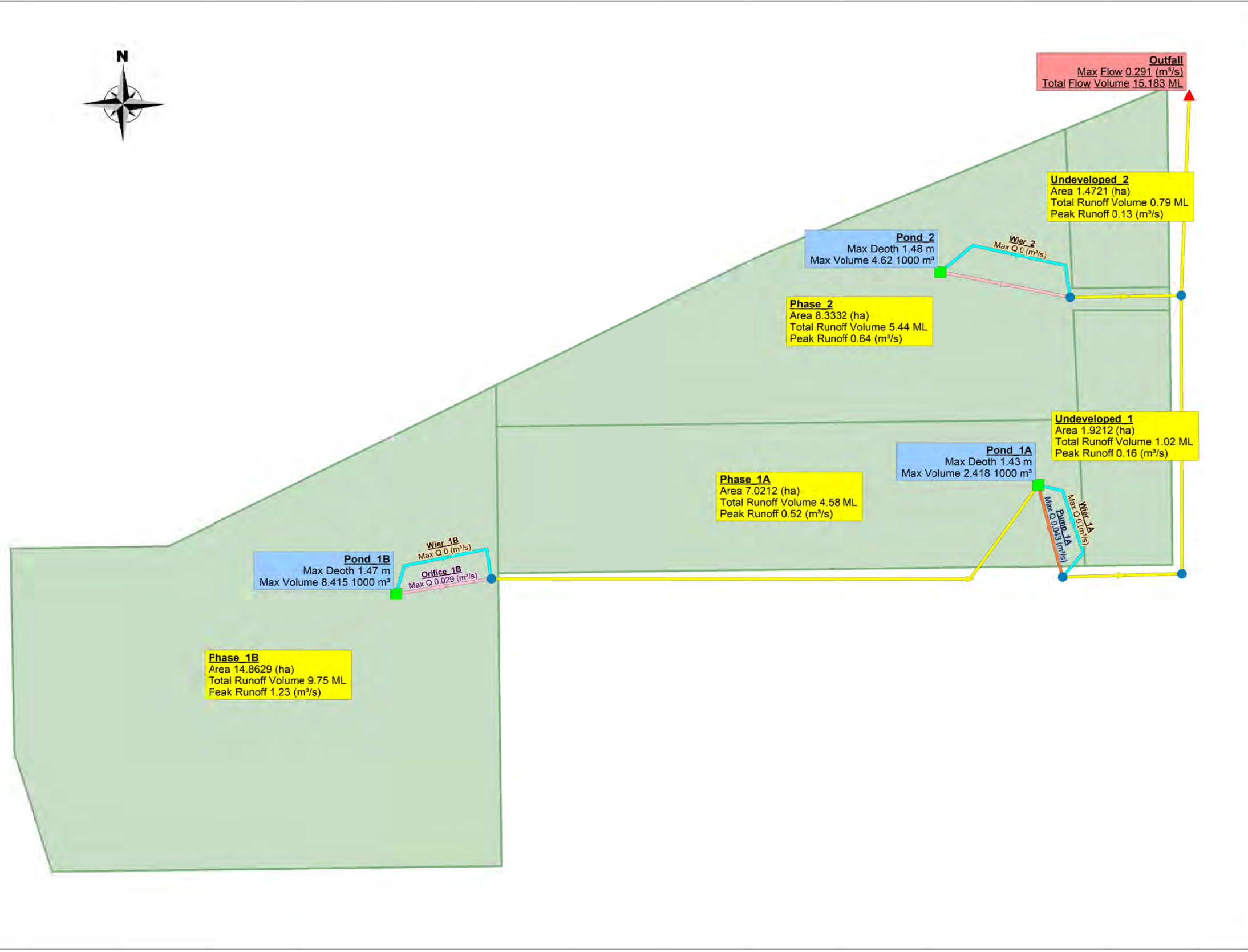
Sec. 28-9-21-W4M  
Lethbridge County  
Alberta

### Post - Development

Lethbridge 1:100 year Chicago 24  
hour Rainfall Event



File Number: 208645CE



```

[TITLE]
;;Project Title/Notes

[OPTIONS]
;;Option          Value
FLOW_UNITS        CMS
INFILTRATION      GREEN_AMPT
FLOW_ROUTING      DYNWAVE
LINK_OFFSETS      DEPTH
MIN_SLOPE         0
ALLOW_PONDING     NO
SKIP_STEADY_STATE NO

START_DATE        05/17/2022
START_TIME        00:00:00
REPORT_START_DATE 05/17/2022
REPORT_START_TIME 00:00:00
END_DATE          05/20/2022
END_TIME          00:00:00
SWEEP_START       01/01
SWEEP_END         12/31
DRY_DAYS          0
REPORT_STEP       00:01:00
WET_STEP          00:05:00
DRY_STEP          00:05:00
ROUTING_STEP      5
RULE_STEP         00:00:00

INERTIAL_DAMPING  PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP     0.75
LENGTHENING_STEP 0
MIN_SURFAREA     0
MAX_TRIALS        8
HEAD_TOLERANCE   0.0015
SYS_FLOW_TOL     5
LAT_FLOW_TOL     5
MINIMUM_STEP     0.5
THREADS          4

[EVAPORATION]
;;Data Source    Parameters
;;-----
CONSTANT         0.0
DRY_ONLY         NO

[RAINGAGES]
;;Name          Format    Interval SCF    Source
;;-----
Lethbridge_1:100year_Chicago_24h INTENSITY 0:05    1.0    TIMESERIES Chicago_24h
Lethbridge_County_1:100year_48hr INTENSITY 1      1.0    TIMESERIES
Lethbridge_County_1:100year_48hr

[SUBCATCHMENTS]
;;Name          Rain Gage      Outlet      Area      %Imperv  Width  %
Slope  CurbLen  SnowPack
;;-----

```

Phase_1A 0	Lethbridge_1:100year_Chicago_24h	Pond_1A	7.0212	25	160	0.5
Phase_1B 0	Lethbridge_1:100year_Chicago_24h	Pond_1B	14.8629	25	400	0.5
Phase_2 0	Lethbridge_1:100year_Chicago_24h	Pond_2	8.3332	25	200	0.5
Undeveloped_1 0	Lethbridge_1:100year_Chicago_24h	J3	1.9212	1	107	0.5
Undeveloped_2 0	Lethbridge_1:100year_Chicago_24h	J3	1.4721	1	92	0.5

```
[SUBAREAS]
;;Subcatchment  N-Imperv  N-Perv  S-Imperv  S-Perv  PctZero  RouteTo
PctRouted
;;-----
Phase_1A 75 0.015 0.15 1 5 25 PERVIOUS
Phase_1B 75 0.015 0.15 1 5 25 PERVIOUS
Phase_2 75 0.015 0.15 1 5 25 PERVIOUS
Undeveloped_1 100 0.015 0.15 1 5 25 PERVIOUS
Undeveloped_2 100 0.015 0.15 1 5 25 PERVIOUS
```

```
[INFILTRATION]
;;Subcatchment  Param1  Param2  Param3  Param4  Param5
;;-----
Phase_1A 292.2 1 0.229 0 0
Phase_1B 292.2 1 0.229 0 0
Phase_2 292.2 1 0.229 0 0
Undeveloped_1 292.2 1 0.229 0 0
Undeveloped_2 292.2 1 0.229 0 0
```

```
[JUNCTIONS]
;;Name  Elevation  MaxDepth  InitDepth  SurDepth  Aponded
;;-----
J1 903.4 1 0 0 0
J2 900.303 1 0 0 0
J3 899.711 1 0 0 0
J4 900.619 1 0 0 0
J5 901 1 0 0 0
```

```
[OUTFALLS]
;;Name  Elevation  Type  Stage Data  Gated  Route To
;;-----
Outfall 899.5  FREE  NO
```

```
[STORAGE]
;;Name  Elev.  MaxDepth  InitDepth  Shape  Curve Name/Params
N/A  Fevap  Psi  Ksat  IMD
;;-----
Pond_1A 0 900 2 0 FUNCTIONAL 1000 2 1000
Pond_1B 0 903.4 2 0 FUNCTIONAL 1000 2 5000
```

```
Pond_2      900.5  2      0      FUNCTIONAL 1000  2      2400
0           0
```

[CONDUITS]

```
;;Name      From Node      To Node      Length      Roughness  InOffset
OutOffset  InitFlow      MaxFlow
;;-----
C1          J1              Pond_1A      533.785    0.035     0
0          0          0
C3          J5              J4           106.708    0.035     0
0          0          0
C4          J4              J3           254.852    0.035     0
0          0          0
C5          J2              J3           99.45      0.035     0
0          0          0
C6          J3              Outfall      183.881    0.035     0
0          0          0
```

[PUMPS]

```
;;Name      From Node      To Node      Pump Curve      Status
Startup  Shutoff
;;-----
Pump_1A    Pond_1A      J5           Pump_1A         ON          0
0
```

[ORIFICES]

```
;;Name      From Node      To Node      Type      Offset      Qcoeff
Gated      CloseTime
;;-----
Orifice_1B Pond_1B      J1           SIDE      0           0.65
NO          0
Orifice_2  Pond_2      J2           SIDE      0           0.65
NO          0
```

[WEIRS]

```
;;Name      From Node      To Node      Type      CrestHt      Qcoeff
Gated      EndCon      EndCoeff      Surcharge  RoadWidth    RoadSurf    Coeff. Curve
;;-----
Wier_1A    Pond_1A      J5           TRANSVERSE  1.5          3.33
NO          0            0            YES
Wier_1B    Pond_1B      J1           TRANSVERSE  1.5          3.33
NO          0            0            YES
Wier_2     Pond_2      J2           TRANSVERSE  1.5          3.33
NO          0            0            YES
```

[XSECTIONS]

```
;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels    Culvert
;;-----
C1          TRIANGULAR  1          6          0          0          1
C3          TRIANGULAR  1          6          0          0          1
C4          TRIANGULAR  1          6          0          0          1
C5          TRIANGULAR  1          6          0          0          1
C6          TRIANGULAR  1          6          0          0          1
Orifice_1B CIRCULAR    0.105     0          0          0          1
```

Orifice_2	CIRCULAR	0.08	0	0	0
Wier_1A	RECT_OPEN	1	1.2	0	0
Wier_1B	RECT_OPEN	1	1.2	0	0
Wier_2	RECT_OPEN	1	1.2	0	0

[LOSSES]

;;Link	Kentry	Kexit	Kavg	Flap Gate	Seepage
;;-----	-----	-----	-----	-----	-----

[CURVES]

;;Name	Type	X-Value	Y-Value
;;-----	-----	-----	-----
Pump_1A	Pump3	0	0.043
Pump_1A		2	0.035
Pump_1A		3	0.028
Pump_1A		4	0.01

Dugout	Storage	0	800
Dugout		1	1306
Dugout		1.5	1541

Predevelopment_west_Trap	Storage	0	0
Predevelopment_west_Trap		0.2	100.739
Predevelopment_west_Trap		0.4	534.763
Predevelopment_west_Trap		0.6	3367.153
Predevelopment_west_Trap		0.8	8014.551
Predevelopment_west_Trap		1	14275.847
Predevelopment_west_Trap		1.2	26000.83
Predevelopment_west_Trap		1.3	31539.26
Predevelopment_west_Trap		1.4	38436.106

[TIMESERIES]

;;Name	Date	Time	Value
;;-----	-----	-----	-----
;Chicago design storm, a = 1019.2, b = 0, c = 0.731, Duration = 1440 minutes, r = 0.3, rain units = mm/hr.			
Chicago_24h		0:00	1.352
Chicago_24h		0:05	1.364
Chicago_24h		0:10	1.376
Chicago_24h		0:15	1.388
Chicago_24h		0:20	1.4
Chicago_24h		0:25	1.413
Chicago_24h		0:30	1.426
Chicago_24h		0:35	1.439
Chicago_24h		0:40	1.453
Chicago_24h		0:45	1.466
Chicago_24h		0:50	1.48
Chicago_24h		0:55	1.495
Chicago_24h		1:00	1.51
Chicago_24h		1:05	1.525
Chicago_24h		1:10	1.54
Chicago_24h		1:15	1.556
Chicago_24h		1:20	1.572
Chicago_24h		1:25	1.589
Chicago_24h		1:30	1.606
Chicago_24h		1:35	1.624
Chicago_24h		1:40	1.641

Chicago_24h	1:45	1.66
Chicago_24h	1:50	1.679
Chicago_24h	1:55	1.698
Chicago_24h	2:00	1.718
Chicago_24h	2:05	1.739
Chicago_24h	2:10	1.76
Chicago_24h	2:15	1.782
Chicago_24h	2:20	1.804
Chicago_24h	2:25	1.828
Chicago_24h	2:30	1.851
Chicago_24h	2:35	1.876
Chicago_24h	2:40	1.901
Chicago_24h	2:45	1.928
Chicago_24h	2:50	1.955
Chicago_24h	2:55	1.983
Chicago_24h	3:00	2.012
Chicago_24h	3:05	2.042
Chicago_24h	3:10	2.073
Chicago_24h	3:15	2.105
Chicago_24h	3:20	2.138
Chicago_24h	3:25	2.173
Chicago_24h	3:30	2.209
Chicago_24h	3:35	2.247
Chicago_24h	3:40	2.286
Chicago_24h	3:45	2.326
Chicago_24h	3:50	2.369
Chicago_24h	3:55	2.413
Chicago_24h	4:00	2.46
Chicago_24h	4:05	2.508
Chicago_24h	4:10	2.559
Chicago_24h	4:15	2.612
Chicago_24h	4:20	2.669
Chicago_24h	4:25	2.728
Chicago_24h	4:30	2.79
Chicago_24h	4:35	2.856
Chicago_24h	4:40	2.925
Chicago_24h	4:45	2.999
Chicago_24h	4:50	3.077
Chicago_24h	4:55	3.16
Chicago_24h	5:00	3.249
Chicago_24h	5:05	3.344
Chicago_24h	5:10	3.446
Chicago_24h	5:15	3.555
Chicago_24h	5:20	3.673
Chicago_24h	5:25	3.801
Chicago_24h	5:30	3.939
Chicago_24h	5:35	4.091
Chicago_24h	5:40	4.257
Chicago_24h	5:45	4.44
Chicago_24h	5:50	4.642
Chicago_24h	5:55	4.868
Chicago_24h	6:00	5.122
Chicago_24h	6:05	5.409
Chicago_24h	6:10	5.738
Chicago_24h	6:15	6.119
Chicago_24h	6:20	6.565
Chicago_24h	6:25	7.098

Chicago_24h	6:30	7.745
Chicago_24h	6:35	8.553
Chicago_24h	6:40	9.594
Chicago_24h	6:45	10.997
Chicago_24h	6:50	13.01
Chicago_24h	6:55	16.203
Chicago_24h	7:00	22.264
Chicago_24h	7:05	40.822
Chicago_24h	7:10	314.277
Chicago_24h	7:15	62.374
Chicago_24h	7:20	38.336
Chicago_24h	7:25	28.645
Chicago_24h	7:30	23.295
Chicago_24h	7:35	19.837
Chicago_24h	7:40	17.393
Chicago_24h	7:45	15.56
Chicago_24h	7:50	14.128
Chicago_24h	7:55	12.973
Chicago_24h	8:00	12.02
Chicago_24h	8:05	11.217
Chicago_24h	8:10	10.531
Chicago_24h	8:15	9.937
Chicago_24h	8:20	9.416
Chicago_24h	8:25	8.956
Chicago_24h	8:30	8.545
Chicago_24h	8:35	8.177
Chicago_24h	8:40	7.844
Chicago_24h	8:45	7.542
Chicago_24h	8:50	7.265
Chicago_24h	8:55	7.012
Chicago_24h	9:00	6.778
Chicago_24h	9:05	6.563
Chicago_24h	9:10	6.362
Chicago_24h	9:15	6.176
Chicago_24h	9:20	6.002
Chicago_24h	9:25	5.839
Chicago_24h	9:30	5.687
Chicago_24h	9:35	5.543
Chicago_24h	9:40	5.408
Chicago_24h	9:45	5.28
Chicago_24h	9:50	5.159
Chicago_24h	9:55	5.045
Chicago_24h	10:00	4.936
Chicago_24h	10:05	4.833
Chicago_24h	10:10	4.735
Chicago_24h	10:15	4.641
Chicago_24h	10:20	4.552
Chicago_24h	10:25	4.466
Chicago_24h	10:30	4.385
Chicago_24h	10:35	4.307
Chicago_24h	10:40	4.231
Chicago_24h	10:45	4.159
Chicago_24h	10:50	4.09
Chicago_24h	10:55	4.024
Chicago_24h	11:00	3.96
Chicago_24h	11:05	3.898
Chicago_24h	11:10	3.839

Chicago_24h	11:15	3.781
Chicago_24h	11:20	3.726
Chicago_24h	11:25	3.673
Chicago_24h	11:30	3.621
Chicago_24h	11:35	3.571
Chicago_24h	11:40	3.523
Chicago_24h	11:45	3.476
Chicago_24h	11:50	3.43
Chicago_24h	11:55	3.386
Chicago_24h	12:00	3.344
Chicago_24h	12:05	3.302
Chicago_24h	12:10	3.262
Chicago_24h	12:15	3.223
Chicago_24h	12:20	3.185
Chicago_24h	12:25	3.148
Chicago_24h	12:30	3.112
Chicago_24h	12:35	3.077
Chicago_24h	12:40	3.043
Chicago_24h	12:45	3.01
Chicago_24h	12:50	2.977
Chicago_24h	12:55	2.946
Chicago_24h	13:00	2.915
Chicago_24h	13:05	2.885
Chicago_24h	13:10	2.856
Chicago_24h	13:15	2.827
Chicago_24h	13:20	2.799
Chicago_24h	13:25	2.772
Chicago_24h	13:30	2.745
Chicago_24h	13:35	2.719
Chicago_24h	13:40	2.693
Chicago_24h	13:45	2.669
Chicago_24h	13:50	2.644
Chicago_24h	13:55	2.62
Chicago_24h	14:00	2.597
Chicago_24h	14:05	2.574
Chicago_24h	14:10	2.552
Chicago_24h	14:15	2.53
Chicago_24h	14:20	2.508
Chicago_24h	14:25	2.487
Chicago_24h	14:30	2.466
Chicago_24h	14:35	2.446
Chicago_24h	14:40	2.426
Chicago_24h	14:45	2.407
Chicago_24h	14:50	2.388
Chicago_24h	14:55	2.369
Chicago_24h	15:00	2.35
Chicago_24h	15:05	2.332
Chicago_24h	15:10	2.315
Chicago_24h	15:15	2.297
Chicago_24h	15:20	2.28
Chicago_24h	15:25	2.263
Chicago_24h	15:30	2.247
Chicago_24h	15:35	2.23
Chicago_24h	15:40	2.214
Chicago_24h	15:45	2.199
Chicago_24h	15:50	2.183
Chicago_24h	15:55	2.168



Chicago_24h	16:00	2.153
Chicago_24h	16:05	2.138
Chicago_24h	16:10	2.124
Chicago_24h	16:15	2.11
Chicago_24h	16:20	2.095
Chicago_24h	16:25	2.082
Chicago_24h	16:30	2.068
Chicago_24h	16:35	2.055
Chicago_24h	16:40	2.042
Chicago_24h	16:45	2.029
Chicago_24h	16:50	2.016
Chicago_24h	16:55	2.003
Chicago_24h	17:00	1.991
Chicago_24h	17:05	1.979
Chicago_24h	17:10	1.966
Chicago_24h	17:15	1.955
Chicago_24h	17:20	1.943
Chicago_24h	17:25	1.931
Chicago_24h	17:30	1.92
Chicago_24h	17:35	1.909
Chicago_24h	17:40	1.898
Chicago_24h	17:45	1.887
Chicago_24h	17:50	1.876
Chicago_24h	17:55	1.865
Chicago_24h	18:00	1.855
Chicago_24h	18:05	1.844
Chicago_24h	18:10	1.834
Chicago_24h	18:15	1.824
Chicago_24h	18:20	1.814
Chicago_24h	18:25	1.804
Chicago_24h	18:30	1.795
Chicago_24h	18:35	1.785
Chicago_24h	18:40	1.776
Chicago_24h	18:45	1.766
Chicago_24h	18:50	1.757
Chicago_24h	18:55	1.748
Chicago_24h	19:00	1.739
Chicago_24h	19:05	1.73
Chicago_24h	19:10	1.721
Chicago_24h	19:15	1.713
Chicago_24h	19:20	1.704
Chicago_24h	19:25	1.696
Chicago_24h	19:30	1.687
Chicago_24h	19:35	1.679
Chicago_24h	19:40	1.671
Chicago_24h	19:45	1.663
Chicago_24h	19:50	1.655
Chicago_24h	19:55	1.647
Chicago_24h	20:00	1.639
Chicago_24h	20:05	1.631
Chicago_24h	20:10	1.624
Chicago_24h	20:15	1.616
Chicago_24h	20:20	1.608
Chicago_24h	20:25	1.601
Chicago_24h	20:30	1.594
Chicago_24h	20:35	1.587
Chicago_24h	20:40	1.579

Chicago_24h	20:45	1.572
Chicago_24h	20:50	1.565
Chicago_24h	20:55	1.558
Chicago_24h	21:00	1.551
Chicago_24h	21:05	1.545
Chicago_24h	21:10	1.538
Chicago_24h	21:15	1.531
Chicago_24h	21:20	1.525
Chicago_24h	21:25	1.518
Chicago_24h	21:30	1.512
Chicago_24h	21:35	1.505
Chicago_24h	21:40	1.499
Chicago_24h	21:45	1.493
Chicago_24h	21:50	1.487
Chicago_24h	21:55	1.48
Chicago_24h	22:00	1.474
Chicago_24h	22:05	1.468
Chicago_24h	22:10	1.462
Chicago_24h	22:15	1.456
Chicago_24h	22:20	1.451
Chicago_24h	22:25	1.445
Chicago_24h	22:30	1.439
Chicago_24h	22:35	1.433
Chicago_24h	22:40	1.428
Chicago_24h	22:45	1.422
Chicago_24h	22:50	1.417
Chicago_24h	22:55	1.411
Chicago_24h	23:00	1.406
Chicago_24h	23:05	1.4
Chicago_24h	23:10	1.395
Chicago_24h	23:15	1.39
Chicago_24h	23:20	1.384
Chicago_24h	23:25	1.379
Chicago_24h	23:30	1.374
Chicago_24h	23:35	1.369
Chicago_24h	23:40	1.364
Chicago_24h	23:45	1.359
Chicago_24h	23:50	1.354
Chicago_24h	23:55	1.349
Chicago_24h	24:00	0

Lethbridge_County_1:100year_48hr	1	0.1
Lethbridge_County_1:100year_48hr	2	0.1
Lethbridge_County_1:100year_48hr	3	0.1
Lethbridge_County_1:100year_48hr	4	0.1
Lethbridge_County_1:100year_48hr	5	0.4
Lethbridge_County_1:100year_48hr	6	0.9
Lethbridge_County_1:100year_48hr	7	1
Lethbridge_County_1:100year_48hr	8	1.1
Lethbridge_County_1:100year_48hr	9	1.3
Lethbridge_County_1:100year_48hr	10	1.9
Lethbridge_County_1:100year_48hr	11	2.5
Lethbridge_County_1:100year_48hr	12	3.1
Lethbridge_County_1:100year_48hr	13	4.4
Lethbridge_County_1:100year_48hr	14	4.7
Lethbridge_County_1:100year_48hr	15	5
Lethbridge_County_1:100year_48hr	16	5.2

Lethbridge_County_1:100year_48hr	17	5.3
Lethbridge_County_1:100year_48hr	18	5.6
Lethbridge_County_1:100year_48hr	19	5.9
Lethbridge_County_1:100year_48hr	20	6.3
Lethbridge_County_1:100year_48hr	21	7.5
Lethbridge_County_1:100year_48hr	22	17.3
Lethbridge_County_1:100year_48hr	23	7.7
Lethbridge_County_1:100year_48hr	24	5
Lethbridge_County_1:100year_48hr	25	4.7
Lethbridge_County_1:100year_48hr	26	4.4
Lethbridge_County_1:100year_48hr	27	3.8
Lethbridge_County_1:100year_48hr	28	3.4
Lethbridge_County_1:100year_48hr	29	3.1
Lethbridge_County_1:100year_48hr	30	2.5
Lethbridge_County_1:100year_48hr	31	2.2
Lethbridge_County_1:100year_48hr	32	1.9
Lethbridge_County_1:100year_48hr	33	1.6
Lethbridge_County_1:100year_48hr	34	1.3
Lethbridge_County_1:100year_48hr	35	0.6
Lethbridge_County_1:100year_48hr	36	0.6
Lethbridge_County_1:100year_48hr	37	0.6
Lethbridge_County_1:100year_48hr	38	0.6
Lethbridge_County_1:100year_48hr	39	0.6
Lethbridge_County_1:100year_48hr	40	0.4
Lethbridge_County_1:100year_48hr	41	0.3
Lethbridge_County_1:100year_48hr	42	0.2
Lethbridge_County_1:100year_48hr	43	0.1
Lethbridge_County_1:100year_48hr	44	0.1
Lethbridge_County_1:100year_48hr	45	0
Lethbridge_County_1:100year_48hr	46	0
Lethbridge_County_1:100year_48hr	47	0
Lethbridge_County_1:100year_48hr	48	0

[REPORT]

```
;;Reporting Options
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

[MAP]

DIMENSIONS	9944.6547	16505.09225	11115.9193	17298.69275
UNITS	Meters			

[COORDINATES]

```
;;Node      X-Coord      Y-Coord
;;-----
```

J1	10428.276	16809.562
J2	10946.19	17067.207
J3	11045.615	17068.893
J4	11046.104	16814.066
J5	10939.448	16811.06
Outfall	11052.68	17252.62
Pond_1A	10917.541	16895.318

Pond_1B	10342.692	16795.507
Pond_2	10830.278	17090.356

[VERTICES]

;;Link	X-Coord	Y-Coord
;;-----	-----	-----
C1	10856.417	16809.217
Wier_1A	10939.467	16890.051
Wier_1A	10958.011	16833.281
Wier_1B	10350.255	16821.316
Wier_1B	10424.375	16836.687
Wier_2	10859.125	17114.752
Wier_2	10942.09	17096.537

[POLYGONS]

;;Subcatchment	X-Coord	Y-Coord
;;-----	-----	-----
Phase_1A	10432.95	16948.747
Phase_1A	10953.596	16955.277
Phase_1A	10959.492	16821.123
Phase_1A	10434.423	16814.478
Phase_1A	10432.95	16948.747
Phase_1B	10001.048	16653.236
Phase_1B	9997.894	16837.075
Phase_1B	10109.454	16838.662
Phase_1B	10138.696	16839.078
Phase_1B	10234.451	16887.209
Phase_1B	10432.533	16986.754
Phase_1B	10435.888	16680.894
Phase_1B	10437.364	16546.269
Phase_1B	10355.488	16545.23
Phase_1B	10246.883	16543.852
Phase_1B	10035.174	16541.165
Phase_1B	10033.989	16544.952
Phase_1B	10001.104	16649.982
Phase_1B	10001.048	16653.236
Phase_2	10432.533	16986.754
Phase_2	10643.265	17092.752
Phase_2	10645.549	17093.895
Phase_2	10647.835	17095.03
Phase_2	10650.125	17096.159
Phase_2	10652.418	17097.281
Phase_2	10654.715	17098.397
Phase_2	10657.014	17099.505
Phase_2	10659.317	17100.607
Phase_2	10661.624	17101.702
Phase_2	10663.933	17102.79
Phase_2	10666.246	17103.872
Phase_2	10668.562	17104.946
Phase_2	10670.881	17106.014
Phase_2	10673.203	17107.075
Phase_2	10675.528	17108.129
Phase_2	10677.857	17109.176
Phase_2	10680.188	17110.216
Phase_2	10682.523	17111.249
Phase_2	10684.86	17112.275
Phase_2	10687.201	17113.295

Phase_2	10689.545	17114.307
Phase_2	10691.891	17115.313
Phase_2	10694.241	17116.311
Phase_2	10941.911	17221.144
Phase_2	10948.32	17075.323
Phase_2	11035.035	17076.412
Phase_2	11035.263	17055.329
Phase_2	10949.199	17055.329
Phase_2	10953.596	16955.277
Phase_2	10432.95	16948.747
Phase_2	10432.533	16986.754
Undeveloped_1	10949.199	17055.329
Undeveloped_1	10959.492	16821.123
Undeveloped_1	11037.777	16822.113
Undeveloped_1	11035.263	17055.329
Undeveloped_1	10949.199	17055.329
Undeveloped_2	11035.035	17076.412
Undeveloped_2	11033.059	17259.724
Undeveloped_2	10941.911	17221.144
Undeveloped_2	10948.32	17075.323
Undeveloped_2	11035.035	17076.412

[SYMBOLS]

;;Gage	X-Coord	Y-Coord
;;-----	-----	-----

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

\*\*\*\*\*

Element Count

\*\*\*\*\*

Number of rain gages ..... 2  
 Number of subcatchments ... 5  
 Number of nodes ..... 9  
 Number of links ..... 11  
 Number of pollutants ..... 0  
 Number of land uses ..... 0

\*\*\*\*\*

Raingage Summary

\*\*\*\*\*

Name	Data Source	Data Type	Recording Interval
Lethbridge_1:100year_Chicago_24h	Chicago_24h		INTENSITY 5 min.
Lethbridge_County_1:100year_48hr	Lethbridge_County_1:100year_48hr		INTENSITY 60 min.

\*\*\*\*\*

Subcatchment Summary

\*\*\*\*\*

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
Phase_1A	7.02	160.00	25.00	0.5000	
Lethbridge_1:100year_Chicago_24h Pond_1A					
Phase_1B	14.86	400.00	25.00	0.5000	
Lethbridge_1:100year_Chicago_24h Pond_1B					
Phase_2	8.33	200.00	25.00	0.5000	
Lethbridge_1:100year_Chicago_24h Pond_2					
Undeveloped_1	1.92	107.00	1.00	0.5000	
Lethbridge_1:100year_Chicago_24h J3					
Undeveloped_2	1.47	92.00	1.00	0.5000	
Lethbridge_1:100year_Chicago_24h J3					

\*\*\*\*\*

Node Summary

\*\*\*\*\*

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	903.40	1.00	0.0	
J2	JUNCTION	900.30	1.00	0.0	
J3	JUNCTION	899.71	1.00	0.0	
J4	JUNCTION	900.62	1.00	0.0	
J5	JUNCTION	901.00	1.00	0.0	

Outfall	OUTFALL	899.50	1.00	0.0
Pond_1A	STORAGE	900.00	2.00	0.0
Pond_1B	STORAGE	903.40	2.00	0.0
Pond_2	STORAGE	900.50	2.00	0.0

\*\*\*\*\*  
Link Summary  
\*\*\*\*\*

Name	From Node	To Node	Type	Length	%
Slope Roughness					
-----					
C1	J1	Pond_1A	CONDUIT	533.8	
0.6370	0.0350				
C3	J5	J4	CONDUIT	106.7	
0.3571	0.0350				
C4	J4	J3	CONDUIT	254.9	
0.3563	0.0350				
C5	J2	J3	CONDUIT	99.5	
0.5953	0.0350				
C6	J3	Outfall	CONDUIT	183.9	
0.1147	0.0350				
Pump_1A	Pond_1A	J5	TYPE3 PUMP		
Orifice_1B	Pond_1B	J1	ORIFICE		
Orifice_2	Pond_2	J2	ORIFICE		
Wier_1A	Pond_1A	J5	WEIR		
Wier_1B	Pond_1B	J1	WEIR		
Wier_2	Pond_2	J2	WEIR		

\*\*\*\*\*  
Cross Section Summary  
\*\*\*\*\*

Full		Full	Full	Hyd.	Max.	No. of
Conduit	Shape	Depth	Area	Rad.	Width	Barrels
Flow						
-----						
C1	TRIANGULAR	1.00	3.00	0.47	6.00	1
4.16						
C3	TRIANGULAR	1.00	3.00	0.47	6.00	1
3.12						
C4	TRIANGULAR	1.00	3.00	0.47	6.00	1
3.11						
C5	TRIANGULAR	1.00	3.00	0.47	6.00	1
4.02						
C6	TRIANGULAR	1.00	3.00	0.47	6.00	1
1.77						

\*\*\*\*\*  
NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.  
\*\*\*\*\*

```

*****
Analysis Options
*****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Infiltration Method ..... GREEN_AMPT
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 05/17/2022 00:00:00
Ending Date ..... 05/20/2022 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:01:00
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 1
Head Tolerance ..... 0.001500 m

```

```

*****
Volume          Depth
Runoff Quantity Continuity  hectare-m      mm
*****
-----
Total Precipitation ..... 4.038          120.146
Evaporation Loss ..... 0.000          0.000
Infiltration Loss ..... 1.889          56.193
Surface Runoff ..... 2.158          64.202
Final Storage ..... 0.006          0.170
Continuity Error (%) ..... -0.348

```

```

*****
Volume          Volume
Flow Routing Continuity  hectare-m      10^6 ltr
*****
-----
Dry Weather Inflow ..... 0.000          0.000
Wet Weather Inflow ..... 2.158          21.579
Groundwater Inflow ..... 0.000          0.000
RDII Inflow ..... 0.000          0.000
External Inflow ..... 0.000          0.000
External Outflow ..... 1.518          15.183
Flooding Loss ..... 0.000          0.000
Evaporation Loss ..... 0.000          0.000
Exfiltration Loss ..... 0.000          0.000
Initial Stored Volume .... 0.000          0.000
Final Stored Volume ..... 0.642          6.417
Continuity Error (%) ..... -0.096

```



\*\*\*\*\*  
Time-Step Critical Elements  
\*\*\*\*\*  
None

\*\*\*\*\*  
Highest Flow Instability Indexes  
\*\*\*\*\*  
All links are stable.

\*\*\*\*\*  
Routing Time Step Summary  
\*\*\*\*\*  
Minimum Time Step : 4.50 sec  
Average Time Step : 5.00 sec  
Maximum Time Step : 5.00 sec  
Percent in Steady State : 0.00  
Average Iterations per Step : 2.00  
Percent Not Converging : 0.00  
Time Step Frequencies :  
5.000 - 3.155 sec : 100.00 %  
3.155 - 1.991 sec : 0.00 %  
1.991 - 1.256 sec : 0.00 %  
1.256 - 0.792 sec : 0.00 %  
0.792 - 0.500 sec : 0.00 %

\*\*\*\*\*  
Subcatchment Runoff Summary  
\*\*\*\*\*

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Total	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	mm	Runoff	Precip	Runoff	mm	mm	mm
mm	mm	10^6 ltr	mm	Runoff	mm	mm	mm
			CMS	Coeff			
Phase_1A		120.15		0.00	0.00	55.21	30.18
57.63	65.17	4.58	0.52	0.542			
Phase_1B		120.15		0.00	0.00	54.80	30.20
58.06	65.61	9.75	1.23	0.546			
Phase_2		120.15		0.00	0.00	55.07	30.19
57.77	65.32	5.44	0.64	0.544			
Undeveloped_1		120.15		0.00	0.00	67.17	1.19
53.17	53.17	1.02	0.16	0.443			
Undeveloped_2		120.15		0.00	0.00	66.93	1.19
53.44	53.44	0.79	0.13	0.445			

\*\*\*\*\*  
Node Depth Summary  
\*\*\*\*\*

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.13	0.15	903.55	0 18:11	0.15
J2	JUNCTION	0.11	0.13	900.43	0 17:51	0.13
J3	JUNCTION	0.33	0.59	900.30	0 07:43	0.59
J4	JUNCTION	0.19	0.20	900.82	0 15:13	0.20
J5	JUNCTION	0.19	0.21	901.21	0 07:13	0.21
Outfall	OUTFALL	0.14	0.29	899.79	0 07:43	0.29
Pond_1A	STORAGE	0.95	1.43	901.43	0 18:01	1.43
Pond_1B	STORAGE	1.04	1.47	904.87	0 17:51	1.47
Pond_2	STORAGE	1.04	1.48	901.98	0 17:48	1.48

\*\*\*\*\*  
Node Inflow Summary  
\*\*\*\*\*

Total Inflow Volume Node ltr	Flow Balance Error Percent	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	10^6
J1		JUNCTION	0.000	0.029	0 17:51	0	
5.79	0.534						
J2		JUNCTION	0.000	0.017	0 17:48	0	
3.55	0.124						
J3		JUNCTION	0.288	0.329	0 07:25	1.81	
15.3	0.501						
J4		JUNCTION	0.000	0.043	0 10:04	0	
9.93	0.233						
J5		JUNCTION	0.000	0.043	0 09:59	0	
9.94	0.057						
Outfall		OUTFALL	0.000	0.291	0 07:43	0	
15.2	0.000						
Pond_1A		STORAGE	0.523	0.523	0 07:15	4.58	
10.3	0.580						
Pond_1B		STORAGE	1.230	1.230	0 07:15	9.75	
9.75	0.004						
Pond_2		STORAGE	0.641	0.641	0 07:15	5.44	
5.44	0.004						

\*\*\*\*\*  
Node Surcharge Summary  
\*\*\*\*\*

No nodes were surcharged.

\*\*\*\*\*  
Node Flooding Summary  
\*\*\*\*\*

No nodes were flooded.

\*\*\*\*\*  
Storage Volume Summary  
\*\*\*\*\*

of Max Occurrence hr:min	Maximum Storage Unit CMS	Average Volume 1000 m3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time days
Pond_1A 18:01	0.043	1.402	30	0	0	2.418	52	0
Pond_1B 17:51	0.029	5.696	45	0	0	8.415	66	0
Pond_2 17:48	0.017	3.020	40	0	0	4.620	62	0

\*\*\*\*\*  
Outfall Loading Summary  
\*\*\*\*\*

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Outfall	97.88	0.060	0.291	15.183
System	97.88	0.060	0.291	15.183

\*\*\*\*\*  
Link Flow Summary  
\*\*\*\*\*

Link	Type	Maximum  Flow  CMS	Time of Max Occurrence days hr:min	Maximum  Veloc  m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.029	0 18:11	0.16	0.01	0.58
C3	CONDUIT	0.043	0 10:04	0.36	0.01	0.20
C4	CONDUIT	0.043	0 12:42	0.22	0.01	0.39
C5	CONDUIT	0.017	0 17:51	0.10	0.00	0.34

C6	CONDUIT	0.291	0	07:43	0.51	0.16	0.44
Pump_1A	PUMP	0.043	0	09:59		1.00	
Orifice_1B	ORIFICE	0.029	0	17:51			1.00
Orifice_2	ORIFICE	0.017	0	17:48			1.00
Wier_1A	WEIR	0.000	0	00:00			0.00
Wier_1B	WEIR	0.000	0	00:00			0.00
Wier_2	WEIR	0.000	0	00:00			0.00

\*\*\*\*\*  
Flow Classification Summary  
\*\*\*\*\*

Inlet Conduit Ctrl	Adjusted /Actual Length	----- Fraction of Time in Flow Class -----							
		Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.90
C3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88
C4	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97
C5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99
C6	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00

\*\*\*\*\*  
Conduit Surge Summary  
\*\*\*\*\*

Conduit	----- Hours Full -----			Hours	Hours
	Both Ends	Upstream	Dnstream	Above Full Normal Flow	Capacity Limited
C1	0.01	0.01	40.23	0.01	0.01

\*\*\*\*\*  
Pumping Summary  
\*\*\*\*\*

Power Usage Kw-hr	% Time Off Pump Curve Low High	Percent Utilized	Number of Start-Ups	Min	Avg	Max	Total
				Flow CMS	Flow CMS	Flow CMS	Volume 10^6 ltr

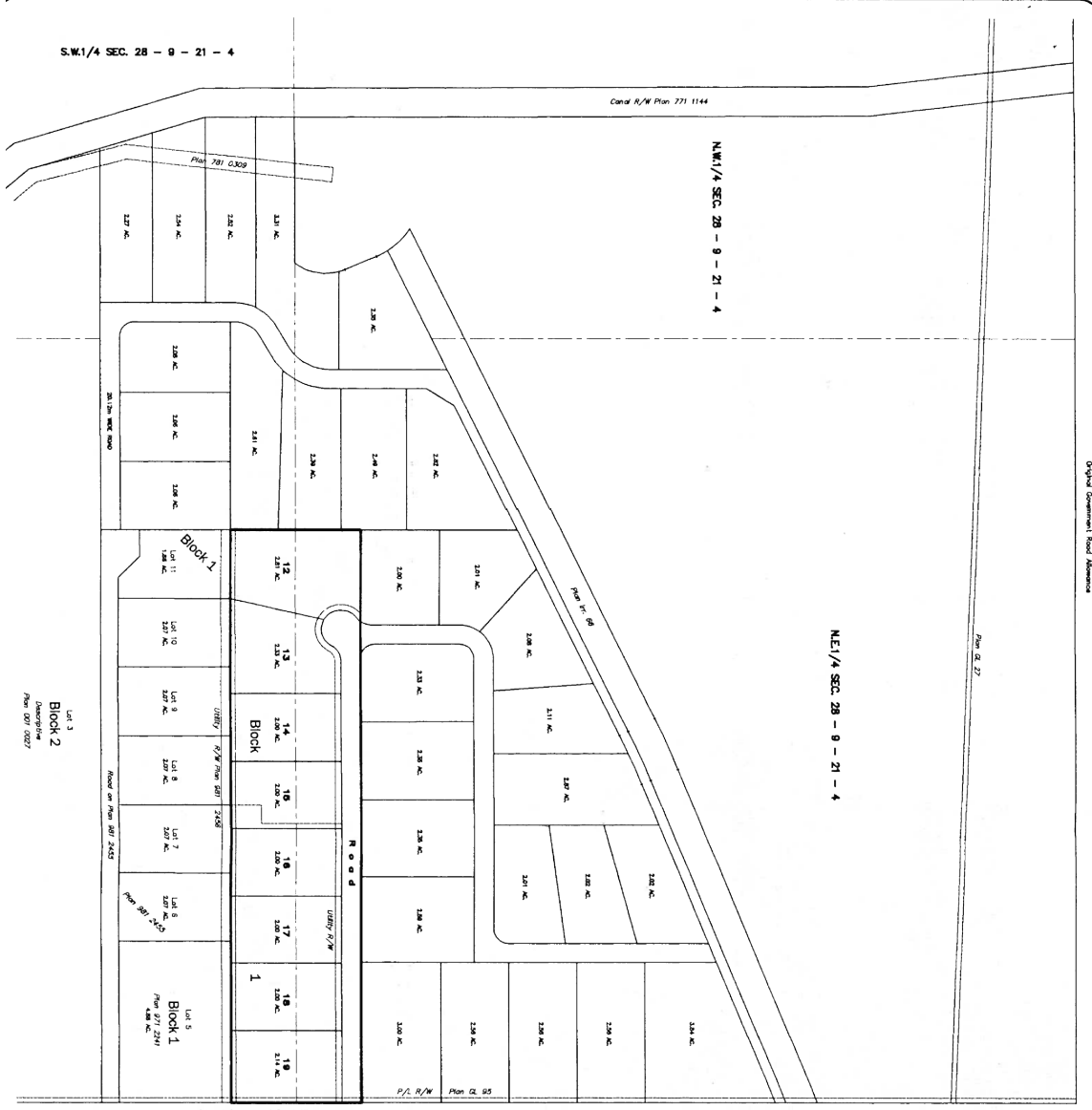
-----  
-----  
Pump\_1A                    99.81                    1                    0.00                    0.04                    0.04                    9.938  
7.41    0.0    0.0

Analysis begun on: Wed May 25 16:37:13 2022  
Analysis ended on: Wed May 25 16:37:14 2022  
Total elapsed time: 00:00:01

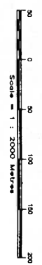
# APPENDIX 8

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## Sunny View ASP Concept Design



County of Lethbridge No. 26  
 AREA STRUCTURE PLAN  
 Surrounding  
 Lot 3, Block 1, Plan 927 LK  
 Within  
 SEC. 28, TWP. 9, RGE. 21, W. 4M.



**Legend:**  
 Abbreviations:  
 A - Arched  
 B - Bridge  
 C - Canal  
 D - Ditch  
 E - Easement  
 F - Fence  
 G - Gas  
 H - Highway  
 I - Irrigation  
 J - Junction  
 K - Kerf  
 L - Lot  
 M - Motorway  
 N - Natural  
 O - Other  
 P - Power  
 R - Road  
 S - Sewer  
 T - Tunnel  
 U - Utility  
 V - Valve  
 W - Water  
 X - Xing  
 Y - Yard  
 Z - Zone

777 Building Ltd.  
 THE CALVERT GROUP

# APPENDIX 9

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**Alberta Transportation-Portion of Figure 5.2.3  
(Lethbridge and Area NHS & NSTC Functional  
Planning Study, March 12, 2004 – Stantec)**





# **APPENDICES**

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- **APPENDIX 2 - Geotechnical Evaluation**
- **APPENDIX 3 - Environmental Site Assessment**
- **APPENDIX 6 - Septic Feasibility Assessment**

# APPENDIX 2

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## Geotechnical Evaluation



**Geotechnical Evaluation  
MacLaine Acres Area Structure Plan  
Section 28 TWP 9 RGE 21 W4M  
Lethbridge County, Alberta**



PRESENTED TO  
**Rick Aldoff**

OCTOBER 2021  
ISSUED FOR USE  
FILE: ENG.LGEO04408-01

Tetra Tech Canada Inc.  
442 - 10 Street N.  
Lethbridge, AB T1H 2C7 CANADA  
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## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2.0</b>	<b>PROJECT DESCRIPTION AND SCOPE OF WORK .....</b>	<b>1</b>
<b>3.0</b>	<b>GEOTECHNICAL FIELD AND LABORATORY WORK.....</b>	<b>2</b>
<b>4.0</b>	<b>SITE CONDITIONS .....</b>	<b>2</b>
4.1	Surface Features .....	2
4.2	Mining Activity .....	4
4.3	Soil Stratigraphy.....	4
4.3.1	Topsoil/Clay Fill .....	4
4.3.2	Clay .....	5
4.3.3	Clay Till .....	5
4.4	Groundwater Conditions .....	5
<b>5.0</b>	<b>RECOMMENDATIONS .....</b>	<b>6</b>
5.1	Site Development .....	6
5.1.1	Topsoil Depth.....	6
5.1.2	Lot Grading .....	6
5.1.3	Backfill Materials and Compaction .....	7
5.1.4	Construction Excavations .....	7
5.1.5	Trench Backfill and Compaction .....	8
5.2	Pavement.....	8
5.2.1	Subgrade Preparation.....	8
5.2.2	Pavement Design and Construction .....	9
5.3	Foundations .....	9
5.3.1	General .....	9
5.3.2	Limit States Design .....	10
5.3.3	Shallow Foundations .....	10
5.4	Bored Cast-In-Place Concrete Piles.....	11
5.5	Helical Piles .....	12
5.5.1	Surface Grading and Drainage .....	13
5.5.2	Foundation Perimeter Drainage Requirements .....	13
5.5.3	Below-Grade Walls .....	14
5.5.4	Floor Slab System .....	14
5.5.5	Seismic Design .....	15
5.5.6	Concrete Type .....	15
5.5.7	Frost Protection .....	15
<b>6.0</b>	<b>DESIGN AND CONSTRUCTION GUIDELINES.....</b>	<b>16</b>
<b>7.0</b>	<b>CLOSURE.....</b>	<b>16</b>

## LIST OF TABLES IN TEXT

Table A: Groundwater Monitoring Data – September 16, 2021 .....	5
Table B: Soil Resistance Factors .....	10
Table C: Geotechnical Design Parameters for Bored Cast-in-Place Concrete Piles.....	11
Table D: Geotechnical Parameters for Helical Piles .....	12

## APPENDIX SECTIONS

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### FIGURES

- Figure 1 Site Location Plan
- Figure 2 Borehole Location Plan

### APPENDICES

- Appendix A Limitations on Use of This Document
- Appendix B Borehole Logs
- Appendix C Design and Construction Guidelines

### **LIMITATIONS OF REPORT**

This report and its contents are intended for the sole use of Rick Aldoff, and his agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Rick Aldoff, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Tetra Tech's Limitations on Use of this Document are provided in Appendix A of this report.





## 1.0 INTRODUCTION

This report presents the results of a geotechnical evaluation conducted by Tetra Tech Canada Inc. (Tetra Tech) for the proposed subdivision development of the MacLaine Acres Subdivision Area Structure Plan to be located in the Lethbridge County, Alberta (Figure 1). The legal description of the site address is Section 28 TWP 9 RGE 21 W4M.

The scope of work for the geotechnical evaluation was outlined in a revised proposal (Tetra Tech File No. PENG.LGEO04385-01) issued to Mr. Matt Redgrave, of Martin Geomatic Consultants Ltd. (MGCL), on August 20, 2021. The objective of this evaluation was to determine the general subsurface stratigraphy and groundwater conditions in the area of the proposed development and to provide general recommendations for the geotechnical aspects of the development.

A Phase I Environmental Site Assessment was also conducted for the proposed development and issued in a separate report.

A Preliminary Septic Disposal Field Feasibility (PSDFF) was also conducted for the proposed development and issued in a separate report as well.

Authorization to proceed with the evaluation was provided by Mr. Richard Aldoff, the landowner, via a signed Services Agreement dated August 24, 2021.

## 2.0 PROJECT DESCRIPTION AND SCOPE OF WORK

It is understood that the proposed project will be a residential subdivision with major development components including foundations, stormwater utilities, pavement structures, site grading, and lot development. The total planned area is approximately 32 hectares (79.3 acres).

Shallow foundations with a floor slabs-on-grade system are typically considered for residential structures in the Lethbridge area. A deep pile foundation system, such as bored cast-in-place (CIP) piles or screw piles, is generally considered for commercial structures with heavy load or some residential dwellings where subsurface conditions are not feasible for shallow foundations.

It is understood that the proposed development will be designed and constructed to the Lethbridge County Engineering Guidelines & Minimum Servicing Standards.

The scope of work for this evaluation comprised the drilling of 14 boreholes, a laboratory program to assist in classification of the subsurface soils, and this report providing the following design and construction recommendations:

- Design parameters for shallow foundations and below-grade structures.
- Design parameters for pile foundations including bored CIP concrete piles.
- Casing and dewatering during construction.
- Design and installation of floor slabs-on-grade.
- Site classification for seismic site response.
- Construction for underground utilities.
- Trench excavation and backfill.

- General site grading.
- Special considerations if fill is encountered.
- Volumetric changes of soil due to changes in moisture content and/or frost.
- Mitigation for high water table, if encountered.
- Construction of subgrades, backfill materials, and compaction.
- Concrete type for structured elements in contact with soil.
- Asphalt pavement structure as per the Lethbridge County Engineering Guidelines & Minimum Servicing Standards.

### 3.0 GEOTECHNICAL FIELD AND LABORATORY WORK

The fieldwork for this evaluation was carried out on September 9, 2021. A truck-mounted drill rig was contracted from Chilako Drilling Services Ltd. of Coaldale, Alberta. The rig was equipped with 150 mm diameter solid stem continuous flight augers. Tetra Tech's field representative was Mr. Victor Okwodu, E.I.T. Buried utility locating was carried out through Alberta One-Call and private utility locating was carried out by LandScan.

A total of 14 boreholes (referred to as 21BH001 through 21BH014) were drilled within the proposed development. The boreholes were drilled to depths ranging from 5.1 m to 9.6 m below existing ground elevation. The borehole locations are depicted on Figure 2.

Borehole locations were laid out using a handheld GPS and borehole ground elevations were obtained by MGCL and provided to Tetra Tech for use in this report. The borehole coordinates and ground elevations are shown on the borehole logs in Appendix B.

In all boreholes, disturbed grab samples were obtained at depth intervals of approximately 600 mm. Standard Penetration Tests (SPT) using an automatic SPT hammer (with an efficiency of 90%) were completed at intervals of 1.5 m. All soil samples were visually classified in the field, and the individual soil strata and the interfaces between them were noted. The borehole logs are presented in Appendix B. An explanation of the terms and symbols used on the borehole logs is also included in Appendix B.

Slotted 25 mm diameter polyvinyl chloride (PVC) standpipes were installed in each of the boreholes in order to monitor the groundwater levels. Auger cuttings were used to backfill around the standpipes and the boreholes were sealed at the ground surface with bentonite chips.

Soil classification tests, including natural moisture content, Atterberg Limits, and soluble sulphate content, were subsequently performed in the laboratory on samples collected from the boreholes to aid in the determination of engineering properties. The results of the laboratory tests are presented on the borehole logs in Appendix B.

## 4.0 SITE CONDITIONS

### 4.1 Surface Features

The proposed site configuration is bounded by farmland to the north; by an irrigation channel to the west; by Highway 843 to the east; and by residential properties, a farmstead, and farmland to the south.

According to information provided by MGCL, the proposed site comprises of three lots to be subdivided; Lot 1 Block 1 Plan 927 LK in the northeast, Lot 2 Block 1 Plan 927 LK in the southeast, and Lot 1 Block 2 Plan 8010198 in the southwest.

Lot 1 Block 1 Plan 927 LK comprises of a farmstead and a dugout in the southeast corner of the lot, a fenced off area in the east that appeared to be used for livestock and/or horses with decomposing bails of hay or straw, while the rest of the lot comprises of a vacant field with a wheel irrigation system. The land is relatively flat with drainage tending to the northeast.

Lot 2 Block 1 Plan 927 LK comprises of a barn/shed in the southwest corner, while the rest of the lot comprises of a wheel irrigated agricultural field. South half of the dugout noted above in Lot 1 Block Plan 927 LK was within the northeast extent of the lot. The land is relatively flat with drainage tending to the northeast and east.

Lot 1 Block 2 Plan 8010198 comprises of a farmstead in the northwest corner of the lot, a residence at the north central extent of the lot, a dugout and farm structures in the northeast corner of the lot, an old horse racetrack in the south half of the lot, a dry dugout just north of the horse racetrack, and a pond/dugout at the south-central extent of the lot. The land is relatively flat with the drainage tending to the northeast. From the topography provided by MGCL, a localized low-lying area was noted on the lot near the dry dugout just north of the horse racetrack.

Regional drainage is generally towards the northeast to east.

As part of the evaluation, Tetra Tech reviewed historical aerial photographs of the site and surrounding area from 1950 to 2021. The following observations were noted:

#### Lot 1 Block 1 Plan 927 LK

- 1950, agricultural land.
- 1960, agricultural land.
- 1970, similar to 1960.
- 1980, a dugout and a structure are visible in the southeast corner of the lot.
- 1991, a farmstead is visible near the dugout in the southeast corner of the lot.
- 1999, the east of the lot above the farmstead is fenced off.
- 1999 to 2021, no visible changes were noted.

#### Lot 2 Block 1 Plan 927 LK

- 1950, agricultural land.
- 1960, agricultural land, with a structure in the north central extent of the lot.
- 1970, similar to 1960 except the structure is no longer visible.
- 1980 to 2015, no visible changes.
- 2017, a structure is visible in the southwest corner of the lot.
- 2017 to 2021, no visible changes were noted.

#### Lot 1 Block 2 Plan 8010198

- 1950, a winding irrigation channel runs through the northwest corner of the lot, with a large low-lying area located at the northeast corner of the lot with structures just north of the low-lying area. A dugout is visible at the south-central extent of the lot.
- 1960, a farmstead is visible north of the low-lying area. Water is visible in the low-lying area.
- 1970, a new dugout is visible just east of the farmstead.
- 1980, the irrigation channel no longer runs through the northwest corner of the lot, that has been infilled and the irrigation channel is now on the west extent of the lot. The large low-lying area is no longer visible and appears to be infilled. The farmstead is no longer visible.
- 1991, structures are visible around the dugout in the northeast corner of the lot.
- 1999, a residence is visible at the north-central extent of the lot.
- 2012, a farmstead is visible in the northwest corner of the lot.
- 2015, the horse racetrack is visible at the south half of the lot, with the dugout just north of it.
- 2018, the area just east of the farmstead in the northwest corner appears to be graded.
- 2018 to 2021, no visible changes were noted.

## 4.2 Mining Activity

Research was conducted on the possible existence of mine workings within the boundary of the site, including a review of the Alberta Energy Regulator (AER) coal mine mapping archive and various documents contained in Tetra Tech's library regarding the coal mining industry in the surrounding area of the proposed development. The literature indicates no mine workings within the vicinity of the proposed site.

## 4.3 Soil Stratigraphy

The general subsurface stratigraphy of the site comprised of a surficial layer of topsoil or clay fill (likely from historical agricultural activities) underlain by native clay and then clay till deposits with the occasional thin sand layer. The following subsections provide a summary of the stratigraphic units encountered at the specific borehole locations across the site. A more detailed description is provided on the borehole logs presented in Appendix B.

### 4.3.1 Topsoil/Clay Fill

Topsoil was encountered at the majority of the borehole locations, with a thickness ranging between 50 mm to 350 mm. The thickness of the topsoil layer should be expected to vary across the project site.

Of the 14 boreholes there were four boreholes (21BH001 through 21BH004) that did not have a surficial topsoil layer but rather a surficial clay fill layer ranging in thickness from 200 mm to 350 mm in thickness. The surficial clay fill layer is likely due to historical agricultural activity in the area and should be considered to be variable across the site. Deep clay fill and/or construction debris were not encountered at the borehole locations but may be expected locally (e.g., backfilled low-lying area, areas with historical structures removed).

### 4.3.2 Clay

A layer of native clay was encountered in the boreholes beneath the topsoil, extending to a depth ranging between 0.5 m and 1.5 m below grade. The clay was generally described as silty, trace to some sand, damp to very moist, very soft to very stiff, medium to high plastic, and light brown to brown or brown with grey brown mottling, dark brown or grey brown. Silt lenses/pockets, precipitates, trace rootlets, and dark brown high plastic clay laminations were noted in the clay. Moisture contents of the clay ranged between 11% and 31%. Atterberg Limits testing (two tests) within the clay indicated a Liquid Limit range between 36% and 47% with a Plastic Limit range between 16% and 17%; indicative of medium plasticity.

### 4.3.3 Clay Till

Clay till was encountered beneath the native clay at the borehole locations, extending to the borehole termination depths. The clay till was generally described as silty, trace to some sand, trace gravel, damp to very moist, very soft to very stiff, medium to high plastic (occasional high plastic), and light brown, brown, dark brown, or brown with grey brown mottling. Silt and sand pockets/layers up to 700 mm thick, precipitates, and coal and oxide specks/staining or coal fragments were encountered within the clay till. Moisture contents of the clay till ranged between 10% and 31%. Atterberg Limits testing (two tests) within the clay till indicated Liquid Limits ranging between 29% and 32%, and Plastic Limits ranging between 12% and 14%; indicative of low (high end of low plastic) to medium plastic.

SPT "N" values in the clay till ranged between 0 and 19 blows per 300 mm of penetration, indicative of very soft to very stiff consistency and is extremely variable.

## 4.4 Groundwater Conditions

During the field drilling, some sloughing was encountered in 21BH003 and 21BH004 at depths of 2.4 m and 3.0 m below existing ground elevation. Groundwater seepage was encountered in 21BH003, 21BH004, 21BH005, 21BH007, and 21BH010 at depths of 1.8 m, 1.5 m, 1.5 m, 1.5 m, and 6.1 m, respectively. The groundwater levels were measured on September 16, 2021. Table A summarizes the groundwater monitoring data.

**Table A: Groundwater Monitoring Data – September 16, 2021**

Borehole Number	Depth of Standpipe (m)	Borehole Elevation (m)	Depth to Groundwater (m)	Groundwater Elevation (m)
18BH001	6.6	901.59	1.44	900.15
18BH002	5.1	902.71	2.16	900.55
18BH003	6.6	903.30	0.77	902.53
18BH004	5.1	904.80	0.74	904.06
18BH005	5.1	900.98	1.21	899.77
18BH006	6.6	902.81	1.62	901.19
18BH007	5.1	904.32	1.54	902.78
18BH008	6.6	905.86	1.56	904.30
18BH009	5.1	906.38	3.38	903.00
18BH010	6.6	905.79	2.59	903.20
18BH011	6.6	906.75	5.21	901.54
18BH012	9.6	907.54	3.33	904.21

**Table A: Groundwater Monitoring Data – September 16, 2021**

Borehole Number	Depth of Standpipe (m)	Borehole Elevation (m)	Depth to Groundwater (m)	Groundwater Elevation (m)
18BH013	5.1	907.37	Dry	-
18BH014	9.6	907.56	2.91	904.65

## 5.0 RECOMMENDATIONS

The recommendations that follow provide varying options intended to aid in the development of project concepts and specifications. The recommendations are based on the understanding and condition that Tetra Tech will be retained to review the relevant aspects of the final design (drawings and specifications) and to conduct such field reviews as are necessary to ensure compliance with the geotechnical aspects of the 2019 National Building Code – Alberta Edition, Lethbridge County Engineering Guidelines & Minimum Servicing Standards, this report, and the final plans and specifications. Tetra Tech accepts no liability for any use of this report in the event that Tetra Tech is not retained to provide these review services.

Specific recommendations that apply to this project are provided for site development, compaction, excavations, subgrade preparation, pavement structures, foundation and floor slab systems, and stormwater management facilities.

### 5.1 Site Development

#### 5.1.1 Topsoil Depth

The initial topsoil stripping depth should be considered as being of particular importance with regard to site subgrade grading design elevations. Based on the findings of the field drilling program, the surficial topsoil (A Horizon) layer thickness generally varies between 50 mm and 300 mm; however, may be variable in thickness due to historical cultivation practices of the land surface and/or depositional processes (i.e., wind). Consideration can be given however, to incorporating the underlying B Horizon layer (organic content <5%) into the fill mass during general site grading. Full-time monitoring by experienced personnel is recommended in order to avoid over-stripping and to ensure appropriate material mixing and placement. A detailed topsoil thickness investigation is suggested for estimation of the topsoil volume for site grading.

#### 5.1.2 Lot Grading

The lot grading should be designed and carried out to the current Lethbridge County Engineering Guidelines & Minimum Servicing Standards. All lots should be graded for drainage at a minimum gradient of 2.0%. Backfill materials and compaction requirements, as to be discussed in Section 5.1.3, should be followed. Any organics, soft and/or wet soils, or deleterious materials must be removed, where encountered, to expose the underlying suitable clay soil. The excavated areas must be backfilled with general engineered fill.

It should be noted that this site will have some challenges with regards to moisture conditioning and competent subgrade soils for construction. Due to the wet and weak subgrade conditions encountered in the majority of the site. Special care and attention needs to be paid during the site grading efforts for the project. Although the low to medium plastic soils are suitable as backfill materials, soil moisture conditioning should be expected due to the wet subgrade conditions as encountered at most borehole locations. If the development is to consider a raised site grading, excessive settlement from weak subgrade soils due to the backfill surcharge may be expected. After the

completion of a raised site grading, if it is to be considered for the development, residence structures should be delayed to allow for the majority of the consolidation settlement to occur prior to construction. For a site increase in elevation or raise of over 1 m, a minimum six (6) months of waiting period should be provided.

### 5.1.3 Backfill Materials and Compaction

The existing site soils comprising the predominantly low to medium plastic clay and clay till are adequate for use as both landscape fill and general engineered fill materials, as defined in Appendix C. Any soil containing deleterious materials should be removed from site. Sand, silt, and high plastic clay soils should be separated and used for landscape fill. The final decision on approved backfill materials should be made during site construction.

The moisture content of the site soil materials is expected to be highly variable with respect to the optimum moisture content (OMC). It is anticipated therefore, that moisture conditioning will be required at the site for proper backfill placement. The earthworks contractor should make their own estimate of the requirements for moisture conditioning to the recommended standards and should consider such factors as weather and construction procedures. A contingency for importation of general engineered fill is recommended in the event that the site soils cannot be moisture conditioned.

General engineered fill materials should be moisture conditioned to within a range of OMC to +2% of the OMC prior to compaction and compacted to a minimum of 98% Standard Proctor Density (SPD). The compacted thickness of each lift of backfill shall not exceed 150 mm.

Further recommendations regarding backfill materials and compaction are contained in Appendix C.

### 5.1.4 Construction Excavations

Excavations should be carried out in accordance with Alberta Occupational Health and Safety Regulations. The depth for the trench excavations is unknown at this time and is anticipated to be less than 6 m below existing ground surface for below-grade structures and/or utility infrastructure. The following recommendations notwithstanding, the responsibility of all excavation cutslopes resides with the Contractor, who should take into consideration site-specific conditions concerning soil stratigraphy and groundwater. All excavations should be reviewed by the Contractor prior to personnel working within the base of the excavation.

Based on the findings of the drilling program, soft to stiff clay soils, in moist to very moist conditions, are generally anticipated to be encountered within 6.0 m below grade during excavation. All excavations which are to be deeper than 1.5 m should have the sides shored and braced or the slopes should be cut back no steeper than 1.0 horizontal to 1.0 vertical (1.0H:1.0V) for stiff clay and 1.5H:1V for soft to firm clay soils. In areas where seepage is encountered, or when excavations are deeper than 3.0 m, the cutslope may need to be flatter. When excavations are open for longer than one month, the slopes should be cut back flatter than the aforementioned slopes.

Any encountered groundwater seepage should be directed towards sumps for removal. Conventional construction sump pumps should be capable of groundwater control.

Spill piles or temporary surcharge loads should not be allowed within a distance equal to the depth of the excavation from an unsupported excavation face, while mobile equipment should be kept back at least 3.0 m. All excavations should be checked regularly for signs of sloughing, especially after rainfall periods. Small earth falls from the sideslopes are a potential danger to workers and must be guarded against.

General recommendations regarding construction excavations are contained in Appendix C.



## 5.1.5 Trench Backfill and Compaction

Trenches must be backfilled in such a way as to minimize the potential differential settlement and/or frost heave movements. A minimum compaction level of 95% of SPD is recommended for backfill within the pipe zone of the trench (to 300 mm above the top of pipe). For the remainder of the trench backfill, a minimum compaction standard of 98% of SPD should be utilized in all areas. The compacted thickness of each lift of backfill shall not exceed 150 mm. Moisture conditioning to OMC and 2% over OMC of the soils should be specified for general trench backfill. The upper 1.5 m of service trenches should be cut back at a maximum slope of 1.0H:1.0V to avoid an abrupt transition between backfill and in situ soil.

It should be noted that the ultimate performance of the trench backfill is directly related to the uniformity of the backfill compaction. In order to achieve the uniformity, the lift thickness and compaction criteria should be strictly enforced.

General recommendations regarding backfill materials and compaction are contained in Appendix C.

## 5.2 Pavement

### 5.2.1 Subgrade Preparation

Subgrade preparation should be undertaken prior to pavement construction. The recommended compaction standard for subgrade preparation is a minimum of 98% of SPD. Cohesive soils should be compacted at optimum to 2% over the OMC. Granular soils (base granular and sub-base granular layers) should be compacted with moisture content  $\pm 1\%$  of the OMC. A minimum depth of subgrade preparation of 300 mm within the native clay is recommended for all paved areas.

Backfill to raise these areas to subgrade level should be general engineered cohesive fill materials, as defined in this report, moisture conditioned and compacted as noted previously. Proof-rolling of the prepared surface is recommended to identify localized soft areas and for an indication of overall subgrade support characteristics. Where soft subgrade conditions exist below the design subgrade elevation, these materials should be subexcavated and replaced with general engineered fill.

Depending on the construction scheduling for placement of the granular sub-base and base layers, and the asphalt concrete pavement surface, further subgrade preparation may be required if the placed subgrade materials dry out or weather. This should be determined prior to the placement of the pavement structure. Should the subgrade materials be shown to deteriorate from construction completion, a minimum 300 mm of subgrade preparation is recommended prior to pavement structure placement.

It is recommended to include a contingency for woven geotextile, should localized areas of subgrade instability be encountered. For very soft to soft subgrade area, combi-grid reinforcement should be considered, which would be a field decision during construction. Use of a woven geotextile should not be considered as an alternate for subgrade preparation as recommended, but an alternative, should subgrade instability exist after subgrade preparation. The woven geotextile should have a minimum grab tensile strength of 890 N.

The subgrade should be prepared and graded to allow drainage towards drainage trenches or catchbasins if available. It is imperative that positive surface drainage be provided to prevent ponding of water within the pavement structure and subsequent softening and loss of strength of the subgrade materials. Surrounding landscaping should be such that runoff water is prevented from ponding beside paved areas in order to avoid softening and premature failure of the pavement surface.

## 5.2.2 Pavement Design and Construction

The minimum materials required for the pavement structures of roadways for this project should meet the Lethbridge County Engineering Guidelines & Minimum Servicing Standards. Specific roadway pavement structures should be reviewed by the Transportation Business Unit based on the following: roadway use, traffic volumes, heavy vehicles, and equivalent single-axle loads, which information was not available at the time of writing the report.

For asphalt pavement structure, all asphalt paving lifts should be compacted to a minimum of Marshall Design Density, as per current County of Lethbridge Engineering Guidelines & Minimum Servicing Standards.

The pavement design should include provisions for subsurface drainage of the pavement granular layers. Subdrains will provide a means of evacuating water that infiltrates the pavement structure, either through cracks and vertical details (i.e., face of gutter), or from peripheral surface runoff. The subdrain should comprise a perforated flexible plastic drainpipe (100 mm diameter), complete with filter sock. The drain should be placed along the edge of the pavement section in a recessed area of the prepared subgrade.

## 5.3 Foundations

### 5.3.1 General

Based on the soil conditions encountered at the borehole locations, the clay soils at the potential shallow foundation depths were variable with consistency from very soft to very stiff. For areas with subgrade soils with firm or better consistency with SPT blow counts no less than 4, shallow foundations are considered acceptable for the proposed development. For areas with soft to very soft subgrade conditions with SPT blow counts less than 4 (e.g., 21BH003, 21BH005, 21BH007, and 21BH009), shallow foundations are not recommended due to the excessive settlement to be expected for such soils. For soft subgrade areas, deep foundations are technically feasible to transfer the structural load to competent soils in depth; however, due to relatively high cost for installing deep foundations for residence structures and only discrete boreholes drilled across the site, it is recommended that a site-specific geotechnical be completed for each of the proposed lots adjacent to the boreholes to confirm soil conditions within the building footprints. Deep pile foundations are considered to be a technical feasible option for all lots; however, may not be economically preferred due to the relatively high cost compared to a shallow foundation system. Deep pile foundations, such as helical or CIP concrete piles, are typically only considered for commercial buildings with heavy loads, or where foundation soils are not suitable for shallow foundations.

Upon review of the water levels within the boreholes there appears to be a relatively high perched water table, with most readings ranging between 0.7 m and 3.0 m below existing ground elevation. The irrigation, dugout pond, and historical agricultural land usage purposes in the area is likely a contributing factor to the high water table that was encountered. Due to the high water table encountered and its potential fluctuation, it is not recommended to use basement structures for the development.

All foundation design recommendations presented in this report are based on the assumption that an adequate level of monitoring by Tetra Tech will be provided during construction and that all construction will be carried out by suitably qualified contractors, experienced in foundation and earthworks construction. An adequate level of monitoring is considered to be the following:

- For shallow foundations; inspection of bearing surfaces prior to placement of concrete or mudslab, and design review during construction.
- For deep foundations, full-time monitoring and design review during construction.
- For earthworks; full-time monitoring and compaction testing.

Suitably qualified persons, independent of the Contractor, should carry out all such monitoring. One of the purposes of providing an adequate level of monitoring is to check that recommendations, based on data obtained at discrete borehole locations, are relevant to other areas of the site.

### 5.3.2 Limit States Design

The design parameters provided in the following sections may be used to calculate the ultimate foundation capacity in each case. For the Limit States Design (LSD) methodology, in order to calculate the factored load capacity, the appropriate Soil Resistance Factors must be applied to each loading condition as follows:

$$\text{Factored Capacity} = \text{Ultimate Capacity} \times \text{Soil Resistance Factors}$$

In general, the soil resistance factors in Table B should be incorporated into the foundation design. These factors are considered to be in accordance with the Canadian Foundation Engineering Manual (CFEM) (2006) as well as the 2019 National Building Code – Alberta Edition

**Table B: Soil Resistance Factors**

Item	Soil Resistance Factor
<b>Shallow Foundations</b>	
Bearing Resistance	0.5
Passive Resistance	0.5
Horizontal Passive Resistance	0.5
<b>Deep Foundations - Piles</b>	
Static Axial Compressive Pile Capacity	0.4
Static Axial Uplift Pile Capacity	0.3
Lateral Pile Capacity	0.5

Under LSD methodology, foundations should be designed on the basis of factored Ultimate Limit States (ULS) parameters. In order to determine the applicable working capacity, Serviceability Limit States (SLS) must also be considered.

### 5.3.3 Shallow Foundations

Recommendations for shallow foundations in this section are only to be applicable for lots where firm to stiff foundations soils are to be encountered. Shallow footings should be constructed a minimum of 1.4 m below the final design ground surface (frost protection requirement for footings under heated structures). For unheated structures, the footings should be constructed a minimum of 2.1 m below grade.

Footings should be founded on native firm to stiff native soils only. The ultimate static bearing pressure may be taken as 150 kPa, subject to other recommendations in this report. Factoring should be considered as noted in the previous section. Footing dimensions should be in accordance with the minimum requirements of the 2019 National Building Code – Alberta Edition.

Specific bearing certification by a geotechnical engineer in conjunction with a site-specific geotechnical evaluation is recommended for each residential structure to ensure that the shallow foundations are placed on competent native soils. If weak soils are locally encountered at footing level, recommendations may be provided to remove the weak materials and bring the subcut back to design elevation with low strength lean mix concrete. Alternatively,

it may be possible to lower the footing elevation to more competent native soils but should be looked at on a case-by-case circumstance.

All fill (except for the general engineered fill, as discussed below) and construction debris materials if encountered, must be removed from the building footprint areas to expose native subgrade.

It is recommended that a grade-all bucket be used for final excavation to the foundation subgrade elevation to minimize disturbance of the founding soils. A 50 mm concrete mudslab should be placed immediately following excavation and inspection, to protect the bearing surface from disturbance and inclement weather.

Recommendations for minimum depth of cover for footings are presented under section heading 'Frost Protection'. Further recommendations regarding shallow foundations are given in Appendix C.

#### 5.4 Bored Cast-In-Place Concrete Piles

Deep foundations may be considered for areas where soft foundation soils are encountered at potential shallow footing elevations. Bored CIP concrete piles, founded in the stiff to very stiff (occasional hard) clay till, may be designed to resist axial compressive loads on the basis of a combination of shaft and base resistances, as provided in Table C. For piles constructed in accordance with the recommendations made in this report, the following ultimate values of shaft and base resistances may be used, factored as recommended in Section 5.3.2

**Table C: Geotechnical Design Parameters for Bored Cast-in-Place Concrete Piles**

Depth (m)	Ultimate Shaft Resistance (kPa)	Factored Shaft Resistance (kPa)	Ultimate Base Resistance (kPa)	Factored Base Resistance (kPa)
0 to 3.0	N/A	N/A	N/A	N/A
3.0 to 6.0	30	12	N/A	N/A
Below 6.0	40	16	450	180

It is noted that stiff to very stiff clay till will require confirmation at pile bottom elevations for piles with end-bearing consideration, as local sand layers or inclusions may be encountered during pile installation and pose difficulties for bellling if considered. Where weak conditions are encountered, lowering design pile bottom elevations to stiffer soils or only friction straight shaft piles may be considered.

Piles should be a minimum of 400 mm in diameter. Shaft resistance should be neglected for the top 3.0 m or the clay fill depth, whichever is deeper. End-bearing should not be used for small diameter (less than 760 mm base diameter) piles because of the difficulties associated with ensuring a clean base. End-bearing may only be considered in the design of under-reamed or belled piles if facilities are available for an adequate cleaning of the pile base. General recommendations for the design and construction of bored CIP concrete piles are included in Appendix C.

An overall concreted pile shaft length below final grade of not less than 6.0 m is recommended. A minimum ratio of depth of cover versus the base or bell diameter (D/B) of 2.5 has been assumed to determine the above end-bearing pressure. Should less cover be provided, the bearing pressure would have to be reduced. Minimum bell diameters should be twice the shaft diameter. Piles should be spaced no closer than 2.5 times the base diameter measured centre-to-centre.

Groundwater seepage and sloughing should be expected in the pile bores during construction. Casing should be on hand before drilling starts and used to seal off water and/or prevent sloughing of the hole when encountered. The piling contractor should make his or her own estimate of casing requirements and should consider such factors as construction procedures and bore diameter.

## 5.5 Helical Piles

Helical piles are considered as an alternative option for this development, in particular preferred for light loaded structures. It is recommended that helical piles be considered only for statically loaded foundations (i.e., no dynamic load component). Design and construction recommendations for helical piles are provided in this section; however, it is noted that for the final design of this type of pile consideration should be given to the installation methodology of the specialty contractor, as the design capacity of helical piles is a function of the pile installation methodology.

Tetra Tech recommends using the CFEM (2006) design method for helical piles (CFEM Section 18.2.1.4). Using this methodology, the geotechnical parameters required to calculate the ultimate foundation capacity are provided in Table D. A minimum recommended depth for the upper helix is 2.1 m below the existing grade.

**Table D: Geotechnical Parameters for Helical Piles**

Depth (m)	Bulk Unit Weight (kN/m <sup>3</sup> )	Undrained Shear Strength Cu (kPa)	Friction Angle* (Degrees)
0 to 3.0	18	-	-
3.0 to 6.0	19	25	26
Below 6.0	19	50	27

\*Only for long-term strength consideration with zero cohesion.

The total helical pile capacity is presented in the CFEM (Equation 18.10) as follows:

$$R = Q_t + Q_f$$

Where:

R = Total ultimate capacity of the pile (kN).

Q<sub>t</sub> = Total ultimate multi-helix pile capacity (kN).

Q<sub>f</sub> = Ultimate capacity due to pile shaft skin friction (kN) (for pile shafts greater than 100 mm diameter only).

To calculate the multi-helix bearing capacity, the individual bearing method presented in CFEM Equations 18.11 and 18.12 should be used, provided the helical bearing plates are spaced a minimum of three times the diameter of the largest helix. Otherwise, the cylinder shear method should be used, with consideration of overlapping stress zones between helices. This method sums up the bearing capacity of the bottom plate and the cylindrical shear capacity developed between the upper and lower plate(s).

The factored geotechnical capacity for each pile may be determined as follows, using the soil resistance factors presented in Section 5.2:

- Factored Pile Compression Capacity = 0.4R
- Factored Pile Uplift Capacity = 0.3R

For helical piles, the helix or helices should be founded in competent native clay or clay till and below the depth of frost penetration. Vertically installed helical piles generally require an enlarged shaft diameter in order to adequately resist lateral loads, where applicable. For bottom helices with load influence depths lower than the maximum borehole termination depth of 9.6 m, a field drill program should be conducted to confirm the soil conditions in depth. Should any of these parameters become limiting factors in the design, Tetra Tech should be contacted for more detailed review and analysis.

Construction of helical piles should consider, but not be limited to, the following recommendations:

- As the helical piles are installed, the rate of rotation and advancement should match the pitch of the helix plate. This will help to avoid “churning” of the foundation soils. It is critical that the foundation bearing soil is not excessively disturbed in order to minimize the risk of excessive foundation settlement.
- An estimate of pile capacity may be obtained by correlating capacity to installation torque. This method requires that an appropriate torque factor be selected by the pile designer (in consultation with the piling contractor). Torque factors are selected based on soil type as well as pile shaft size and shape. This method of estimating pile capacity should be used as a quality control check and is not suitable to replace proper design procedures. Installation torque should be recorded using calibrated equipment, and the piling contractor should provide a recent calibration certificate (conducted a maximum of 1 year from pile installation) for each piling setup used on site.
- It should be noted that a high torque value can sometimes mislead estimation of bearing capacity. The occurrence of soft zones beneath the final pile depth are not represented in the recorded torque value but may adversely impact the load carrying capacity of the helical pile.
- Pile load testing is recommended. The results of the pile load tests can be correlated to the measured installation torque to develop site-specific installation criteria. In addition, a higher geotechnical resistance factor for compressive loading of 0.6 can be used if pile load testing is conducted prior to construction.

If lateral loading is considered critical to the pile performance, care must be taken during pile installation to identify voids developing around the pile shaft. Due to the nature of the pile installation process, it is common to develop voids that can significantly influence lateral loading on a pile. If voids develop, they should be backfilled with granular fill, sand, fillcrete, or grout depending on the size of the voids.

### 5.5.1 Surface Grading and Drainage

Drainage of surface water away from residences should be maintained during and after construction. The finished grade of the proposed residences should be designed so that surface water is drained away from residence structures by the shortest route. All drains should discharge well clear of residence structures. For construction of roof drains, caution should be taken where downspouts discharge due to the high probability of ice forming in the winter. Downspouts may be discharged onto landscaped areas, provided the water is carried, by means of a concrete splash pad or extendable section so the point of discharge of the water is at least 2 m from the residence structures. Landscaped surfaces adjacent to buildings should be graded to slope away from the building at a gradient of at least 5% within 2 m of the residence structures' perimeter. General landscaped areas should have grades of no less than 2% to minimize ponding.

### 5.5.2 Foundation Perimeter Drainage Requirements

It is recommended that a weeping tile and sump system be constructed around the outside perimeter of the buildings (at the base of the footings, if selected) to maintain a relatively consistent moisture profile of the subgrade soils. The weeping tile system should comprise a perforated weeping tile, in turn surrounded with a minimum of 150 mm

thick blanket of washed rock (maximum size 20 mm), with the granular layer wrapped in non-woven geotextile. The weeping tile should have a minimum 0.5% slope leading to a sump.

### 5.5.3 Below-Grade Walls

All below-grade walls should be designed to resist lateral earth pressures in an “at-rest” condition. This condition assumes a triangular pressure distribution and may be calculated using the following expression:

$$P_o = K_o (\gamma H + Q)$$

Where:

- $P_o$  = Lateral earth pressure “at-rest” condition (no wall movement occurs at a given depth).
- $K_o$  = Coefficient of earth pressure “at-rest” condition (use 0.5 for cohesive backfill and 0.45 for sand and gravel backfill).
- $\gamma$  = Bulk unit weight of backfill soil (use 19 or 21 kN/m<sup>3</sup> for cohesive or granular backfill, respectively).
- $H$  = Depth below final grade (m).
- $Q$  = Surcharge pressure at ground level (kPa).

It is assumed that drainage will be provided for all below-grade walls through the installation of a weeping tile system, as described above, and hydrostatic pressures will not be a factor in design. The weeping tile should have a minimum 0.5% slope leading to a sump. The preferred method would be to have provision to tie the sump into the property’s on-site drainage system.

Backfill around concrete walls should not commence before the concrete has reached a minimum two-thirds of its design strength and first floor framing is in place or the walls are laterally braced. Only hand-operated compaction equipment should be employed within 600 mm of the concrete walls. Caution should be used when compacting backfill to avoid high lateral loads caused by excessive compactive effort. A compaction standard of 95% of SPD is recommended. To avoid differential wall pressures, the backfill should be brought up evenly around the walls. A minimum 600 mm thick clay cap should be placed at the ground surface to reduce the infiltration of surface water.

### 5.5.4 Floor Slab System

#### 5.5.4.1 Floor Slabs-on-Grade

Construction of floor slabs-on-grade for this project (outside of basements) must consider the surficial clay noted within the development area. Construction may be considered feasible, provided the following precautions and construction recommendations are followed.

In native soils areas, following removal of topsoil, the subgrade should be scarified to a minimum depth of 300 mm, and moisture conditioned to a range of optimum to 2% over OMC. In areas of general engineered fill placed during site grading, a minimum depth of 150 mm subgrade preparation is recommended; if weathering is evident, 300 mm subgrade preparation is required. The minimum compaction should be 98% of SPD. The prepared subgrade should be proof-rolled and any soft or loose pockets detected should be reconditioned, as recommended above, or over-excavated and replaced with general engineered fill.

A levelling course of clean well-graded crushed gravel, at least 150 mm in compacted thickness, is recommended directly beneath the slabs-on-grade, unless a thicker course is required for structural purposes. The subgrade

beneath slabs-on-grade should be protected at all times from moisture or exposure which may cause softening or disturbance of the subgrade soils. This applies during and after the construction period (and before and after placement of the required general engineered fill). Should the exposed surface become saturated or disturbed, it should be reworked to achieve the above standards.

If a raised grading is to be considered, a waiting period prior to installation of floor slabs should be provided to reduce the potential settlement after construction. See Section 5.1.2 for more detailed discussion. Slabs-on-grade should be separated from bearing members to allow some differential movement. If this differential movement is unacceptable, the owner should consider a structurally supported floor.

Recommended procedures for compaction and backfill materials, and further recommendations for floor slabs-on-grade construction are included in Appendix C.

#### **5.5.4.2 Structural Slabs**

If slab movements cannot be tolerated, a structurally supported floor slab system is recommended as the preferred option for this development; however, with a structurally supported floor slab system, there is a risk of ground movement relative to the slab. This relative movement can lead to problems if piping and other utilities that are connected to the slab are embedded within the ground beneath the slab. Utilities beneath the structurally supported floor slabs should be protected from differential movement by placing utilities within boxes suspended from the structural slab. In addition, a void form is recommended below the floor slab in order to prevent transfer of uplift pressures due to swelling clay soil.

#### **5.5.5 Seismic Design**

The site classification recommended for seismic site response is Classification D, as noted in Table 4.1.8.4.a of the 2019 National Building Code – Alberta Edition.

#### **5.5.6 Concrete Type**

Based on soluble sulphate concentration test results from selected samples taken during the field program and Tetra Tech's experience on local soils, the properties of concrete for foundations in contact with soil shall meet the requirements of the Canadian Standards Association (CSA) A23.1-14, Class S-2 exposure including water/cementing materials (w/cm) ratio of 0.45, air entrainment of 4% to 7% (for 14 mm to 20 mm nominal maximum aggregate size), and a minimum specified 56-day compressive strength of 32 MPa.

For this exposure classification, alternatives include the usage of Type HS (sulphate-resistant) Portland Cement or blends of cement and supplementary cementing materials conforming to Type HSb cements.

#### **5.5.7 Frost Protection**

For protection against frost action, all perimeter footings must be placed a minimum of 1.4 m below final grade for heated structures, or 2.1 m for unheated structures.

CIP concrete or helical piles, if considered and exposed to frost action, should have a minimum length of 6 m and should have full-length steel reinforcement. A void form is recommended for all grade beams and pile caps, to accommodate movements due to frost or soil swelling.

Pipes buried with less than 2.1 m of soil cover should be protected with insulation to avoid frost effects that might cause damage to, or breakage of, the pipes. Rigid insulation placed under areas subject to vehicular wheel loadings should be provided with a minimum thickness of 600 mm of compacted granular base.



## 6.0 DESIGN AND CONSTRUCTION GUIDELINES

Recommended general design and construction guidelines are provided in Appendix C, under the following headings:

- Shallow Foundations
- Bored Cast-in-Place Concrete Piles
- Floor Slabs-on-Grade
- Construction Excavations
- Backfill Materials and Compaction

These guidelines are intended to present standards of good practice. Although supplemental to the main text of this report, they should be interpreted as part of the report. Design recommendations presented herein are based on the premise that these guidelines will be followed. The design and construction guidelines are not intended to represent detailed specifications for the works although they may prove useful in the preparation of such specifications. In the event of any discrepancy between the main text of this report and Appendix C, the main text should govern.

## 7.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully Submitted,  
Tetra Tech Canada Inc.

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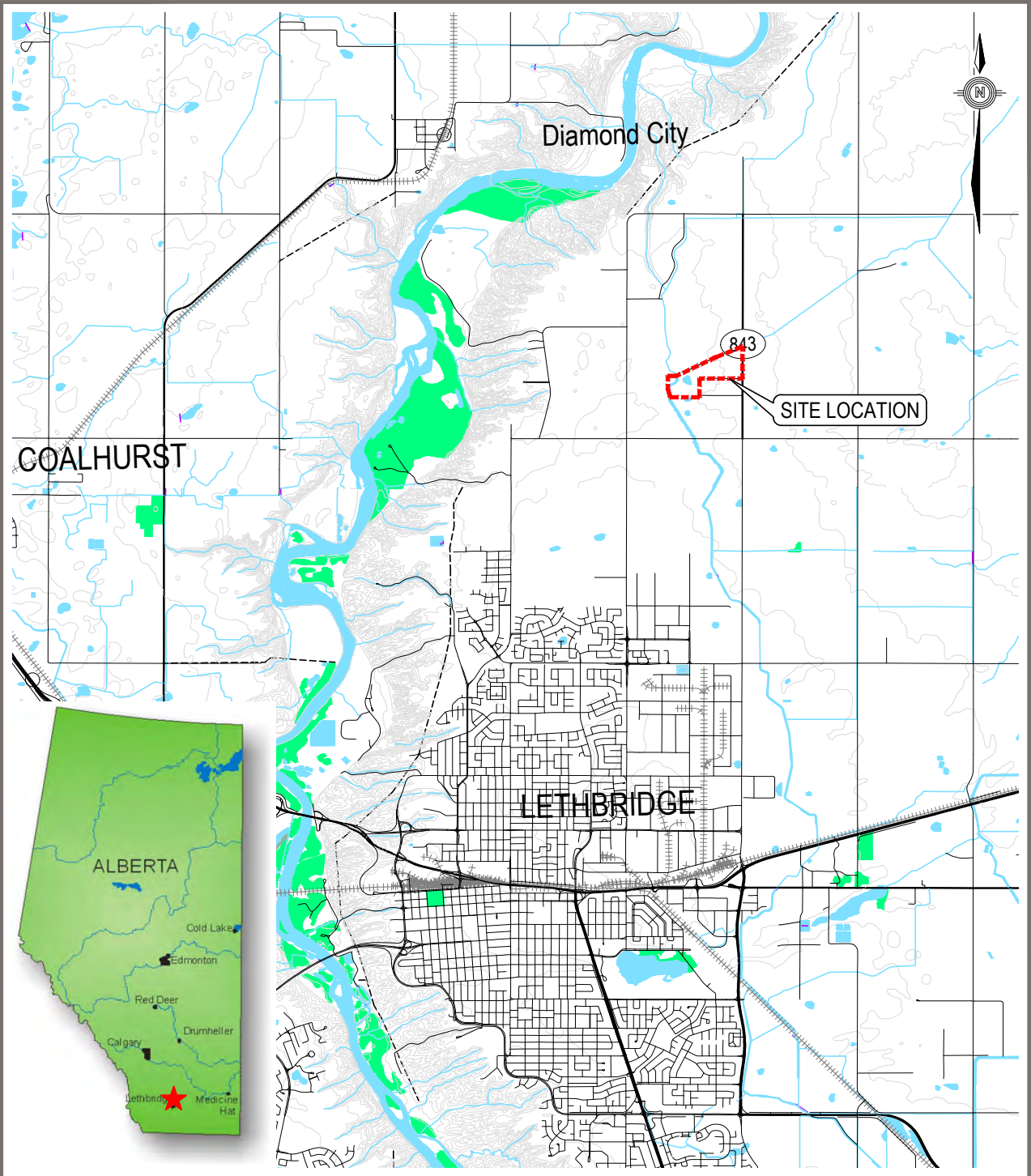
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## FIGURES

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- Figure 1 Site Location Plan
- Figure 2 Borehole Location Plan



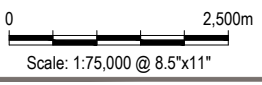


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**NOTES**  
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**CLIENT**  
  
**Mr. Rick Aldoff**

**GEOTECHNICAL EVALUATION**  
**MacLAINE ACRES ASP**  
  
**SITE LOCATION PLAN**



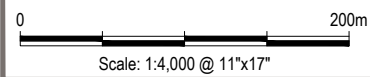
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Figure 1



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**LEGEND**  
 - - - - - SITE BOUNDARY  
 ● BOREHOLE LOCATION



**NOTES**  
 GOOGLE EARTH IMAGERY DATED 2021.  
 BASE DRAWING PROVIDED BY CLIENT, DATED JULY 15, 2021.

**CLIENT**  
 Mr. Rick Aldoff



**GEOTECHNICAL EVALUATION**  
 MacLAINE ACRES ASP

**BOREHOLE LOCATION PLAN**

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Figure 2

# APPENDIX A

## LIMITATIONS ON USE OF THIS DOCUMENT

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# LIMITATIONS ON USE OF THIS DOCUMENT

## GEOTECHNICAL

### 1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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### 1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

### 1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this document, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.



### 1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

### 1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

### 1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

### 1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

### 1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

### 1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

### 1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

### 1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

### 1.15 DRAINAGE SYSTEMS

Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function. Where temporary or permanent drainage systems are installed within or around a structure, these systems must protect the structure from loss of ground due to mechanisms such as internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design details regarding the geotechnical aspects of such systems (e.g. bedding material, surrounding soil, soil cover, geotextile type) should be reviewed by the geotechnical engineer to confirm the performance of the system is consistent with the conditions used in the geotechnical design.

### 1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

### 1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

### 1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.

# APPENDIX B

## BOREHOLE LOGS

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## TERMS USED ON BOREHOLE LOGS

### TERMS DESCRIBING CONSISTENCY OR CONDITION

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

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

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

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

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

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

### GENERAL DESCRIPTIVE TERMS

- Slickensided** - having inclined planes of weakness that are slick and glossy in appearance.
- Fissured** - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.
- Laminated** - composed of thin layers of varying colour and texture.
- Interbedded** - composed of alternate layers of different soil types.
- Calcareous** - containing appreciable quantities of calcium carbonate.;
- Well graded** - having wide range in grain sizes and substantial amounts of intermediate particle sizes.
- Poorly graded** - predominantly of one grain size, or having a range of sizes with some intermediate size missing.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.

Tt\_Borehole Terms\_General.cdr



# MODIFIED UNIFIED SOIL CLASSIFICATION

MAJOR DIVISION		GROUP SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA			
<b>COARSE-GRAINED SOILS</b> More than 50% retained on 75 µm sieve*	<b>GRAVELS</b> 50% or more of coarse fraction retained on 4.75 mm sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_u = D_{60} / D_{10}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3		
		GRAVELS WITH FINES	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines			
		<b>SANDS</b> More than 50% of coarse fraction passes 4.75 mm sieve	CLEAN SANDS	GM	Silty gravels, gravel-sand-silt mixtures	Not meeting both criteria for GW  Atterberg limits plot below "A" line or plasticity index less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
				GC	Clayey gravels, gravel-sand-clay mixtures		
	SANDS WITH FINES		SW	Well-graded sands and gravelly sands, little or no fines	$C_u = D_{60} / D_{10}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3		
			SP	Poorly graded sands and gravelly sands, little or no fines			
	SANDS WITH FINES		SM	Silty sands, sand-silt mixtures	Not meeting both criteria for SW  Atterberg limits plot below "A" line or plasticity index less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols	
			SC	Clayey sands, sand-clay mixtures			
	<b>FINE-GRAINED SOILS (by behavior)</b> 50% or more passes 75 µm sieve*	<b>SILTS</b> Liquid limit	<50	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of slight plasticity	For classification of fine-grained soils and fine fraction of coarse-grained soils.  <div style="text-align: center;"> <b>PLASTICITY CHART</b> </div>	
			>50	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts		
<b>CLAYS</b> Above "A" line on plasticity chart negligible organic content Liquid limit		<30	CL	Inorganic clays of low plasticity, gravelly clays, sandy clays, silty clays, lean clays			
		30-50	CI	Inorganic clays of medium plasticity, silty clays			
		>50	CH	Inorganic clays of high plasticity, fat clays			
<b>ORGANIC SILTS AND CLAYS</b> Liquid limit		<50	OL	Organic silts and organic silty clays of low plasticity			
		>50	OH	Organic clays of medium to high plasticity			
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils	*Based on the material passing the 75 mm sieve Reference: ASTM Designation D2487, for identification procedure see D2488. USC as modified by PFRA			
SOIL COMPONENTS				OVERSIZE MATERIAL			
FRACTION		SIEVE SIZE		DEFINING RANGES OF PERCENTAGE BY MASS OF MINOR COMPONENTS			Rounded or subrounded  COBBLES 75 mm to 300 mm BOULDERS > 300 mm  Not rounded  ROCK FRAGMENTS >75 mm ROCKS > 0.76 cubic metre in volume
	PASSING	RETAINED	PERCENTAGE	DESCRIPTOR			
GRAVEL	coarse	75 mm	19 mm	>35 %	"and"		
	fine	19 mm	4.75 mm	21 to 35 %		"y-adjective"	
SAND	coarse	4.75 mm	2.00 mm	10 to 20 %	"some"		
	medium	2.00 mm	425 µm	>0 to 10 %	"trace"		
	fine	425 µm	75 µm				
SILT (non plastic) or CLAY (plastic)	75 µm		as above but by behavior				

Tt\_Modified Unified Soil Classification.cdr







# BOREHOLE KEYSHEET










## Water Level Measurement

 Measured in standpipe, piezometer or well
  Inferred




















## Sample Types

 A-Casing	 Core	 Disturbed, Bag, Grab	 HQ Core	 Jar
 Jar and Bag	 NQ Core	 No Recovery	 Split Spoon/SPT	 Tube

## Backfill Materials

 Asphalt	 Bentonite	 Cement/Grout	 Drill Cuttings	 Grout
 Gravel	 Sand	 Slough	 Topsoil Backfill	

## Lithology - Graphical Legend<sup>1</sup>

 Asphalt	 Bedrock	 Cobbles/Boulders	 Clay	 Coal
 Concrete	 Fill	 Gravel	 Limestone	 Mudstone
 Organics	 Peat	 Sand	 Sandstone	 Shale
 Silt	 Siltstone	 Till	 Topsoil	

1. The graphical legend is an approximation and for visual representation only. Soil strata may comprise a combination of the basic symbols shown above. Particle sizes are not drawn to scale

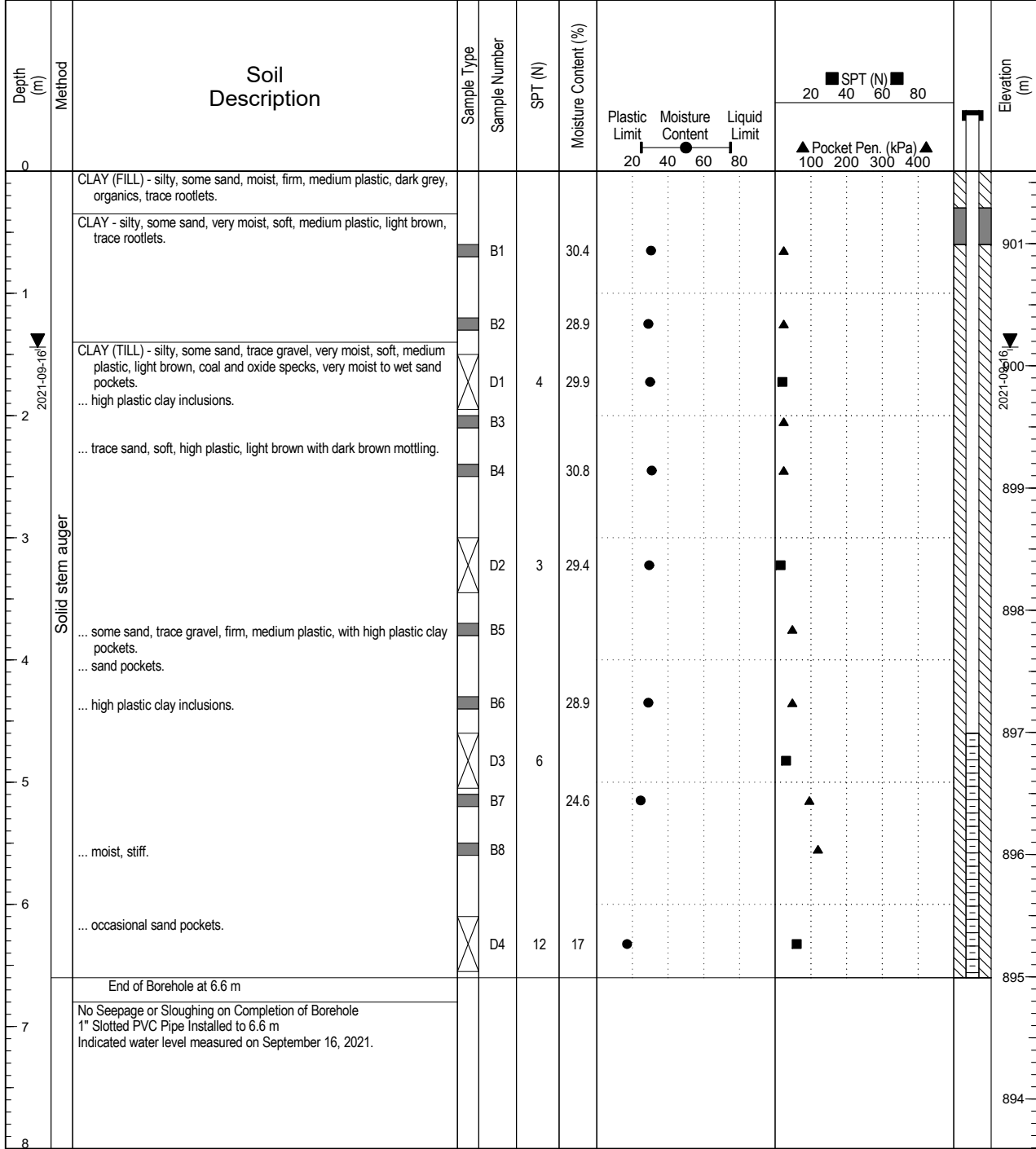




**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH001**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 901.593 m  
 Lethbridge County, AB    I    N: 5514246    E: 371761    PROJECT ENGINEER: Jackson Meadows



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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

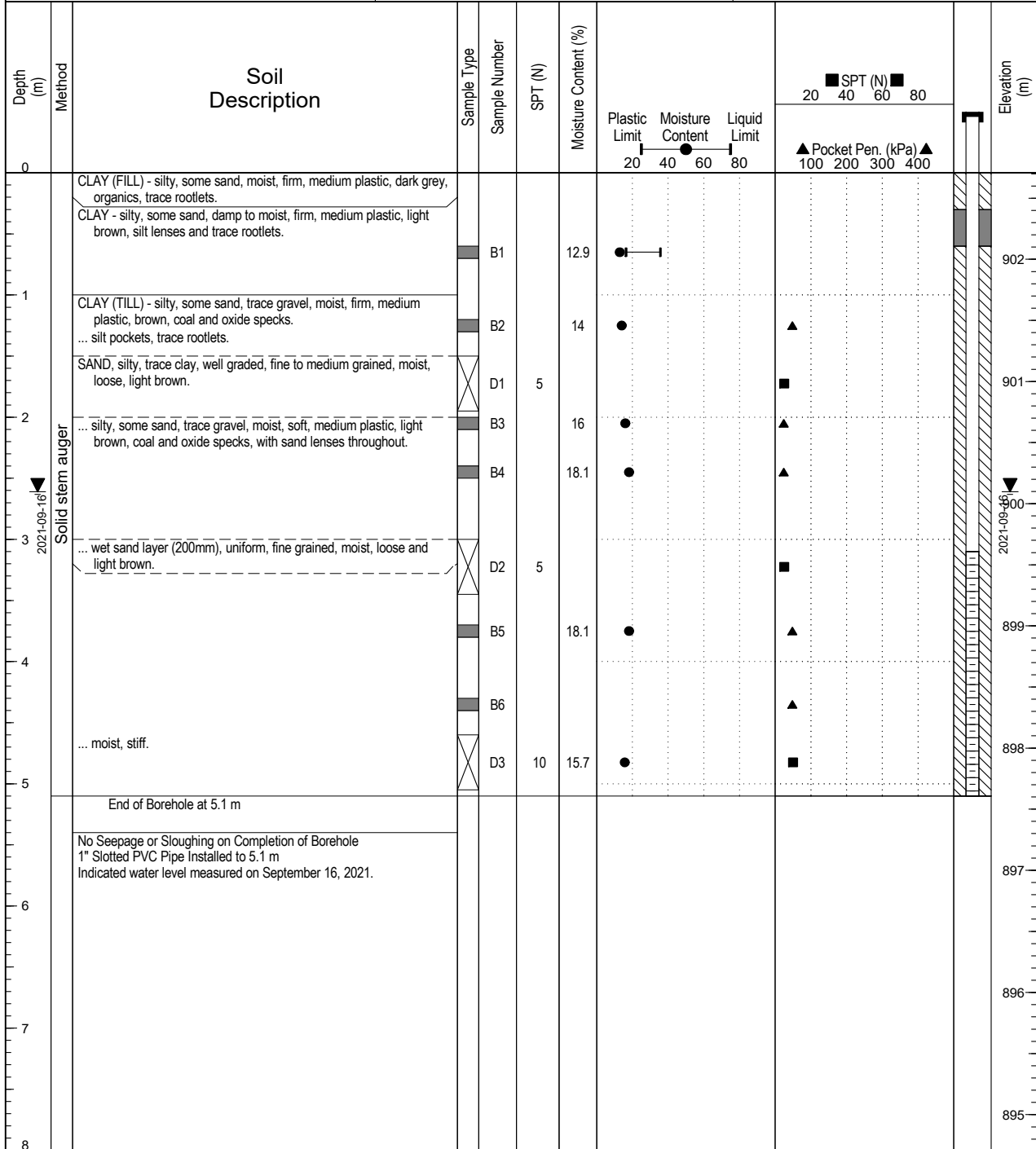
GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21



**Martin Geomatic Consultants Ltd.**

**Borehole No: 21BH002**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval Project No: 704-ENG.LGEO04408-01  
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 Lethbridge County, AB I N: 5514138 E: 371678 PROJECT ENGINEER: Jackson Meadows



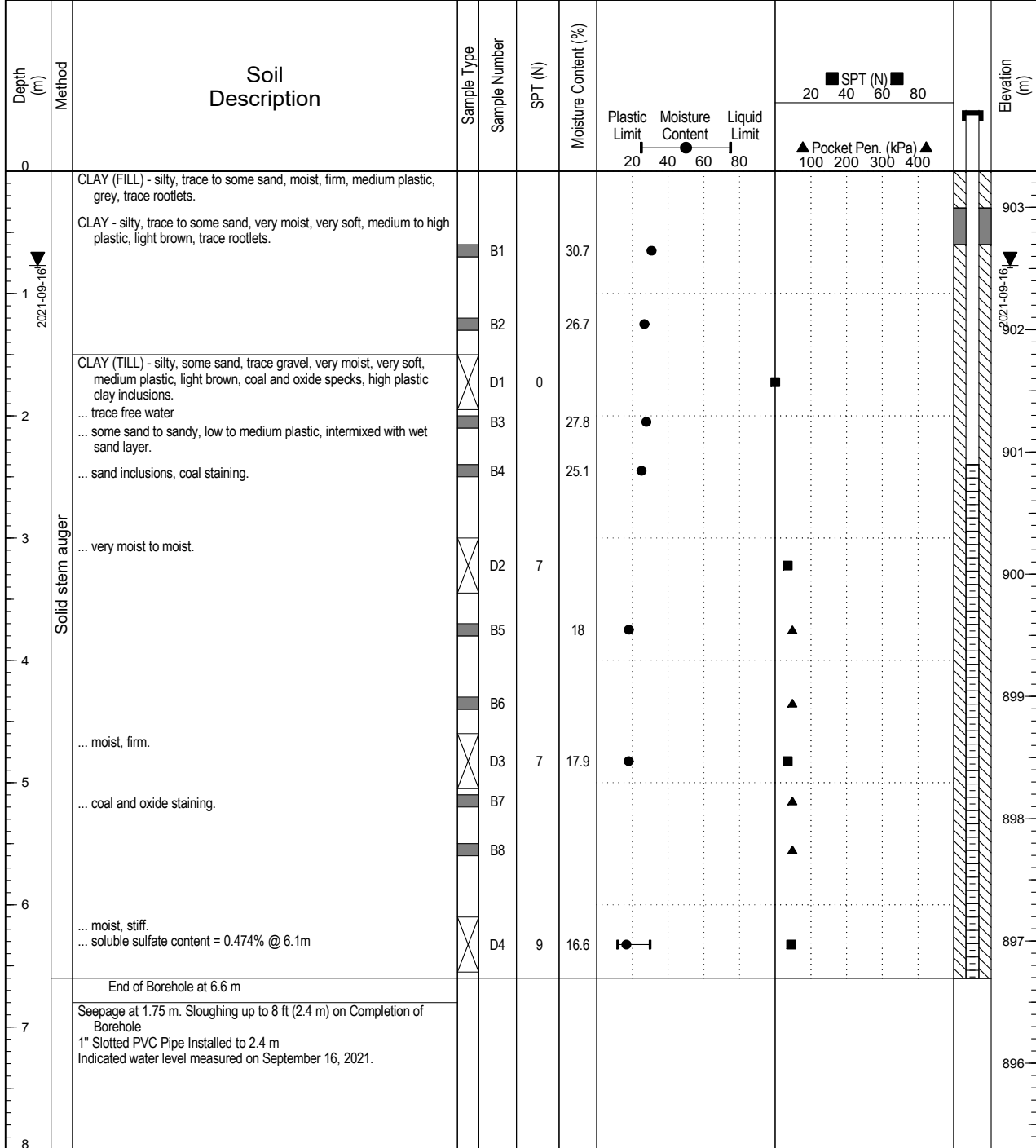
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	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH003**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval | Project No: 704-ENG.LGEO04408-01  
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 Lethbridge County, AB | N: 5514178 E: 371538 | PROJECT ENGINEER: Jackson Meadows



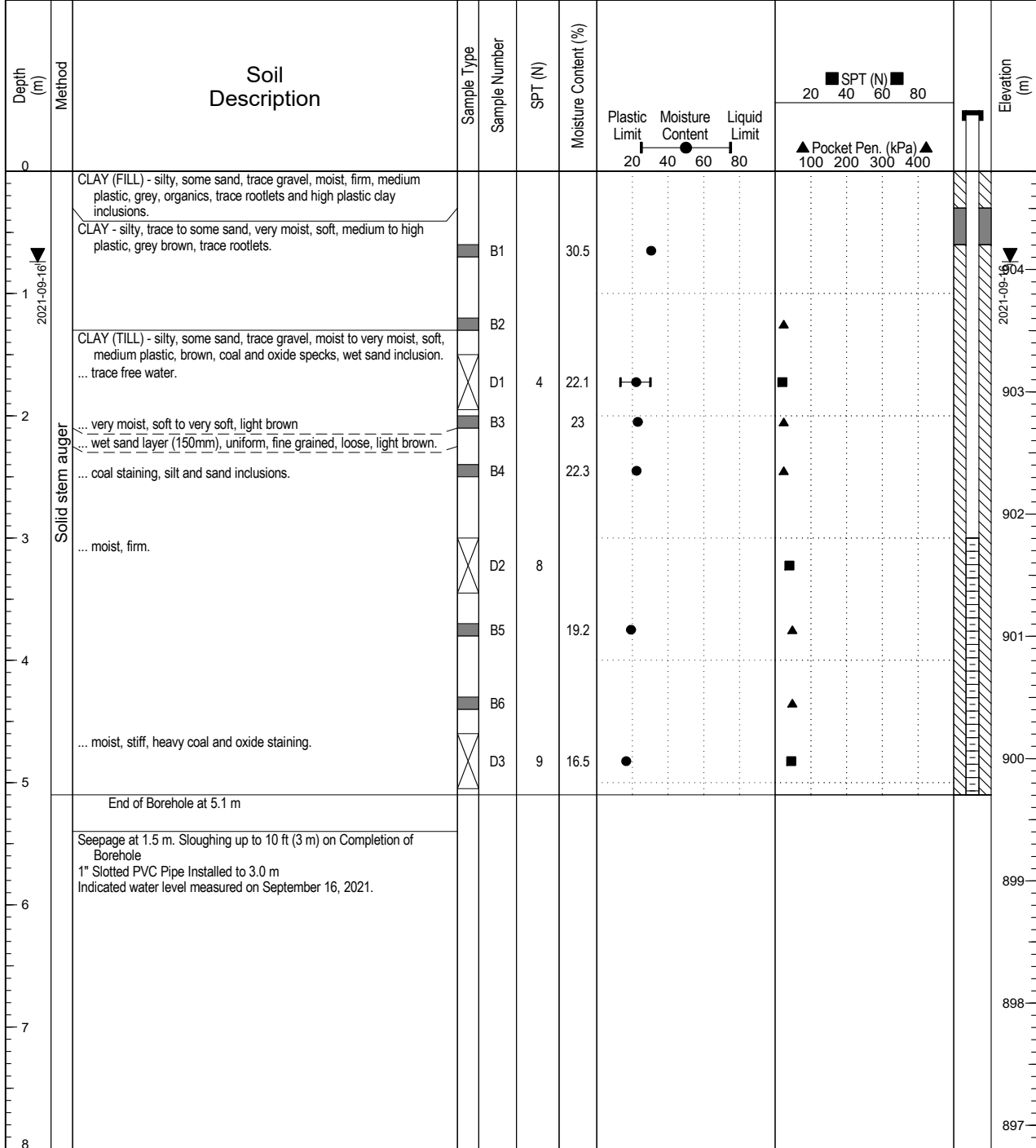
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	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ.EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH004**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
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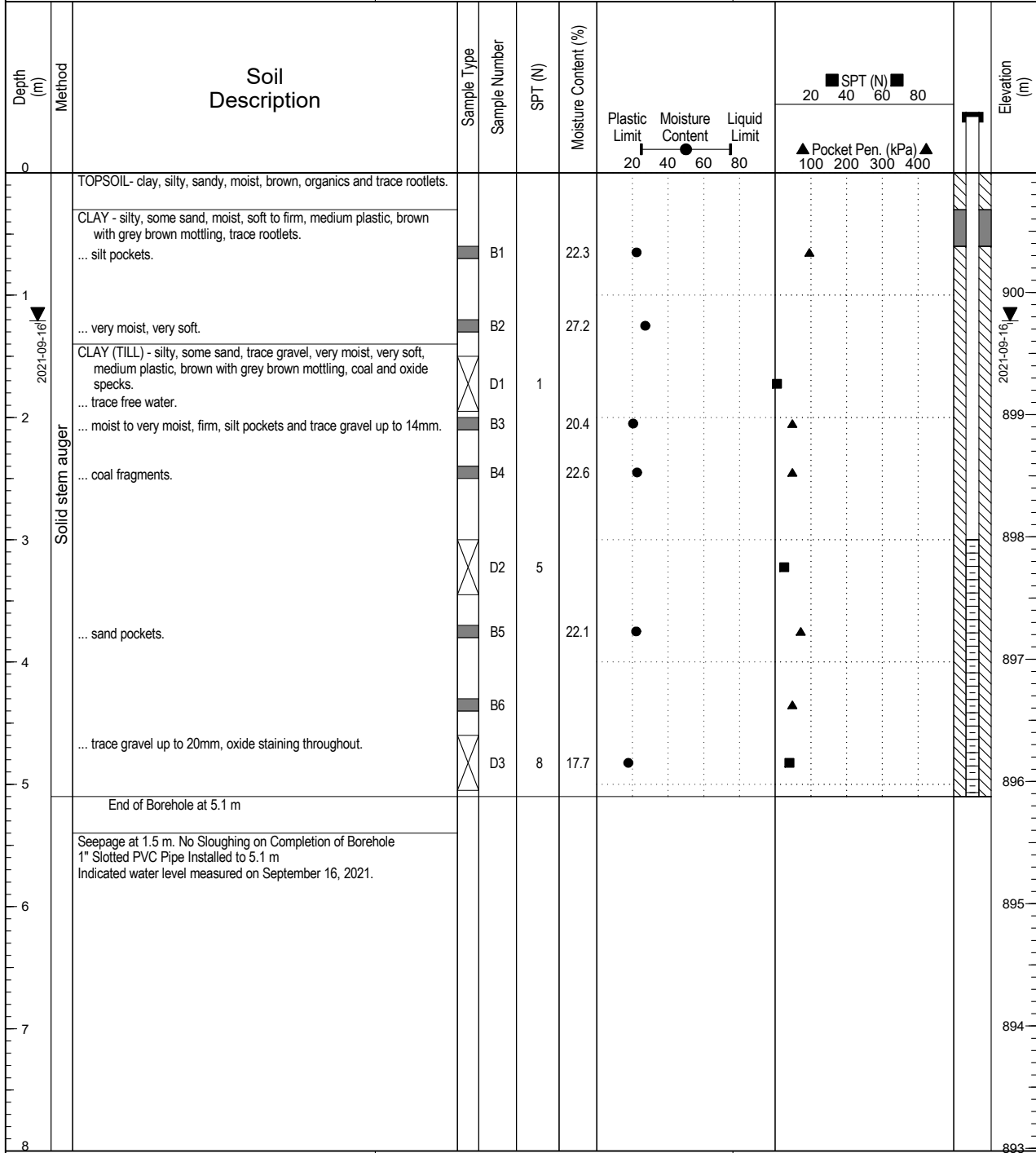
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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH005**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 900.977 m  
 Lethbridge County, AB    I    N: 5513965    E: 371849    PROJECT ENGINEER: Jackson Meadows

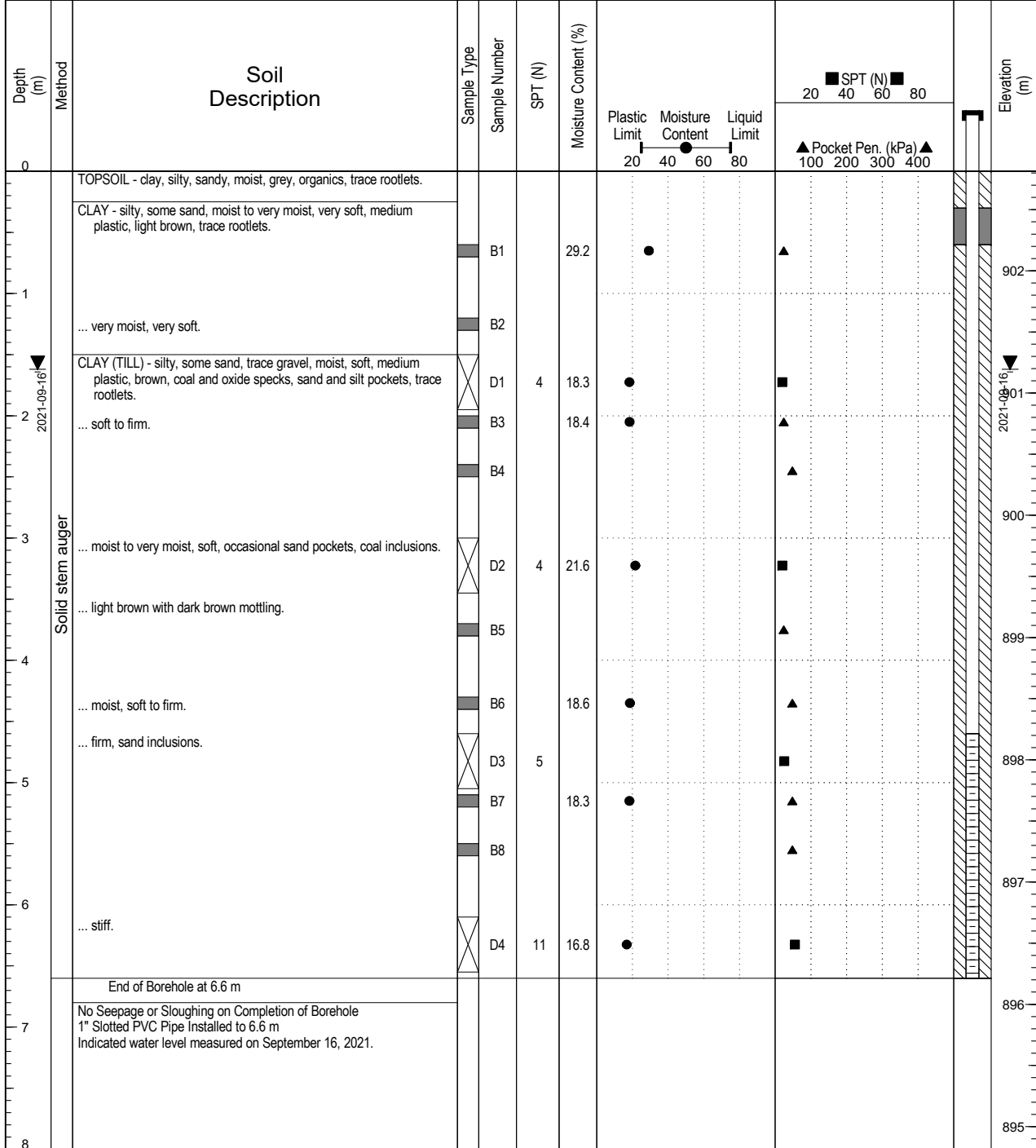


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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH006**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 902.814 m  
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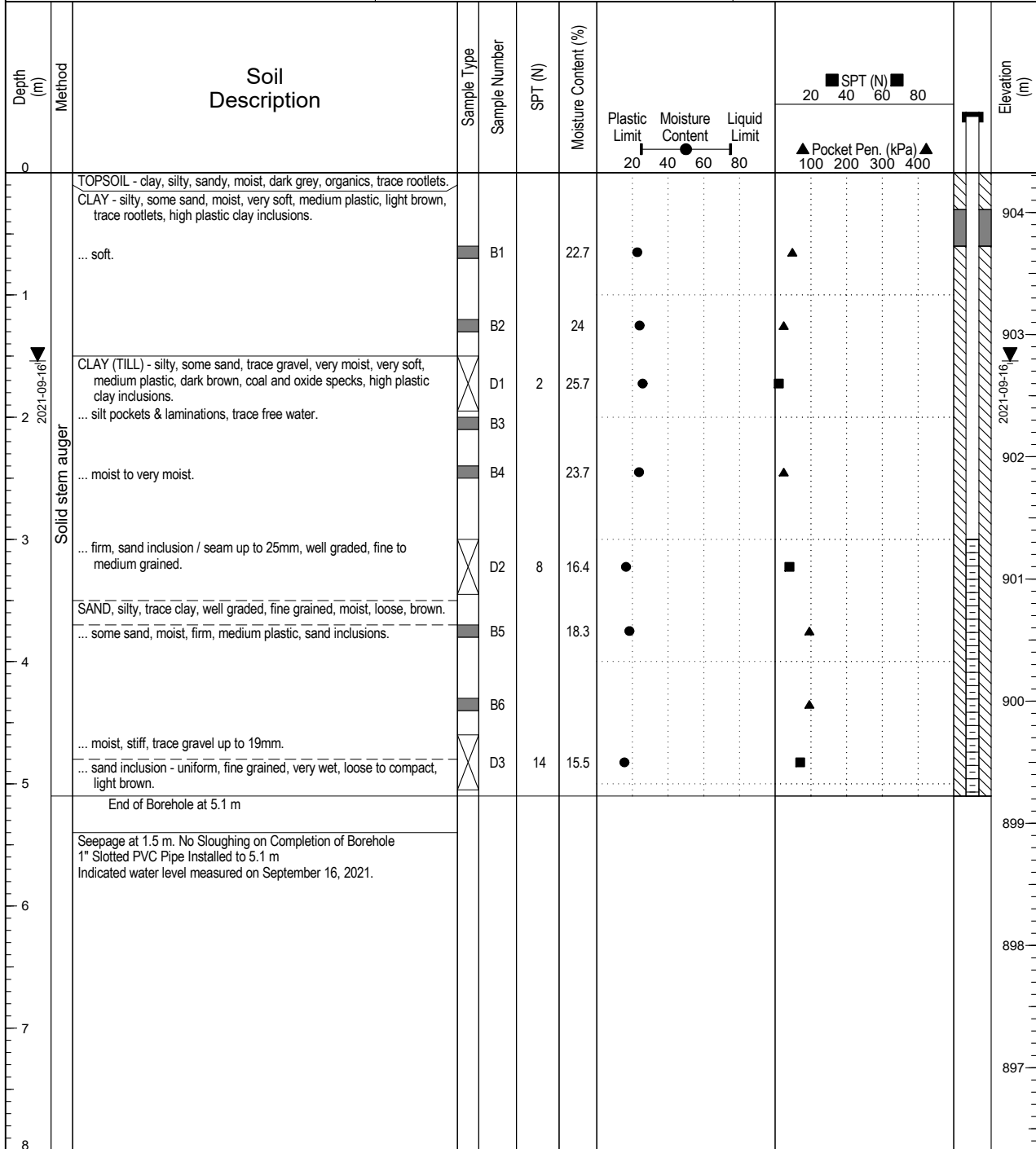
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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

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**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH007**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
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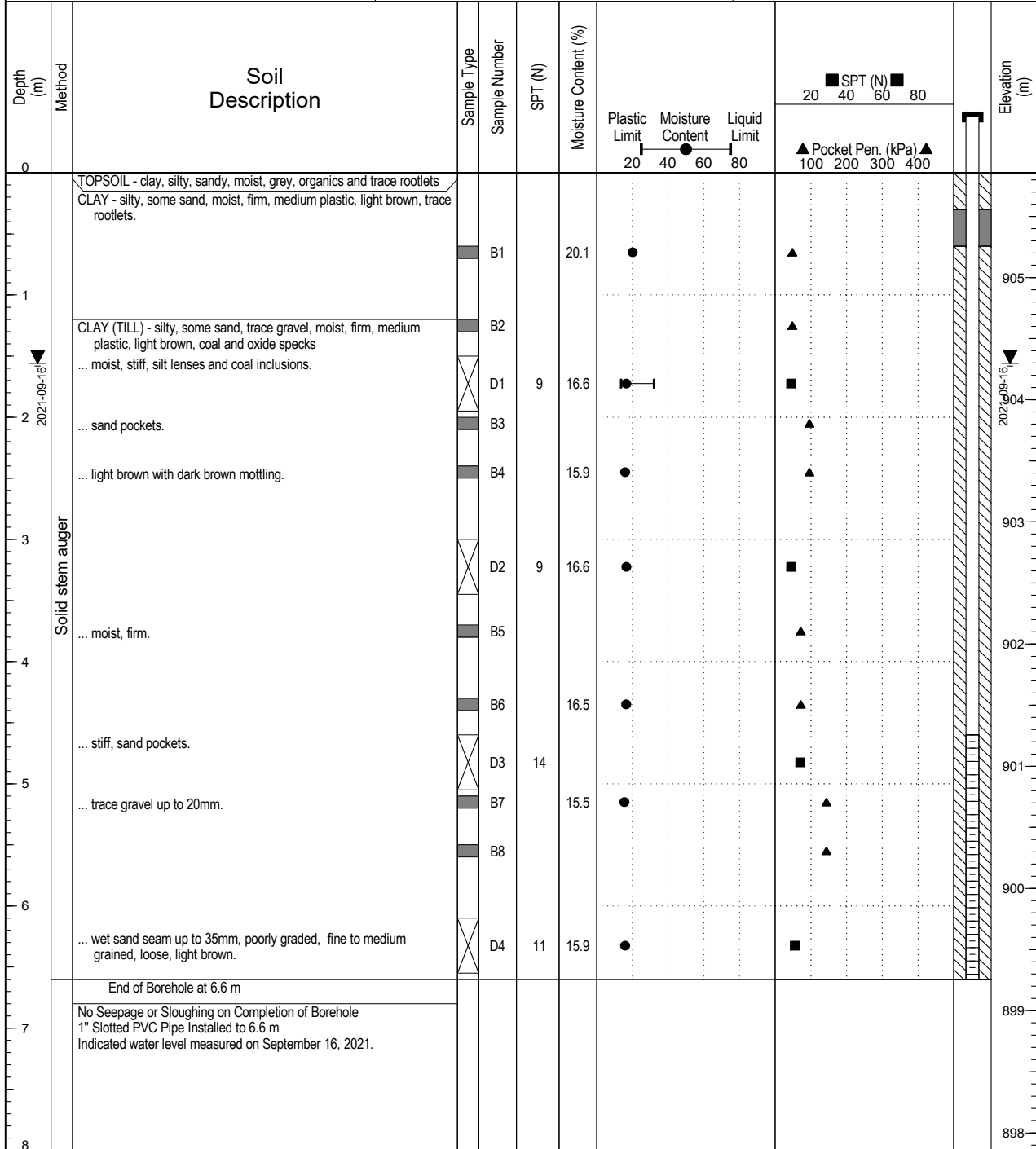
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	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH008**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
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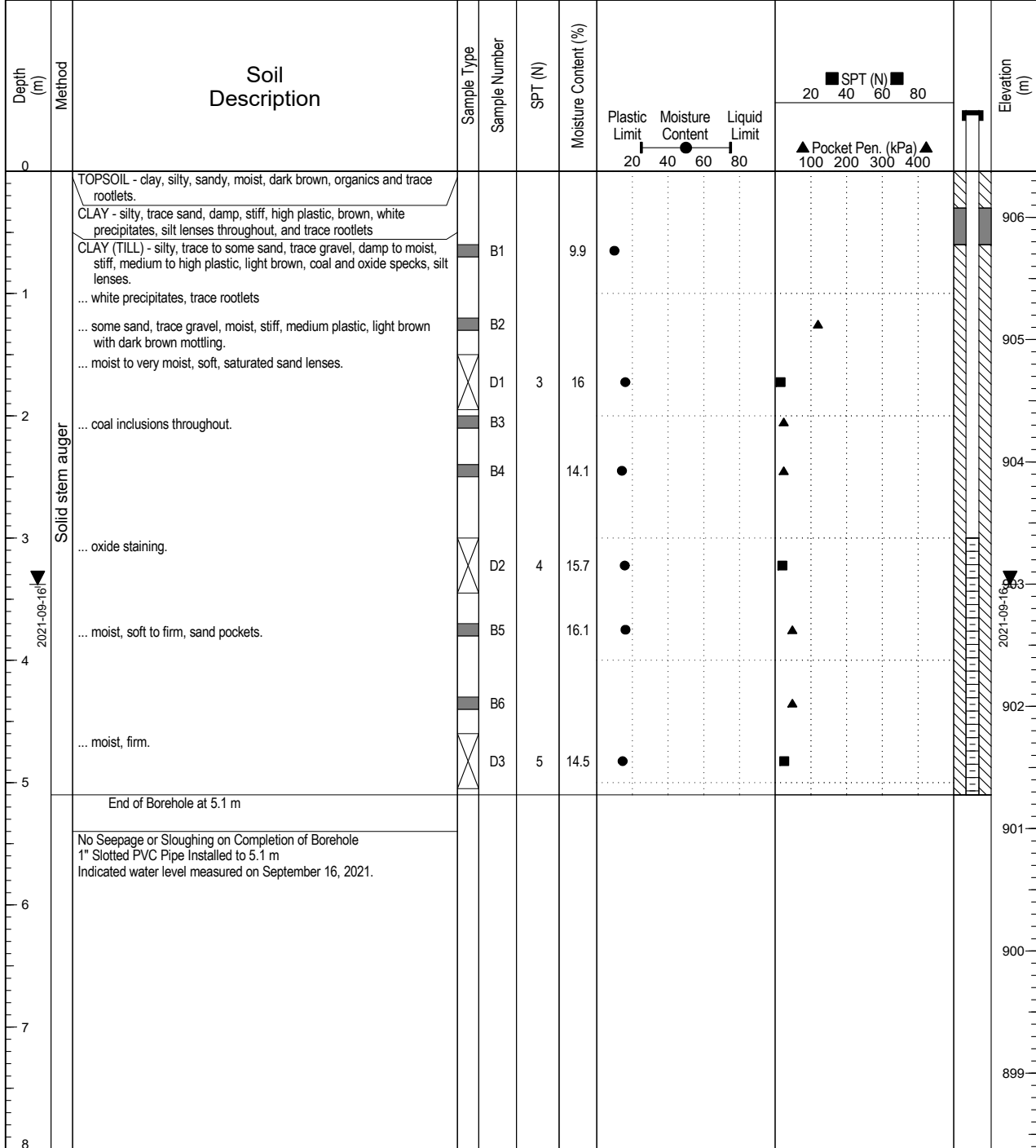
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	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH009**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 906.377 m  
 Lethbridge County, AB    I    N: 5513913    E: 371204    PROJECT ENGINEER: Jackson Meadows



	Contractor: CHILAKO DRILLING LTD.	Completion Depth: 5.1 m
	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

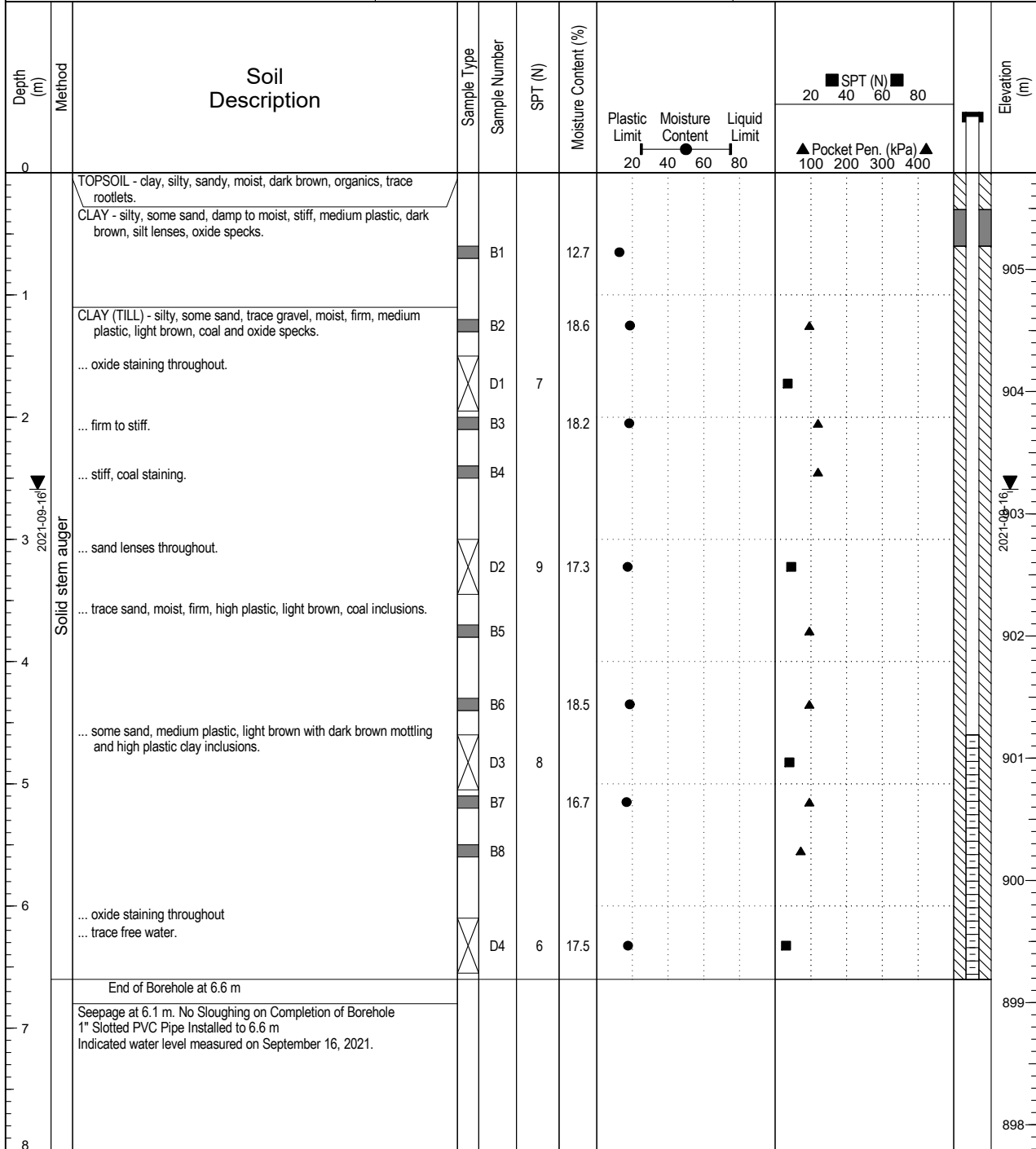
GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21



**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH010**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 905.791 m  
 Lethbridge County, AB    I    N: 5513936    E: 371104    PROJECT ENGINEER: Jackson Meadows



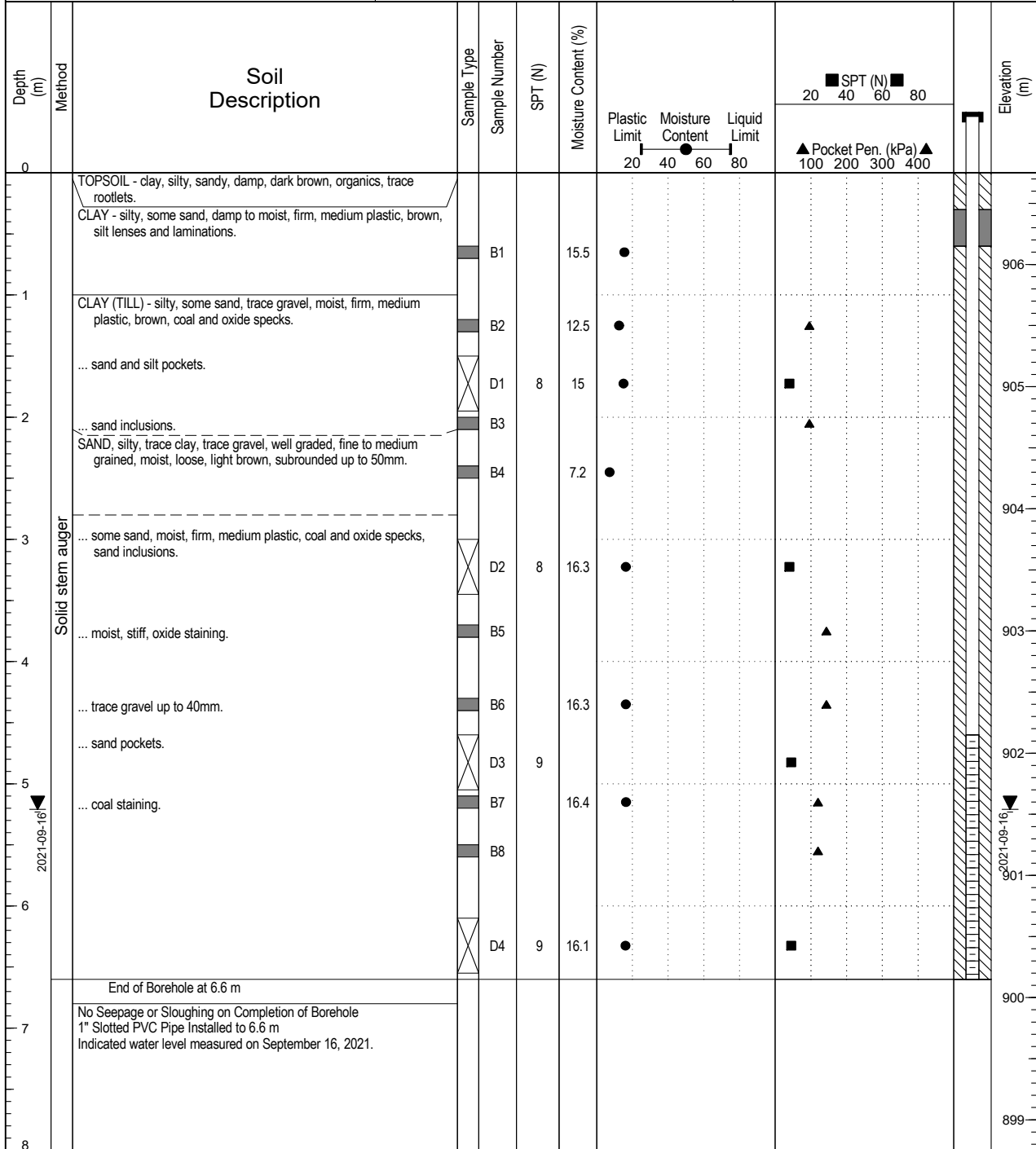
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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ.EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH011**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 906.75 m  
 Lethbridge County, AB    I    N: 5513829    E: 371106    PROJECT ENGINEER: Jackson Meadows



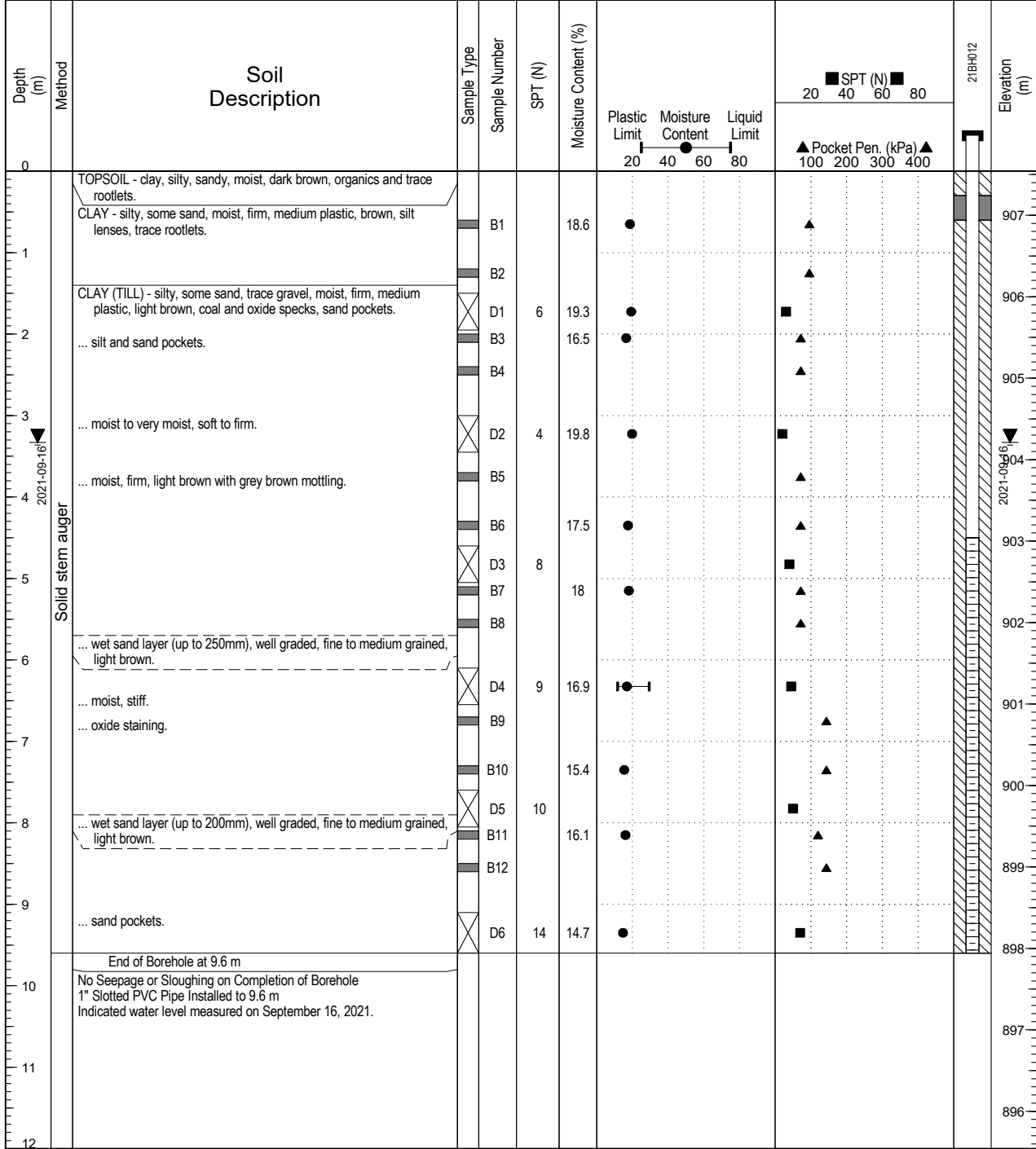
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	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ.EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH012**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 907.541 m  
 Lethbridge County, AB    I    N: 5513825    E: 370966    PROJECT ENGINEER: Jackson Meadows

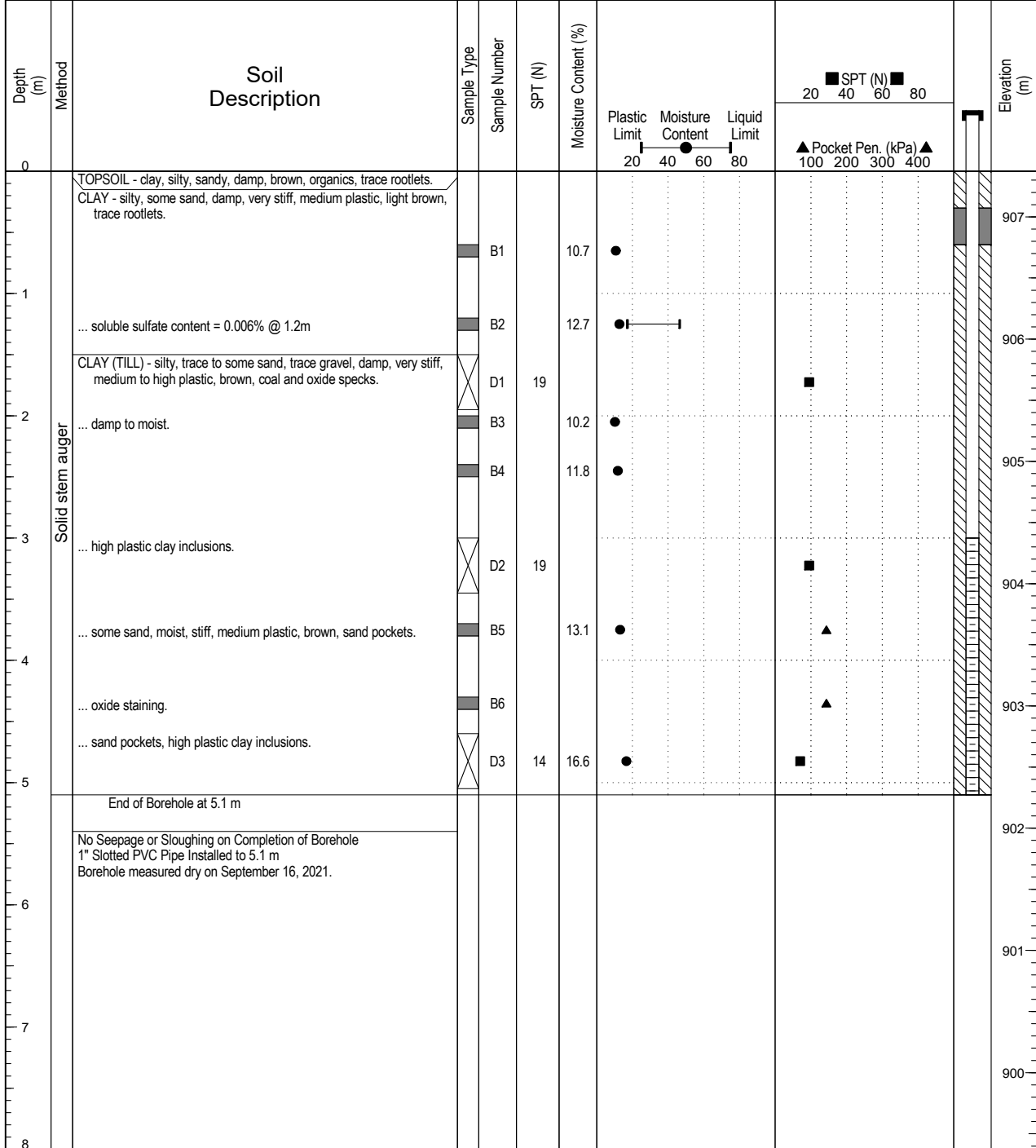


Contractor: CHILAKO DRILLING LTD.    Completion Depth: 9.6 m  
 Drilling Rig Type: 150 mm Solid Stem    Start Date: September 9, 2021  
 Logged By: VO    Completion Date: September 9, 2021  
 Reviewed By: JZ    Page 1 of 1

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH013**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 907.373 m  
 Lethbridge County, AB    I    N: 5513715    E: 371198    PROJECT ENGINEER: Jackson Meadows



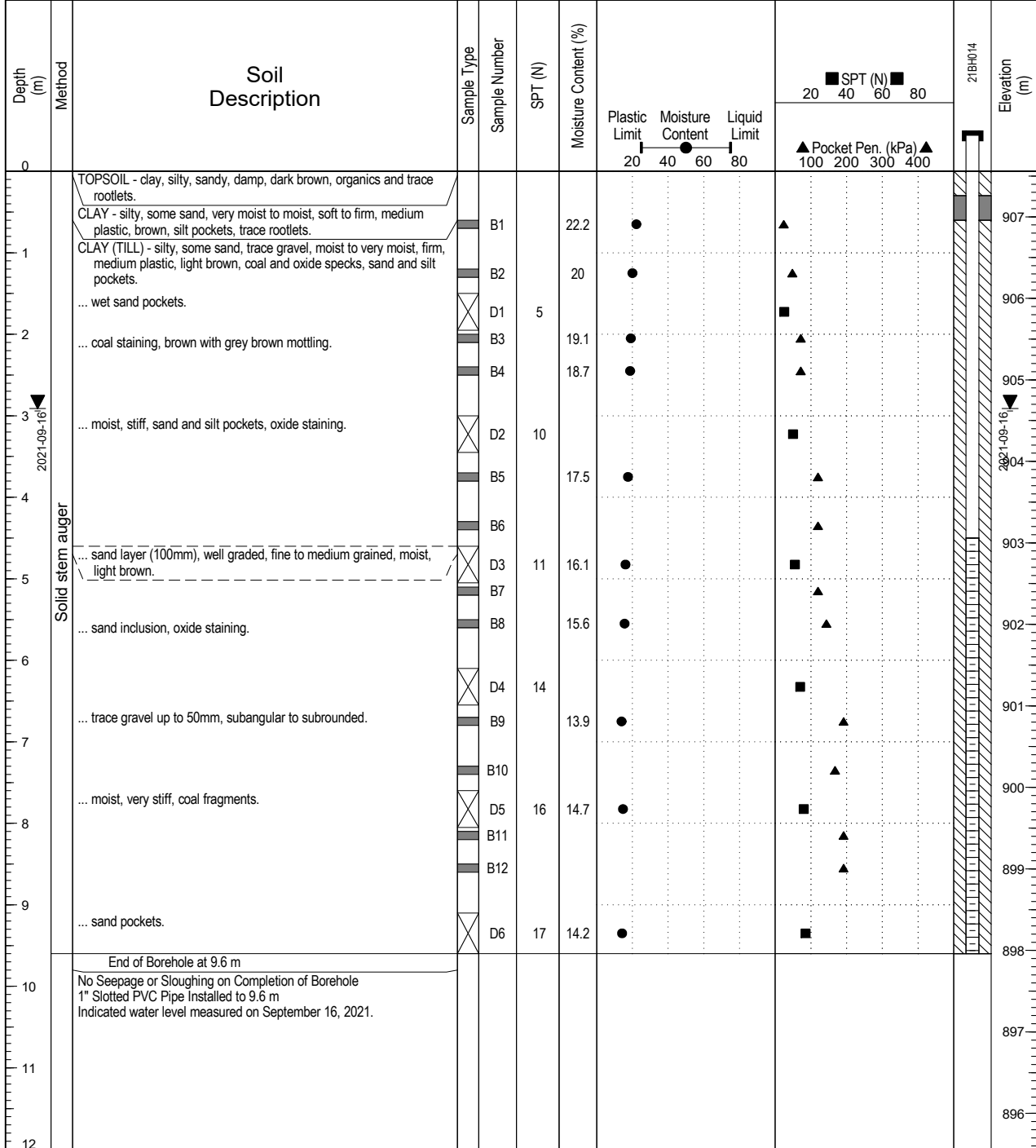
Contractor: CHILAKO DRILLING LTD.    Completion Depth: 5.1 m  
 Drilling Rig Type: 150 mm Solid Stem    Start Date: September 9, 2021  
 Logged By: VO    Completion Date: September 9, 2021  
 Reviewed By: JZ    Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ EBA.GDT 10/4/21

**Martin Geomatic  
Consultants Ltd.**

**Borehole No: 21BH014**

Project: MacLaine Acres ASP Prelim Septic FA - Geo Eval    Project No: 704-ENG.LGEO04408-01  
 Location: Latitude: 49.765717    Longitude: -112.783223    Ground Elev: 907.559 m  
 Lethbridge County, AB    I    N: 5513741    E: 370954    PROJECT ENGINEER: Jackson Meadows



	Contractor: CHILAKO DRILLING LTD.	Completion Depth: 9.6 m
	Drilling Rig Type: 150 mm Solid Stem	Start Date: September 9, 2021
	Logged By: VO	Completion Date: September 9, 2021
	Reviewed By: JZ	Page 1 of 1

GEOTECHNICAL 704-ENG.LGEO04408-01 MACLAINE ACRES ASP - GEO EVAL.GPJ.EBA.GDT 10/4/21

# APPENDIX C

## DESIGN AND CONSTRUCTION GUIDELINES

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# CONSTRUCTION GUIDELINES

Revision No: 01 | Last Revised: March 31, 2016

## SHALLOW FOUNDATIONS

Design and construction of shallow foundations should comply with relevant Building Code requirements.

The term 'shallow foundations' includes strip and spread footings, mat slab, and raft foundations.

Minimum footing dimensions in plan should be in accordance with the applicable design code of the local jurisdiction.

No loose, disturbed or sloughed material should be allowed to remain in open foundation excavations. Hand cleaning should be undertaken to prepare an acceptable bearing surface.

Foundation excavations and bearing surfaces should be protected from rain, snow, freezing temperatures, excessive drying, and the ingress of free water before, during, and after footing construction.

Footing excavations should be carried down into the designated bearing stratum.

After the bearing surface is approved, a mud slab should be poured to protect the soil against inclement weather and provide a working surface for construction.

All constructed foundations should be placed on unfrozen soils, which should be at all times protected from frost penetration.

All foundation excavations and bearing surfaces should be inspected by a qualified geotechnical engineer to check that the recommendations contained in this report have been followed.

Where over-excavation has been carried out through a weak or unsuitable stratum to reach into a suitable bearing stratum or where a foundation pad is to be placed above stripped natural ground surface such over-excavation may be backfilled to subgrade elevation utilizing either structural fill or lean-mix concrete. These materials are defined below:

- "Structural engineered fill" should comprise clean, well-graded granular soils.
- "Lean-mix concrete" should be low strength concrete having a minimum 28-day compressive strength of 3.5 MPa.



# CONSTRUCTION GUIDELINES

Revision No: 01 | Last Revised: March 31, 2016

## BORED CAST-IN-PLACE CONCRETE PILES

Design and construction of piles should comply with relevant Building Code requirements.

Piles should be installed under full-time inspection of qualified geotechnical personnel. Pile design parameters should be reviewed in light of the findings of the initial bored shafts drilled on a site. Further design review may be necessary if conditions observed during site construction do not conform to design assumptions.

Where fill material or lenses or strata of sand, silt or gravel are present within the designed pile depth, these may be incompetent and/or water bearing and may cause sloughing. Casing should be on hand before drilling starts and be used, if necessary, to seal off water and/or prevent sloughing of the bore.

If piles are to be underreamed (belled), the underreams should be formed entirely in self-supporting soil and entirely within the competent bearing stratum. Where sloughing occurs at design elevation it may be necessary to extend the base of the pile bell to a greater depth. Piles may be constructed with bells having outside diameters up to approximately three times the diameters of their shafts. Piles with shaft diameters of less than 400 mm should not be underreamed due to difficulties associated with ensuring a clean base.

Prior to pouring concrete, bottoms of pile bells or of straight shaft end bearing piles should be mechanically cleaned of all disturbed material.

Pile bores should be visually inspected after completion to ensure that disturbed materials and/or water are not present on the base so that recommended allowable bearing and skin friction parameters may apply.

Other procedures to inspect the pile shafts may be used where shaft diameters of less than 760 mm (30 inch) are constructed, such as, inspection with a light or with the use of a downhole camera.

For safety reasons, where hand cleaning and/or 'down shaft' inspection by personnel are required, the pile shaft must be cased full length prior to personnel entering the shaft.

Reinforcing steel should be on hand and should be placed as soon as the bore has been completed and approved.

Longitudinal reinforcing steel is recommended to counteract the possible tensile stresses induced by frost action and should extend to a minimum depth of 3.5 m. A minimum steel of 0.5 percent of the gross shaft area is recommended or per applicable building code requirements.

Where a limited quantity of water is present on the pile base (<50 mm), it should be removed. Where significant quantities of water are present (>50 mm), and it is impracticable to exclude water from the pile bore, concrete should be placed by tremie techniques or a concrete pump.

A "dry" pile should be poured by "free fall" of concrete only where impact of the concrete against the reinforcing cage, which can cause segregation of the concrete, will not occur. A hopper should be used to direct concrete down the centre of the pile base and to prevent impact of concrete against reinforcing steel.

Concrete used for "dry" uncased piles should be self-compacting and should have a target slump of 125 mm. Where casing is required to prevent sloughing or seepage, the slump should be increased to 150 mm. The casing should be filled with concrete and then the casing should be withdrawn smoothly and continuously. Sufficient concrete should be placed to allow for the additional volume of the casing and reduction in level of the concrete as the casing is withdrawn. Concrete should not be poured on top of previously poured concrete, after the casing is withdrawn. In order to comply with maximum water:cement ratios for the concrete, the use of chemicals (or superplasticizers) to temporarily increase the slump may be required. Concrete for each pile should be poured in one continuous operation and should be placed immediately after excavation and inspection of piles, to reduce the opportunity for the ingress of free water or deterioration of the exposed soil or rock.

If piles cannot be formed in dry conditions then the concrete should be placed by tremie tube or concrete pump. Concrete placed by tremie should have a slump of not less than 150 mm. A ball or float should be used in the tremie tube to separate the initial charge of concrete from the water in the pile bore. The outlet of the tremie tube should be maintained at all times 1.0 m to 2.0 m below the surface of the concrete. The diameter of the tremie tube should be at least 200 mm. The tube should be water tight and not be made of aluminum. Smaller diameter pipes may be used with a concrete pump. The surface of the concrete should be allowed to rise above the cut off level of the pile, so that when the temporary casing is withdrawn and the surface level of the concrete adjusts to the new volume, the top of the uncontaminated concrete is at or above the cut off level. The concrete should be placed in one continuous smooth operation without any halts or delays. Placing the lower portion of the pile by tremie tube and placing the upper portion of the pile by "free fall" should not be permitted, to ensure that defects in the pile shaft at the top of the tremie concrete do not occur. As the surface of the concrete rises in the pile bore the water in the pile bore will be displaced upwards and out of the top of the pile casing.

When concreting piles by tremie techniques, allowance should be made for the removal of contaminated or otherwise defective concrete at the tops of the piles.

An accurate record of the volume of concrete placed should be maintained as a check that a continuous pile had been formed.

Concrete should not be placed if its temperature is less than 5°C or exceeds 30°C, or if it is more than two hours old.

Where tension, horizontal or bending moment loading on the pile is foreseen, steel reinforcing should be extended and tied into the grade beam or pile cap. The steel should be designed to transfer loads to the required depth in the pile and to resist resultant bending moments and shear forces.

Void formers should be placed beneath all grade beams to reduce the risk of damage due to frost effects or soil moisture changes.

Where the drilling operation might affect the concrete in an adjacent pile (i.e., where pile spacing is less than approximately three diameters) drilling should not be carried out before the previously poured pile concrete has set for at least 24 hours.

Where a group of four or more piles are used the allowable working load on the piles may need to be modified to allow for group effects.

Piles should be spaced no closer than 2.5 times the pile shaft diameter, measured centre-to-centre. Strict control of pile location and verticality should be exercised to provide accurate locations and spacings of piles. In general, piles should be constructed within a tolerance of 75 mm plan distance in any direction and within a verticality of 1%.

A detailed record should be kept of pile construction; the following information should be included, pile number, shaft/base diameter, date and time bored, date and time concreted, elevation of piling platform, depths (from piling platform level) to pile base and to concrete cut off level, length of casing used, details of reinforcement, details of any obstructions, details of any groundwater inflows, brief description of soils encountered in the bore and details of any unusual occurrences during construction.

If a large number of piles are to be installed, it may be possible to optimize the design on the basis of pile load tests or conducting high strain dynamic pile testing.

# CONSTRUCTION GUIDELINES

Revision No: 02 | Last Revised: March 31, 2016

## FLOOR SLABS-ON-GRADE

All soft, loose or organic material should be removed from beneath slab areas. If any local 'hard spots' such as old basement walls or abandoned pile foundation are revealed beneath the slab area, these should be over-excavated and removed to not less than 0.9 m below underside of slab level. The exposed soil should be proof-rolled and the final grade restored by engineered fill placement. If proof-rolling reveals any soft or loose spots, these should be excavated and the desired grade restored by engineered fill placement. The subgrade should be compacted to a depth of not less than 0.3 m to a density of not less than 98 percent Standard Proctor Maximum Dry Density (ASTM Test Method D698).

If, for economic reasons, it is considered desirable to leave low quality material in-place, such as existing fills, beneath a slab-on-grade, special ground treatment procedures may be considered, Tetra Tech could provide additional advice on this aspect if required.

A levelling course of well graded granular fill (with maximum size of 20 mm), at least 150 mm in compacted thickness, is recommended directly beneath all slabs-on-grade. The type of granular fill should be selected based on the design floor loadings. Alternatively a minimum thickness of 150 mm of 80 mm pit-run gravel overlain by a minimum thickness of 50 mm of 20 mm crushed gravel may be used. Coarse gravel particles larger than 25 mm diameter should be avoided directly beneath the slab-on-grade to limit potential stress concentrations within the slab. All levelling courses directly under floor slabs should be compacted to 100 percent of Standard Proctor Maximum Dry Density (ASTM Test Method D698).

Engineered fill, pit-run gravel and crushed gravel are defined under the heading 'Backfill Materials and Compaction' elsewhere in this Appendix.

The excavated subgrade beneath slabs-on-grade should be protected at all times from rain, snow, freezing temperatures, excessive drying and the ingress of free water. This applies before, during, and after the construction period.

# CONSTRUCTION GUIDELINES

Revision No: 00 | Last Revised: October 1, 2014

## CONSTRUCTION EXCAVATIONS

Construction should be in accordance with good practice and comply with the requirements of the responsible regulatory agencies.

All excavations greater than 1.5 m deep should be sloped or shored for worker protection.

Shallow excavations up to about 3 m depth may use temporary sideslopes of 1H:1V. A flatter slope of 2H:1V should be used if groundwater is encountered. Localized sloughing can be expected from these slopes.

Deep excavations or trenches may require temporary support if space limitations or economic considerations preclude the use of sloped excavations.

For excavations greater than 3 m depth, temporary support should be designed by a qualified geotechnical engineer. The design and proposed installation and construction procedures should be submitted to Tetra Tech for review.

The construction of a temporary support system should be monitored. Detailed records should be taken of installation methods, materials, in situ conditions and the movement of the system. If anchors are used, they should be load tested. Tetra Tech can provide further information on monitoring and testing procedures if required.

Attention should be paid to structures or buried service lines close to the excavation. For structures, a general guideline is that if a line projected down, at 45 degrees from the horizontal from the base of foundations of adjacent structures intersects the extent of the proposed excavation, these structures may require underpinning or special shoring techniques to avoid damaging earth movements. The need for any underpinning or special shoring techniques and the scope of monitoring required can be determined when details of the service ducts and vaults, foundation configuration of existing buildings and final design excavation levels are known.

No surface surcharges should be placed closer to the edge of the excavation than a distance equal to the depth of the excavation, unless the excavation support system has been designed to accommodate such surcharge.

# CONSTRUCTION GUIDELINES

Revision No: 02 | Last Revised: October 2, 2015

## BACKFILL MATERIALS AND COMPACTION (GENERAL)

### 1.0 DEFINITIONS

“Landscape fill” is typically used in areas such as berms and grassed areas where settlement of the fill and noticeable surface subsidence can be tolerated. “Landscape fill” may comprise soils without regard to engineering quality.

“General engineered fill” is typically used in areas where a moderate potential for subgrade movement is tolerable, such as asphalt (i.e., flexible) pavement areas. “General engineered fill” should comprise clean, granular or clay soils.

“Select engineered fill” is typically used below slabs-on-grade or where high volumetric stability is desired, such as within the footprint of a building. “Select engineered fill” should comprise clean, well-graded granular soils or inorganic low to medium plastic clay soils.

“Structural engineered fill” is used for supporting structural loads in conjunction with shallow foundations. “Structural engineered fill” should comprise clean, well-graded granular soils.

“Lean-mix concrete” is typically used to protect a subgrade from weather effects including excessive drying or wetting. “Lean-mix concrete” can also be used to provide a stable working platform over weak subgrades. “Lean-mix concrete” should be low strength concrete having a minimum 28-day compressive strength of 3.5 MPa.

Standard Proctor Density (SPD) as used herein means Standard Proctor Maximum Dry Density (ASTM Test Method D698). Optimum moisture content is defined in ASTM Test Method D698.

### 2.0 GENERAL BACKFILL AND COMPACTION RECOMMENDATIONS

Exterior backfill adjacent to abutment walls, basement walls, grade beams, pile caps and above footings, and below highway, street, or parking lot pavement sections should comprise “general engineered fill” materials as defined above.

Exterior backfill adjacent to footings, foundation walls, grade beams and pile caps and within 600 mm of final grade should comprise inorganic, cohesive “general engineered fill”. Such backfill should provide a relatively impervious surficial zone to reduce seepage into the subsoil against the structure.

Backfill should not be placed against a foundation structure until the structure has sufficient strength to withstand the earth pressures resulting from placement and compaction. During compaction, careful observation of the foundation wall for deflection should be carried out continuously. Where deflections are apparent, the compactive effort should be reduced accordingly.

In order to reduce potential compaction induced stresses, only hand-held compaction equipment should be used in the compaction of fill within 1 m of retaining walls or basement walls. If compacted fill is to be placed on both sides of the wall, they should be filled together so that the level on either side is within 0.5 m of each other.

All lumps of materials should be broken down during placement. Backfill materials should not be placed in a frozen state, or placed on a frozen subgrade.

Where the maximum-sized particles in any backfill material exceed 50% of the minimum dimension of the cross-section to be backfilled (e.g., lift thickness), such particles should be removed and placed at other more suitable locations on site or screened off prior to delivery to site.

Excavation and construction operations expose materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration of performance. Unless otherwise specifically indicated in this report, the walls and floors of excavations, and stockpiles, must be protected from the elements, particularly moisture, desiccation, frost, and construction activities. Should desiccation occur, bonding should be provided between backfill lifts. For fine-grained materials the previous lift should be scarified to the base of the desiccated layer, moisture-conditioned, and recompacted and bonded thoroughly to the succeeding lift. For granular materials, the surface of the previous lift should be scarified to about a 75 mm depth followed by proper moisture-conditioning and recompaction.

### 3.0 COMPACTION AND MOISTURE CONDITIONING

“Landscape fill” material should be placed in compacted lifts not exceeding 300 mm and compacted to a density of not less than 90% of SPD unless a higher percentage is specified by the jurisdiction.

“General engineered fill” and “select engineered fill” materials should be placed in layers of 150 mm compacted thickness and should be compacted to not less than 98% of SPD. Note that the contract may specify higher compaction levels within 300 mm of the design elevation. Cohesive materials placed as “general engineered fill” or “select engineered fill” should be compacted at 0 to 2% above the optimum moisture content. Note that there are some silty soils which can become quite unstable when compacted above optimum moisture content. Granular materials placed as “general engineered fill” or “select engineered fill” should be compacted at slightly below (0 to 2%) the optimum moisture content.

“Structural engineered fill” material should be placed in compacted lifts not exceeding 150 mm in thickness and compacted to not less than 100% of SPD at slightly below (0 to 2%) the optimum moisture content.

### 4.0 “GENERAL ENGINEERED FILL”

Low to medium plastic clay is considered acceptable for use as “general engineered fill,” assuming this material is inorganic and free of deleterious materials.

Materials meeting the specifications for “select engineered fill” or “structural engineered fill” as described below would also be acceptable for use as “general engineered fill.”

### 5.0 “SELECT ENGINEERED FILL”

Low to medium plastic clay with the following range of plasticity properties is generally considered suitable for use as “select engineered fill”:

Liquid Limit	= 20 to 40%
Plastic Limit	= 10 to 20%
Plasticity Index	= 10 to 30%

Test results should be considered on a case-by-case basis.

“Pit-run gravel” and “fill sand” are generally considered acceptable for use as “select engineered fill.” See exact project or jurisdiction for specifications.

The “pit-run gravel” should be free of any form of coating and any gravel or sand containing clay, loam or other deleterious materials should be rejected. No material oversize of the specified maximum sieve size should be tolerated. This material would typically have a fines content of less than 10%.

The materials above are also suitable for use as “general engineered fill.”

## 6.0 “STRUCTURAL ENGINEERED FILL”

Crushed gravel used as “structural engineered fill” should be hard, clean, well graded, crushed aggregate, free of organics, coal, clay lumps, coatings of clay, silt, and other deleterious materials. The aggregates should conform to the requirement when tested in accordance with ASTM C136 and C117. See exact project or jurisdiction for specifications. This material would typically have a fines content of less than 10%.

In addition to the above, further specification criteria identified below should be met:

### “Structural Engineered Fill” – Additional Material Properties

Material Type	Percentage of Material Retained on 5 mm Sieve having Two or More Fractured Faces	Plasticity Index (<400 µm)	L.A. Abrasion Loss (percent Mass)
Various sized Crushed Gravels	See exact project or jurisdiction for specifications	See exact project or jurisdiction for specifications	See exact project or jurisdiction for specifications

Materials that meet the grading limits and material property criteria are also suitable for use as “select engineered fill.”

## 7.0 DRAINAGE MATERIALS

“Coarse gravel” for drainage or weeping tile bedding should be free draining. Free-draining gravel or crushed rock generally containing no more than 5% fine-grained soil (particles passing No. 200 sieve) based on the fraction passing the 3/4-inch sieve or material with sand equivalent of at least 30.

“Coarse sand” for drainage should conform to the following grading limits:

### “Coarse Sand” Drainage Material – Percent Passing by Weight

Sieve Size	Coarse Sand*
10 mm	100
5 mm	95 – 100
2.5 mm	80 – 100
1.25 mm	50 – 90
630 µm	25 – 65
315 µm	10 – 35
160 µm	2 – 10
80 µm	0 – 3

\* From CSA A23.1-09, Table 10, “Grading Limits for Fine Aggregate”, Class FA1

Note that the “coarse sand” above is also suitable for use as pipe bedding material. See exact project or jurisdiction for specifications.

## 8.0 BEDDING MATERIALS

The “Coarse Sand” gradation presented above in Section 7.0 is suitable for use as pipe bedding and as backfill within the pipe embedment zone, however see exact project or jurisdiction for specifications.

# APPENDIX 3

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## Environmental Site Assessment





**Phase I Environmental Site Assessment  
MacLaine Acres  
Portions of Section 28 TWP 9 RGE 21 W4M  
Lethbridge County, Alberta**



PRESENTED TO  
**Rick Aldoff c/o Martin Geomatic Consultants Ltd.**

SEPTEMBER 30, 2021  
ISSUED FOR USE  
FILE: ENG.LGEO04408-01.002

Tetra Tech Canada Inc.  
442 – 10 Street North  
Lethbridge, AB T1H 2C7 CANADA  
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## EXECUTIVE SUMMARY

### Foreword

Rick Aldoff care of Martin Geomatic Consultants Ltd. (MGCL) retained Tetra Tech Canada Inc. (Tetra Tech) to conduct a Phase I environmental site assessment (ESA) on the proposed MacLaine Acres, located within Section 28, Township 9, Range 21, West of the Fourth Meridian (28-009-21 W4M).

Tetra Tech understands this Phase I ESA is being conducted for due diligence in support of an area structure plan (ASP) and that the land proposed for MacLaine Acres consists of four legal properties: Plan 927 LK, Block 1, Lot 1 & Lot 2, Plan 801 0198, Block 2, Lot 1 and a portion of NW 28-009-21 W4M (Title No. 091 049 136).

The objective of the Phase I ESA is to comment on whether any past or present land use, either off -site or on-site, may have a potential to cause environmental impairment to the site.

The Phase I ESA was completed in general accordance with the Alberta Environment and Parks Alberta Environmental Site Assessment Standard and with the methods outlined in the document titled "*Canadian Standards Association Standard (CSA) Z768-01 Phase I ESA*", published by the CSA (reaffirmed 2016).

### Findings and Conclusions

In general terms, there are two distinct types of potential environmental risk to any property. The first type of risk is from potential contamination from on-site land use. This would include potential accidental spills or site practices that may contaminate the property directly. The second type of risk is from contamination caused by adjacent property owners, which might then be transported through the subsurface soils by groundwater, or in overland runoff onto the site.

#### Potential for Impairment from On-Site Source(s)

There was one on-site source that might have potential to cause environmental impairment to the site through the historical or current land use. This source is where the old barrels are currently located on the central area of the southern portion of the site.

It is also noted that the former gas well site and associated infrastructure may be an area of concern if residual contamination was left on-site during reclamation activities in the early 2000s.

#### Potential for Impairment from Off-Site Source(s)

There were no off-site sources that might have a potential to cause environmental impairment to the site through historical and/or current land use.

#### Further Action/Rendering an Opinion

Based on the present study, Tetra Tech recommends that no further environmental investigation is required at this time. However, at the time of site re-development or when the old barrels are removed, the surficial soil in the area should be assessed to determine if proper disposal is required.

Tetra Tech recommends the following for consideration:

- Prior to extensive renovations or demolition, a hazardous building materials assessment should be undertaken.
- If buried debris or staining are encountered during future investigation or ground disturbance (i.e., near the former well site), a qualified environmental professional should be contacted.
- If soils containing organics are encountered during future investigation or ground disturbance, they should be removed from building footprints and not be reburied; a qualified environmental professional should be contacted.
- Any disturbance to surface waterbodies should be done in accordance with the Alberta Water Act.
- If encountered during future development, any water wells or septic systems should be appropriately decommissioned according to the relevant regulations.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 General .....	1
1.2 Authorization .....	1
1.3 Scope of Work .....	1
1.4 Qualifications of Assessors.....	2
1.5 General Site Details.....	2
<b>2.0 RECORDS REVIEW .....</b>	<b>2</b>
2.1 Location, Size, and Ownership.....	3
2.2 Historical Records Review.....	3
2.2.1 Historical Land Title Records.....	3
2.2.2 Aerial Photographs .....	3
2.2.3 Museum Archives .....	5
2.2.4 Business Directories .....	5
2.2.5 Fire Insurance Plans.....	5
2.2.6 Other Archival Records.....	5
2.3 Provincial Regulatory Information.....	5
2.3.1 Alberta Safety Codes Authority .....	5
2.3.2 Alberta Energy Regulator .....	6
2.3.3 Alberta Environment and Parks.....	6
2.3.4 Alberta Government – Alberta Land Titles Spatial Information System .....	7
2.3.5 Historical Environmental Enforcement Search.....	7
2.4 Regional and Municipal Regulatory Information.....	7
2.4.1 Lethbridge County .....	7
2.5 Land Forms and Geology .....	7
2.5.1 Topography.....	7
2.5.2 Surficial and Bedrock Geology .....	8
2.5.3 Hydrogeology.....	8
2.6 Previous Reports .....	8
2.7 Other Information Sources.....	8
<b>3.0 SITE VISIT .....</b>	<b>8</b>
3.1 Building Details and Site Servicing.....	9
3.2 Special Attention Items .....	9
3.3 Site Observations .....	10
3.3.1 Surficial Stains .....	10
3.3.2 Vegetation.....	10
3.3.3 Ponding of Water .....	10
3.3.4 Washouts and Erosion.....	10
3.3.5 Fill Areas and Soil Conditions.....	10
3.3.6 Oil/Gas Wells and Pipelines .....	11
3.3.7 Chemical Storage .....	11

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3.3.8	Transformers .....	11
3.3.9	Hydraulic Elevators and Hoists.....	11
3.3.10	Vent Pipes and Underground Storage Tanks (USTs) .....	11
3.3.11	Above-Ground Storage Tanks and Drum Storage .....	11
3.3.12	Waste Storage .....	11
3.3.13	General Housekeeping.....	11
3.4	Off-Site Observations .....	12
<b>4.0</b>	<b>PERSONNEL INTERVIEWS.....</b>	<b>12</b>
<b>5.0</b>	<b>DISCUSSION AND CONCLUSIONS.....</b>	<b>12</b>
5.1	General .....	12
5.2	Potential for Impairment from On-Site Source(s) .....	13
5.3	Potential for Impairment from Off-Site Source(s) .....	13
<b>6.0</b>	<b>FURTHER ACTION/RENDERING AN OPINION.....</b>	<b>13</b>
<b>7.0</b>	<b>CLOSURE.....</b>	<b>14</b>
	<b>REFERENCES .....</b>	<b>15</b>

## APPENDIX SECTIONS

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### FIGURES

- Figure 1 Site Location Plan
- Figure 2 Detailed Site Plan Showing Surrounding Land Use

### APPENDICES

- Appendix A Tetra Tech’s Limitations on the Use of This Document
- Appendix B Site Photographs
- Appendix C Regulatory Searches and Responses
- Appendix D Special Attention Items – Background Information

**LIMITATIONS OF REPORT**

This report and its contents are intended for the sole use of Rick Aldoff and his agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Rick Aldoff, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix A or Contractual Terms and Conditions executed by both parties.

## 1.0 INTRODUCTION

### 1.1 General

Rick Aldoff care of Martin Geomatic Consultants Ltd. (MGCL) retained Tetra Tech Canada Inc. (Tetra Tech) to conduct a Phase I environmental site assessment (ESA) on the proposed MacLaine Acres, located within Section 28, Township 9, Range 21, West of the Fourth Meridian (28-009-21 W4M).

Tetra Tech understands this Phase I ESA is being conducted for due diligence in support of an area structure plan (ASP) and that the land proposed for MacLaine Acres consists of four legal properties: Plan 927 LK, Block 1, Lot 1 & Lot 2, Plan 801 0198, Block 2, Lot 1 and a portion of NW 28-009-21 W4M (Title No. 091 049 136).

The objective of the Phase I ESA is to comment on whether any past or present land use, either off-site or on-site, may have a potential to cause environmental impairment to the site.

The Phase I ESA was completed in general accordance with the Alberta Environment and Parks Alberta Environmental Site Assessment Standard and with the methods outlined in the document titled "*Canadian Standards Association Standard (CSA) Z768-01 Phase I ESA*", published by the CSA (reaffirmed 2016).

### 1.2 Authorization

Rick Aldoff provided written authorization to proceed with the present study to Tetra Tech on August 24, 2021.

### 1.3 Scope of Work

Tetra Tech conducted the following scope of work for the Phase I ESA:

- Conducted a records review for the site and surrounding properties, for a minimum search distance of 100 m. The records review included the following current and historical information searches:
  - Provincial regulatory information including the Alberta Safety Codes Authority (ASCA); Alberta Energy Regulator (AER) via Abacus Datagraphics Database (AbaData); Alberta Environment and Parks' (AEP) ESA Repository (ESAR), Online Water Well Database, Authorization Viewer; Historical Environmental Enforcement Search; and the Alberta Land Titles Spatial Information System (SPIN2).
  - Regional and municipal regulatory information, including Lethbridge County.
  - Historical information sources including business directories, fire insurance plans, land titles, and historical aerial photographs.
  - Geological and hydrogeological information including published topographic, geologic, soil, and groundwater maps and reports.
- Conducted a site visit to evaluate the extent and manner that current and historical surrounding activities may impact upon the site and the environment. Sampling was not included as part of the Phase I ESA scope of work.
- Conducted interviews with persons familiar with the site and surrounding properties.

- Evaluated the results and prepared this report discussing the site history and identified any potential for environmental concerns resulting from past or present land use on site and in the surrounding area.

## 1.4 Qualifications of Assessors

**Jaymes Going, B.Sc., EP**, conducted the site visit, historical review, and wrote this report. Jaymes is an Environmental Scientist with Tetra Tech's Environment and Water Practice and has over 13 years of experience in the environmental industry.

**Henri Carriere, P.Eng., M.N.R.M.**, provided the senior review of this report. Henri is a Senior Project Engineer with Tetra Tech's Environment and Water Practice in Calgary, Alberta. He has more than 28 years of experience in the environmental industry.

## 1.5 General Site Details

The irregular shaped site is approximately 33.57 hectares (ha) in size and is located north of the City of Lethbridge within Lethbridge County and is currently zoned Lethbridge Urban Fringe.

The northern portion of the site consists of two legal properties (Plan 927 LK, Block 1, Lots 1 & 2) and is primarily pastureland with a private residence and dugout located on the eastern portion. A farm building (barn) is located near the southwest corner of this portion of the site.

The southern portion of the site also consists of two legal properties (Plan 801 0198, Block 2, Lot 1 and Title No. 091 049 136) and is also primarily pastureland. There are three private residences on these parcels: two on the northeast portion of the parcel that includes several farm buildings, and a dugout; and one on the northwest portion of the parcel. The latter private residence is the former location of a gas well site. On the central-east portion of this parcel were some old barrels and metal debris (pieces of an old grain bin) and a horse racetrack is located on the southern portion.

The site is bound to the north by an access road to the private residence located on the northwest portion of the site followed by agricultural land. Adjacent to the east of the site is Range Road 213 followed by rural residences and agricultural land. South of the northern portion of the site is an existing rural subdivision and south of the southern portion of the site is agricultural land including a small livestock operation. Adjacent to the west of the site is a St. Mary River Irrigation District (SMRID) irrigation canal followed by agricultural land.

Figure 1 shows the site location plan and Figure 2 shows the detailed site plan showing surrounding land use. Photographs of the site are provided in Appendix B.

## 2.0 RECORDS REVIEW

The results of regulatory searches are provided in Appendix C. Records were reviewed for the site and for adjacent properties within a minimum distance of 100 m from the site boundary.



## 2.1 Location, Size, and Ownership

The site is located in Lethbridge County, Alberta. The legal description, legal land description, size, and ownership are summarized in Table A.

**Table A: Legal Description, Legal Land Description, Size, and Ownership**

Legal Description	Legal Land Description	Size (ha)*	Ownership*
Plan 927 LK, Block 1, Lot 1	NE 28-009-21 W4M	8.10	1946291 Alberta Ltd.
Plan 927 LK, Block 1, Lot 2	NE 28-009-21 W4M	9.98	Kenneth Dale Smith
Plan 801 0198, Block 2, Lot 1	NW/NE/SW/SE 28-009-21 W4M	14.1	Richard Michael Aldoff and Carol Ann Aldoff
091 049 136 (title number)	NW 28-009-21 W4M	1.39**	Ryan Garret Van Eeden Petersman and Karen Virginia Van Eeden Petersman

**Notes:**

\* Size and ownership were obtained from the current land title.

\*\* Size obtained from Google Earth

## 2.2 Historical Records Review

A historical records review was undertaken for the site. The review dates were based on available records.

### 2.2.1 Historical Land Title Records

A historical and current land title search was initiated for the site. The results of the land title search had not been received at the time of report issuance. Should the review of the historical land titles change the findings, an addendum letter will be issued. The current land titles are included in Appendix C.

**Table B: Land Titles Summary**

Year(s) of Ownership	Owner(s)	Tetra Tech Evaluation
Plan 927 LK, Block 1, Lot 1		
2016 to present	1946291 Alberta Ltd.	Based on the name, there is no obvious potential for environmental concern.
Plan 927 LK, Block 1, Lot 2		
2016 to present	Kenneth Dale Smith	Based on the name, there is no obvious potential for environmental concern
Plan 801 0198, Block 2, Lot 1		
1991 to present	Richard Michael Aldoff and Carol Ann Aldoff	Based on the name, there is no obvious potential for environmental concern
NW 28-009-021-W4M (Title No. 091 049 136)		
2009 to present	Ryan Garret Van Eeden Petersman and Karen Virginia Van Eeden Petersman	Based on the name, there is no obvious potential for environmental concern

### 2.2.2 Aerial Photographs

Aerial photographs provide visual evidence of site occupancy, operational activities, and general site details. Aerial photographs capture a view of the site and the surrounding areas at a given time. The results of the aerial photograph review are summarized in Table C.

**Table C: Historical Aerial Photo Summary**

Year	Scale	Observations
1950	1:40,000	<b>On-site:</b> Site appears to be predominately cultivated agricultural land with the western portion that appears as pastureland. Several small areas that appear to contain water are visible and an irregular shaped linear feature (SMRID canal) transects the western portion of the site.
		<b>Off-site:</b> The surrounding land use in all cardinal directions appears as cultivated agricultural land. Linear features are visible adjacent to the north site boundary (possible irrigation canal and present-day access road to private residences) and east site boundary (Range Road 213). The SMRID canal is visible to the north, west, and south of the site, but does not appear in its current configuration.
1960	1:31,680	<b>On-site:</b> Similar to the previous aerial photograph, although a dugout is visible on the northern area of the south portion of the site and several small structures are visible near this dugout (possible rural residence).
		<b>Off-site:</b> Similar to the previous aerial photograph, although several structures and a dugout are visible to the south of the site at the current location of the small livestock operation and several rural residences are visible on the east side of Range Road 213.
1970	1:31,680	<b>On-site:</b> Similar to the previous aerial photograph, although the dugout noted in 1960 has increased in size, and an additional small dugout is visible to the northeast (current day location).
		<b>Off-site:</b> Similar to the previous aerial photograph.
1981	1:60,000	<b>On-site:</b> The SMRID canal no longer transects the site and it appears in its current configuration. The large dugout is no longer visible and just appears as a low lying area; an additional dugout is visible on the east portion of the site (current day location). The footprint of the former well site is also visible on the western portion of the site.
		<b>Off-site:</b> Similar to the previous aerial photograph, although the SMRID canal has been re-aligned in its current configuration and two residences are visible to the south of the northern portion of the site.
1991	1:30,000	<b>On-site:</b> Some development appears in the area around the dugout on the north area of the southern portion of the site (land appears stripped or disturbed). There is also what appears to be an irregular shaped horse racetrack on the southern portion of the site, and the private residence on the eastern portion of the site is visible.
		<b>Off-site:</b> Similar to the previous aerial photograph, although additional rural residences are visible to the north and east of the site.
1999	1:30,000	<b>On-site:</b> Similar to the previous aerial photograph, although the well site is no longer visible on the western portion of the site and the footprint of the irregular shaped track feature has changed.
		<b>Off-site:</b> Similar to the previous aerial photograph.
2011	*	<b>On-site:</b> Similar to the previous aerial photograph, although various vehicle/equipment storage is visible in the area around the two private residences with the dugouts and the irregular shaped track feature is no longer visible.
		<b>Off-Site:</b> Similar to the previous aerial photograph, although it appears that most rural residences have been constructed to the south of the northern portion of the site.
2020	*	<b>On-site:</b> The private residence on the northwest portion of the site where the former well site was located has been constructed. A large oval shaped track is also visible on the southern portion of the site, and a smaller dugout is visible where the larger dugout was formerly located.
		<b>Off-Site:</b> Similar to the previous aerial photograph.

**Notes:**

To be read in conjunction with the accompanying report.

The aerial photographs are enlarged (where possible) for the review.

\* Aerial photograph was obtained from Google Earth's satellite image archive

Based on the aerial photograph review, the site was predominantly agricultural land since 1950 with several dugouts visible throughout the aerial photograph review. A possible residence was visible as early as 1960 on the north area of the southern portion of the site. The SMRID canal alignment changed to its current configuration around 1981 moving west from onsite to offsite, and three of the four onsite private residences were visible in the 1991 aerial photograph with the third residence visible in the 2020 imagery.

The surrounding area has also been predominantly agricultural land since 1950 with the rural residences to the south of the northern portion of the site being constructed between 1981 to current with most being built around 2011. The small livestock operation to the south of the site with the dugout was visible as early as 1960.

### **2.2.3 Museum Archives**

Tetra Tech inquired with the Galt Museum and Archives for indications of historical land use at the site and the surrounding area. Museum personnel indicated that there was no information specific to the site.

### **2.2.4 Business Directories**

No business directories were available for Tetra Tech to review for the site.

### **2.2.5 Fire Insurance Plans**

No fire insurance plans were available for Tetra Tech to review for the site.

### **2.2.6 Other Archival Records**

No additional archival records were reviewed by Tetra Tech for the site.

## **2.3 Provincial Regulatory Information**

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This section describes the results of provincial regulatory searches. Copies of the search results and correspondence are provided in Appendix C.

### **2.3.1 Alberta Safety Codes Authority**

Tetra Tech contacted the Alberta Safety Codes Authority (ASCA) regarding the potential for registered petroleum storage tanks (PSTs) at the site (Plan 927 LK, Block 1, Lot 1; Plan 927 LK, Block 1, Lot 2; Plan 801 0198, Block 2, Lot 1; and NW 28-009-21 W4M).

The ASCA indicated that no records exist for the site.

The ASCA requires that all underground storage tanks (USTs) be registered; however, only above ground storage tanks (ASTs) with a capacity greater than 2,500 L require registration. The database is based on a limited survey conducted in 1992 and voluntary information submitted thereafter; therefore, it is not considered a comprehensive inventory of PSTs in Alberta.

## 2.3.2 Alberta Energy Regulator

### 2.3.2.1 AbaData Database

Tetra Tech acquires AER database information through AbaData. The AbaData database was searched to determine if oil/gas wells and/or pipelines exist or have existed at the site and on the surrounding properties. The information provided by the AER indicated that there are available records for two high pressure gas lines (one active and one abandoned) on or transecting the site and one former well site location.

The active high pressure gas line (natural gas) is owned and operated by ATCO and is oriented north to south along the eastern site boundary. The abandoned high pressure gas line (natural gas) is licensed to Husky Oil Operations Limited (Husky) and enters the site from southwest corner and terminates at the former well site located where the current private residence is located. The former well site located on the northwest portion of the site, also licensed to Husky for gas, was drilled in 1976 and abandoned in 1991.

One record for a spill also exists to the north of the site within 16-28-009-21 W4M. This spill record was for a natural gas leak that occurred in 2014.

No other records for oil/gas wells and/or pipelines and spills/complaints were identified within 100 m of the site boundaries.

Several low-pressure gas lines (owned by ATCO Gas) are identified on-site and within 100 m of the site boundaries that service the rural residences.

High-pressure pipeline and well information provided by AbaData is current to September 3, 2021 and information on low-pressure pipelines is current to January 1, 2020.

The Coal Mine Atlas was reviewed, and it was determined that no abandoned or active coal mines are present at the site or within 100 m of the site.

## 2.3.3 Alberta Environment and Parks

### 2.3.3.1 Environmental Site Assessment Repository

The AEP ESAR is an online, searchable database that provides scientific and technical information about assessed sites throughout Alberta. The search of ESAR indicated that there was one record available for the site. The record was for a reclamation certificate, dated August 7, 2002 for the Husky well site located on the northwestern portion of the site within 11-28-009-21 W4M.

Tetra Tech notes that the ESAR map provided in Appendix C shows three records in close proximity to the site. All three of the records indicated on the map have the same information, the reclamation certificate for the former well site located on the site.

### 2.3.3.2 Online Authorization Viewer

The AEP Online Authorization Viewer allows the public to view approvals, licenses, registrations and permits issued under the Water Act and EPEA. There were 27 records available (current and expired) for pesticide service and rural waterworks. All of the records for the pesticide service are held by the SMRID, and the rural waterworks records are held by the County of Lethbridge Rural Water Association Limited.

### 2.3.3.3 Water Well Information Database

The AEP Water Well Database was searched to view records of water wells within the site or within an approximate 2,000 m radius surrounding the site. The search identified no records of water wells located on- or off-site within a 2,000 m radius.

### 2.3.4 Alberta Government – Alberta Land Titles Spatial Information System

The SPIN2 website map for the site and surrounding area shows the pipeline rights-of-way (ROWs) on-site and in the surrounding area as well as the irrigation canal ROW for the SMRID canal adjacent to the west and north site boundaries, and as part of the historical SMRID canal alignment. The SPIN2 map also shows utility and drainage ROWs on the rural residences to the south of the northern portion of the site.

### 2.3.5 Historical Environmental Enforcement Search

The historical environmental enforcement search provides records taken against a company or individual related to AEP's legislation. The search was conducted for each of the current site owners as per the land title records listed in Section 2.2.1. The search resulted in no records for the individuals or companies listed.

## 2.4 Regional and Municipal Regulatory Information

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This section describes the results of regional and municipal regulatory searches. Copies of the search results and correspondence are provided in Appendix C.

### 2.4.1 Lethbridge County

Tetra Tech requested a site inquiry with Lethbridge County for information on the site. The response provided information on development permits and indicated that there are no records of storage tanks, chemical storage, spills, fires or landfills. The letter also indicated that there is a notice of violation for Plan 801 0198, Block 2, Lot 1 (northern portion of the site) for a large amount of old metal, concrete pipe, construction material, and equipment storage, however, there was no additional information available in the record. It is noted that during the site visit, this area of the site was pasture land.

During the site visit, a small amount of old metal, equipment storage, and several barrels were observed on this property. While most of the barrels appeared empty, one had a small amount of what was observed to be an oily substance and some staining was also observed in the area of this barrel.

A copy of the letter from Lethbridge County is attached in Appendix C.

## 2.5 Land Forms and Geology

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### 2.5.1 Topography

Surface topography can influence the direction of migration of contaminants at the soil surface. The local topography is the topography at the site, whereas regional topography is the overall expression of the surface in a given region. The local topography of the site was generally flat with overall surface drainage in a north-easterly direction. The track area of the site was also slightly higher than the surrounding land, and a low lying area was apparent in the central area of the south portion of the site where the former larger dugout was located. Regional topography in the area is generally flat to undulating, and slopes northerly towards the Oldman River valley.

## 2.5.2 Surficial and Bedrock Geology

The surficial geology in the area is characterized by moraine till deposits with sporadic lenses of gravel, sand, and silt (Shetsen 1981).

The stratigraphy of the Lethbridge area is generally comprised of 65 m to 70 m of surficial deposits overlying bedrock. Bedrock in the Lethbridge area consists of strata from the upper Oldman Formation and the lower Bearpaw Formation, both of the late Cretaceous Age (Tokarsky 1974). The bedrock has a relatively flat surface dipping slightly to the northwest and is locally encountered at about geodetic elevation 843 m. The bedrock strata consist of thin beds of predominantly weak mudstones, siltstones, and sandstones with occasional bentonite and coal sea

## 2.5.3 Hydrogeology

Groundwater has the potential to be of significance as a means of contaminant transport. Regional groundwater flow is the overall direction of groundwater flow in a given region. Groundwater in a local area within the region, may travel in a different direction from the regional flow, due to influence by local topography and/or subsurface soil conditions.

There are currently two dugouts located at the site. Historically, there was an additional larger dugout located on the central area of the southern portion of the site and the SMRID canal also formerly transected a portion of the west side of the site. Several other dugouts and low-lying areas are located on the surrounding properties. The Oldman River is located approximately 3.75 km northwest of the site. Regional groundwater flow is expected to be westerly toward the Oldman River. Local groundwater flow direction is also interpreted to be westerly. Perched groundwater tables are common and have been encountered in many areas of southern Alberta. The depth to these perched tables can vary from approximately 2 m below ground level to considerable depths within gravel, sand, and/or silt seams. The flow of these perched tables can differ from regional flow direction, or be relatively stagnant, depending on the geometry and the extent of the sand and/or silt seams.

It should be noted that topography, geologic materials, land development (including the irrigation canal), and soil disturbances can also cause localized variances in groundwater movement and pattern. Also, groundwater levels will fluctuate seasonally and in response to climatic conditions.

## 2.6 Previous Reports

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No previous environmental reports were available to review for the site.

## 2.7 Other Information Sources

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There were no other information sources reviewed for the site.

## 3.0 SITE VISIT

Jaymes Going of Tetra Tech visited the site on September 9, 2021. Full access to all areas of the site was granted, however, the private residences and buildings were not accessed. Weather conditions were favorable (i.e., no snow cover) and the site was walked over with visual observations made of adjacent properties from the site boundaries.

### 3.1 Building Details and Site Servicing

There are currently several buildings on the site including private residences and farm outbuildings such as garages and barns. While the site buildings were not inspected, the dates of construction occurred between 1960 and 2016 based on the aerial photograph review and information provided by Lethbridge County.

The following table describes the site servicing.

**Table D: Site Servicing**

Item	Present	Type	Comments
Water Supply	Yes	Potable	Supplied by Lethbridge County rural waterworks.
Storm Sewer	No	N/A	Overland surface drainage would follow the local topography.
Sanitary Sewer	No	Septic	Private residences utilize septic systems for sanitary sewer.
Other Storage	Yes	Small amount of miscellaneous equipment storage observed.	Storage at the time of the site visit consisted of a small amount of metal, equipment, and several barrels located on the central area of the southern portion of the site.
Pits	Yes	Dugouts	Two dugouts are currently located at the site.
Lagoons	No	N/A	No lagoons were observed on the site.

### 3.2 Special Attention Items

Some construction materials contain compounds that may be hazardous to building occupants or users of the site. The following table summarizes these special attention items; further background information on these materials is provided in Appendix D.

**Table E: Special Attention Items**

Item	Presence/Potential	Comments
Asbestos	Moderate	Based on age of some of the buildings at the site (prior to 1980), there is a potential that the buildings may contain asbestos and/or lead.
Lead	Moderate	
Urea Formaldehyde Foam Insulation (UFFI)	Low	No indication of UFFI at the site was observed. If this type of insulation was used, the fugitive emissions were likely the most harmful within two years of installation.
Ozone-depleting Substances (ODS)	Low	The private residences at the site may contain items that contain ODS such as air conditioning units. These items should be maintained regularly and disposed of appropriately when no longer functioning or required.
Polychlorinated Biphenyls (PCBs)	Low	Pole mounted transformers were observed at the site in the vicinity of the private residences. These are owned and maintained by the utility company.
Radon	Moderate to High	There was no radon gas testing reported for the site; however, natural radon concentrations are considered moderate to high in Alberta. A radon test was not completed by Tetra Tech as part of this investigation. There were no anthropogenic sources of radon gas identified.

**Table E: Special Attention Items**

Item	Presence/ Potential	Comments
Methane	Moderate	There was no methane gas testing reported for the site. Based upon information collected during this investigation (i.e., aerial photograph review, site reconnaissance), there is evidence of deposits of buried organics at the site that could produce methane (former large dugout and irrigation canal). Refer to Section 3.3.5 regarding potential fill areas.
Electromagnetic (EM)	Low	No high voltage transmission lines or other infrastructure which could generate significant EMFs were observed. No EMF assessment was completed by Tetra Tech for the site.
Noise and Vibration	Low	There were no major sources of noise or vibration on or adjacent to the site during the site visit.

The above evaluation is based on building age and basic site observations. Intrusive investigation and sampling are not within the scope of a Phase I ESA.

### 3.3 Site Observations

This section describes observations made of the site during the site visit on September 9, 2021.

#### 3.3.1 Surficial Stains

A small amount of surficial staining was observed on the soil where several barrels were stored on the central area of the southern portion of the site. It is noted that the private residences were not inspected and that the entire site was not walked over due to the size of the site.

#### 3.3.2 Vegetation

Vegetation at the site was predominantly pasture grasses with domestic trees and shrubs throughout. There was no evidence of stressed vegetation at the site, however, a large number of weedy species were observed on the southern portion of the site.

#### 3.3.3 Ponding of Water

There was no ponded water observed other than in the two dugouts at the site. Surface drainage would be overland and follow the surface topography.

#### 3.3.4 Washouts and Erosion

There were no washouts or indications of erosion observed.

#### 3.3.5 Fill Areas and Soil Conditions

There was no evidence of fill materials having been brought to the site; however, the former large dugout and the irrigation canal that formerly transected the western portion of the site would have been filled in. The potential for methane generation is described in Section 3.2.



Further information on soil conditions can be found in the geotechnical evaluation report completed at the site by Tetra Tech (Tetra Tech 2021).

### **3.3.6 Oil/Gas Wells and Pipelines**

There were no well sites observed at the time of the site visit. Signage for the two high pressure gas lines were observed on the western and eastern boundaries of the site.

Refer to Section 2.3.2 for AER information.

### **3.3.7 Chemical Storage**

There were no hazardous chemicals or large drums observed at the site other than the old barrels located on the central area of the southern portion of the site. The majority of the barrels appeared empty; however, one was noted to contain a small amount of an oil substance.

It is also expected that the private residences would contain small amounts of household janitorial type chemicals.

### **3.3.8 Transformers**

There were pole-mounted electrical transformers observed in the vicinity of the private residences. Generally, pole-mounted transformers are owned and maintained by the utility companies.

### **3.3.9 Hydraulic Elevators and Hoists**

There were no hydraulic elevators or hoists observed at the site visit, however, the private residences were not inspected.

### **3.3.10 Vent Pipes and Underground Storage Tanks (USTs)**

There were no vent pipes or USTs identified during the site visit.

### **3.3.11 Above-Ground Storage Tanks and Drum Storage**

Several old barrels were observed to be stored on the central area of the southern portion of the site.

No ASTs were observed during the site visit.

### **3.3.12 Waste Storage**

No waste storage areas were observed at the site during the site visit with the exception of the old barrels and metal debris (pieces of an old grain bin).

### **3.3.13 General Housekeeping**

The general housekeeping of the site was in good condition and no obvious evidence of negligent acts or illegal dumping were observed during the site visit.

### 3.4 Off-Site Observations

The following table summarizes the surrounding land use.

**Table F: Surrounding Land Use**

Direction	Zoning*	Observations	Tetra Tech Evaluation
North	Lethbridge Urban Fringe	Agricultural land	No obvious concerns which may cause environmental impairment to the site were identified.
East		Agricultural land and rural residences	
South		Agricultural land and rural residences	
West		SMRID canal and agricultural land	

\*Land use obtained from Lethbridge County: [Lethbridge County - Online Maps \(lethcountycity.ca\)](http://lethcountycity.ca)

The surrounding land is primarily agricultural. Key surrounding land use is indicated on Figure 2.

## 4.0 PERSONNEL INTERVIEWS

Tetra Tech interviewed individuals familiar with the site and surrounding properties. Interviews were conducted by telephone. The findings of the personnel interviews, which have been incorporated into this report, are in general agreement with the records review conducted for the site.

**Table G: Interview Summary**

Item	Description
Interviewer	Jaymes Going
Interviewee Position	Property owner
Company	N/A
Length of Involvement with Site	Greater than 25 years.
Information Provided	The owner provided details of the property history and current activities. These details have been incorporated within this report.

## 5.0 DISCUSSION AND CONCLUSIONS

### 5.1 General

In general terms, there are two distinct types of potential environmental risk to any property. The first type of risk is from potential contamination from on-site land use. This would include potential accidental spills or site practices that may contaminate the property directly. The second type of risk is from contamination caused by adjacent property owners, which might then be transported through the subsurface soils by groundwater, or in overland runoff onto the site.

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## 5.2 Potential for Impairment from On-Site Source(s)

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There was one on-site source that might have potential to cause environmental impairment to the site through the historical or current land use. This source is where the old barrels are currently located on the central area of the southern portion of the site.

It is also noted that the former gas well site and associated infrastructure may be an area of concern if residual contamination was left on site during reclamation activities in the early 2000s.

---

## 5.3 Potential for Impairment from Off-Site Source(s)

---

There were no off-site sources that might have a potential to cause environmental impairment to the site through historical and/or current land use.

## 6.0 FURTHER ACTION/RENDERING AN OPINION

Based on the present study, Tetra Tech recommends that no further environmental investigation is required at this time. However, at the time of site re-development or when the old barrels are removed, the surficial soil in the area should be assessed to determine if proper disposal is required.

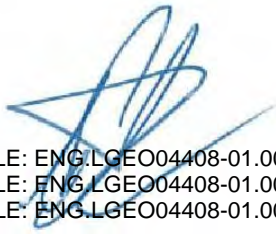
Tetra Tech recommends the following for consideration:

- Prior to extensive renovations or demolition, a hazardous building materials assessment should be undertaken.
- If buried debris or staining are encountered during future investigation or ground disturbance (i.e., near the former well site), a qualified environmental professional should be contacted.
- If soils containing organics are encountered during future investigation or ground disturbance, they should be removed from building footprints and not be reburied; a qualified environmental professional should be contacted.
- Any disturbance to surface waterbodies should be done in accordance with the Alberta Water Act.
- If encountered during future development, any water wells or septic systems should be appropriately decommissioned according to the relevant regulations.

## 7.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,  
Tetra Tech Canada Inc.



FILE: ENG.LGEO04408-01.002  
FILE: ENG.LGEO04408-01.002  
FILE: ENG.LGEO04408-01.002

Prepared by:  
Jaymes Going, B.Sc., EP  
Environmental Scientist  
Environment & Water Practice  
Direct Line: 403.308.4293  
Jaymes.Going@tetrattech.com

/cee

FILE: ENG.LGEO04408-01.002  
FILE: ENG.LGEO04408-01.002  
FILE: ENG.LGEO04408-01.002

Reviewed by:  
Henri Carriere, P.Eng., M.N.R.M.  
Senior Project Engineer  
Environment & Water Practice  
Direct Line: 403.993.4176  
Henri.Carriere@tetrattech.com

## REFERENCES

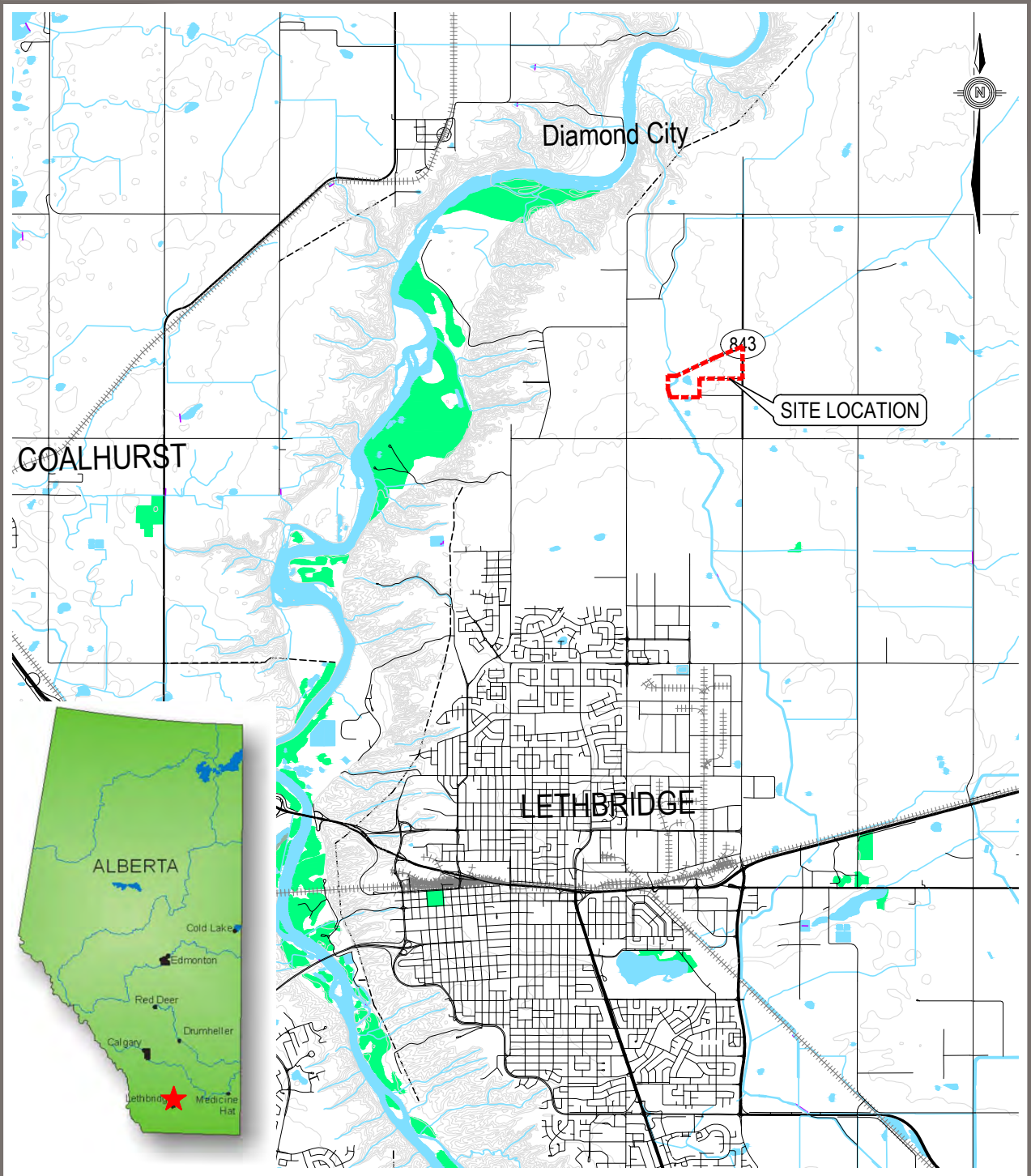
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- Tetra Tech Canada Inc. 2021. Geotechnical Evaluation MacLaine Acres Area Structure Plan (ASP). Section 28 TWP 9 RGE 21 W4M, Lethbridge County, Alberta. File No. ENG.LGEO04408-01.001, dated October 2021.
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## FIGURES

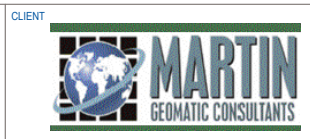
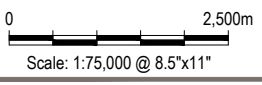
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- Figure 1 Site Location Plan
- Figure 2 Detailed Site Plan Showing Surrounding Land Use



C:\Lethbridge\Drafting\ENGL\GEO\4408\CAD\GEO\4408-01-002\Figure 1.dwg FIGURE 1 September 01, 2021 - 2:07:51 pm (BY: HUGHES, LEANNE)

**NOTES**  
DRAWING PROVIDED BY "© Department of Natural Resources Canada. All rights reserved."



**PHASE I ENVIRONMENTAL ASSESSMENT**  
**MacLAINE ACRES ASP, LETHBRIDGE COUNTY**

**SITE LOCATION PLAN**

PROJECT NO. LGE04408-01.002	DWN LCH	OKD JG	REV 0
OFFICE Tt Leth	DATE August 2021		

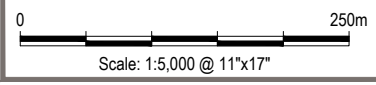
Figure 1



C:\Lethbridge\Drafting\ENGL\GEO\4408\CAD\LGEO\4408-01-002 Figure 2.dwg [FIGURE 2] September 29, 2021 - 11:15:33 pm (BY: HUGHES, LEANNE)

**LEGEND**  
 - - - - - SITE BOUNDARY  
 - - - - - 100 m BOUNDARY

900.00 EXISTING MAJOR CONTOUR LINE  
 900.00 EXISTING MINOR CONTOUR LINE



**NOTES**  
 GOOGLE EARTH IMAGERY DATED 2021.  
 BASE DRAWING PROVIDED BY CLIENT, DATED JULY 15, 2021.



**PHASE I ENVIRONMENTAL ASSESSMENT**  
**MacLAINE ACRES ASP, LETHBRIDGE COUNTY**  
**DETAILED SITE PLAN SHOWING**  
**SURROUNDING LAND USE**

PROJECT NO. LGE004408-01.002	DWN LCH	CKD JG	REV 0
OFFICE Tt Leth	DATE September 2021		

Figure 2



---

## APPENDIX A

---

### TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

# LIMITATIONS ON USE OF THIS DOCUMENT

## GEOENVIRONMENTAL

### 1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

### 1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner

consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

### 1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

### 1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

### 1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

### 1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

---

## APPENDIX B

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### SITE PHOTOGRAPHS



**Photo 1:** View of the southern portion of the site looking northeast from the southwest corner of the site.



**Photo 2:** View of the southern portion of the site looking southeast from the northwest corner of the site.



**Photo 3:** View of the southern portion of the site looking northwest from the southeast corner of the site.



**Photo 4:** View looking west at near the central portion of the site. A shallow drainage channel is visible in the centre of the photograph and the visible soil was placed to allow vehicle access.



**Photo 5:** View looking westerly at the central portion of the site. The drill truck was being used for a geotechnical evaluation for the site.



**Photo 6:** View of some miscellaneous debris including several 40-gallon drums located near the eastern boundary of the central portion of the site.



**Photo 7:** View of equipment storage and various buildings on the east-central portion of the site.



**Photo 8:** View looking easterly at the central portion of the site.



**Photo 9:** View of private residence located on the northwest portion of the site.



**Photo 10:** View looking easterly at the northern portion of the site.





**Photo 11:** View looking east at the fence line located on the northern portion of the site.



**Photo 12:** View looking west at the northern portion of the site from the east site boundary.



**Photo 13:** View of the adjacent land use to the northern portion of the site (rural residences).



**Photo 14:** View of adjacent land use to the west of the site. Irrigation canal followed by agricultural land.



**Photo 15:** View of adjacent land use to the south of the site. Rural farm buildings and agricultural/pastureland.



**Photo 16:** View of adjacent land use to the north. Agricultural crop land.

---

## APPENDIX C

---

### REGULATORY SEARCHES AND RESPONSES



LAND TITLE CERTIFICATE

S  
 LINC                                      SHORT LEGAL                                      TITLE NUMBER  
 0015 110 463                                      927LK;1;1                                      161 045 741

LEGAL DESCRIPTION  
 PLAN 927LK  
 BLOCK 1  
 LOT 1  
 EXCEPTING THEREOUT ALL MINES AND MINERALS  
 AND THE RIGHT TO WORK THE SAME  
 AREA: 9.98 HECTARES (24.65 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
 ATS REFERENCE: 4;21;9;28;E

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 121 127 186

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 045 741	18/02/2016	TRANSFER OF LAND	\$600,000	\$600,000

OWNERS  
 1946291 ALBERTA LTD.  
 OF 94054 HWY 843  
 LETHBRIDGE  
 ALBERTA T1J 5R2  
 (DATA UPDATED BY: CHANGE OF ADDRESS 171243340)

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
8048GH .	02/01/1952	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:GL95 "16.5 FT. STRIP"
1648LO .	07/07/1972	CAVEAT

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 161 045 741

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		RE : EASEMENT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
851 074 023	08/05/1985	CAVEAT RE : EASEMENT CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER IRRIGATION DISTRICT. P.O. BOX 278, LETHBRIDGE ALBERTA T1J3Y7 AGENT - F J BREWIN
111 123 556	19/05/2011	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD.
161 045 742	18/02/2016	MORTGAGE MORTGAGEE - SERVUS CREDIT UNION LTD. 151 KARL CLARK RD NW EDMONTON ALBERTA T6N1H5 ORIGINAL PRINCIPAL AMOUNT: \$450,000
161 045 743	18/02/2016	CAVEAT RE : ASSIGNMENT OF RENTS AND LEASES CAVEATOR - SERVUS CREDIT UNION LTD. 151 KARL CLARK RD NW EDMONTON ALBERTA T6N1H5 AGENT - SARAH A BAINBRIDGE
171 029 546	01/02/2017	WRIT CREDITOR - FRIEDA SANFORD 1601-25 AVE NORTH LETHBRIDGE ALBERTA T1H4N8 DEBTOR - PATRICK WAGNER RR 8, SITE 41, COMP 18 LETHBRIDGE ALBERTA T1J4P4 AMOUNT: \$1,976 AND COSTS IF ANY ACTION NUMBER: 1606 00837

TOTAL INSTRUMENTS: 007

( CONTINUED )

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 2 DAY OF  
SEPTEMBER, 2021 AT 12:04 P.M.

ORDER NUMBER: 42532508

CUSTOMER FILE NUMBER:



\*END OF CERTIFICATE\*

---

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED  
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,  
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM  
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,  
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS  
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING  
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S  
LINC                      SHORT LEGAL                      TITLE NUMBER  
0019 482 926            927LK;1;2                      161 154 313

LEGAL DESCRIPTION  
PLAN 927LK  
BLOCK 1  
LOT 2  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME  
AREA: 8.1 HECTARES (20.02 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
ATS REFERENCE: 4;21;9;28;E

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 121 127 186 +1

---

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 154 313	05/07/2016	TRANSFER OF LAND	\$405,000	\$405,000

---

OWNERS

KENNETH DALE SMITH  
OF 5710-57 ST  
TABER  
ALBERTA T1G 1L1

---

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
8048GH .	02/01/1952	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:GL95 "16.5 FT STRIP"
1648LO .	07/07/1972	CAVEAT

( CONTINUED )



-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 161 154 313

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

RE : EASEMENT

CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY  
LIMITED.

851 073 950      08/05/1985 CAVEAT

RE : EASEMENT

CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER  
IRRIGATION DISTRICT.

P.O. BOX 278, LETHBRIDGE

ALBERTA T1J3Y7

AGENT - F J BREWIN

111 123 556      19/05/2011 UTILITY RIGHT OF WAY

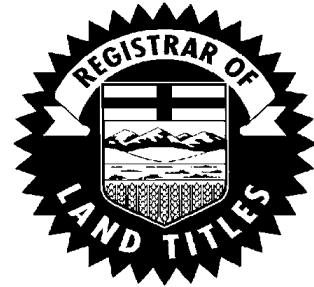
GRANTEE - ATCO GAS AND PIPELINES LTD.

TOTAL INSTRUMENTS: 004

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 2 DAY OF  
SEPTEMBER, 2021 AT 12:04 P.M.

ORDER NUMBER: 42532508

CUSTOMER FILE NUMBER:



\*END OF CERTIFICATE\*

-----  
THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED  
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,  
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM  
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,  
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS  
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING  
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S  
LINC                      SHORT LEGAL                      TITLE NUMBER  
0016 608 770            8010198;2;1                      911 153 848

LEGAL DESCRIPTION  
PLAN 8010198  
BLOCK 2  
LOT 1  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AREA: 14.1 HECTARES (34.84 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE  
ATS REFERENCE: 4;21;9;28

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 861 107 528

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
911 153 848	16/07/1991	TRANSFER OF LAND	\$45,000	SEE INSTRUMENT

OWNERS  
RICHARD MICHAEL ALDOFF

AND  
CAROL ANN ALDOFF  
BOTH OF:  
S S 1-2-49  
LETHBRIDGE  
ALBERTA T1J 4B3  
AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
741 021 660	08/03/1974	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC. 320 - 17 AVENUE S.W.

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 911 153 848

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

CALGARY  
ALBERTA T2S2Y1  
"30 FT STRIP"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 001298059)  
                  (DATA UPDATED BY: CHANGE OF NAME 051006321)

761 133 668    29/10/1976 CAVEAT  
CAVEATOR - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
P.O. BOX 4365, POSTAL STATION C  
CALGARY  
ALBERTA T2T5N2  
AGENT - KATHY M TROFIN  
                  (DATA UPDATED BY: CHANGE OF ADDRESS 031242905)  
                  (DATA UPDATED BY: TRANSFER OF CAVEAT  
                  091085519)  
                  (DATA UPDATED BY: TRANSFER OF CAVEAT  
                  091210804)

791 020 979    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205485)

791 020 980    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4 OF SEC 28-9-21-4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205451)

791 020 981    09/02/1979 UTILITY RIGHT OF WAY  
GRANTEE - CONOCOPHILLIPS CANADA OPERATIONS LTD.  
"SW 1/4 SEC 28-9-21-4"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 091205485)

971 093 143    05/04/1997 CAVEAT  
RE : EASEMENT  
CAVEATOR - THE BOARD OF DIRECTORS OF ST. MARY RIVER  
IRRIGATION DISTRICT.  
P.O. BOX 278, LETHBRIDGE  
ALBERTA T1J3Y7

991 292 262    07/10/1999 MORTGAGE  
MORTGAGEE - ALBERTA TREASURY BRANCHES.  
601 MAYOR MAGRATH DR.S  
LETHBRIDGE  
ALBERTA

( CONTINUED )





LAND TITLE CERTIFICATE

S  
LINC                                      SHORT LEGAL                                      TITLE NUMBER  
0031 401 425                                      4;21;9;28;NW                                      091 049 136

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 21 TOWNSHIP 9  
SECTION 28  
THAT PORTION OF THE SOUTHERLY 313 FEET IN PERPENDICULAR WIDTH THROUGHOUT OF  
THE NORTH WEST QUARTER WHICH LIES BETWEEN THE EAST LIMIT OF CANAL RIGHT OF WAY  
ON PLAN 0510395 AND THE EAST LIMIT OF CANAL RIGHT OF WAY ON PLAN IRR55  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 061 010 978

---

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
091 049 136	23/02/2009	TRANSFER OF LAND	\$345,000	\$345,000

---

OWNERS

RYAN GARRET VAN EEDEN PETERSMAN  
  
AND  
KAREN VIRGINIA VAN EEDEN PETERSMAN  
BOTH OF:  
R.R. 8, SITE 41, COMP 15  
LETHBRIDGE  
ALBERTA T1J 4P4  
AS JOINT TENANTS

---

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
7586LJ	03/11/1972	CAVEAT

---

( CONTINUED )

-----  
ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

# 091 049 136

REGISTRATION

NUMBER      DATE (D/M/Y)      PARTICULARS

-----

CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY  
LIMITED.

731 064 400    22/10/1973    UTILITY RIGHT OF WAY  
GRANTEE - FORTISALBERTA INC.  
320 - 17 AVENUE S.W.  
CALGARY  
ALBERTA T2S2Y1  
"PORTION DESCRIBED"  
                  (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT  
                  OF WAY 001299373)  
                  (DATA UPDATED BY: CHANGE OF NAME 051006146)

761 094 355    26/07/1976    IRRIGATION ORDER/NOTICE  
THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER  
IRRIGATION DISTRICT

911 208 327    17/09/1991    CAVEAT  
RE : EASEMENT  
CAVEATOR - THE BOARD OF DIRECTORS OF THE ST. MARY  
RIVER IRRIGATION DISTRICT  
BOX 278  
LETHBRIDGE  
ALBERTA J1J3Y7

001 070 445    15/03/2000    EASEMENT  
OVER AND FOR BENEFIT OF: (SEE INSTRUMENT)

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN  
ACCURATE REPRODUCTION OF THE CERTIFICATE OF  
TITLE REPRESENTED HEREIN THIS 2 DAY OF  
SEPTEMBER, 2021 AT 12:04 P.M.

ORDER NUMBER:    42532508

CUSTOMER FILE NUMBER:



\*END OF CERTIFICATE\*

( CONTINUED )

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



A Division of the Safety Codes Council

September 7, 2021

Ms. Sophie Fitzowich  
Tetra Tech  
112 Bay View Dr SW  
Calgary AB T2V 3N8

EMAIL: [sophie.fitzowich@tetrattech.com](mailto:sophie.fitzowich@tetrattech.com)

Re: ASCA Storage Tank Search – Your File No. 704-ENGO04406-01

Dear Ms. Fitzowich,

As per your search request dated September 7, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following addresses:

1. Lot 1, Block 1, Plan 927LK, Section 28, Township 009, Range 21, Meridian 4, Lethbridge County AB
2. Lot 2, Block 1, Plan 927LK, Section 28, Township 009, Range 21, Meridian 4, Lethbridge County AB
3. Lot 1, Block 2, Plan 8010198, Section 28, Township 009, Range 21, Meridian 4, Lethbridge County AB
4. NW-28-009-21-4, Lethbridge County AB

The search of the storage tank database determined no records were available for the addresses requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate  
[ascatanks@safetycodes.ab.ca](mailto:ascatanks@safetycodes.ab.ca)

---

#500, 10405 Jasper Avenue  
Edmonton, AB Canada T5J 3N4

Phone 780.413.0099 / 1.888.413.0099  
Fax 780.424.5134

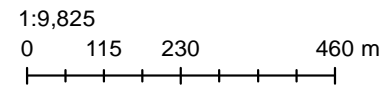
[www.safetycodes.ab.ca](http://www.safetycodes.ab.ca)



# MacLaine ASP



Tuesday, August 31, 2021





## Well Information

100 / 11-28-009-21 W4 / 0

HUSKY OIL OPERATIONS LIMITED | 100 / 11-28-009-21 W4 / 0

Government Well Data Current To August 4, 2021

<b>License #:</b>	0056743	<b>License Date:</b>	January 22, 1976
<b>Well Name:</b>	HUSKY ETAL LETH. 11-28-9-21		
<b>License Status:</b>	RecCertified	<b>License Status Date:</b>	June 25, 2002
<b>Within:</b>	11-28-009-21 W4M	<b>H2S (%):</b>	
<b>Spud Date:</b>	January 24, 1976	<b>Final Drill Date:</b>	February 3, 1976
<b>Status:</b>	GAS ABD	<b>Abandoned Date:</b>	September 12, 1991
<b>Surface:</b>		<b>Downhole:</b>	
Offsets:	S 762.3 E 638.9	Offsets:	S 762.3 E 638.9
Latitude:	49.764067	Latitude:	49.764067
Longitude:	-112.792240	Longitude:	-112.792240
Ground Elevation:	908.9 m   2982 '	Total Depth:	1319.80 m   4330 '
<b>Operator:</b>	n/a		



## Pipeline Information

HUSKY OIL OPERATIONS LIMITED | AB00012273 - 2

Government Pipeline Data Current to August 6, 2021

<b>Permit Date:</b>		<b>License Date:</b>	October 10, 1991
<b>From Location:</b>	11-28-9-21 W4M WE	<b>To Location:</b>	9-21-9-21 W4M RS
<b>Length:</b>	2.24 kms   1.4 mi	<b>Status:</b>	A
<b>Substance:</b>	NG	<b>H<sub>2</sub>S:</b>	0 mol/kmol   0 ppm
<b>Outside Diameter:</b>	88.9 mm   3.5 "	<b>Wall Thickness:</b>	3.18 mm   0.13 "
<b>Material:</b>	S	<b>Type:</b>	5LX
<b>Grade:</b>	X42	<b>Max Operating Pressure:</b>	0 kPa   0 psi
<b>Joints:</b>	W	<b>Internal Coating:</b>	U
<b>Stress Level:</b>	0 %	<b>Environment:</b>	
<b>Original Permit Date:</b>		<b>Construction Date:</b>	
<b>Original License/Line No:</b>	12273 - 2	<b>NEB Registration:</b>	
<b>Last Occurrence Year:</b>	1977	<b>Abacus No:</b>	85054



## Pipeline Information

ATCO GAS AND PIPELINES LTD. | AB00002185 - 1

Government Pipeline Data Current to August 6, 2021

<b>Permit Date:</b>	April 30, 2008	<b>License Date:</b>	March 12, 2010
<b>From Location:</b>	16-28-9-21 W4M PL	<b>To Location:</b>	9-16-9-21 W4M PL
<b>Length:</b>	3.81 kms   2.38 mi	<b>Status:</b>	O
<b>Substance:</b>	NG	<b>H<sub>2</sub>S:</b>	0 mol/kmol   0 ppm
<b>Outside Diameter:</b>	273.1 mm   10.75 "	<b>Wall Thickness:</b>	6.4 mm   0.25 "
<b>Material:</b>	S	<b>Type:</b>	5L
<b>Grade:</b>	X42	<b>Max Operating Pressure:</b>	2380 kPa   345 psi
<b>Joints:</b>	W	<b>Internal Coating:</b>	U
<b>Stress Level:</b>	18 %	<b>Environment:</b>	
<b>Original Permit Date:</b>		<b>Construction Date:</b>	
<b>Original License/Line No:</b>	2185 - 1	<b>NEB Registration:</b>	
<b>Last Occurrence Year:</b>	1910	<b>Abacus No:</b>	85013



# Low Pressure Pipeline Information

## NATURAL GAS CO-OPERATIVE CONTACT INFORMATION

Data Current To January 1, 2020

<b>Name:</b>	Rocky Gas Co-op Ltd.	
<b>Address:</b>	Box 697 Rocky Mtn. House, T4T 1A5	
<b>Phone #:</b>	(403) 845-2766	<b>Alternate Phone #:</b>
<b>Website:</b>	<a href="http://www.rockygas.ca">http://www.rockygas.ca</a>	

Search Form **Map Search**

A designated location identifies a site where Alberta Environment and Parks has received scientific or technical information for that site and does not imply anything regarding the current state or condition of the site. Please refer to the studies and reports to determine the condition of the site.

**ATS**

Meridian W -	<input type="text" value="4"/>
Range	<input type="text" value="21"/>
Township	<input type="text" value="009"/>
Section	<input type="text" value="28"/>
[Quarter]	<input type="text"/>
<input type="button" value="Search"/>	

- > PBL
- > Address
- > Place Name
- > Coordinate
- > Help with Map



Map Views

Map Information

Map Navigation

Map Tools



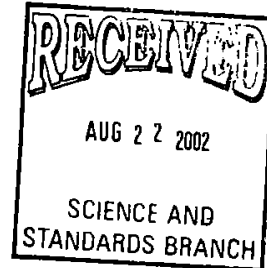
Regional Services  
Southern Region

2nd Floor, Provincial Building  
200 - 5th Avenue South  
LETHBRIDGE, Alberta  
T1J 4L1

Telephone: (403) 382-4253  
Fax: (403) 382-4428

7 August 2002

Husky Oil Operations Ltd.  
707 - 8<sup>th</sup> Avenue S.W.  
Box 6525, Station D  
CALGARY, Alberta T2P 3G7



Dear Sir or Madam:

RE: Husky et al Leth 11-28-9-21 well  
N Sec. 28 Tp. 009 Rge. 21 W4M  
File No.: S-03583

An inquiry was held on this location and enclosed for your records is a copy of the Reclamation Certificate.

If you have any concerns, please contact me at (403) 382-4253.

Sincerely

*for* Sherry Hazelaar  
Conservation and Reclamation Inspector

cc: Richard Henry Boulton and Dorine M. Boulton (NW)  
Ronald Olshaski (NW)  
Scott Boulton (NE)



Environmental Service

4th Floor, 9820-106th Street  
Edmonton, Alberta  
Canada T5K 2J6

Telephone (780) 427-5883  
Fax (780) 422-4192

**RECLAMATION CERTIFICATE NO. 00184781-00-00**  
**EUB LICENSE NO. 0056743**

This reclamation certificate is issued pursuant to section 123 of the Environmental Protection and Enhancement Act, following an inquiry on

June 25, 2002 (Date)

This certifies that the surface of the land held by Husky Oil Operations Limited within N Sec. 28 Tp. 009 Rge. 21 W4M

in connection with or incidental to HUSKY ET AL LETH 11-28-9-21 WELL, as shown outlined in yellow on the attached plan(s), complies with the conservation and reclamation requirements of Part 5 of the Act.

Issued this 25 day of June, 2002

S. Nazelaan  
Inspector(s)

Sherry Hazelaar  
382-4253

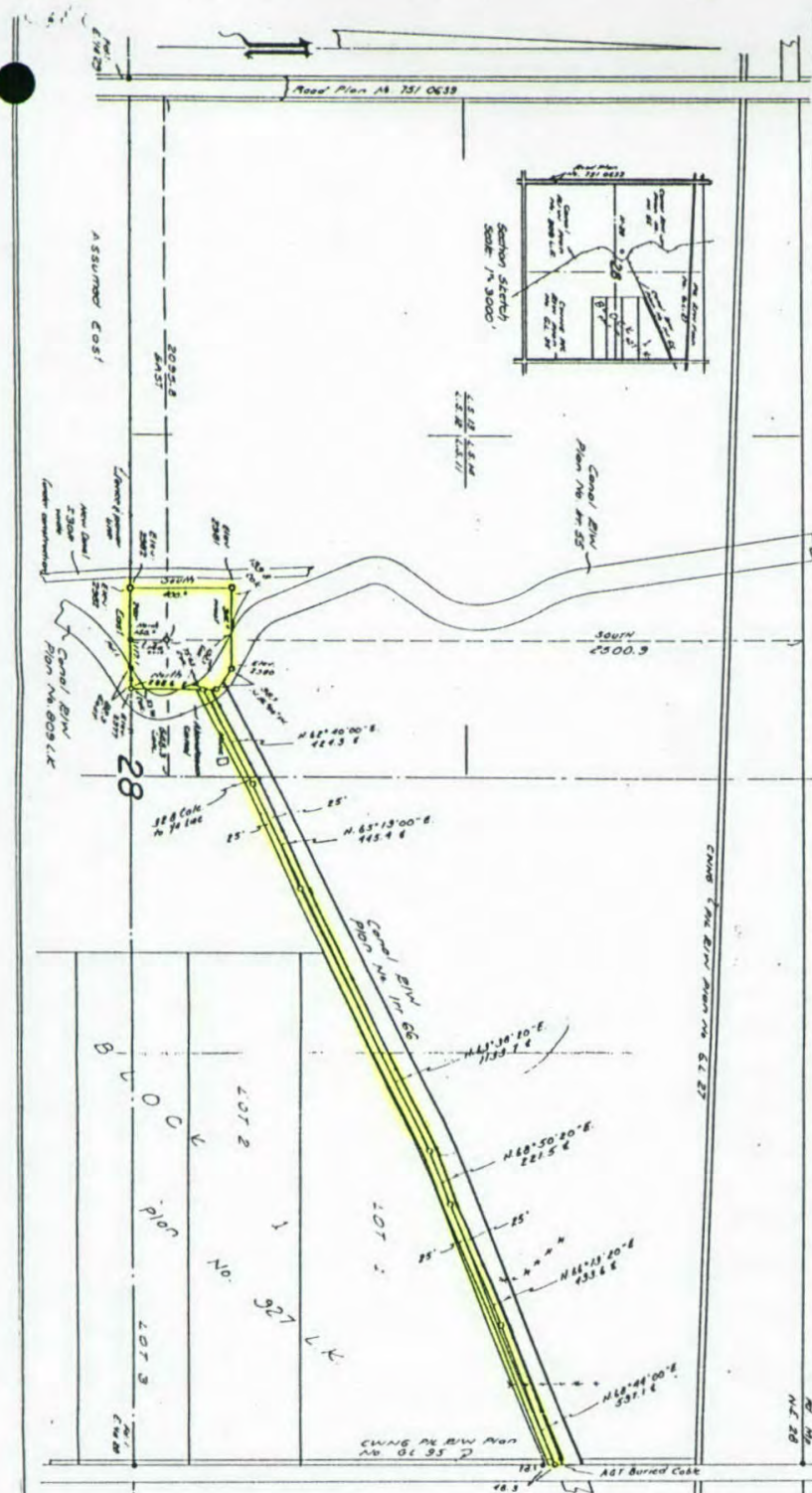
Operator/Agent:

Husky Oil Operations Limited  
BOX 6525 STN D 707 8 AVE SW  
Calgary, Alberta  
T2P 3G7

Section 84 of the Environmental Protection and Enhancement Act may provide a right of appeal against this decision to the Chair, Environmental Appeal Board. There may be a strict time limit for filing such an appeal. For further information contact the Board Secretary of the Environmental Appeal Board at 3rd Floor, Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta T5J 3S8, telephone (780)427-6207, fax (780)427-4693

TERM OR CONDITION ATTACHED \_\_\_\_\_ YES \_\_\_\_\_ NO





BEST COPY AVAILABLE

**CANHUNTER PCP LETH 11-28-9-21**  
 Well Site and Access Road  
 L.S. II Sec. 28 Tp. 9 Rge. 21 W. 4 M.

I certify that the survey represented by this plan is correct to the best of my knowledge and was completed on the 1st day of January, A.D. 1976

ELEVATION: 2982 Ground  
 CO-ORDS. 25003 South of North boundary Sec 28  
 20958 East of West boundary



[Authorization Viewer](#)

[Traditional Agriculture Registration Viewer](#)

[Public Notices Viewer](#)

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**Authorization Viewer - Search Results**

**The Search Used the Following Values:**

Legal Land Location: 28-009-21-W4  
 Act / Document Type: Water Act, EPEA  
 Show Inactive Authorizations: Yes








The resulting Authorizations based on the search criteria will be displayed below. A PDF icon will appear next to the Authorization when documentation is available for viewing or downloading. Please click [Viewer Help](#) if you encounter problems viewing the Authorization document.

[Clear & Return](#)

27 Result(s)

	Document 00016373-00-00 ST. MARY RIVER I.D. PESTICIDE SERVICE, LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016373-01-00 ST. MARY RIVER ID PESTICIDE SERVICE LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently renewed.
	Document 00016373-02-00 ST. MARY RIVER ID PESTICIDE SERVICE LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently renewed.
	Document 00016373-03-00 ST. MARY RIVER ID PESTICIDE SERVICE LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently issued as of Mar. 22, 2016 and expires on Mar. 31, 2025.
	Document 00016376-00-00 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-00-01 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-00-02 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.

	Document 00016376-00-04 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-01-00 ST. MARY RIVER I.D. PESTICIDE SPECIAL USE, LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-01-01 ST. MARY RIVER IRRIGATION DISTRICT, PEST SPECIAL, LETHBRIDGE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-02-00 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-02-01 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE - SPRAY WITHIN 30 METRES OF RESERVOIRS is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently expired.
	Document 00016376-03-00 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-03-01 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE - USE OF ESCORT is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently expired.
	Document 00016376-03-02 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE - USE OF MAGNACIDE H is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently expired.
	Document 00016376-03-03 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE - EXTENSION is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently expired.
	Document 00016376-04-00 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00016376-05-00 ST. MARY RIVER IRRIGATION DISTRICT PESTICIDE SPECIAL USE is held by St. Mary River Irrigation District, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently issued as of May. 13, 2020 and expires on Mar. 31, 2030.

	Document 00143241-00-00 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00143241-00-01 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM - PHASE 2 is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Approval is currently renewed.
	Document 00143241-00-02 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM - LEGISLATIVE CHANGES is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently renewed.
	Document 00143241-01-00 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM - CODE OF PRACTICE is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently issued as of Jan. 01, 2006 and does not expire.
	Document 00143241-01-01 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM - ELECTRONIC REPORTING is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently issued as of May. 07, 2012 and does not expire.
	Document 00143241-01-02 COUNTY OF LETHBRIDGE RURAL WATERWORKS SYSTEM - REVISED LEAD MAC NOTICE is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Registration is currently issued as of Feb. 14, 2020 and does not expire.
	Document 00184781-00-00 HUSKY ET AL LETH 11-28-9-21 WELL is held by Husky Oil Operations Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Reclamation Certificate is currently issued as of Jun. 25, 2002 and does not expire.
	Document 00192218-00-00 COUNTY OF LETHBRIDGE RURAL WATERWORKS/MUNICIPAL - TRANSMISSION MAIN EXTENSION, PHASE 2 is held by County of Lethbridge Rural Water Association Limited, under the provisions of the <i>Environmental Protection &amp; Enhancement Act</i> . This Authorization is currently issued as of Jan. 03, 2003 and does not expire.

Clear & Return

Comments regarding the Authorization Viewer page may be directed to the Regulatory Approvals Centre  
RAC.Environment@gov.ab.ca.

Alberta Government of Alberta

Government of Alberta Home | Ministries | Contact Government

Introduction Layers Find Water Wells Measure Print Data

By Legal Land Description  
By Owner Name  
By Selection

Help

Enter a radius:   feet  metres

Drilling Reports: 0 records found.

GIC Well ID	GOA Well Tag No.	Legal Description	Lot	Block
No results found.				

BWWT Reports: 0 records found.

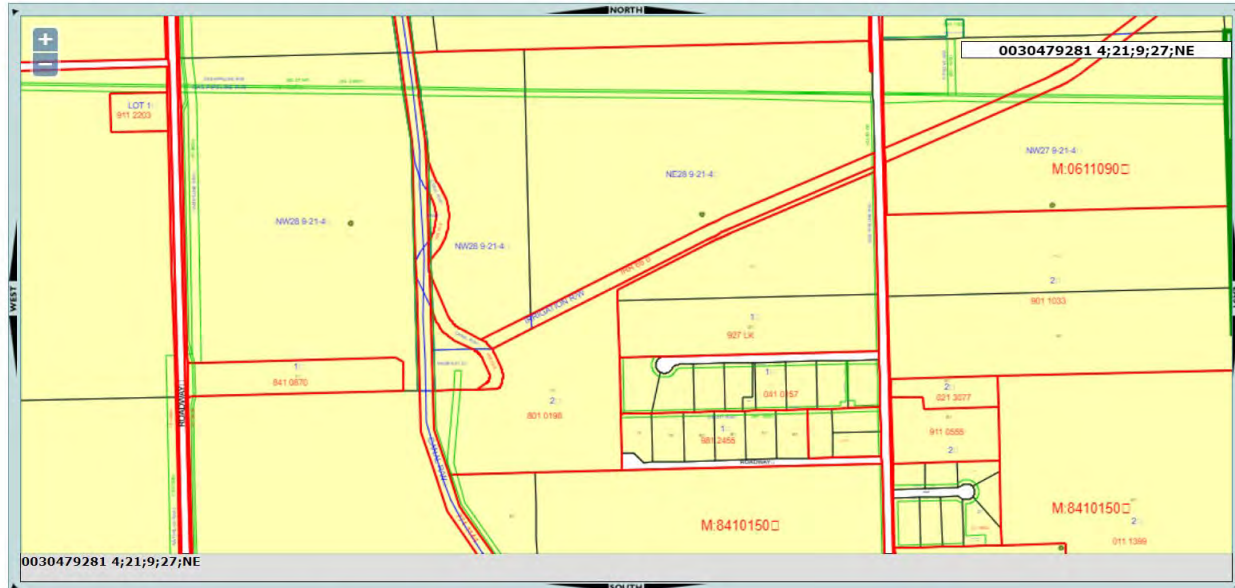
Test ID	Legal Description
No results found.	

By GIC Well ID (AWWID) / Test ID (BWWT)  
By GOA Well Tag Number  
By Survey Legal Plan

Current Scale: 1:36,112  
Longitude: -112.798711 Latitude: 49.777509

Cursor Display Preferences  
 Map Coordinates (WGS84 Web Mercator Auxiliary Sphere)  
 Geographic Coordinates (longitude, latitude)  
Number of decimal places:

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NAVIGATE TOOLS POLYGON SELECT

THEMES FIND LEGEND

Select Search Type:  
Survey Plan

Plan Number:

- Preset Map**
- Rural Detail
  - Alberta Map
  - Urban Detail
  - Regional Map

[Go back to search page.](#)



#100, 905 - 4<sup>th</sup> Avenue South, Lethbridge, Alberta T1J 4E4

September 8, 2021

Tetra Tech Environment and Water Practice

Attn: Jaymes Going

442 – 10 Street North

Lethbridge, AB T1H 2C7

**Re: Environmental information regarding Portions of NW and NE-28-09-21-W4M**

**Legal Descriptions: Plan 927LK Block 1 Lot 1; Plan 927LK Block 1 Lot 2; Plan 8010198 Block 2 Lot 1; and Portion of NW-28-09-21-W4M**

---

The following information is the County's response to your questions regarding the above-mentioned properties.

1. Below is a summary of the records the County holds that might potentially be of environmental concern on the above-noted properties.
  - a. Plan 927LK Block 1 Lot 1 and Plan 927LK Block 1 Lot 2
    - i. Both properties have a signed agreement for backslope dated September 26, 1988 in their respective land files. Both simply note that backsloping is required, approximately 1m.
  - b. Plan 8010198 Block 2 Lot 1
    - i. There is a Notice of Violation dated September 25, 2000, in the land file for this property stating that there was a large amount of old metals, concrete pipe, construction material, and equipment being stored on the property. There are no additional notes in the file to indicate if and/or when this matter was resolved.
2. Below is a summary of the developments that have been approved for each of the above-noted properties.
  - a. Plan 927LK Block 1 Lot 1 – nothing in the file.
  - b. Plan 927LK Block 1 Lot 2
    - i. Development Permit 2016-137 – issued for a Farm equipment storage building (1500 sq. ft.), which contains a bathroom.

.../2

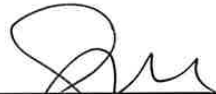
Tel: (403) 328-5525 E-Mail: [mailbox@lethcounty.ca](mailto:mailbox@lethcounty.ca) Fax: (403) 328-5602

- c. Plan 8010198 Block 2 Lot 1
  - i. Development Permit 88-112 – issued for a second mobile home for a hired hand. The notes in the application state there is a barn for horses on the property, a primary residence, and two sheds.
  
- d. Portion of NW-28-09-21-W4M
  - i. Development Permit 2006-119 – issued for a 40 ft. by 60 ft. Shop, it appears from the application that a small landscaping business may have been run out of this shop/property but there is no Development Permit application for this Home Occupation business in the land file.
  
  - ii. Development Permit 2007-138 – issued for a residence with attached garage

3. Apart from the above-noted documentation the County does not have any records of underground storage tanks, chemical storage, spills, fires, or landfills, for any of the above-noted properties. If a fire or spill has ever occurred on any of these properties they are located in the response area of the City of Lethbridge Fire Department.

If you have any other questions please contact Sarah Mitchell, Development Officer at 403-328-5525.

Regards,

A handwritten signature in black ink, appearing to read "Sarah Mitchell", is written over a horizontal line.

Sarah Mitchell  
Development Officer



## APPENDIX D

### SPECIAL ATTENTION ITEMS – BACKGROUND INFORMATION

#### D1 Asbestos

Construction materials used prior to the late 1970s were known to possibly contain asbestos (i.e., ceiling or floor tiles, drywall, and insulation for the walls, boiler, piping, and/or ducts). Asbestos is considered a health hazard if it is friable, airborne, and exposed to humans.

#### D2 Polychlorinated Biphenyls (PCBs)

The federal Environmental Contaminants Act (1976) has restricted the use and controlled the phase out of polychlorinated biphenyls (PCBs) in Canada. Additionally, the storage and disposal of PCBs is regulated. The Act prohibited the use of PCBs in electrical equipment installed after July 1, 1980. PCBs are commonly found in light ballasts, electrical transformers (pole or ground mounted) and various other types of electrical equipment (i.e., rectifiers) dating back to the early 1980s or earlier.

PCB containing light ballasts/electrical equipment should be disposed of appropriately at the end of their useful life.

#### D3 Ozone-Depleting Substances (ODS)

In December of 1998, The Government of Canada enacted the Ozone-depleting Substances (ODS) Regulations, which governs the use, handling and release of ODS. ODS may include, but are not limited to, chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl bromide. ODS are usually associated with operations such as: fire extinguishing systems; foam manufacturing; fumigant and pesticide application; prescription metered dose inhalers; refrigeration and air conditioning units; and solvent cleaning and degreasing facilities. ODS are not a health issue for people in the building but are more a maintenance issue to limit or prevent their release. This is accomplished by regular maintenance by trained personnel.

#### D4 Lead

Lead can be associated with paints, plumbing solder, pipes, and other products such as wall shielding in x-ray rooms. Lead-based paint was withdrawn from the market in the late 1970s. If present, lead-based paint is typically concealed beneath multiple layers of paint applied over the years during renovations. Lead-based paint and plumbing equipment are not a direct health risk when concealed (sealed behind layers of non-lead paint) and/or in good condition. It should, however, be considered when planning future renovations, when particles from lead-based paint could be released and/or ingested in the course of the work.

#### D5 Urea Formaldehyde Foam Insulation (UFFI)

Insulation materials used during the 1970s and 1980s were known to possibly contain urea formaldehyde foam insulation (UFFI). UFFI was banned in 1980 under the federal Hazardous Products Act.

#### D6 Radon

Radon gas is a product of the decay series that begins with uranium. Radon is produced directly from radium that is often found in bedrock that contains black shale and/or granite. The gas and its by-products occur naturally everywhere, in soil, water, and air, but usually in concentrations too low to pose a threat. Radon gas can migrate through the ground and enter buildings through porous concrete or fractures. Certain building materials including concrete, and gyprock can also release radon. Natural radon concentrations are low in Alberta and radon gas concentrations are usually well below target limits set for Canada. Potential anthropogenic sources of radon gas should be considered.

#### D7 Methane

Methane gas is a product of anaerobic decomposition of organic material (e.g., buried fill high in organic material). Methane is also associated with natural gas deposits. Methane gas can migrate through the ground and enter buildings through porous concrete, joints or fractures. Methane presents a potential explosive hazard when it accumulates to concentrations greater than the lower explosive limit (LEL) in the presence of an ignition source.

# APPENDIX 6

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## Septic Feasibility Assessment



October 8, 2021

ISSUED FOR USE  
FILE: ENG.LGEO04408-01.003

Rick Aldoff  
255 – 31 Street North  
Lethbridge, AB T1H 3Z4

**Subject:** Preliminary Septic Disposal Field Feasibility Assessment  
Proposed MacLaine Acres Subdivision  
Section 28 Range 9 Township 21 West of the 4<sup>th</sup> Meridian  
Lethbridge County, Alberta

## 1.0 INTRODUCTION

Mr. Rick Aldoff, care of Martin Geomatic Consultants Ltd. (MGCL), retained Tetra Tech Canada Inc. (Tetra Tech) to conduct a septic disposal field feasibility assessment (SDFFA) within three (3) adjoining property parcels located within the Lethbridge County, legally described as Plans 927 LK, Block 1, Lots 1 and 2; as well as Plan 801 0198 Block 2 Lot 1 (hereinafter referred to as the site). The site is located within portions of legal land descriptions 6, 7, 9, 10, and 11 of 28-009-21 W4M, north of Lethbridge, Alberta.

The objective of this assessment was to determine the soil textures and restricting layers across the site in order to assess the feasibility for soil-based septic disposal fields (also known as a sewage treatment system). The SDFFA was completed in general accordance with the Alberta Private Sewage Systems Standard of Practice (APSSoP), Third Edition, December 2015, published by the Safety Codes Council; however, as noted in (Part 3 of Section 7.1.1.3) a hydrogeological study may be required if on-site sewage systems exceeding 9 m<sup>3</sup> per day design capacity, which is beyond the work scope of this assessment.

Authorization to proceed with the SDFFA was provided by Mr. Rick Aldoff via a signed Services Agreement with Tetra Tech on August 24, 2021.

## 2.0 PROJECT SCOPE OF WORK

The scope of work included a field assessment, desktop review, and reporting, which are detailed in the following subsections.

### 2.1 Field Assessment

The field assessment portion of the project was completed by Mr. Jamie LaMontagne, EP, of Tetra Tech, on September 9, 2021. The field assessment included the following:

- Completion of public above-ground and underground utility locates by Alberta One-Call, prior to the excavation of testpits. It was also identified that a potential abandoned ATCO line may be in the area; therefore, private locates were also completed by LandScan Locating Ltd. on September 7, 2021.
- Preparation of a site-specific safe work form prior to field assessment and a pre-job safety meeting was undertaken prior to the excavation of testpits.
- Excavation of 12 testpits at select locations on the site, to a maximum depth of 3.0 metres below ground surface (mbgs), by S & A Ditching Ltd. (SADL) of Barons, Alberta.

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- Classification of soil profiles at each testpit location using the Canadian System of Soil Classification (CSSC). The individual soil strata and the interfaces between them were noted. In addition to the soil classification, a general description of site topography, vegetation (if observed), landscape position, and slope aspect was also included.
- Obtaining bulk soil samples from each excavation within each potential layer as well as where a restrictive layer<sup>1</sup> was potentially observed to be present. Potential restrictive layers were analyzed in our Lethbridge laboratory for hydrometer analysis.
- Installation of a 25 mm diameter PVC, screened standpipe within each testpit to determine whether seasonal water infiltration was present at each location. Water levels from each standpipe were obtained on September 16, 2021.
- Evaluation of the following:
  - Topography, landscape position, vegetation, and surface drainage characteristics.
  - Surface waters, rock outcrops, and other features of note.
  - Land uses and development within approximately 50 m of the proposed area of the proposed septic disposal fields.

## 2.2 Desktop Review/Reporting

To meet the objectives of the SDCFA, Tetra Tech undertook the following:

- Completed a site evaluation as per Section 7.1.1.2 of the APSSoP including the following:
  - Reviewed available published resources including Abacus Datagraphics (AbaData), and the Online Water Well Database.
  - Reviewed geological and hydrogeological information including published topographic, geologic, soil, and groundwater maps and reports.
- Prepared this SDCFA report.

## 3.0 RESULTS

### 3.1 General

The proposed subdivision consists of approximately 24 lots which are to be located on vacant, agricultural land, adjacent to an existing 15-lot subdivision located north of the City of Lethbridge. A St. Mary's Irrigation District (SMRID) canal borders the site to the west. Highway 843 borders the site to the east with agricultural activities bordering the site to the north. The existing site has two dugouts that may need special attention during the site grading process if they are to be infilled.

The following subsections outline the results of the field observations and desktop review. The approximate testpit locations and surrounding land use are shown on Figure 1. The results of the hydrometer analysis are presented in Appendix A. Soil profile descriptions are presented in Appendix B.

<sup>1</sup> Defined by the APSSoP as 'a soil horizon, soil layer, or other condition in the soil profile, or underlying strata, that restricts the downward movement of fluids that could cause a perched water table or saturated soil under the soil infiltration surface of the system'.

### 3.2 Rights-of-Way and Easements

AbaData identified a high-pressure ATCO natural gas pipeline transecting the far east portion of the site extending north and south through Lots 1 and 2, Block 1, Plan 927 LK. AbaData also identified a Huskey Natural gas pipeline that transects the west portion of Lot 1, Block 2, Plan 801 0198 and traverses the site north to south. It should also be noted that there is a canal right-of-way in the northwest corner of Lot 1, Block 2, Plan 801 0198; as well, there is a SMRID irrigation right-of-way that borders the north portion of the property.

### 3.3 Vegetation, Topography, and Drainage

The proposed site configuration is bounded by farmland to the north; by an irrigation channel to the west; by Highway 843 to the east; and by residential properties, a farmstead, and farmland to the south in the Lethbridge County.

The proposed site comprises of three parcels: Lot 1 Block 1 Plan 927 LK in the northeast, Lot 2 Block 1 Plan 927 LK in the southeast, and Lot 1 Block 2 Plan 8010198 in the southwest.

Lot 1 Block 1 Plan 927 LK comprises of a farmstead and a dugout in the southeast corner of the lot, a fenced off area in the east that appeared to be used for livestock and/or horses with decomposing bails of hay or straw, while the rest of the lot comprises of a vacant field with a wheel irrigation system. The land is relatively flat with drainage tending to the northeast.

Lot 2 Block 1 Plan 927 LK comprises of a barn/shed in the southwest corner, a dugout in the northeast extent of the lot, while the rest of the lot comprises of a wheel irrigated agricultural field. The land is relatively flat with drainage tending to the northeast and east.

Lot 1 Block 2 Plan 8010198 comprises of a farmstead in the northwest corner of the lot, a residence at the north central extent of the lot, a dugout and farm structures in the northeast corner of the lot, an old horse racetrack in the south half of the lot, a dry dugout just north of the horse racetrack, and a pond/dugout at the south-central extent of the lot. The land is relatively flat with the drainage tending to the northeast. From the topography provided by MGCL, a localized low-lying area was noted on the lot near the dry dugout just north of the horse racetrack.

Regional drainage is northeast to east. See soil profile in Appendix B for detailed descriptions regarding to vegetation, drainage, and slope details at each of the testpit locations.

### 3.4 Surficial Geology

The surficial geology in the area is characterized by moraine till deposits with sporadic lenses of gravel, sand, and silt (Shetsen 1981).

The stratigraphy of the Lethbridge area is generally comprised of 65 m to 70 m of surficial deposits overlying bedrock. Bedrock in the Lethbridge area consists of strata from the upper Oldman Formation and the lower Bearpaw Formation, both of the late Cretaceous Age (Tokarsky 1973). The bedrock has a relatively flat surface dipping slightly to the northeast and is locally encountered at about Geodetic Elevation 843 m. The bedrock strata consist of thin beds of predominantly weak mudstones, siltstones, and sandstones with occasional bentonite and coal seams.

A geotechnical evaluation was also completed for the site and reported under separate cover (ENG.LGEO04408-01, dated August 2018). The drilling assessment for this geotechnical evaluation identified clay fill material in 4 of the 12 boreholes drilled. The thickness of clay fill ranged from 0.2 m at the four (4) locations to 0.35 m within Lot 1, Block 1 Plan 927 k.

Rock outcrops were not observed across the site. Surficial drainage from the lots is regional and tends towards the northeast to east. No other natural features that could impact the application or design of the proposed treatment system were observed during the field investigation.

### 3.5 Surface Water and Water Wells

There are two dugouts located on the site, as well as several dugouts present on the adjacent properties. A SMRID canal borders the site to the west. The Oldman River is located approximately 4 kms west of the site. Regional groundwater flow is expected to be westerly, toward the Oldman River.

The Alberta Water Well Information Database<sup>2</sup> search did not list any record of water wells within the site boundaries; however, the search identified two water well records relating to water wells located off site, within a 3 km radius of the site. The following table summarizes the information of this water well.

**Table A: Water Well Details**

Location	Distance and Direction from Site*	Owner/Well ID	Drilling Dates	Depth	Use	Tetra Tech's Evaluation
NE 32-009-21 W4M	A minimum of 2 kms northwest of the site	Lethbridge Rendering /106353	1981	Unknown	Domestic	Due to the distance from the site, this well is not considered to be a concern to the site.
LSD 1-04-010-21 W4M	A minimum of 2.5 kms to the north of the site	Biantco Environmental / 1022402 (9 records under I.D)	2013	28.96 m to 64.62 m	Investigation / Monitoring / Other	Due to the distance from the site, these wells are not considered to be a concern to the site.

\* Note: Specific well locations may potentially be located at any point within the quarter section provided, as the database will place the well in the centre of the quarter section if no specific location is provided in the drilling report.

### 3.6 Surrounding Land Use

Table B summarizes the surrounding land use.

**Table B: Surrounding land Use**

Direction	Land Use*	Observations
North	Agricultural Cropland	Undeveloped agricultural cropland. No buildings or structures noted within 100 m of the site boundaries.
South of Lot 2 Block 1 Plan 927 LK	Rural Residential Subdivision	Residential buildings and local road to the south.
South of Lot 1 Block 2 Plan 801 0198	Agricultural/residential	A dugout is located just south of the centre of the lot with pastureland on either side to the east and west of the remaining south border of the lot.

<sup>2</sup> Alberta Environment. 2013. Alberta Environment Groundwater Information System (Water Well Reports). Accessed at [http://www.telusgeomatics.com/tgpub/ag\\_water/](http://www.telusgeomatics.com/tgpub/ag_water/) May 2013.

**Table B: Surrounding land Use**

Direction	Land Use*	Observations
East	Secondary highway 843 and residential properties beyond	Secondary highway 843 to the east of the site with rural residential lots and houses beyond the Secondary Highway 843 to the east.
West	SMRID canal and agricultural Cropland Beyond	A SMRID open canal runs along the west side of the property with Agricultural cropland further to the west.

\* Land use inferred from observations made during the site visit.

### 3.7 Laboratory Results

Tetra Tech performed soil texture analysis via hydrometer on 12 selected soil samples. The soil texture test results are summarized in Table C and laboratory certificates are included in Appendix A. The test results are consistent with the soil textures described on site and are considered representative of the soil profiles at the proposed septic disposal field locations.

**Table C: Soil Texture Analysis**

Testpit Number	Sample Depth (mbgs)	% Sand	% Silt	% Clay	Soil Classification
TP01	0.1 – 0.25	14	55	31	Silty Clay Loam (SICL)
TP02	0.25 – 0.83	3	68	29	Silty Clay Loam (SICL)
TP03	0.27 – 0.9	4	65	31	Silty Clay Loam (SICL)
TP04	0.19 – 1.3	2	72	26	Silty Loam (SIL)
TP05	0.29 – 1.2	23	49	28	Clay Loam (CL)
TP06	0.11 – 0.21	15	57	28	Silty Clay Loam (SICL)
TP07	0.5 – 0.7	20	49	31	Silty Clay Loam (SICL)
TP08	0.2 – 0.6	33	41	24	Loam (L)
TP09	0.3 – 0.95	42	32	25	Loam (L)
TP10	0.31 – 0.9	10	65	25	Silty Loam (SIL)
TP11	0.4 – 0.9	32	40	28	Clay Loam (CL)
TP12	0.45 – 0.7	22	54	24	Silt Loam (SIL)

### 3.8 Soil Profiles

The site is located in the Dark Brown Soil Zone of Alberta and soils on site consist of Calcareous Dark Brown Chernozems which are differentiated from the Orthic Dark Brown Chernozems by having a Bmk horizon where the primary alkaline earth carbonates have not been removed. Soil observations and soil profile logs for each testpit are included in Appendix B.

Twelve (12) testpits were excavated in the area of the proposed subdivision. The general CSSC profile descriptions of the soils at the site are summarized below:

- **Apk Horizon** (21TP01 through 21TP09) or **Ahk Horizon** (21TP10 to 21TP12) ranging in depths between 0.0 mbgs to 0.27 mbgs. The horizon generally consisted of very dark greyish to very dark brown soil with trace of faint mottling at some locations. The soil was exhibited a weak to moderate (Grades 1 to 2), fine to medium, granular structure. The soil was generally friable and dry to moist with no coarse fragments and weak effervescence. Soil texture within this horizon was described as clay loam. Some difficulty was encountered differentiating between the A and B Horizons at some locations. A buried A Horizon (Ahkb) was observed at 21TP07 (0.31 mbgs to 0.5 mbgs). Additionally, red shale inclusions were observed in the A horizon at 21TP01, 21TP02, 21TP03, and 21TP07 suggesting this horizon has been replaced at each location. This horizon has suitable soil textures and structure for soil-based treatment system.
- **Bmk Horizon** (within most testpits, excluding 21TP03) ranging in depths between 0.07 mbgs to 0.45 mbgs. The horizon generally consisted of brown and very dark brown to black soil with trace of faint mottling at some locations. The soil was exhibited a weak to moderate (Grades 1 to 2), fine to coarse, blocky or subangular blocky structure at most locations. The soil was generally firm to hard, friable, and dry to moist with no coarse fragments and weak to moderate effervescence. Soil texture within this horizon was described as clay loam or silty clay loam. Some difficulty was encountered differentiating between the A and B Horizons at some locations. A buried B Horizon (Bmkb) was observed at 21TP07 (0.5 mbgs to 0.7 mbgs). Additionally, red shale inclusions were observed in the B Horizon at 21TP01 and 21TP02, suggesting this horizon has been replaced at each location. This horizon has suitable soil textures and structure for soil-based treatment system.
- **Cca<sub>1</sub> Horizon** (within all testpits) ranging in depths between 0.19 mbgs to 1.30 mbgs. The horizon generally consisted of greyish brown to light olive brown soil with traces of faint mottling at some locations. The soil was exhibited a weak to moderate (Grades 1 to 2), fine to coarse, granular or blocky structure. The soil was firm to hard, friable, and moist to very moist with no coarse fragments and very strong effervescence. Soil texture within this horizon included loam, clay loam and silty clay loam. This horizon has suitable soil textures and structure for soil-based treatment system.
- **Cca<sub>2</sub> Horizon** (21TP03, 21TP07, 21TP08, 21TP10, 21TP11, and 21TP12) ranging in depths between 0.60 mbgs to 2.30 mbgs. The horizon generally consisted of greyish brown to very dark greyish brown soil with no mottling observed. The soil was structureless (Grade 0), fine to medium, and massive. The soil was friable and firm, and moist to very moist with no coarse fragments and moderate to strong effervescence. Soil texture within this horizon included clay loam, sandy clay loam, and silty clay loam. This horizon has suitable soil textures but massive soil structure and is considered a restricting layer for soil-based treatment system.
- **Ck<sub>1</sub> Horizon** (within all testpits) ranging in depths between 1.0 mbgs and 3.0 mbgs. The horizon generally consisted of dark greyish brown to dark olive brown soil with some faint mottling. The soil was described as structureless (Grade 0), fine to medium, and massive structure. The soil was soft to firm, friable, and moist with 2% to 5% coarse fragments and weak effervescence. Traces of coal and oxide specks were observed in the horizon. Soil textures within this horizon were described as clay loam, silty clay loam, and/or sandy clay loam. The soil within this horizon was saturated at 21TP01, 21TP02, and 21TP03, and groundwater was observed entering these testpits at approximately 1.2 mbgs. This horizon has suitable soil textures but massive structure and locally saturated. This horizon is considered a restricting layer for soil-based treatment system.



- Ck<sub>2</sub> Horizon** (within 21TP01 through 21TP05, and 21TP09) ranging in depths between 1.8 mbgs and 3.00 mbgs. The horizon generally consisted of very dark greyish brown to dark olive brown soil with some faint mottling. The soil was described as structureless (Grade 0), fine to medium, and massive structure. The soil was friable and moist to very moist, with 2% to 5% coarse fragments and very weak effervescence. Traces of coal and oxide specks, and/or white precipitates were observed in the horizon. Soil textures within this horizon were described as clay loam (21TP02 and 21TP03), silty clay loam (21TP01 and 21TP05), and/or sandy clay loam (21TP04). Impermeable layers, such as bedrock and/or compaction, were not noted within the horizon; however, the soil at this depth was saturated at 21TP01, 21TP02, and 21TP03, and groundwater was observed entering these testpits at approximately 1.2 mbgs. This horizon has suitable soil textures but massive structure and locally saturated. This horizon is considered a restricting layer for soil-based treatment system.

### 3.9 Groundwater Seepage Conditions

Tetra Tech personnel visited the site on September 16, 2021 to measure the groundwater elevations within the standpipes with measurement results shown in Table D.

**Table D: Seepage Conditions and Groundwater Measurement Results on September 16, 2021**

Testpit Number	Depth of Standpipe (m)	Depth to Seepage (m)	Depth to Sloughing (m)	Borehole Elevation (m)	Depth to Groundwater (m)	Groundwater Elevation (m)
21TP001	3.0	1.2	1.2	901.17	1.36	899.81
21TP002	2.8	1.2	1.2	903.28	0.77	902.51
21TP003	3.0	1.2	1.2	904.38	0.69	903.69
21TP004	2.9	NE	NE	901.49	1.62	899.87
21TP005	3.0	NE	NE	903.53	2.17	901.36
21TP006	3.0	NE	NE	904.51	2.12	902.39
21TP007	3.0	NE	NE	906.27	NE	-
21TP008	3.0	NE	NE	907.37	NE	-
21TP009	3.0	NE	NE	907.51	NE	-
21TP010	3.0	NE	NE	907.46	NE	-
21TP011	3.0	NE	NE	906.72	NE	-
21TP012	3.0	NE	NE	906.62	NE	-

NE - Not Encountered

### 4.0 CONCLUSIONS AND RECOMMENDATIONS

In accordance with the requirements of APSSSoP, a minimum vertical separation distance between the soil infiltration surface and a restrictive layer for this site shall be no less than 1,500 mm when receiving primary treated effluent. The separation distance can be reduced to 900 mm when receiving secondary treated effluent (Level 2 or better) and using a pressure distribution lateral pipe system if the site is within 2 km of a lake, river, stream, or creek. If the minimum depth of a restrictive layer is greater than 1,500 mm (600 mm embedded depth plus 900 mm separation), a field system is considered suitable. If the minimum depth of a restrictive layer is less than 1,500 mm, a mound system may be required to maintain 900 mm separation. According to the aforementioned requirement and soil findings at the testpit locations, the assessment results of suitability of the soils for a soil-based treatment and recommended treatment system as well as design parameters are provided in Table E. To obtain Level 2 or better effluent quality, a sand filter of a minimum of 300 mm is generally considered above soil-based treatment system using pressure distribution lateral pipe. The recommended treatment system in Table E is based on the existing site conditions and need to be further reviewed if a site grading is to be conducted for the project.

**Table E: Assessment Results of Site Suitability and Soil-Based Treatment System**

Testpit Number	Restricting Layer/Depth (mbgs)	Separation Distance (mm)	Feasible Soil-Based Treatment System	Effluent Quality	Effluent Lading Rate (L/Day/sq. m)	Hydraulic Linear Loading Rate (L/Day/m)
21TP001	Massive CL (0.83)	830	Soil-based Treatment with Treatment Mound	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP002	Massive SCL (0.83)	830	Soil-based Treatment with Treatment Mound	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP003	Massive CL (2.3)	2,300	Soil-Based Treatment	Level 1 or better	8.8*	44.7
21TP004	Massive CL (1.3)	1,300	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe distribution lateral pipe	13.2	44.7
21TP005	Massive SCL (1.2)	1,200	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP006	Massive CL (1.1)	1,100	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP007	Massive CL (1.3)	1,300	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP008	Massive CL (0.6)	600	Soil-based Treatment with Treatment Mound	Level 2 or better with pressure distribution lateral pipe	13.2	37.3
21TP009	Massive CL (0.95)	950	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP010	Massive SICL (0.9)	900	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7
21TP011	Massive CL&SCL (0.9)	900	Soil-Based Treatment	Level 2 or better with pressure distribution lateral pipe	13.2	44.7

**Table E: Assessment Results of Site Suitability and Soil-Based Treatment System**

Testpit Number	Restricting Layer/Depth (mbgs)	Separation Distance (mm)	Feasible Soil-Based Treatment System	Effluent Quality	Effluent Lading Rate (L/Day/sq. m)	Hydraulic Linear Loading Rate (L/Day/m)
21TP012	Massive SICL (0.7)	700	Soil-based Treatment with Treatment Mound	Level 2 or better with pressure distribution lateral pipe	13.2	44.7

\*May increase to 13.2 if level 2 or better effluent quality to be applied.

It is understood that the local municipal authority having jurisdiction will be contacted to determine what will be accepted for septic disposal field installation. Depending on the requirements of the local municipal authority, further assessment of the soil conditions at the specific locations of proposed septic systems; as well, further site evaluation to meet the requirements of Part 7 within the APSSoP may be required. This may include, but is not limited to, the following:

- Hydrogeological site and soil evaluation for on-site sewage systems exceeding 9 m<sup>3</sup> per day design capacity as per Section 7.1.1.3 of the APSSoP.

## 5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Mr. Rick Aldoff, and his agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Mr. Rick Aldoff or his representatives., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on Use of this Document attached in Appendix C or Contractual Terms and Conditions executed by both parties.

## 6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully Submitted,  
Tetra Tech Canada Inc.

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/tlp

Attachments: Figure 1: Testpit Location Plan  
Appendix A: Hydrometer Results  
Appendix B: Soil Observation and Soil Profile Descriptions  
Appendix C: Limitation on Use of This Document

## REFERENCES

- ABACUS DataGraphics Website. Updated October 31, 2017. AbaData database  
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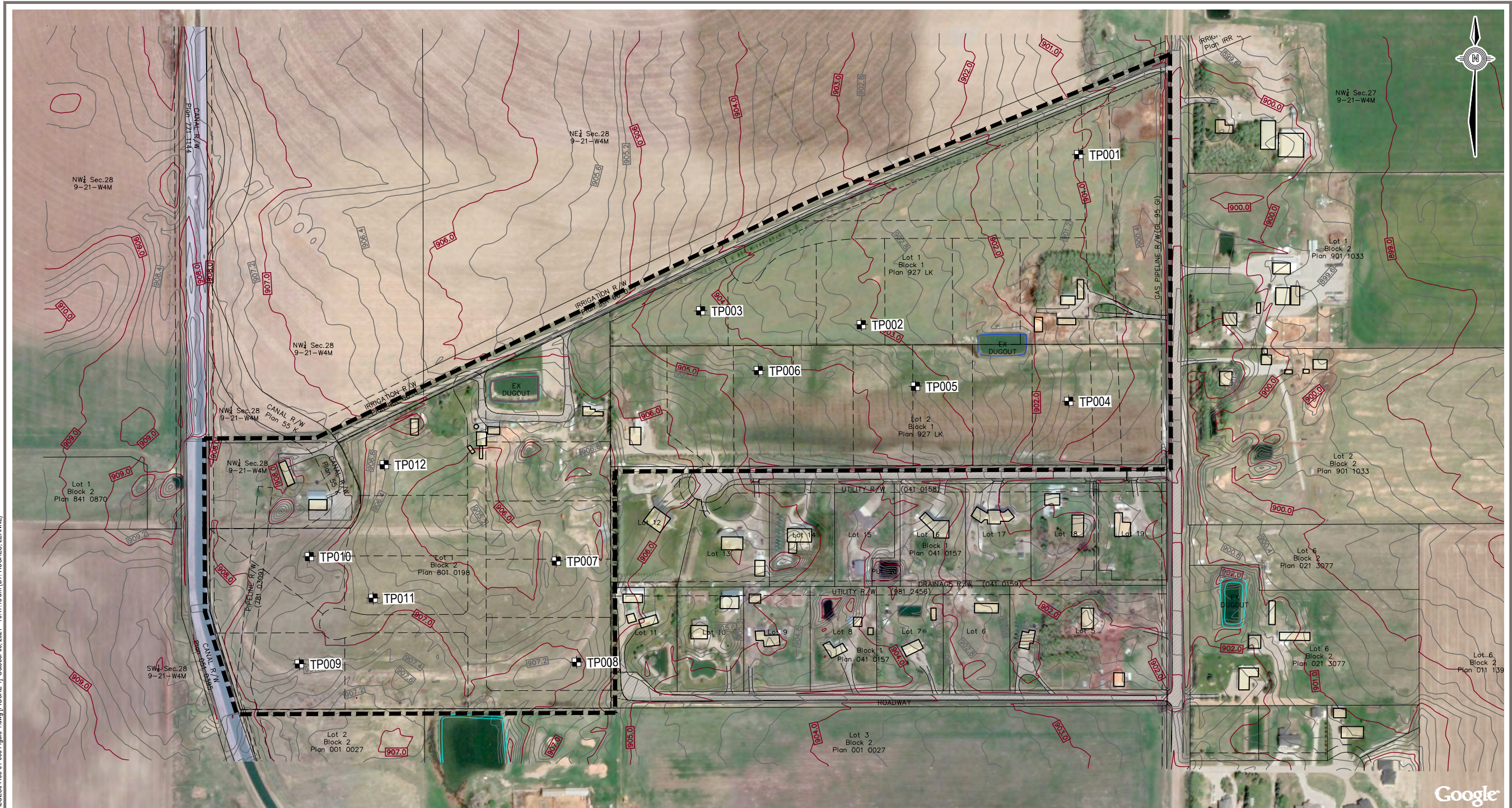
# FIGURES

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Figure 1 Testpit Location Plan

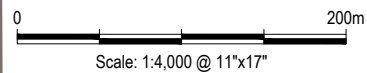






C:\Lehrb\ppl\Drafting\ENGIN\GEO\GEO04408-01-003\Figure 1.dwg [FIGURE 1] October 06, 2021 - 10:47:13 am (BY: HUGHES, LEANNE)

- LEGEND**
- SITE BOUNDARY
  - TEST PIT LOCATION
  - 1 m MAJOR CONTOUR
  - 0.2 m MINOR CONTOUR



**NOTES**  
 GOOGLE EARTH IMAGERY DATED 2021.  
 BASE DRAWING PROVIDED BY CLIENT, DATED JULY 15, 2021.

**CLIENT**

Mr. Rick Aldoff



**PRELIMINARY SEPTIC FIELD FEASIBILITY ASSESSMENT - MacLAINE ACRES ASP**

**TEST PIT LOCATION PLAN**

PROJECT NO. LGE004408-01.003	DWN LCH	CKD JM	REV 0
OFFICE Tt Leth	DATE October 2021		

Figure 1



# APPENDIX A

## HYDROMETER RESULTS

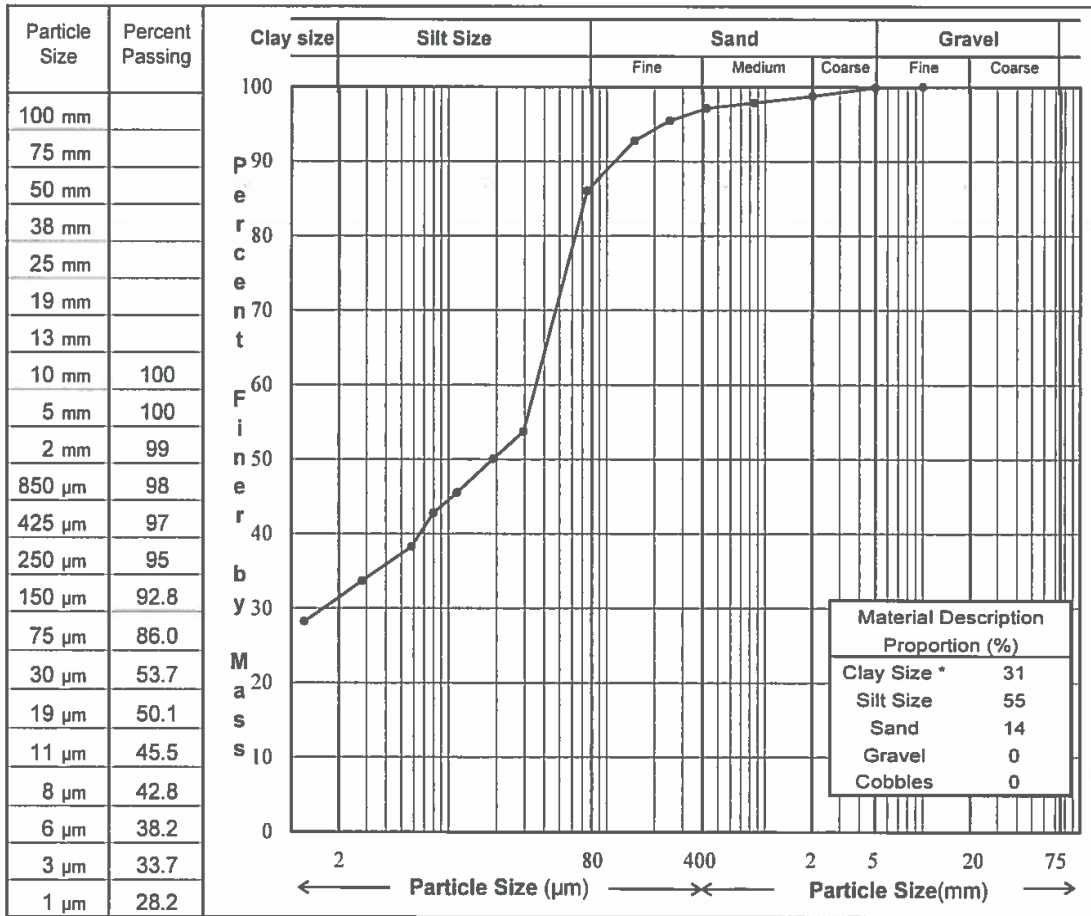
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	1
Client:	Rick Adolf	Borehole/ TP:	21TP01
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.10 -0.25 m
Location:		Date Tested	September 21, 2021
Description **:	Silty Clay Loam (SICL)	Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

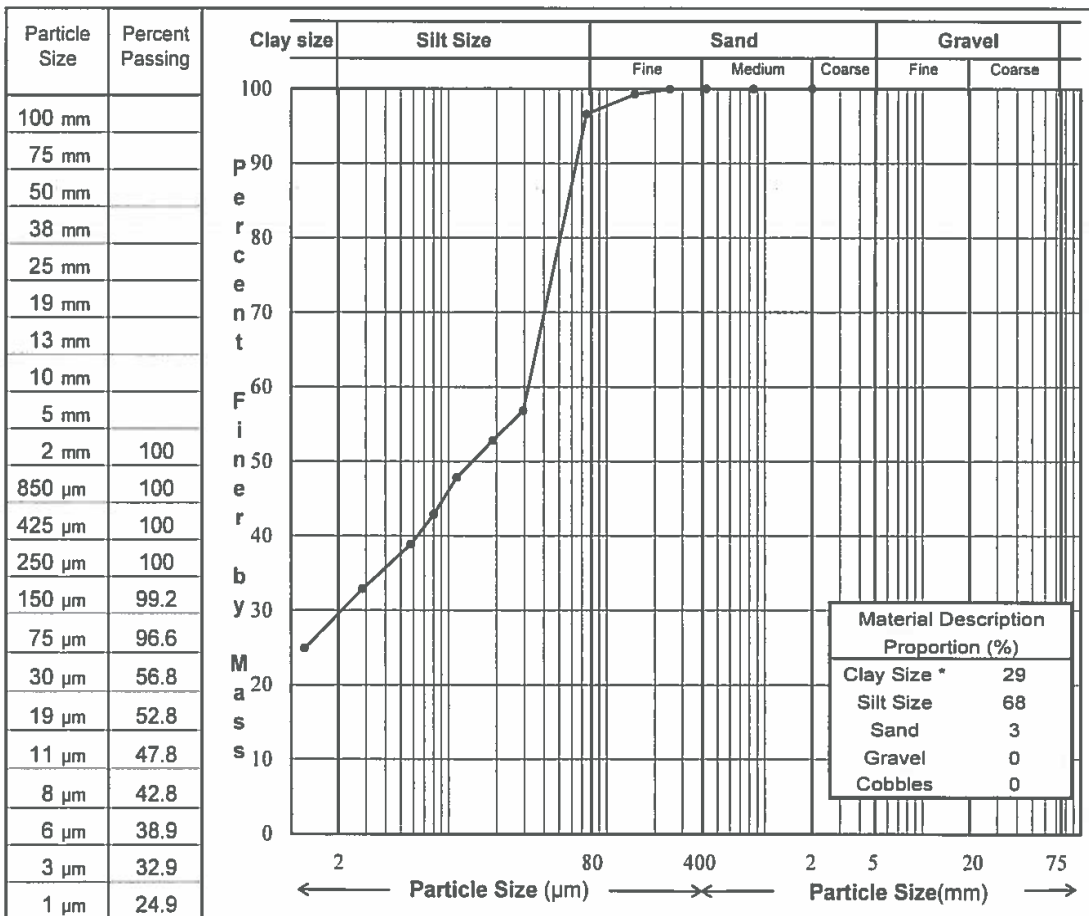
Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.



### PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	2
Client:	Rick Adolf	Borehole/ TP:	21TP02
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.25 - 0.83m
Location:		Date Tested	September 21, 2021
Description **: Silty Clay Loam (SICL)		Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is behaviour based & subject to Tetra Tech description protocols.

Reviewed By: \_\_\_\_\_ P.Eng.

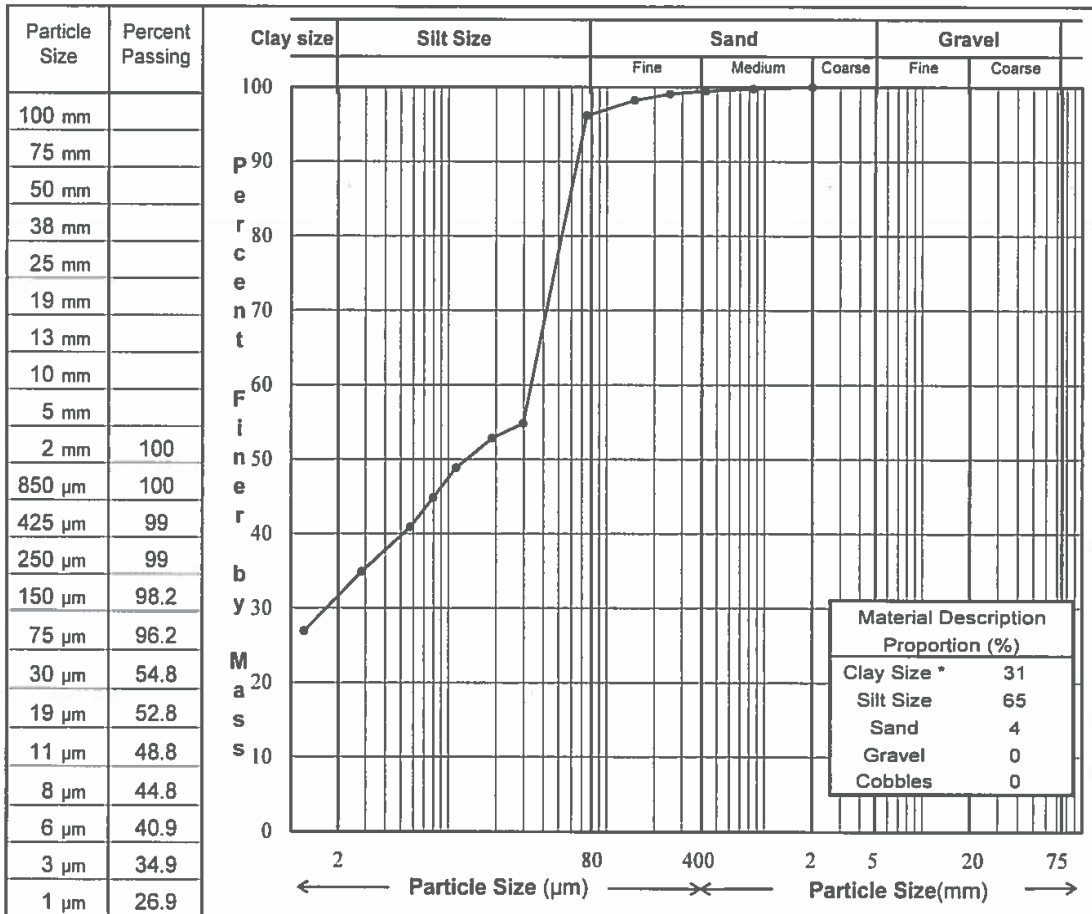
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	3
Client:	Rick Adolf	Borehole/ TP:	21TP03
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.27 - 0.9m
Location:		Date Tested	September 21, 2021
Description **:	Silty Clay Loam (SICL)	Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

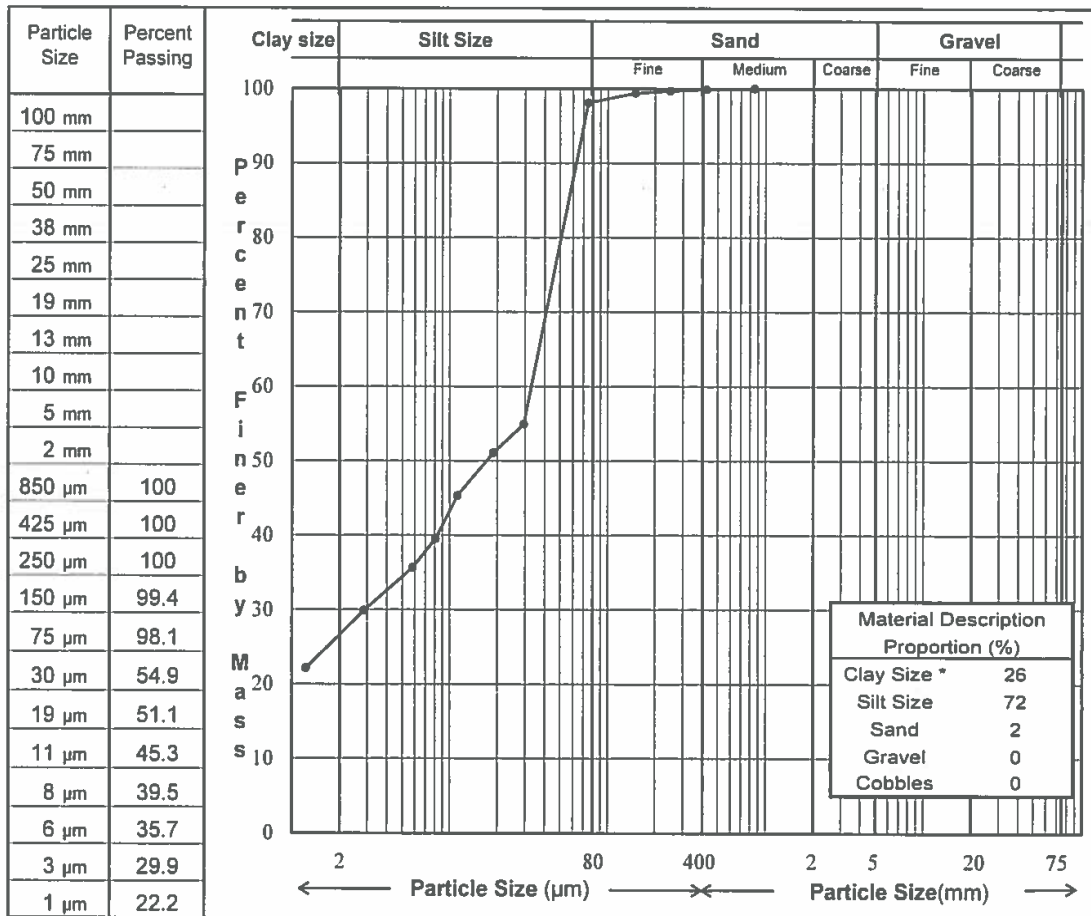
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	4
Client:	Rick Adolf	Borehole/ TP:	21TP04
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.19 - 1.30 m
Location:		Date Tested	September 21, 2021
Description **:	Silt Loam (SIL)	Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

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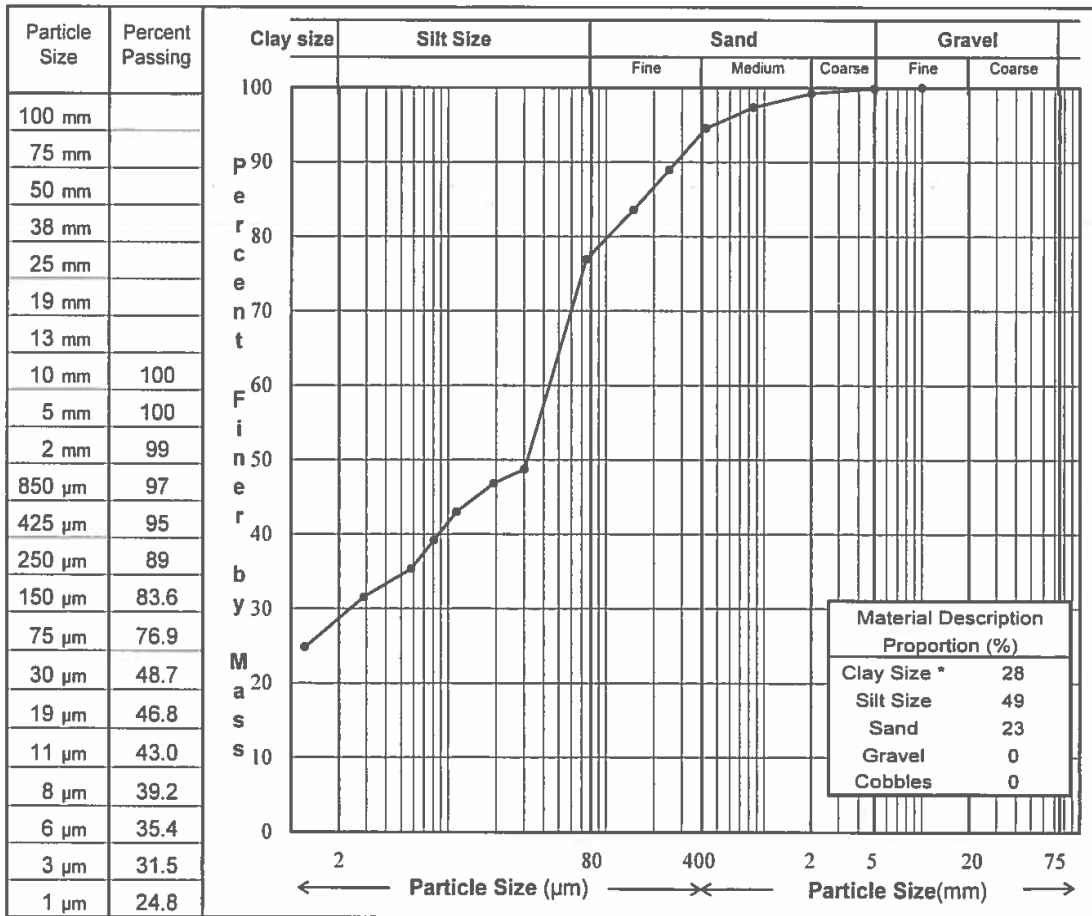




## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	5
Client:	Rick Adolf	Borehole/ TP:	21TP05
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.29 - 1.2 m
Location:		Date Tested	September 22, 2021
Description **:	Clay Loam (CL)	Tested By:	VO



Remarks: \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: \_\_\_\_\_ P.Eng.

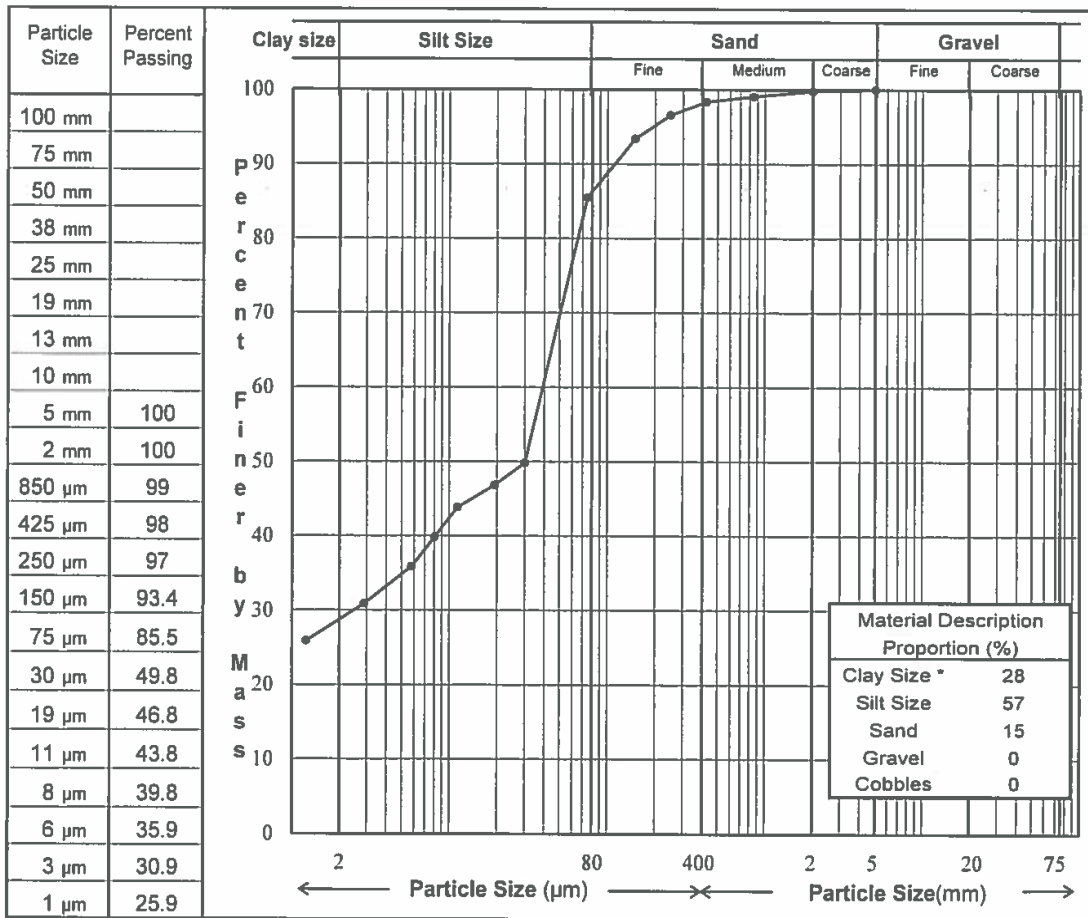
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	6
Client:	Rick Adolf	Borehole/ TP:	21TP06
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.11 - 0.21m
Location:		Date Tested	September 22, 2021
Description **:	Silty Clay Loam (SICL)	Tested By:	VO



Remarks: \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.

\*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

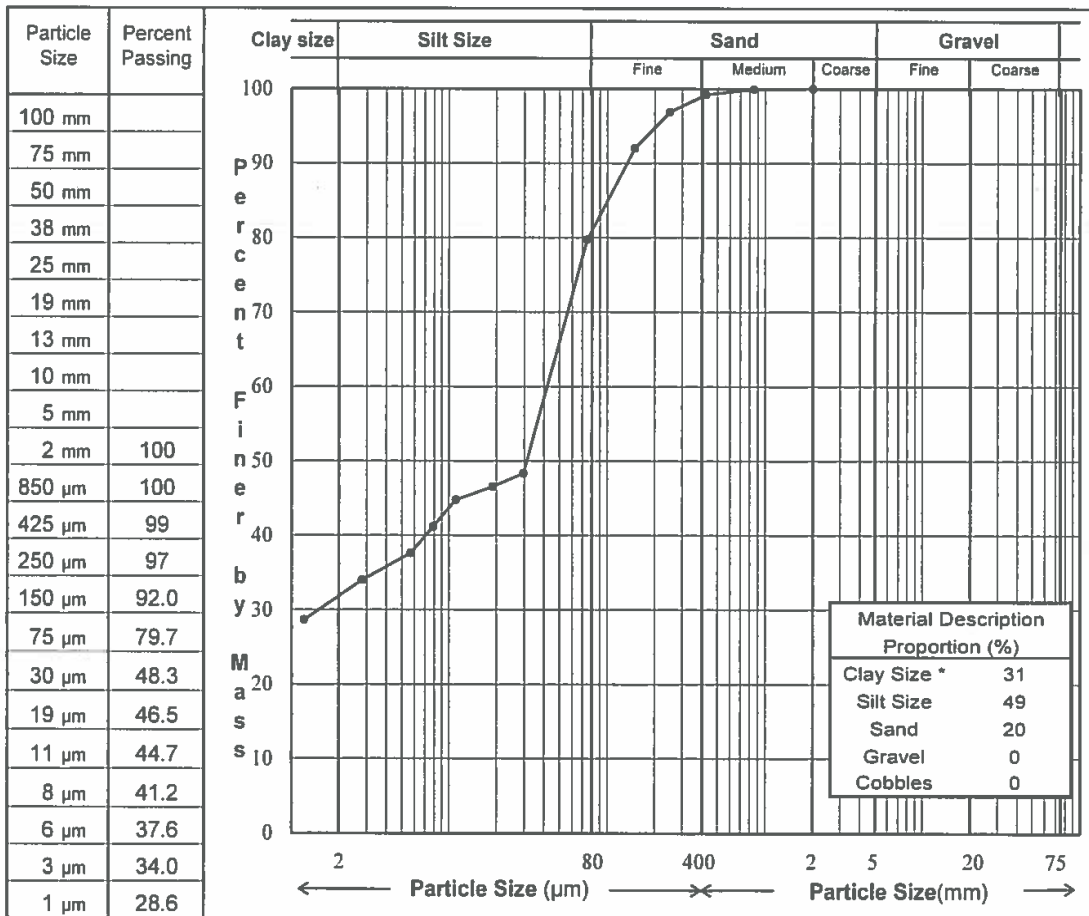
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### PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	<u>MacLaine Acres ASP - PSDFFA</u>	Sample No.:	<u>7</u>
Client:	<u>Rick Adolf</u>	Borehole/ TP:	<u>21TP07</u>
Project No.:	<u>704-ENG.LGEO04408-01.003</u>	Depth:	<u>0.5 - 0.7m</u>
Location:		Date Tested	<u>September 22, 2021</u>
Description **:	<u>Silty Clay Loam (SICL)</u>	Tested By:	<u>VO</u>



**Remarks:** \* The upper clay size of 2 μm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: [Signature] P.Eng.

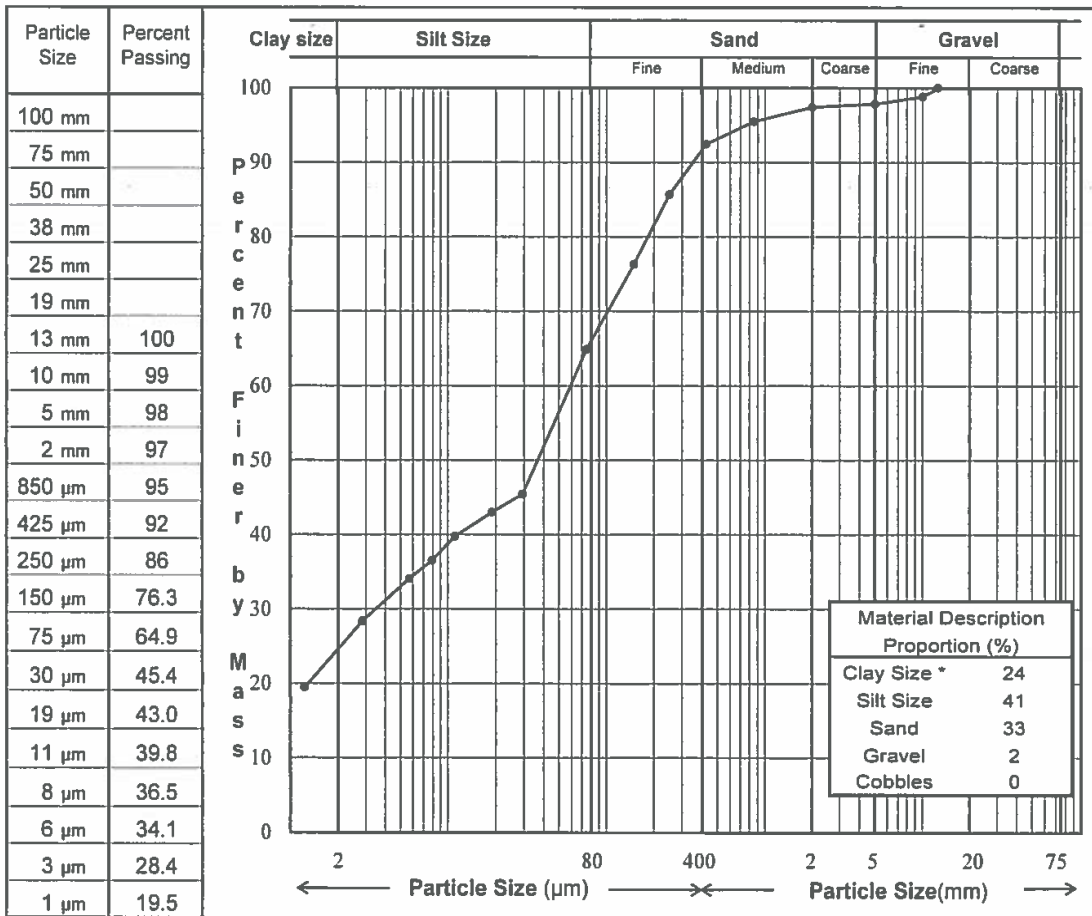
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MaClaine Acres ASP - PSDFFA	Sample No.:	8
Client:	Rick Adolf	Borehole/ TP:	21TP08
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.2 - 0.6m
Location:		Date Tested:	September 23, 2021
Description **: Loam (L)		Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: *[Signature]* P.Eng.

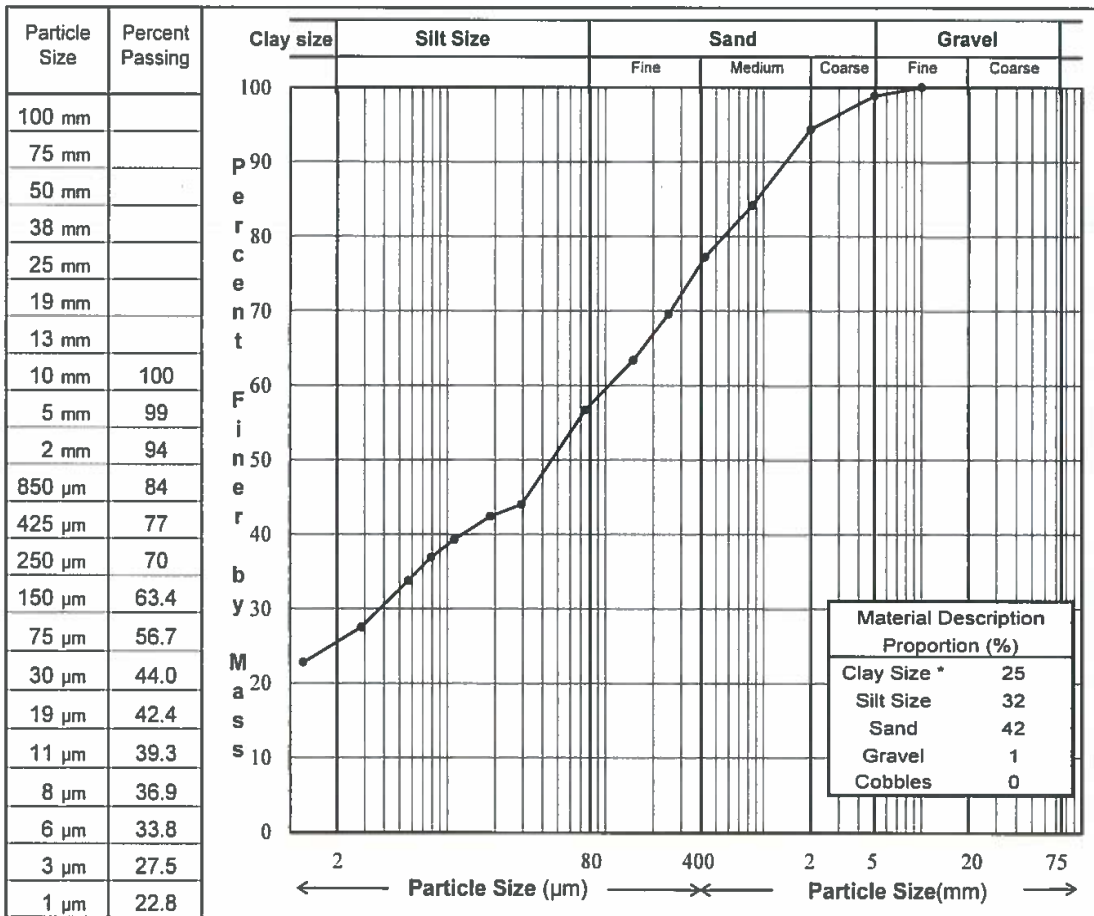
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	9
Client:	Rick Adolf	Borehole/ TP:	21TP09
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.3 - 0.95m
Location:		Date Tested:	September 23, 2021
Description **:	Loam (L)	Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

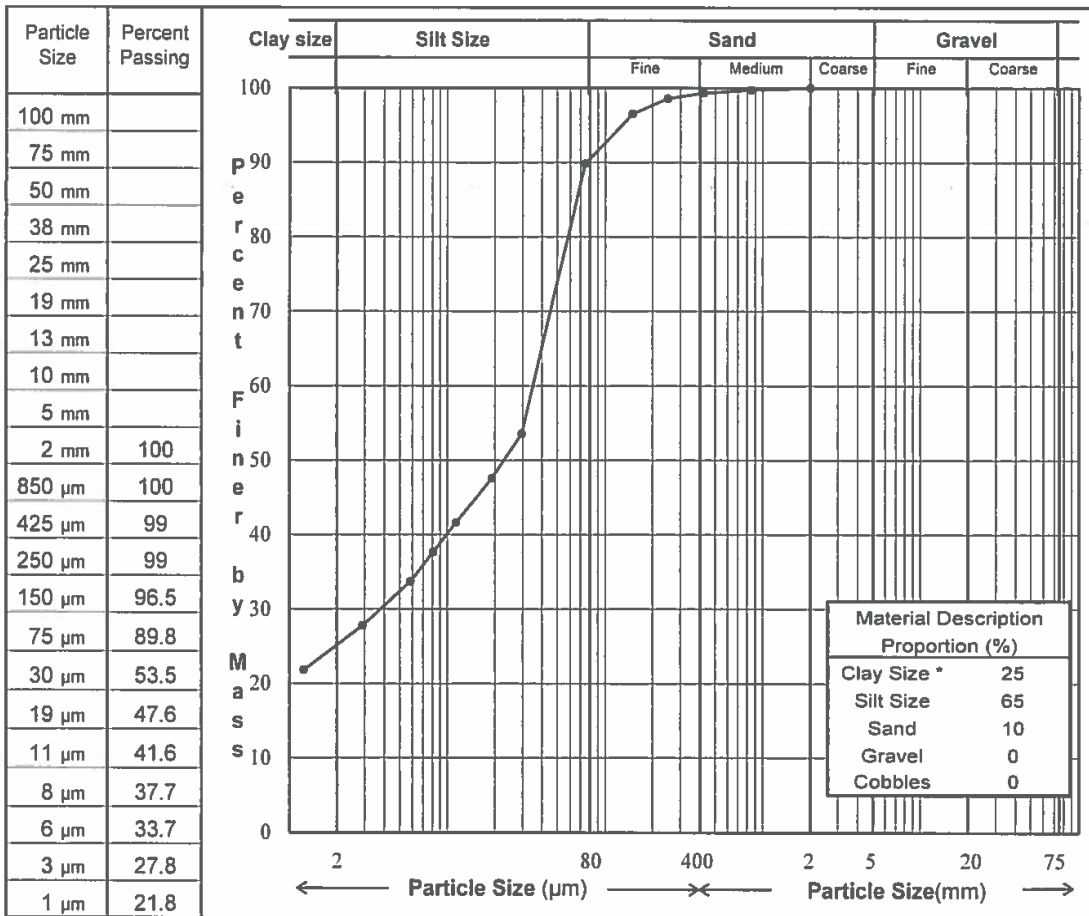
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MaCLaine Acres ASP - PSDFFA	Sample No.:	10
Client:	Rick Adolf	Borehole/ TP:	21TP10
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.31 - 0.90m
Location:		Date Tested	September 23, 2021
Description **:	Silt Loam (SIL)	Tested By:	VO



**Remarks:** \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By:  P.Eng.

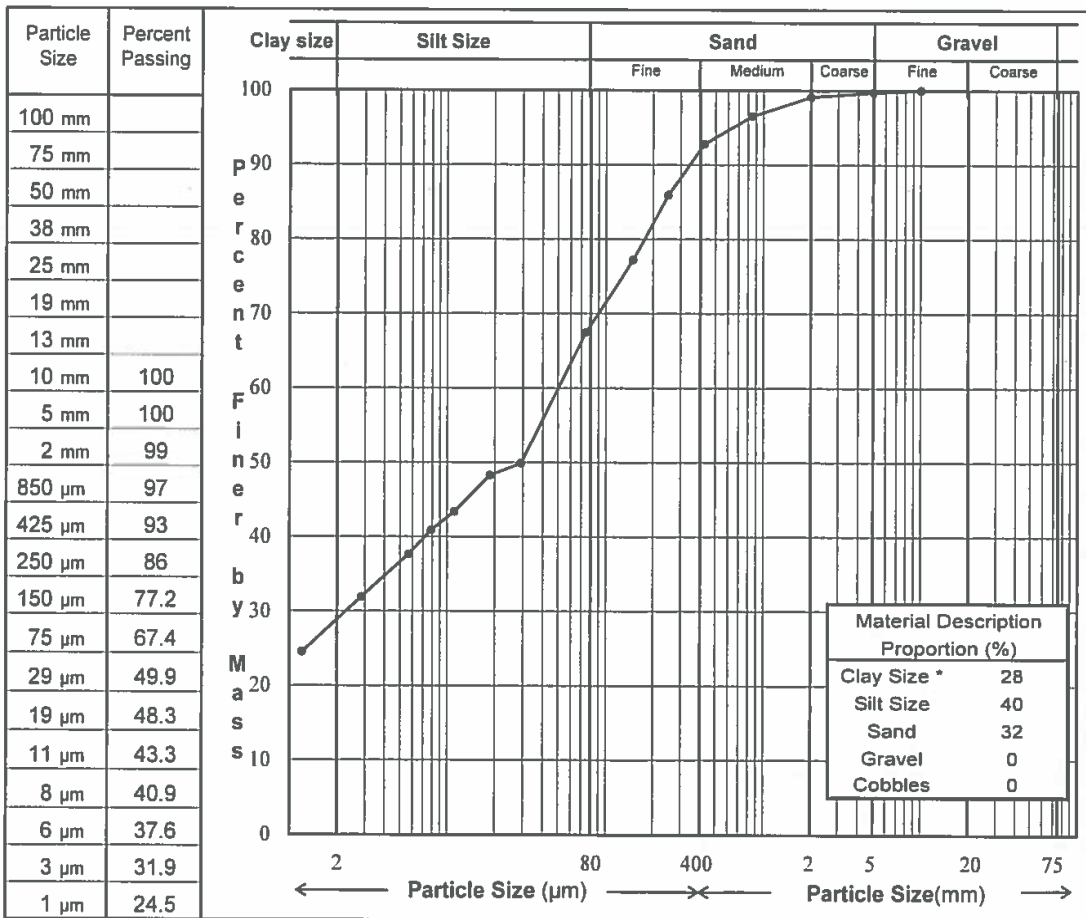
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	11
Client:	Rick Adolf	Borehole/ TP:	21TP11
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.4 - 0.9m
Location:		Date Tested:	September 24, 2021
Description **:	Clay Loam (CL)	Tested By:	VO



Remarks: \* The upper clay size of 2 μm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By: P.Eng.

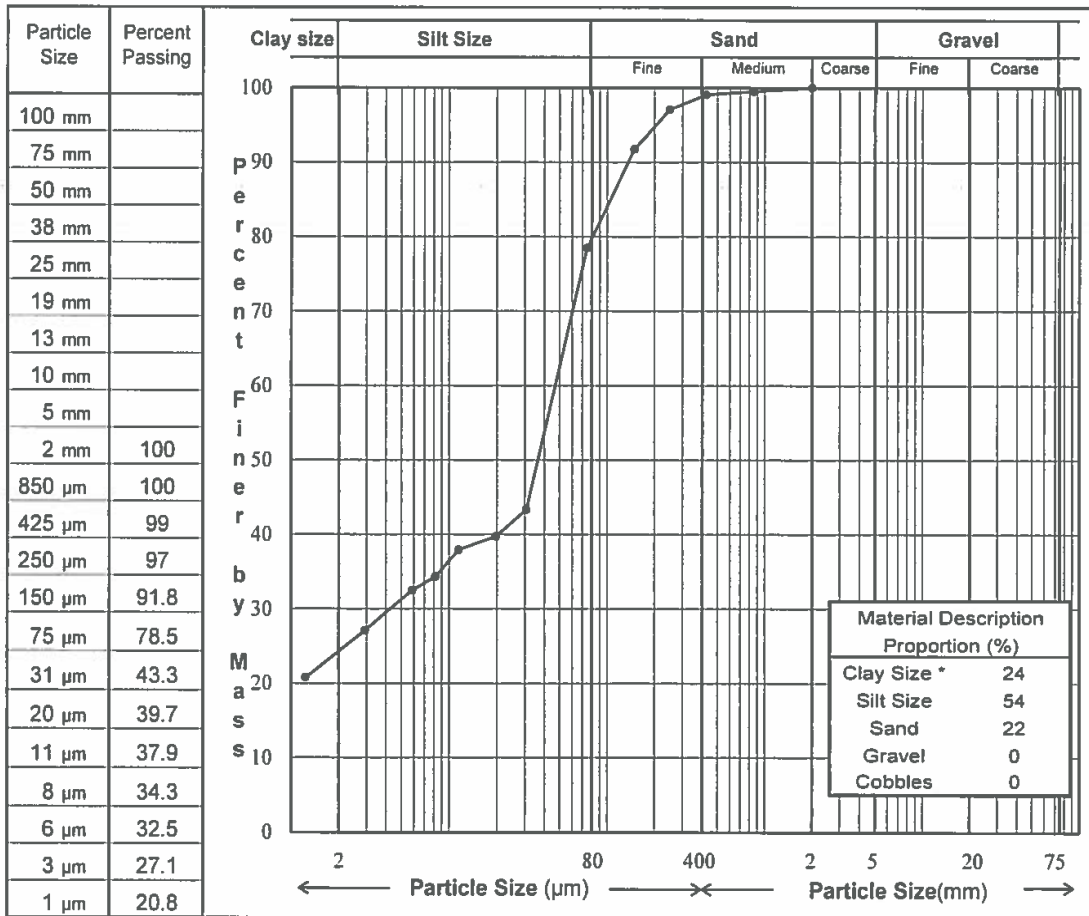
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## PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	MacLaine Acres ASP - PSDFFA	Sample No.:	12
Client:	Rick Adolf	Borehole/ TP:	21TP12
Project No.:	704-ENG.LGEO04408-01.003	Depth:	0.45 - 0.7m
Location:	*	Date Tested	September 24, 2021
Description **:	Silt Loam (SIL)	Tested By:	VO



Remarks: \* The upper clay size of 2 µm is as per the Canadian Foundation Manual.  
 \*\* The description is based off the Canadian System of Soils Classification.

Reviewed By:  P.Eng.

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# APPENDIX B

## SOIL OBSERVATION AND SOIL PROFILE DESCRIPTIONS

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### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP01			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 1; Block 1; Plan 927	Pasture – healthy, thick veg.

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Imperfect	1-2 % East	Level

<b>Profile Description</b>											
<b>Horizon</b>	<b>Depth (mbgs)</b>	<b>Texture</b>	<b>Lab/HT</b>	<b>Colour</b>	<b>Gleying/ Mottling?</b>	<b>Structure</b>			<b>Consistence</b>	<b>Moisture</b>	<b>% Coarse Fragments</b>
						<b>Grade</b>	<b>Class</b>	<b>Kind</b>			
Apk (Fill)	0-0.10	Clay Loam		10YR 3/2	No	Weak	Medium	Granular	Friable	Moist	0
Bmk (Fill)	0.10-0.25	Silty Clay Loam	Hyd.	10YR 3/3	Faint Mottle	Moderate	Medium	Blocky	Friable / Firm	Moist	0
Cca	0.25-0.83	Silty Clay Loam		2.5Y 5/2	Faint Mottle	Moderate	Medium	Subangular Blocky	Firm / Friable	Very Moist	0
Ck1	0.83-2.4	Clay Loam		2.5Y 3/2	Faint Mottle	Structureless	Medium	Massive	Friable / Soft	Very Moist to Wet	2-5
Ck2	2.4-3.0	Silty Clay Loam		2.5Y 3/3	Faint Mottle	Structureless	Medium	Massive	Friable / Soft	Very Moist to Wet	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
1.36 mbgs	Saturated soil observed at approximately 0.83 m.	Free water entering test pit at 1.2 m	Soil texture / grade / structure

### Comments:

Faint mottling noted in B and C horizon, increased soil moisture at 0.25 m with free water entering test pit at 1.2 m (saturated soil). A and B horizons are replaced as traces of red shale observed in horizons, however, structure observed. Thick, lush vegetation in pasture and area appears to have been irrigated. 1 inch standpipe installed to 3.0 in test pit.

Dugout approximately 175 m to the southwest of the test pit.

Residence approximately 100 m to the south of test pit.

**Site Observations and Soil Profile**

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP02			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 1; Block 1; Plan 927	Pasture – healthy, thick veg.

<b>Depth of Laboratory Samples:</b>									
<b>Soil Subgroup</b>		<b>Parent Material</b>		<b>Drainage</b>		<b>Slope Position and Slope %</b>		<b>Site Topography</b>	
Ca DBC		Till		Imperfect		1-2 % East		Level	

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk (Fill)	0-0.11	Clay Loam		10YR 1/1	Faint Mottle	Moderate	Fine	Granular	Friable	Moist	0
Bmk (Fill)	0.11-0.25	Clay Loam		10YR 2/1	Faint Mottle	Weak	Fine	Blocky	Friable / Firm	Moist	0
Cca	0.25-0.83	Silty Clay Loam	Hyd.	2.5Y 4/3	No	Weak	Fine	Granular	Friable	Very Moist	0
Ck1	0.83-2.4	Sandy Clay Loam		2.5Y 3/3	No	Structureless	Fine	Massive	Friable / Soft	Wet	0-2
Ck2	2.4-3.0	Clay Loam		2.5Y 3/3	Faint Mottle	Structureless	Fine	Massive	Friable / Soft	Wet	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
0.77 mbgs	Saturated soil observed at approximately 0.85 m.	Free water entering test pit at 1.2 m	Soil texture / grade / structure

**Comments:**

Faint mottling noted in A, B, and Ck horizon, increased soil moisture at 0.25 m with free water entering test pit at approximately 1.2 m (saturated soil). A and B horizons are replaced as traces of red shale observed in horizons, however, structure observed. Thick, lush vegetation in pasture and area appears to have been irrigated. 1 inch standpipe installed to 3.0 in test pit Dugout approximately 80 m to the southeast of the test pit.

Residences approximately 150 m to the east and 190 m to the south, respectively, of test pit.

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP03			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 1; Block 1; Plan 927	Pasture – healthy, thick veg.

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Imperfect	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/ Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk (Fill)	0-0.27	Clay Loam		10YR 3/3	No	Moderate	Medium	Granular	Friable	Moist	0
Cca1	0.27-0.9	Silty Clay Loam	Hyd.	2.5Y 4/3	No	Weak	Fine	Granular	Friable	Very Moist	0
Cca2	0.9-2.3	Sandy Clay Loam		2.5Y 5/2	No	Weak	Fine	Single-Grained	Friable	Wet	0
Ck1	2.3-3.0	Clay Loam		2.5Y 3/2	Faint Mottle	Structureless	Medium	Massive	Friable	Wet	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
0.69 mbgs	Saturated soil observed at approximately 0.9 m.	Free water entering test pit at 1.2 m	Soil texture / grade / structure

### Comments:

Faint mottling noted in Ck horizon, increased soil moisture at 0.27 m with free water entering test pit at approximately 1.2 m (saturated soil). No distinct B horizon, A horizon is replaced as traces of red shale observed. Thick, lush vegetation in pasture and area appears to have been irrigated. 1 inch standpipe installed to 3.0 in test pit

Dugout approximately 175 m to the southwest of the test pit.

Residences approximately 125 m to the south of test pit.

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP04			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 2; Block 1; Plan 927	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk	0-0.10	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry to Damp	0
Bmk	0.1- 0.19	Clay Loam		10YR 4/3	No	Moderate	Fine to Medium	Blocky	Friable / Firm	Damp to Moist	0
Cca	0.19-1.3	Silty Loam	Hyd.	2.5Y 4/3	Faint Mottling	Weak	Fine	Subangular Blocky	Firm	Moist	0
Ck1	1.3-1.8	Clay Loam		2.5Y 3/3	No	Structureless	Medium	Massive	Soft to Firm	Moist to Very Moist	2-5
Ck2	1.8-3.0	Sandy Clay Loam		2.5Y 4/3	No	Structureless	Fine to Medium	Massive	Soft to Firm	Moist to Very Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
1.62 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Faint mottling noted in Cca horizon, increased soil moisture at 1.3 m. No evidence of free water upon completion.

Dugout approximately 70 m to the northeast of the test pit. 1 inch standpipe installed to 3.0 m.

Residences approximately 100 m to the north and south of test pit.

**Site Observations and Soil Profile**

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP05			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 2; Block 1; Plan 927	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/ Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk	0-0.17	Clay Loam		10YR 3/3	No	Weak	Medium	Granular	Friable	Dry	0
Bmk	0.17-0.29	Clay Loam		10YR 4/3	No	Moderate	Medium	Blocky	Friable / Firm	Dry	0
Cca	0.29-1.2	Clay Loam	Hyd.	2.5Y 3/2	No	Weak	Fine	Granular	Friable	Moist	0
Ck1	1.2-2.4	Sandy Clay Loam		2.5Y 3/2	Faint Mottle	Structureless	Medium	Massive	Friable / Firm	Moist to Very Moist	2-5
Ck2	2.4-3.0	Silty Clay Loam		2.5Y 3/3	No	Structureless	Medium	Massive	Friable / Soft	Moist to Very Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
2.17 mbgs	N/A	N/A	Soil texture / grade / structure

**Comments:**

Faint mottling noted in Ck horizon, increased soil moisture at 0.29 m. No evidence of free water upon completion.

Dugouts approximately 75 m to the northeast and south of the test pit. 1 inch standpipe installed to 3.0 m.

Residences approximately 125 m to 150 m to the south and northeast, respectively, of test pit.

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP06			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NE 1/4	28	009	21	W4	Lot 2; Block 1; Plan 927	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/ Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk	0-0.11	Clay Loam		10YR 2/2	No	Weak	Fine	Granular	Friable	Dry	0
Bmk	0.11-0.21	Silty Clay Loam		10YR 4/3	No	Weak	Fine to Medium	Granular	Friable	Dry	0
Cca	0.21-1.1	Silty Clay Loam	Hyd.	2.5Y 4/2	No	Moderate	Fine to Medium	Subangular Blocky	Firm / Friable	Moist	0
Ck	1.1-3.0	Clay Loam		2.5Y 4/2	No	Structureless	Coarse	Massive	Firm / Friable	Moist to Very Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
2.12 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Increased soil moisture at 0.21 m. No evidence of free water upon completion. 1 inch standpipe installed to 3.0 m.

Dugouts approximately 250 m to the east and west of the test pit.

Residences approximately 130 m to the west and 160 m to the south, respectively, of test pit.



### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP07			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
SE 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk (Fill)	0-0.08	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry	0
Fill	0.08-0.31	Clay Loam		10YR 4/2	No	Moderate	Medium	Blocky	Friable / Firm to Hard	Dry	0-2
Ahkb	0.31-0.5	Clay Loam		10YR 2/1	Faint Mottling	Moderate	Medium	Blocky	Friable / Firm to Hard	Dry	0
Bmkb	0.5-0.7	Silty Clay Loam	Hyd.	10YR 2/2	Faint Mottling	Moderate	Medium	Blocky	Friable / Firm to Hard	Dry	0
Cca1	0.7-1.3	Clay Loam to Silty Clay Loam		2.5Y 4/2	Faint Mottling	Weak	Fine	Subangular Blocky	Firm	Moist	0
Cca2	1.3-1.6	Clay Loam		2.5Y 3/2	No	Structureless	Fine to Medium	Massive	Friable / Firm	Moist	0
Ck	1.6-3.0	Clay Loam to Sandy Clay Loam		2.5Y 4/3	No	Structureless	Medium	Massive	Friable / Firm	Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

#### Comments:

Faint mottling noted in buried A and B horizons, and in Cca horizon. Increased soil moisture at 0.7 m. No evidence of free water upon completion. 1 inch standpipe installed to 3.0 m

Dugouts approximately 175 m to the north and south of the test pit. Residences approximately 100 m to the east of test pit.

**Site Observations and Soil Profile**

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP08			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
SE 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>												
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments	
						Grade	Class	Kind				
Apk	0-0.07	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry	0	
Bmk	0.07-0.2	Clay Loam		10YR 3/1	No	Moderate	Coarse	Blocky	Firm	Dry	0	
Cca1	0.2-0.6	Loam	Hyd.	2.5Y 5/3	No	Moderate	Fine	Subangular Blocky	Firm	Damp to Moist	0	
Cca2	0.6-1.2	Clay Loam		2.5Y 5/2	No	Structureless	Fine	Massive	Friable / Firm	Moist	0	
Ck	1.2-3.0	Clay Loam		2.5Y 4/2	No	Structureless	Medium	Massive	Friable / Firm	Moist	2-5	

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

**Comments:**

Increased soil moisture at 0.6 m. No evidence of free water upon completion. 1 inch standpipe installed to 3.0 m  
 Dugout approximately 80 m to the southwest of the test pit.  
 Residence approximately 80 m to the northeast of test pit.

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP09			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
SW 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Apk	0-0.09	Clay Loam		10YR 2/2	Faint Mottle	Moderate	Medium	Granular	Friable	Dry to Damp	0
Bmk	0.09-0.3	Clay Loam		10YR 3/2	Faint Mottle	Weak	Medium	Blocky	Firm	Dry to Damp	0
Cca	0.3-0.95	Loam	Hyd.	2.5Y 4/3	Faint Mottle	Moderate	Medium	Subangular Blocky	Firm	Moist	0
Ck1	0.95-2.3	Clay Loam		2.5Y 4/2	No	Structureless	Fine	Massive	Friable / Firm	Moist	2-5
Ck2	2.3-3.0	Clay Loam		2.5Y 3/3	No	Structureless	Fine	Massive	Friable	Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Faint mottling noted in A, B and Cca horizon. Increased soil moisture at 0.95 m. No evidence of free water upon completion.  
 Dugout approximately 160 m to the southeast of the test pit. Irrigation canal approximately 65 m to the west of test pit.  
 Residence approximately 200 m to the north of test pit. 1 inch standpipe installed to 3.0 m

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP10			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
SW 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>												
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments	
						Grade	Class	Kind				
Ahk	0-0.09	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry	0	
Bmk	0.09-0.31	Clay Loam		10YR 4/3	No	Moderate	Coarse	Blocky	Firm to Hard	Dry	0	
Cca1	0.31-0.9	Silty Loam	Hyd.	2.5Y 4/2	No	Moderate	Coarse	Subangular Blocky	Firm to Hard	Damp to Moist	0	
Cca2	0.9-2.3	Silty Clay Loam		2.5Y 4/3	No	Structureless	Fine	Massive	Friable	Moist	0	
Ck	2.3-3.0	Clay Loam		2.5Y 3/2	Faint Mottle	Structureless	Medium	Massive	Friable	Moist	2-5	

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Faint mottling noted in Ck horizon. Increased soil moisture at 0.9 m. No evidence of free water upon completion.  
 Dugout approximately 230 m to the southeast of the test pit. Irrigation canal approximately 115 m to the west of test pit.  
 Residence approximately 50 m to the north of test pit. 1 inch standpipe installed to 3.0 m

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP11			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
SW 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>					
<b>Soil Subgroup</b>		<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC		Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/ Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Ahk	0-0.13	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry	0
Bmk	0.13-0.4	Clay Loam		10YR 4/3	Faint Mottling	Moderate	Coarse	Blocky	Firm	Dry	0
Cca1	0.4-0.9	Clay Loam	Hyd.	2.5Y 3/2	Faint Mottling	Moderate	Coarse	Subangular Blocky	Firm	Damp to Moist	0
Cca2	0.9-1.2	Clay Loam to Sandy Clay Loam		2.5Y 3/3	No	Structureless	Fine to Medium	Massive	Friable	Moist	0
Ck	1.2-3.0	Clay Loam to Sandy Clay Loam		2.5Y 3/3	No	Structureless	Fine to Medium	Massive	Friable / Firm	Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Faint mottling noted in B and C horizon. Increased soil moisture at 0.6 m. No evidence of free water upon completion.

Dugout approximately 175 m to the southeast of the test pit. Irrigation canal approximately 130 m to the west.

Residence approximately 100 m to the north of test pit. 1 inch standpipe installed to 3.0 m

### Site Observations and Soil Profile

<b>Job ID</b>		<b>Testpit Identification</b>			<b>Date</b>	<b>Weather Condition</b>
ENG.LGEO04408-01.003		21TP12			September 9, 2021	Clear, Sunny, Warm
<b>Site Information:</b>						
<b>LSD/1/4</b>	<b>Sec.</b>	<b>Twp.</b>	<b>Rg.</b>	<b>Mer.</b>	<b>Proposed Lot Number</b>	<b>Vegetation</b>
NW 1/4	28	009	21	W4	Lot 1; Block 2; Plan 801 0198	Pasture – shortgrass, dry

<b>Depth of Laboratory Samples:</b>				
<b>Soil Subgroup</b>	<b>Parent Material</b>	<b>Drainage</b>	<b>Slope Position and Slope %</b>	<b>Site Topography</b>
Ca DBC	Till	Well Drained	1-2 % East	Level

<b>Profile Description</b>											
Horizon	Depth (mbgs)	Texture	Lab/HT	Colour	Gleying/Mottling?	Structure			Consistence	Moisture	% Coarse Fragments
						Grade	Class	Kind			
Ahk	0-0.16	Clay Loam		10YR 3/2	No	Weak	Fine	Granular	Friable	Dry	0
Bmk	0.16-0.45	Clay Loam		10YR 3/1	No	Moderate	Coarse	Blocky	Firm to Hard	Dry	0
Cca1	0.45-0.7	Silty Loam	Hyd.	2.5Y 3/3	No	Moderate	Coarse	Subangular Blocky	Firm to Hard	Dry	0
Cca2	0.7-1.0	Silty Clay Loam		2.5Y 4/3	No	Structureless	Fine	Massive	Friable	Moist	0
Ck	1.0-3.0	Clay Loam to Silty Clay Loam		2.5Y 4/2	Faint Mottling	Structureless	Medium	Massive	Friable / Firm	Moist	2-5

<b>Depth to Groundwater</b>	<b>Restricting Soil Layer Characteristic</b>	<b>Depth to Highly Permeable Layer Limiting Design</b>	<b>Key Soil Characteristics Applied to System Design Effluent Loading</b>
Dry to 3.0 mbgs	N/A	N/A	Soil texture / grade / structure

### Comments:

Faint mottling noted in Ck horizon. Increased soil moisture at 0.7 m. No evidence of free water upon completion.

Dugout approximately 130 m to the northeast of the test pit. Irrigation canal approximately 190 m to the west of test pit.

Residence approximately 50 m to the southwest of test pit. 1 inch standpipe installed to 3.0 m.

# APPENDIX C

## LIMITATIONS ON USE OF THIS DOCUMENT

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# LIMITATIONS ON USE OF THIS DOCUMENT

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## 1.1 USE OF DOCUMENT AND OWNERSHIP

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This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

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## 1.2 ALTERNATIVE DOCUMENT FORMAT

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

## 1.3 STANDARD OF CARE

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

## 1.4 DISCLOSURE OF INFORMATION BY CLIENT

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

## 1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

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During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

## 1.6 GENERAL LIMITATIONS OF DOCUMENT

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

**LETHBRIDGE COUNTY  
IN THE PROVINCE OF ALBERTA**

**BYLAW NO. 22-009**

**A BYLAW OF LETHBRIDGE COUNTY BEING A BYLAW PURSUANT TO  
SECTION 633(1) OF THE MUNICIPAL GOVERNMENT ACT, REVISED  
STATUTES OF ALBERTA 2000, CHAPTER M.26**

WHEREAS the landowners wish to develop lands within Plan 927LK, Block 1, Lots 1 and 2, and Plan 8010198, Block 2, Lot 1, and portion of NW 28-9-21-W4;

AND WHEREAS the County's Municipal Development Plan and the Lethbridge County and City of Lethbridge Intermunicipal Development Plan requires that developers prepare an Area Structure Plan to ensure sound development occurs within Lethbridge County;

AND WHEREAS the total area considered by the Area Structure Plan is approximately 80 acres (32.3 hectares);

AND WHEREAS the landowner/developer have prepared the "MacLaine Acres Area Structure Plan" which contains engineering, survey, and geotechnical information to support the above conditions.

NOW THEREFORE BE IT RESOLVED, under the Authority and subject to the provisions of the Municipal Government Act, Revised Statutes of Alberta, 2000, Chapter M-26, as amended, the Council of Lethbridge County in the Province of Alberta duly assembled does hereby enact the following:

1. The "MacLaine Acres Area Structure Plan" Bylaw No. 22-009, attached as "Appendix A".

GIVEN first reading this 15th day of September, 2022.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

GIVEN second reading this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

GIVEN third reading this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

1 <sup>st</sup> Reading	September 15, 2022
2 <sup>nd</sup> Reading	
Public Hearing	
3 <sup>rd</sup> Reading	

**LETHBRIDGE COUNTY  
IN THE PROVINCE OF ALBERTA**

**BYLAW NO. 22-009**

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AND WHEREAS the landowner/developer have prepared the "MacLaine Acres Area Structure Plan" which contains engineering, survey, and geotechnical information to support the above conditions.

NOW THEREFORE BE IT RESOLVED, under the Authority and subject to the provisions of the Municipal Government Act, Revised Statutes of Alberta, 2000, Chapter M-26, as amended, the Council of Lethbridge County in the Province of Alberta duly assembled does hereby enact the following:

1. The "MacLaine Acres Area Structure Plan" Bylaw No. 22-009, attached as "Appendix A".

GIVEN first reading this 15th day of September, 2022.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

That Bylaw No. 22-009 is deemed an amendment to the Plowman Area Structure Plan Bylaw No. 1231 (2002) and that the intent of Bylaw No. 22-009 adopting the "MacLaine Acres Area Structure Plan" is to provide an update to current municipal standards, revised layout plan, and engineering information to complete and amend the Plowman Area Structure Plan Bylaw No. 1231 (2002) by including text and references to describe the update.

GIVEN second reading, **as amended**, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

GIVEN third reading, **as amended**, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
CAO

1 <sup>st</sup> Reading	September 15, 2022
2 <sup>nd</sup> Reading	
Public Hearing	
3 <sup>rd</sup> Reading	

**LETHBRIDGE COUNTY  
IN THE PROVINCE OF ALBERTA**

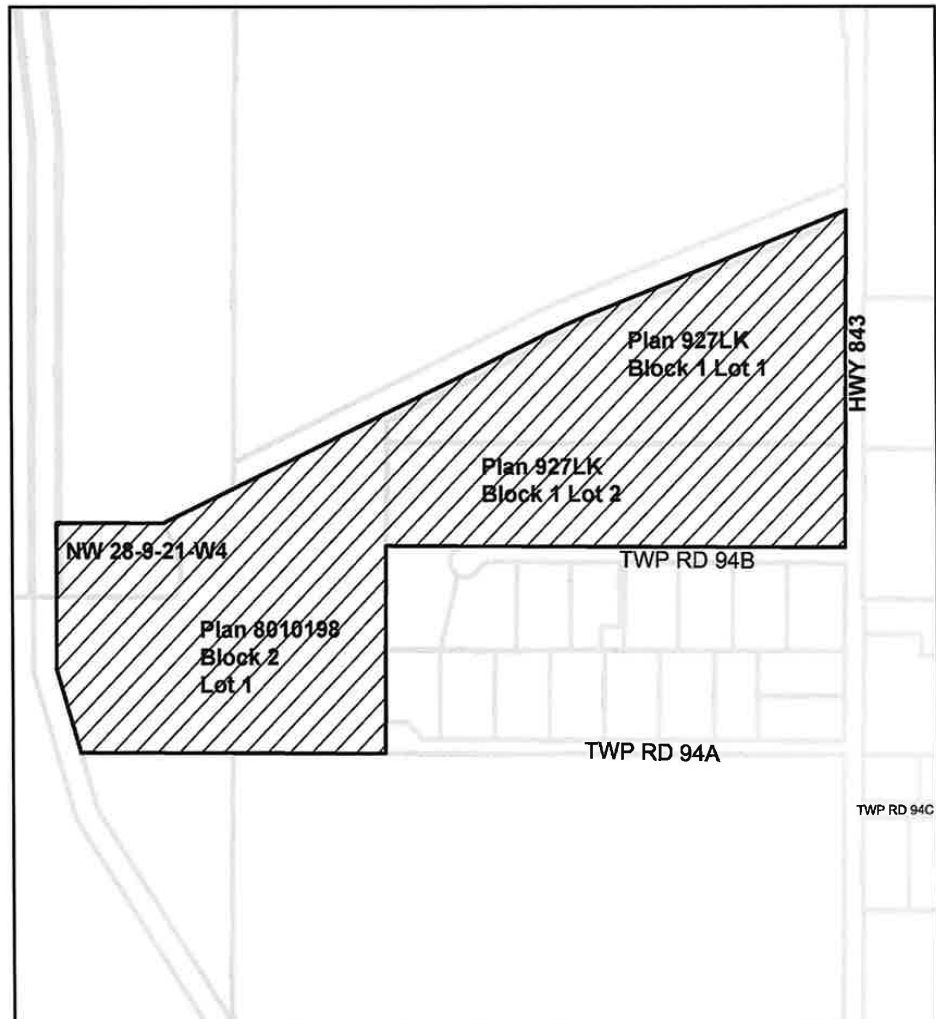
**BYLAW NO. 22-010**

Bylaw 22-010 of Lethbridge County being a bylaw for the purpose of amending Land Use Bylaw 1404, in accordance with Sections 230, 606 and 692 of the Municipal Government Act, R.S.A. 2000, Chapter M-26.

WHEREAS the purpose of Bylaw 22-010 is to re-designate portions of the NW 28-9-21-W4 (3.5 acres), Plan 927LK, Block1, Lots 1 and 2, and Plan 8010198, Block 2, Lot 1, from Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR) as shown below;

AND WHEREAS the re-designation of the lands will allow for future residential subdivision and development of the parcels;

AND WHEREAS the municipality must prepare an amending bylaw and provide for its notification and consideration at a public hearing;



**Land Use Redesignation  
Bylaw 22-010 Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR)**

**All of Plan 927LK Block 1 Lot 1, All of Plan 927LK Block1 Lot 2,  
All of Plan 8010198 Block 2 Lot 1, Portion of NW 28-9-21-W4 (3.5 Acres)**

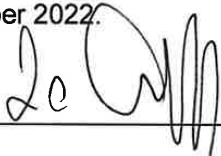
**▨ Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR)**

AND WHEREAS the re-designation of the lands will allow for future residential subdivision and development of the parcels;

AND WHEREAS the municipality must prepare an amending bylaw and provide for its notification and consideration at a public hearing;

NOW THEREFORE, under the authority of the Municipal Government Act, R.S.A. 2000, C-26, as amended, the Council of Lethbridge County in the Province of Alberta duly assembled does hereby enact the following, with the bylaw only coming into effect upon three successful reading thereof;

GIVEN first reading this 15th day of September 2022.

  
\_\_\_\_\_  
Reeve

  
\_\_\_\_\_  
Chief Administrative Officer

GIVEN second reading this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
Chief Administrative Officer

GIVEN third reading this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
Chief Administrative Officer

1 <sup>st</sup> Reading	September 15, 2022
2 <sup>nd</sup> Reading	
Public Hearing	
3 <sup>rd</sup> Reading	

**LETHBRIDGE COUNTY  
IN THE PROVINCE OF ALBERTA**

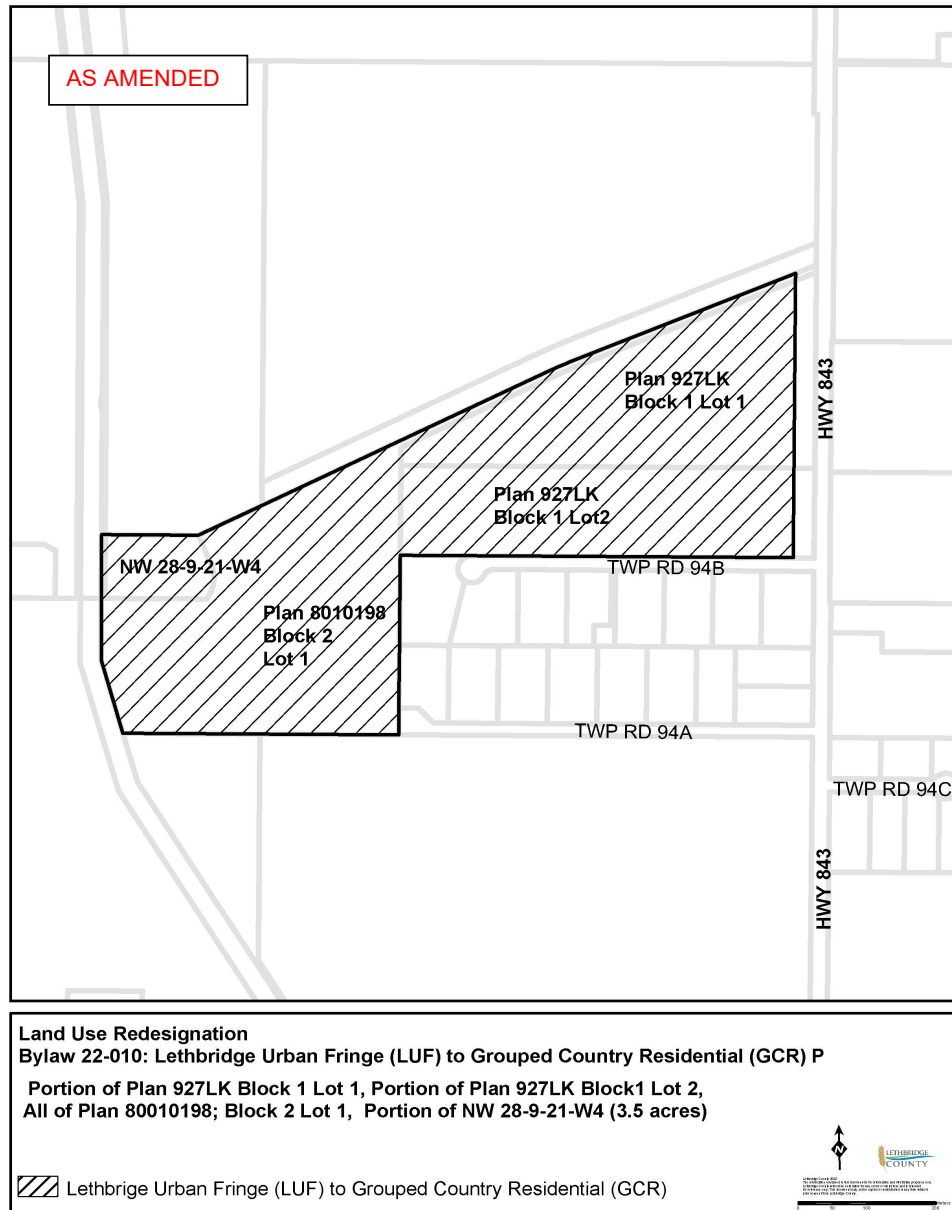
**BYLAW NO. 22-010**

Bylaw 22-010 of Lethbridge County being a bylaw for the purpose of amending Land Use Bylaw 1404, in accordance with Sections 230, 606 and 692 of the Municipal Government Act, R.S.A. 2000, Chapter M-26.

WHEREAS the purpose of Bylaw 22-010 is to re-designate portions of the NW 28-9-21-W4 (3.5 acres), **Portions of** Plan 927LK, Block1, Lots 1 and 2, and Plan 8010198, Block 2, Lot 1, from Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR) as shown below;

AND WHEREAS the re-designation of the lands will allow for future residential subdivision and development of the parcels;

AND WHEREAS the municipality must prepare an amending bylaw and provide for its notification and consideration at a public hearing;



AND WHEREAS the re-designation of the lands will allow for future residential subdivision and development of the parcels;

AND WHEREAS the municipality must prepare an amending bylaw and provide for its notification and consideration at a public hearing;

NOW THEREFORE, under the authority of the Municipal Government Act, R.S.A. 2000, C-26, as amended, the Council of Lethbridge County in the Province of Alberta duly assembled does hereby enact the following, with the bylaw only coming into effect upon three successful reading thereof;

GIVEN first reading this 15th day of September 2022.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
Chief Administrative Officer

GIVEN second reading, **as amended**, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
Chief Administrative Officer

GIVEN third reading, **as amended**, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Reeve

\_\_\_\_\_  
Chief Administrative Officer

1 <sup>st</sup> Reading	September 15, 2022
2 <sup>nd</sup> Reading	
Public Hearing	
3 <sup>rd</sup> Reading	



# Memo

**To:** Hilary Janzen - Supervisor of Planning and Development

**From:** Steve Harty – ORRSC Senior Planner

**Date:** 2022-10-19

**Re: Bylaw No. 22-009 – MacLaine Acres Area Structure Plan**

**Bylaw No. 22-010 – Redesignation from Lethbridge Urban Fringe (LUF) to Grouped Country Residential (GCR)**

Plan 927LK, Block 1, Lots 1 & 3, Plan 8010198 Block 2 Lot 1 & a portion of NW 28-9-21-W4

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## COMMENTS:

In respect of the suitability of the proposal, the following matters may be considered:

- A land review indicates there are no environmentally significant features, wetlands or provincially identified historical resources affecting the subject land. There are also no confined feeding operations or abandoned gas wells in the area.

In respect of the County's Municipal Development Plan (MDP), it contains policy direction that outlines GCR may be considered at the discretion of Council. The following items appear to align with the criteria and with the Grouped Country Residential Land Use Strategy.

- The area was originally subdivided in the early 1900s as a small-holdings titled area (20-acre parcels) and is historically fragmented.
- The adjacent lands and area are already established as an existing GCR land use for over 25-years and the proposal is compatible with the existing land use patterns established.
- The lands are deemed to be poor agricultural land and are fragmented.

## ASP Considerations

The previous 2002 Plowman ASP included a concept plan for this area but did not provide a detailed engineering analysis and the CANAMEX freeway plans were not prepared yet. The newly submitted MacLaine ASP is intended to address some of the design and engineering items not initially provided. The following are important ASP planning items for consideration:

- From a traffic and planning standard, the road network should be a looped road system to facilitate traffic circulation, access, and assist emergency services.
- As no previous drainage analysis was completed, the detailed storm-water management design was a needed element and the Country must be satisfied with the design as proposed, and it ultimately must meet the Water Act requirements.
- As only soil percolation tests were conducted in the 2002, the applicant has provided a new soils analysis to meet current standards to verify the suitability of soils for on-site private septic systems, which are acceptable.

- The provision of potable water is important for GCR proposals. As the County requires that any proposed subdivision with 5 or more lots must have potable water provided by a water co-op or similar organization, the developer may be limited to only initially developing 4 lots (i.e., hauled cistern water). Thus, the subdivision will need to be developed in phases and only built-out if future water is available.

### **Background**

This entire area E½ of 28-9-21-W4 is a historical area with multiple 20-acre parcels created in the early 1900s. As background, the adjacent south 20-acre lands were subdivided in 1997 (Myndio subdivision) to create a 5-acre lot and the remnant 15-acres was rezoned and resubdivided in 1998 to GCR to create 6 lots. A concept plan and soils tests were provided but no detailed ASP (and no storm water management plan). The City had no objections at that time. The 2002 Plowman ASP was a continuation of GCR development, and the 2002 plan included a concept plan for the currently proposed MacLaine ASP lands.

### **IDP - City of Lethbridge and Lethbridge County**

The land is within the IDP boundary with the City of Lethbridge. During the preparation of the IDP (2011 to 2016) this country residential area was specifically discussed with the City. Due to the knowledge that GCR was established in the area and the Plowman ASP identified a further subdivision concept (but it did not meet today's ASP standards), the 2016 IDP included a policy to address this. Policy 3.4.3.15 states, "Existing GCR area may be completed or further subdivided provided they follow current County bylaw and engineering standards." Regarding other IDP policy:

- The IDP intent for this area (Policy Area 3) states the area north of the city and west of Highway 843 is for residential growth, not industrial.
- The County Development Node is shown as a "bubble area" (i.e., general area identifier on map) in both the IDP and MDP at the future interchange between the future CANAMEX and 843 to generally identify the location but is not an "exact" area. Allowing industrial use adjacent (in between to the CANAMEX) to existing residential use is not desirable and is likely less suitable than completing the pre-established subdivision with potential industrial on the other sides of the future highway.
- Meetings with Alberta Transportation (AT) prior to commencement of the MacLaine ASP determined a Functional Design Study was not needed at this time as the CANAMEX development is unknown and AT could not stand in the way of current development. Thus, the recommendation to not allow new residential acreages immediate adjacent to Highway 43 is a prudent tool to help preserve and mitigate concerns with future highway plans. Additionally, Policy 3.4.3.19 that references a Special Study was to apply to undeveloped areas as the study is to "inform the use", whereas the use is already established for this area twenty years ago when the original 6 lot subdivision was approved, and the subsequent Plowman ASP adopted.

It is recognized this is a fragmented area, historically starting out as an acreage area, that is experiencing pressure with competing land uses and the proximity to the city, and therefore has unique planning challenges. Although it may not be ideal, other land uses would also conflict with the established land use pattern. Council will need to consider all the information presented and use its discretion to decide on the suitability of the proposal and may refuse or adopt the redesignation bylaw for GCR use at its prerogative.



July 13, 2022

Attention: Lethbridge County  
100, 905 4 Avenue South  
Lethbridge, AB T1J 4E4  
403-328-5525

**Re: Application for a Land Use Bylaw Amendment; Assigned Bylaw 22-010**  
**Name of Applicant: Martin Geomatic Consultants Ltd.**

In response to your land use bylaw amendment of bylaw 22-010, we have reviewed the information provided. We wish to provide the following comments:

- The Current Land Use Designation is Lethbridge Urban Fringe.
- The Proposed Land Use Designation is Grouped Country Residential

We wish to provide the following comments:

- Each parcel of residential land should have access to a legal source of drinking water as designated by the appropriate regulatory authority. AHS strongly recommends that the potable water be from an AEP approved system, such as the County of Lethbridge Rural Water Association since the proposal is for a bylaw amendment to allow for grouped country residences.
- Where water services are provided, sewer services approved by the appropriate agency must also be provided.
- Alberta Health Services does not object provided all other pertinent bylaws, regulations and standards are complied with and any nuisances are resolved.

If you require further clarification, please contact me at 403-562-5030.


Sincerely,

Wade Goin, B.Sc., BEH, CPHI(c)  
Executive Officer/Public Health Inspector  
Alberta Health Services

June 29, 2022

[hjanzen@lethcounty.ca](mailto:hjanzen@lethcounty.ca)  
 Lethbridge County  
 Lethbridge Alberta

**Subject: Municipal Referral - Planning Document**

Description	General Location
<p><b>Bylaw 22-009 and Bylaw 22-010</b></p> <p>Lethbridge County Bylaw 22-009 - MacLaine Acres Area Structure Plan and Bylaw 22-010 to redesignate four (4) parcels in SEC 28-9-21-W4M from Lethbridge Urban Fringe to Grouped County Residential in proximity to Highway 843 and the future Highway 3 bypass</p>	

This will acknowledge receipt of the above referenced document.

Alberta Transportation’s primary objective is to allow subdivision and development of properties, that are subject to review and comment by Alberta Transportation pursuant to the control lines stipulated in the Highways Development and Protection Regulation, being Alberta Regulation 326/2009 and the Subdivision and Development Regulation, being Alberta Regulation 84/2022, in a manner that will not compromise the integrity and associated safe operational use or the future expansion of the provincial highway network.

Pursuant to Section 14(e) of the said Subdivision and Development Regulation, the landowner has prepared an Area Structure Plan as a prerequisite to the subsequent subdivision and development of the plan area.

Alberta Transportation is in receipt and has reviewed the “**MacLaine Acres Area Structure Plan**” (MAASP) dated January 27, 2022, prepared by Martin Geomatic Consultants Ltd. As the plan area will access Highway 843, strictly from Alberta Transportation’s point of view, the area structure plan will provide for the orderly and efficient development of the plan area.

To that end, the document reflects sound planning principles and development strategies. The document is also well organized and thoroughly addresses all the issues that are pertinent when establishing a framework for the subsequent subdivision and development within a plan area.

Moreover, **Appendices 9 – Alberta Transportation Portion of Figure 5.2.3 (Lethbridge and Area NHS & NSTC Functional Planning Study, March 12, 2004 - Stantec** – indicates the future Highways 3 & 4 Lethbridge and Area NHS & NSTC Functional Planning Study Technically Recommended Route.

.../2

M:\DS\SR\LETH\Development\Development and Planning\Lethbridge County letter Bylaw 22-009 & 22-010 Sec 28-9-21-W4M (RPATH2022-0003344).docx

Classification: Protected A

Given the foregoing, strictly from Alberta Transportation's point of view, we do not have any concerns with the MCASP having been adopted as a statutory plan for a guide to subdivision and development of the plan area.

As ministerial approval would only be a formality, in this instance rather than formal endorsement by the minister for all intents and purposes this application will be considered to be accordance with said Section 14(e) and any comments in the future will be provided accordingly.

Alberta Transportation accepts no responsibility for the noise impact of highway traffic upon any development or occupants thereof. Noise impact and the need for attenuation should be thoroughly assessed. The applicant is advised that provisions for noise attenuation are the sole responsibility of the developer and should be incorporated as required into the development design.

Any peripheral lighting (yard lights/area lighting) that may be considered a distraction to the motoring public or deemed to create a traffic hazard will not be permitted.

#### FOR INFORMATION PURPOSES

Highways 3 & 4 forms an integral part of the National Highway System (NHS) and the North/South Trade Corridor (NSTC) of which the ultimate service classification is freeway. Given this Alberta Transportation's long-range freeway access management plans include a realignment of Highways 3 & 4 in the vicinity of the City of Lethbridge. A preliminary design and right-of-way requirements for the realignment have been identified in the endorsed Stantec Consulting Ltd. "Highways 3 & 4 – Lethbridge and Area NHS & NSTC – Functional Planning Study" Report #R – 970, dated February 2006. A copy of the document is available for review upon your request. At that time access to the highway may become somewhat less convenient/more circuitous.

The applicant could contact Mr. Bill Montgomery, Property Manager at 403-381-5426 to further discuss the possibility of purchasing the right-of-way area required for the realignment.

Yours truly,

Leah Olsen  
[leah.olsen@gov.ab.ca](mailto:leah.olsen@gov.ab.ca)

cc: Oldman River Regional Services Commission – [steveharty@orrsc.com](mailto:steveharty@orrsc.com)  
City of Lethbridge – [Maureen.Gaehring@lethbridge.ca](mailto:Maureen.Gaehring@lethbridge.ca); [Darwin.Juell@lethbridge.ca](mailto:Darwin.Juell@lethbridge.ca)  
Jerry Lau, Infrastructure Manager – e-mailed  
Philip Luchka, Infrastructure Engineer – e-mailed  
Bill Montgomery, Property Manager – e-mailed

October 14, 2022

Lethbridge County  
905 4th Ave S  
Lethbridge, AB T1J 4E4

RE: Proposed MacLaine Acres Area Structure Plan and Land Use Bylaw Amendment (Bylaws 22-009 and 22-010) – City of Lethbridge Submission to November 3, 2022 Public Hearing

Please be advised, that the City of Lethbridge has reviewed the proposed MacLaine Acres Area Structure Plan (ASP) and Land Use Bylaw (LUB) Amendment (Bylaws 22-009 and 22-010). The City of Lethbridge has a significant concern that the proposal will negatively impact its access to the future CANAMEX corridor at a nearby interchange with Highway 843/43 Street N.

The alignment of the CANAMEX corridor and this interchange has been planned for a number of years by Alberta Transportation and is included in both the County/City Intermunicipal Development Plan (IDP) and the County's newly approved Municipal Development Plan (MDP). It will be vital to the City of Lethbridge, as it is one of only two direct linkages that the City of Lethbridge will have with the CANAMEX corridor.

The proposed ASP, LUB amendment and future subdivision will allow development to occur on three parcels (shown as Lots 23, 37 and 38 on Figures 5.0 and 6.0 of the proposed ASP) that encroach upon a portion of the future expanded road right-of-way for Highway 843. This development will lead to greater costs and potential expropriation in the future and there is a strong possibility that this will impede a direct linkage that the City will have to the future CANAMEX corridor. In addition, it is irregular to subdivide, rezone and sell lots to a purchaser within a known future road right-of-way, with the understanding that any development on these parcels will need to be demolished when the CANAMEX corridor is constructed.

The City of Lethbridge advocates for these three proposed parcels to be removed from consideration for an LUB amendment to Grouped Country Residential (GCR) and for the proposed ASP to identify this particular area as non-developable.

The City of Lethbridge also notes the following items:

- As identified in the IDP, the proposed ASP site and adjacent lands are located in an area that is a "logical area for future City growth" and may possibly be annexed into the City at some point in the future. It is possible that the area adjacent to the

MacLaine Acres neighbourhood will be developed for industrial land uses in the distant future, as the adjacent industrial parks within the City continue to grow and expand.

- The northern portion of the proposed ASP area is identified in the IDP as being part of a County Development Node (Map 5 and Section 3.3 of the IDP) that surrounds the future CANAMEX interchange at Highway 843. The IDP states that development nodes are most suitable for commercial and industrial uses, due to their location near major roads and that this area should be protected from fragmentation and land use (Section 3.4.3). In addition, the County's MDP also states that lands identified as industrial-commercial growth areas in the County's Land Use Strategy will be reserved for these purposes and should not be used for grouped county residential uses (Policy 8.1 c) ii. and Policy 10.17).

The IDP states that any new or existing Area Structure Plans within one mile of the proposed CANAMEX interchange (of which the northern portion of the ASP is located) should not be considered until this special study is completed (Policies 3.4.3.18, 3.4.3.19 and 3.4.3.20). To date, no Special Study for this area has been drafted.

The Intermunicipal Development Plan, of which this site is subject to, was drafted and adopted by both the City of Lethbridge and Lethbridge County to establish a collaborative approach within the IDP area and establish a framework for an ongoing positive relationship. As such, we thank you for the opportunity to review the proposed ASP and LUB Amendment and for your consideration of our comments.

Regards,

A handwritten signature in black ink, appearing to read "Tyson Boylan".

Tyson Boylan, RPP, MCIP  
Senior Community Planner  
City of Lethbridge

Cc: Jason Price, Maureen Gaehring, Joel Sanchez & Lloyd Brierley



St. Mary River Irrigation District



403.328.4401 (Phone)  
403.328.4460 (Fax)



525 40 Street South  
Lethbridge, AB T1J 4M1

July 11, 2022

Lethbridge County - Lethbridge  
905 4 Ave S  
Lethbridge, AB  
T1J 4E4

Dear Sir/Madam:

**RE: Section 28-09-21-W4  
Bylaw 22-009 and Bylaw 22-010**

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Further to the above-noted Bylaws, the District offers the following comments:

1. The district would like to see the up-dated Drainage Study that is referred to in the application.
2. From the drawing provided, there is a SMRID pipeline which will be the responsibility of the MacLaine Acres Property Owners to move as it is going to be located under a proposed road. As well, they will need to acquire a pipeline crossing agreement for where the new road will cross our Sunnyside Lateral C pipeline.
3. All permanent irrigation rights will have to be sold and/or transferred off of the affected lots.
4. As there will be more than one subdivided lot on these parcels, they will be required to form a Water Co-Op if they plan to use non potable water supplied from the district. This involves purchasing an allotment of water from the district at the current rate of \$1,200.00 plus GST per acre foot. The district will require that a water meter be installed at the point of delivery and they will be charged annually at a rate of \$69.00 per acre foot plus GST or a minimum charge of \$690.00 plus GST whichever is greater.
5. All necessary works, easements and agreements necessary to provide these lots with nonportable water from the District will be the responsibility of the MacLaine Acres Property Owners.

If you have any further questions or concerns, please contact the Lethbridge office at 403-328-4401.

Yours truly,

Linda Park  
Land Administrator

pc: Martin Geomatic Consultants Ltd.  
255 - 31 Street North  
Lethbridge, AB  
T1H 3Z4



## Hilary Janzen

---

**From:** Minyukova, Veronika <veronika.minyukova@atco.com>  
**Sent:** June 14, 2022 2:36 PM  
**To:** Hilary Janzen  
**Cc:** Lahnert, Jessica  
**Subject:** RE: Lethbridge County Referral - Bylaws 22-009 and 22-010

Good Afternoon,

ATCO Gas has no objections to the proposed.

Have a great day!

**Veronika Minyukova**  
Summer Student – Natural Gas  
Land Administrative Support

---

**From:** Hilary Janzen <hjanzen@lethcounty.ca>  
**Sent:** Tuesday, June 14, 2022 2:25 PM  
**To:** Alberta Transportation (transdevelopmentlethbridge@gov.ab.ca) <transdevelopmentlethbridge@gov.ab.ca>; Alberta Health Services (SouthZone.EnvironmentalHealth@ahs.ca) <southzone.environmentalhealth@ahs.ca>; FortisAlberta Inc. - Referrals (landserv@fortisalberta.com) <landserv@fortisalberta.com>; Telus Referrals (All) (circulations@telus.com) <circulations@telus.com>; South Land Administration <SouthLandAdministration@atco.cul.ca>; South District Engineering <SouthDistrictEngineering1@atco.com>; SMRID (lpark@smrid.ab.ca) <lpark@smrid.ab.ca>; Stacey Russell <srussell@smrid.ab.ca>; Tyson Boylan <Tyson.Boylan@lethbridge.ca>  
**Subject:** Lethbridge County Referral - Bylaws 22-009 and 22-010

**\*\*Caution – This email is from an external source. If you are concerned about this message, please forward it to [spam@atco.com](mailto:spam@atco.com) for analysis.\*\***

Hello,

Please see the attached referral from Lethbridge County regarding Bylaws 22-009 (MacLaine Area Structure Plan and 22-010 (rezoning from Lethbridge Urban Fringe to Grouped Country Residential). Comments are due by July 14, 2022.

For the full Area Structure Plan please see the attached link:

<https://www.dropbox.com/s/sac2jenrfzs8cgy/Maclaine%20Acres%20ASP%20Compiled%20PDF%20-%20Complete%20Document%20June%2014%202022.pdf?dl=0>

If you have any issues opening the file, please let me know.

Regards,

**Hilary Janzen, RPP, MCIP**  
Supervisor of Planning and Development  
Lethbridge County  
905 4<sup>th</sup> Ave S  
Lethbridge, AB T1J 4E4

403.328.5525 office

403.328.5602 fax  
[www.lethcounty.ca](http://www.lethcounty.ca)



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## Hilary Janzen

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**From:** Simon Hughes <simonhughes159@gmail.com>  
**Sent:** October 17, 2022 11:21 AM  
**To:** Hilary Janzen  
**Subject:** MacLaine acres

Good morning Hilary

Simon Hughes  
24-94032  
Hwy 843  
T1J 5R3

With regard to the proposed development of this area my concerns/objection is the extra volume of traffic on twp 94A if the road is allowed to loop around to the northern access road. I want 94A to remain a no through road otherwise all the extra traffic from the majority of the new dwellings will use 94A as a 'rat run' and this could easily be 4 cars per property 4 times a day from 14 or more properties = 112 extra cars /day.

This will cause a lot of dust,noise and heavy wear,erosion on this small lane that is not strong enough and wide enough for this extra traffic.

I also note that the 3 landowners will not be affected by extra passing traffic past their homes.

You'd sincerely

Simon Hughes.

## Hilary Janzen

---

**Subject:** FW: Proposed bylaw 22-009 and 22-010

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**From:** Mathew Patenaude <[mpatenaude@lethcounty.ca](mailto:mpatenaude@lethcounty.ca)>

**Sent:** Thursday, October 20, 2022 7:53 AM

**To:** Nathan Hill <[nhill@lethcounty.ca](mailto:nhill@lethcounty.ca)>

**Subject:** FW: Proposed bylaw 22-009 and 22-010

FYI

---

**From:** Marco Pagliericci <[pag\\_marco@hotmail.com](mailto:pag_marco@hotmail.com)>

**Sent:** Tuesday, October 18, 2022 5:46 PM

**To:** mailbox <[mailbox@lethcounty.ca](mailto:mailbox@lethcounty.ca)>

**Subject:** Proposed bylaw 22-009 and 22-010

Good day,

With regards to the above proposal, my only concern is the following:

1. the architectural of the future home be the same as the Plowman meaning houses that have a minimum square feet.
2. The look of the home must be favorable to the rest of currently there.
3. A time line from purchase of the land to completion must be reasonable.
4. No farm animals.

The other issue is the volume of traffic on 843. This road is at present poorly maintained and adding more traffic will only cause it to be in worst condition.

Thank

Marco

403-315-0757

Get [Outlook for iOS](#)

## Hilary Janzen

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**From:** peggy dekens <npdekens@hotmail.com>  
**Sent:** October 24, 2022 1:51 PM  
**To:** planning  
**Subject:** MacLaine Acres Area Structure Plan public hearing

Hello, in advance of this hearing we submit the following:

Highway 843 starting at TWP 62 requires a lot of maintenance and we have had to beg for it to come over the last 10 years. Now even more heavy trucks will be using it. Neither will the road we live on, 94032, or the next one, 94046, be able to handle dump trucks, etc. So we will insist that **all three roads are paved PRIOR to this work beginning.**

Thankyou,

Neal and Peggy Dekens  
28, 94032 Hwy 843

Sent from [Mail](#) for Windows

## Hilary Janzen

---

**From:** Mathew Patenaude  
**Sent:** October 27, 2022 7:52 AM  
**To:** Nathan Hill  
**Cc:** Hilary Janzen  
**Subject:** FW: Proposed Bylaws 22-009 and 22-010

FYI

---

**From:** Kevin Jockims <kdjplum@gmail.com>  
**Sent:** Wednesday, October 26, 2022 4:30 PM  
**To:** mailbox <mailbox@lethcounty.ca>  
**Subject:** FW: Proposed Bylaws 22-009 and 22-010

Sent from [Mail](#) for Windows

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**From:** [Kevin Jockims](#)  
**Sent:** October 26, 2022 4:27 PM  
**To:** [planning@lethcounty](mailto:planning@lethcounty)  
**Subject:** Proposed Bylaws 22-009 and 22-010

Dear County of Lethbridge Planning and Development,

As a property owner adjacent to the lands of the proposed MacLaine Acres Area Structure Plan and rezoning, we would like to make a suggestion that the proposal be declined. We feel that the HWY 843 and Township road 94A and 94B cannot support additional traffic that would be using these roadways. At the very least these roads would need to be paved and maintained during snow fall, and any other conditions that would cause breakdown of the infrastructure.

We also feel that the high water table in the area would be affected and cause concern for properties to the East.

Please consider our concerns regarding this rezoning proposal.

Thank you,

Kevin and Sandra Jockims  
32 94032 HWY 843  
Lethbridge County AB  
T1J 5R3  
403-382-7588

Sent from  
[Mail](#) for Windows

Hello, my name is Ken Smith.

In approximately June of 2016 I purchased a property of 20 acres from Celia Palmer. It had an Area Structure Plan (ASP) submitted by "Palmer" prior to purchase. It was purchased by me with the intent to subdivide it and develop it, including a house for myself.

I decided to approach my two neighbours, Pat Wagner and Rick Aldof, for their help as the ASP would also affect their land and I was told that their land would need to be included in the ASP. It is now 6 years later, and we have not had much progress despite following all the instructions given.

During the pandemic both Rick and Pat agreed to join me in the ASP process. For me personally, my health is failing me, and I would like to be able to have my daughter and her husband closer if possible. I try to live a simple life and would like to be able to live out here on my own for as long as possible and leave something behind for my family.

I am asking at the very least my original property be permitted to be subdivided into even 2 or 3 lots. I understand that the problem the City of Lethbridge has is with the number of lots, but we were told that it was **necessary** that we do the ASP **including** the extra lots of Rick and Pat's land, but we did this because we were told we had to. Had we known that this would be a problem I would not have asked them to join me in the first place.

We were never told at the beginning that there was any problem. The water co-op also initially agreed but have since changed their minds. Their reasoning is that they don't give licenses to developers, but we are not developers. So, we are finding that we are running into a lot of red tape and opposition despite being strung along and told "yes" repeatedly.

We would like to be told finally what the verdict is. Either we are doing everything correctly and the ASP and the subdivisions can go ahead, or it cannot go ahead and if that is the case we would like to be informed why, and told very clearly that it is a no.

I hope that you understand and have some sympathy for us and our 6 year long journey.

Thank you very much.

Ken Smith.

To whom it may concern,

I, Indeanna Smith and my husband Taku Nishimatsu would like to voice our support for the MacLaine Acres ASP. We would be interested in living in the area as my husband would like to have enough space to have a small business out of our home, and an acreage just outside of town would be idea for this.

I, Indeanna Smith, will also be in attendance at the November 3<sup>rd</sup> meeting to voice my support as well.

Thank you.

Indeanna Smith and Taku Nishimatsu.

403-715-8229

57 – 49 Keystone Terrace West, Lethbridge

T1J5B8



TO Whom it may concern

I have lived in Lethbridge for the last 34 years , and lam looking to retire to just outside our home area

The idea of a subdivision this close to where we live now is ideal , the proposed site fit's our life style and it would make a great addition to the city , seeing there is an existing sub division right beside the site ,the MacLaine Acres subdivision could lead to bigger things

Sincerely yours

BRIAN LINDSAY

A handwritten signature in black ink, appearing to read "Brian", with a long horizontal stroke extending to the right.

## Hilary Janzen

---

**From:** Bronwen Robbins <delerium@psychokitty.ca>  
**Sent:** October 26, 2022 4:57 PM  
**To:** Hilary Janzen  
**Subject:** Letter of Support for MacLaine Acres

October 26, 2022

Bronwen Robbins

738 15th street North

Lethbridge, Alberta

T1H 2Y3

Addressed to Lethbridge County

My name is Bronwen Robbins. I am writing this email letter of support of Ken Smiths application to subdivide his property for the MacLaine Acres Area structure plan. I grew up in the country side in New Brunswick and moved to Lethbridge in 2018, I am confident that this will be a positive addition to the county of Lethbridge. As someone who grew up on a property similar to what Ken is proposing I hope you will approve this project. Thank you for your consideration and your time.

Sincerely,

Bronwen Robbins

October 25, 2022

Hannah Horlings  
403.601.1622  
48 Cimarron Meadows Road  
Okotoks, Alberta  
T1S1T6

Addressed to Lethbridge County

My name is Hannah Horlings. I am writing this letter in support of Ken Smiths application to subdivide his property for the MacLaine Acres Area structure plan. I have known Ken for over fifteen years and am confident that this will be a positive addition to the county of Lethbridge. As someone who hopes to raise their children on a property similar to what Ken is proposing I hope you will approve this project.

Thank you for your consideration and your time.

Sincerely,

A handwritten signature in black ink that reads "Hannah Horlings". The signature is written in a cursive, flowing style.

Hannah Horlings

Sherry Walker

Box 6

Foremost, AB

T0K 0X0

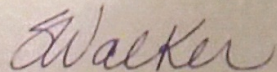
403-647-7723

Oct 14/2022

Lethbridge County

I would like to state my support for the MacLaine Acres Area structure plan. It is a very nice area with many nice acreages in the neighborhood. An expansion in that area seems logical to me, and I would like to build and live in that location if possible.

Thank you for your consideration in this.



Sherry Walker

# Report on Link Pathway

General Research and Phase 1 Public Consultations

May 2022



Peter Casurella and Kim Welby  
Progressive West Consulting



**PROGRESSIVE WEST  
CONSULTING**  
research | projects | results

## Table of Contents

Project Overview	4
Methodology	5
Regional Impacts of Rural Bike Pathways	6
Economic Benefit Categories	6
Tourism Economy	6
Construction Impact	7
Property Value Increases	8
Reduced Medical Costs	9
Product Development	10
New Rural Cycling Opportunity	10
Running / Biking Event Route	11
Picnic Opportunities	11
Bike Rentals	11
Cycling Tours	11
Product Enhancement	12
Regional Bike Access	12
Exhibition Park / Henderson Lake/ Nikka Yuko Complex	12
Lethbridge College Demo Farm	12
Healthy Living	13
Proven Health Impacts	13
GHG Reductions for Commuters	13
Fresh Start Treatment Centre	13
Project Liabilities	14
Poor Design and Maintenance	14
Chemical Spraying	14
Irrigation Overspray	15
Stakeholder Abandonment	15
Neighbour Relations	16
Vandalism	16
Comparable Projects and Public Safety	17
Public Safety Overview (research)	17
Western Headworks Canal Pathway	18

North Star Rails to Trails	19
Mr. Burnside Trail	20
Take-aways	21
Adjacent Resident Consultation	22
Approach	22
Findings	23
Take-aways	27
Recommendations from Research and Consultations	28
Health and Safety	28
Good Neighbour	28
Vista Meadows Specific Recommendations	28
Next Steps	30
References	31
Literature Reviewed	32



## Project Overview

The development of the LINK Pathway has been ongoing for approximately 8 years, driven forward by a not-for-profit, charitable organization known as the Link Pathway Committee. The proposed project seeks to establish an approximately 14 km asphalt bike trail from the **City of Lethbridge** to the **Town of Coaldale**, passing through **Lethbridge County** lands to create a regional tourism and recreation asset. The project, to date, has seen wide community support with robust fundraising but has so far struggled to define a route that can be brought forward for consideration and approval by Lethbridge County.

The obstacles to progress as they were defined to Progressive West Consulting in the spring of 2021 were:

- a. Assumptions were made that the path would be widely recognized as an asset to the region and individual landowner opposition to the project was unexpected.
- b. As volunteer committee members worked to define a workable route, maps were published for the proposed route before engagement or conversation with residents had been pursued because of (a.)
- c. The need to eventually cross the CP rail line near the City of Lethbridge posed a significant fiscal obstacle with quoted prices for controlled crossings estimated at around \$500,000.

The Link Pathway Committee engaged Progressive West Consulting to address these issues by undertaking the following:

- a. Provide the project with a **robust public engagement program** and present the feedback gathered to the Committee and to elected Councillors in the region for guiding decisions.
- b. Evaluate the route and work with regional stakeholders to **identify the 'least objectionable path' through the region**.
- c. Draft recommendations for **accommodating the concerns of residents** based on collected feedback and present a recommendation for pathway alignment to the Committee.
- d. Assist in presenting this information to Lethbridge County Council to aid in their decision making.





## Methodology

The Link Pathway project can only be constructed following the final approval of Lethbridge County Council. Like all development projects in a populated area, this decision must balance the regional social and economic benefits of the project against the individual concerns of landowners and stakeholders who may be directly or indirectly impacted by the project. Being a good neighbor means collecting feedback from those who may be impacted and using that information to inform project design so as to mitigate individual concerns to the greatest extent possible, while still realizing the wider social and economic impacts that may benefit a much larger population.

For reporting on the positive and negative impacts of the project, our approach has therefore been to:

1. **Define the social and economic implications** to the region from the project by researching comparable projects and compiling evidence from existing literature on rural recreation projects such as this.
2. **Address the known concern of regional safety** stemming from the project by speaking directly to police detachments serving areas where rural bike pathways already exist and by surveying the extensive literature on the topic.
3. Hire an arms-length and impartial subcontractor to **speak directly to residents** in areas that are likely to be in close proximity to the completed project and record and report on those conversations.
4. Conduct a wider regional engagement activity that **solicits public opinion** on the project from the communities involved, including Lethbridge, Lethbridge County, and the Town of Coaldale. (To be reported separately).

For recommending a viable route for the Link Pathway our methodology has involved balancing the following factors:

1. Wherever possible, utilize **publicly or institutionally owned right-of-ways**.
2. **Where possible, avoid proximity to private residences**.
3. Where proximity to private residences cannot be avoided, **go above and beyond** to address private resident concerns with project engineering and design.
4. **Accommodate unique or individual landowner requests** to the greatest extent feasible.

This report will cover only project research and phase 1 in-person consultations. **Two further reports** will be forthcoming detailing the logical conclusions of our route-finding efforts and the feedback from Phase 2 of regional consultations with the public.



## Regional Impacts of Rural Bike Pathways

The positive socio-economic impacts of cycling, and by extension the construction of infrastructure to enable it, is quite well understood with substantial literature being available on the subject. Scholarly searches for the negative impacts of cycling on health, social, or economic factors have no appreciable returns, with identified negative health impacts being restricted to individual physical impairments associated with excessive bicycle use, and negative economic or social impacts being limited to concerns over improper maintenance or design. The sections below provide researched and referenced overviews of the various benefit/risk categories.

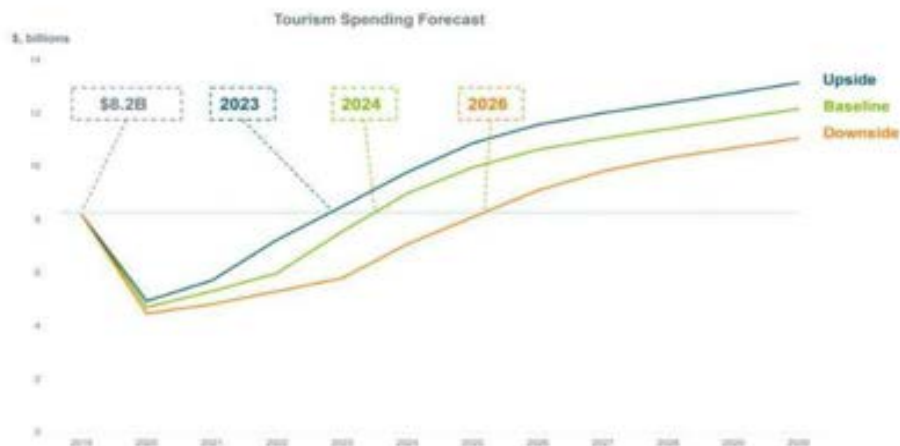
### Economic Benefit Categories

#### Tourism Economy

Tourism is big business, and a new bike pathway anchored on a regional destination like Exhibition Park offering a truly rural southern-Alberta experience, will contribute towards the ongoing growth of this sector.

According to Travel Alberta, tourism related GDP in 2019 (pre-pandemic) was \$8.4 billion (Economic Impact, Tourism Related). The pandemic took a huge toll on the industry, depressing the sector by almost 50% in 2020 with steady recovery since. However, the global tourism market is a growth industry on the strength of a rapidly growing global middle class which will see 3 billion more people join the middle-income ranges by 2050. These people want to experience the world, and Alberta can and should be a sought-after destination on the global agenda. Travel Alberta's baseline projections for sector GDP share by 2030 are around \$12 billion (Economic Impact, Tourism Related) and with the mountain corridor lacking the capacity to accommodate rapid increases in the visitor economy, much of the provincial gains need to be realized on the Prairies.

Figure 1.1 Tourism Alberta Recovery Forecast



The Lethbridge Region is in competition not with the mountain corridors for new visitor spend, but rather with other prairie destinations that are within easy driving distance of the Calgary travel hub. Excelling in that competition will require a combinatory process of building new product, enhancing existing offers, and making sure our destinations get sufficient airtime to attract visitors.

*"A regional bike path running between Lethbridge and Coaldale will showcase the best of our region to new visitors, letting them experience southern Alberta while getting exercise and fresh air! An experience like this would enhance everything we're trying to do at Tourism Lethbridge to promote experiences in the agri-food sector for visitors, would enhance conference offerings at Exhibition Park, and would be a valuable offering for our team to profile at the national and international level." – Erin Crane, CEO, Tourism Lethbridge.*



A 2012 Economic Impact Study on Tourism in the south-zone compiled by the Government of Alberta clocked direct visitor spend by all tourists at \$734 million, sustaining a total of 10,185 jobs province-wide, with approximately \$322 million in total tax revenue accruing to all three levels of government because of tourism activity in southern Alberta alone (3).

The Link Pathway as envisioned would provide a new tourism product on the Prairies that would add to the goal of regional destination development to take advantage of these trends.



*"Connectivity is vital to the physical and economic health of our community at large and the events we host at the Agri-food Hub and Trade Centre," says Mike Warkentin, Chief Executive Officer, Lethbridge & District. "The proposed Link Pathway creates an on-site activation that drives centralized engagement through Southern Alberta's newest asset for connection, events and entertainment."*

### **Construction Impact**

Construction spend for pathways has a wide range of prices. For example, a shared-use pathway in Edmonton was built in 2016 at a cost of \$1,223.00 per meter. Compare this to the \$101.00 per metre spent in Guelph, Ontario for shoulder bike lanes on a rural road. (Benni et al, 2019) The LINK Pathway project is comparatively simple, consisting largely of at-grade asphalt surfacing on an aggregate bed over mostly flat ground in a rural environment. The pathway is approximately 14.76 km in total surface length and must accommodate 3 bridges, an underpass, 3 picnic kiosks,

additional project engineering components, and landscaping. The estimated cost of the project (informed by MPE Engineering) is **\$4,394,177.20** with almost all of that being local spend.

Job creation from a project like this is either negligible or temporary in nature, with the actual construction demands for the project being fairly light.

### **Property Value Increases**

The impacts on property values from bike paths has been well studied and there is a large amount of data available on the subject. With few exceptions, the consensus of the literature is that bike paths either increase the property value of nearby and adjacent land, or have no effect; with the preponderance of examples being the former. This is because outdoor features like trails not only provide health benefits, but they are viewed as an amenity by most of the population - similar to parks or greenways, and are also correlated in commercial districts with higher revenue. The trend is so constant in the literature, that bike infrastructure is routinely listed as a factor in determining community quality, such as in a 2020 study on the best places in Canada to live (Remax, 2020).

Supporting evidence for the conclusion that bike paths either improve or have no effect on property values can be found in numerous credible sources. In 2006, the Delaware Center for Transportation at the University of Delaware published a literature review of studies on the property value impacts of bicycle paths. The study looks at what was known at the time on the impacts on property values from the introduction of bike paths and presents information about crime in relation to bicycle and pedestrian paths, then uses a statistical model to examine the impacts on nearby housing.

The conclusion was:

*"The majority of studies indicate that the presence of a bike path/trail either **increases property values and ease of sale slightly or has no effect**. Studies have shown that neighbors of many bike paths/trails feel that the quality of life of their neighborhood has been improved, that the trails were a good use of open space, and in the case of abandoned railways were an improvement from before the trails went in. There is definitely a large portion of the population that sees bike paths as an amenity and will seek out residences near trails, parks, and other natural resource areas. (Racca and Danju 11)*

Other reports echo this conclusion. In 2011, a report from Vancouver indicated that 65 percent of realtors used new bikeways as a selling feature. In North Carolina, realtors found that 40 homes adjacent to the rural Shepherd's Vineway Bikeway saw property value increases of \$5000 and up, and that bike paths were placed a shocking third on a list of 39 features homebuyers defined as crucial in buying homes in a new community (Smith, para 6).

A 2016, a study by the Urban Land Institute - the world's largest global network of cross-disciplinary real estate and land use experts, looked at overall trends in active transportation which was primarily concerned with the benefits and impacts of bicycle transportation amenities. This study compiled data from 6 additional studies on property value impacts from bike pathways and detailed what the authors called "a growing body of evidence that bicycling has a positive impact on retail sales, commercial property values, and overall economic development"(Urban Land Institute, 2016).

The positive impression conveyed above is no cherry picking of the data. Scholarly searches for negative impacts on property values from bike infrastructure yield no immediate results. Digging into the cited sources of the literature reviews conducted by others yields references to individual counterfactuals or property rights groups who have taken a vocal online position. However, the counterfactuals provided little impact on the trend when aggregated because of the nuances of situational factors which must be considered. Property value impacts are highly situational and depend on a multitude of factors such as maintenance, and project design. If a piece of infrastructure is an eyesore, it will have the impact that all eyesores have - which is negative.

Concerns about proper maintenance and design are valid; and therefore, it is important to ensure that there is a proper plan in place for maintenance and the ongoing greening of the space. Careful project planning to integrate the pathway into the existing neighbourhood in order to minimize potential homeowner – user conflicts is imperative. Provided the Pathway is planned, implemented, and maintained properly, it is our opinion that the Link Pathway should not negatively impact property values.

### **Reduced Medical Costs**

Canadians are exhibiting a renewed awareness of the connection between lifestyle and individual health. Recent studies have found that rural Canadians are more likely than urban residents to be overweight and less active in their leisure time. Therefore, encouraging active modes of transportation like walking and cycling is one strategy to combat this trend. (StatsCan, 2020 Data Blog)

It has long been noted that active commuting is regularly linked to a lower risk of cancer and heart disease - with cycling, in particular, being associated with much lower morbidity and mortality rates (Celis-Moralies et al, 2017). The individual health benefits of cycling are well understood, but what is often less appreciated are the financial impacts on the publicly funded health care system from healthy lifestyle choices, such as cycling. Numerous sources in the literature agree with the trends that Darren Flusche identified in his 2009 paper, 'Economic Benefits of Bicycle Infrastructure Investments when he concluded:

***"The health savings resulting from physical activity, measured in 10 different studies, range up to \$1,175 per person, per year."*** (Flusche, 2009)

Another notable study in the extensive literature on the topic is a study from Lincoln, Nebraska into reducing health care costs associated with inactivity where the researchers concluded that:

***"Building trails is cost beneficial from a public health perspective - even when controlling for highest cost, for every 1 dollar invested in trails resulted in a greater return in direct medical benefit."*** (Wang et al, 2005)

The significant cost savings to society in general through reduced medical bills is an invariable trend in the literature.

## Product Development

The plan being proposed by the Link Pathway Committee offers not only economic benefits but provides the region with a new tourism product which has multiple use-cases. Bike-friendly roads and trails offer small towns a way to attract outdoor enthusiasts and channel that enthusiasm into local business. (Elswick, 2019)

### New Rural Cycling Opportunity

Cycling itself is a growth market, propelled even faster by the pandemic and a common desire to get outside and out of our collective isolation. According to NPD, Cycling equipment revenue in the United States grew by 15% to \$8.5 billion in the 12 months ending July 2021 compared to the previous year (Sorenson, 2021). The whole market trend has been applicable in Canada as well with bike shops struggling to maintain stock. There's a lot more people with bikes than before the pandemic and a marked increase in cycling as a hobby. The Link Pathway would be a unique offering in this space, giving cyclists a rural route on a paved surface to travel. The current regional inventory of dedicated bike surfaces is limited to in-city locales, or unpaved routes.

The pathway would also be an ideal route for electrified bicycle riding, with a 14 km route on paved surfaces. E-bike sales have surged in recent years as more models come onto the market and become more affordable

Figure 1.2 E-Bike Market Growth (ebicycles.com)



The global electric bicycle market is expected to skyrocket in the following decade, achieving massive growth in Europe, Asia, and North America.

### **Running / Biking Event Route**

There is a distinct lack of biking events in the Lethbridge area, but this infrastructure will create a new venue on which to host a wide variety of events - particularly for riders in younger demographics who may not want to be biking on-road. The facility would offer the possibility of off-road bike-a-thons, cross country racing, time-trialing, and other bike-related activities.

It can also serve as a running path. The Lethbridge Region is home to a robust running community with [runnersoul.com](http://runnersoul.com) listing about a dozen formal running events in the calendar year ([runnersoul.com/events](http://runnersoul.com/events)). With the Link Pathway connecting into the Henderson Park area and out to the Town of Coaldale, this secure off-road route would be a natural destination for future running events.

### **Picnic Opportunities**

As envisioned, the Link Pathway will have 3 picnic kiosks along the route - one near the western edge, one near the Highway 512 underpass, and one near Coaldale. Kiosks will be equipped with picnic shelters and tables for picnicking providing a destination for families to use while spending time together outdoors.

### **Bike Rentals**

As a tourism product, there will be a distinct business opportunity for new or existing businesses, including Exhibition Park, Tourism Lethbridge, Nikka Yuko Japanese Gardens, and others, to offer bike and e-bike rentals for use on the pathway, creating more economic activity. This is an opportunity for many businesses to capitalize on.

### **Cycling Tours**

The pathway also speaks strongly to the vision of Tourism Lethbridge to develop regional agri-food tourism products and would allow the development of interpretive tours that can travel along the irrigation canals, past the Lethbridge College demonstration farm, through the irrigation demonstration facility, and past a myriad of crops. This is a value-added offering that can be tacked onto Exhibition Park events or offered as a stand-alone service by a business.



## Product Enhancement

The project as envisioned is not just a stand-alone offering but could also enhance existing facilities by becoming an extension or value-added component of them.

### Regional Bike Access

For one, the pathway will tie into the municipal pathway systems in both the City of Lethbridge and the Town of Coaldale, offering a true inter-municipal bikeway that links the two communities and allows bike, e-bike, or other forms of commuting between the two. E-bikes typically travel at around 25 kms/h, making the passage from Coaldale to Lethbridge along the pathway about a 30-minute trip. Furthermore, the pathway would provide commuter access to places of work midpoint in the county, such as the Research Station, Fresh Start, the Demonstration Farm, Broxburn Industrial Park, Greenhaven, and other locations.

### Exhibition Park / Henderson Lake/ Nikka Yuko Complex

The pathway would also serve as a value-added facility for the new and expanded Exhibition Park and secure its position as a hub for social and economic activity. It's easy to envision bike rentals available at Exhibition Park serving as a value-add component for every conference, exhibition, and event that occurs at that facility, making it an even more attractive amenity.

### Lethbridge College Demo Farm

Lethbridge College's developing demonstration farm on provincial land will also be adjacent to the pathway, and the College is eager to see the development of a stopping point (picnic kiosk) near their facility where they can showcase their research and work to the public.





## Healthy Living

### Proven Health Impacts

The College of Family Physicians of Canada recommends communities work to increase rates of cycling in their communities stating that “cycling in particular has been shown to reduce carbon footprints, improve overall well-being, prevent chronic diseases and all-cause mortality, reduce noise pollution, and foster social interaction,” (Green). [A]ll of which contribute to improved health outcomes, not only for those who participate directly in cycling, but for those who live in communities with increased rates of cycling as well, because “motorists consistently experience the highest exposure to air pollution” (Green).

Specific health benefits of cycling as stated in the literature are: increased cardiovascular fitness, increased muscle strength and flexibility, improved joint mobility, decreased stress, improved posture and coordination, strengthened bones, decreased body fat, prevention or management of disease, reduction of anxiety and depression, in addition to, reduction of pollution and greenhouse gas emissions, and psychological benefits accruing from social interactions.

### GHG Reductions for Commuters

The World Health Organization has called climate change the biggest health threat of this century, with a range of direct and indirect physical and mental health effects, which include: heat-related illnesses, worsening lung and heart disease from air pollution, direct injury and displacement from floods, droughts, and other extreme weather events, and increased food insecurity (Watts). With this existential threat hanging over all our heads, the College of Family Physicians (CFP) of Canada recommends that Canadian communities do what they can to encourage the further adoption of alternate modes of transportation rather than personal vehicle use. The CFP recommendation cites a study using recent travel activity data from European cities which found that “those who switch 1 trip per day from car driving to cycling reduce their carbon footprint by about 0.5 metric tons per year. Thus, if 10% of the population were to change their travel behaviour, the emissions savings would be around 4% of life-cycle carbon dioxide emissions from all car travel” (Green). This is not an insignificant impact. The Link Pathway is a project that encourages the adoption of cycling as a part of life which would hopefully have impacts in the regional population by encouraging increased bicycle adoption for daily commuting where possible or applicable - both in the region, but more specifically, within the City of Lethbridge and Town of Coaldale.

### Fresh Start Treatment Centre

The envisioned route of the Link Pathway will be adjacent to the Fresh Start Treatment Centre in Lethbridge County and has been enthusiastically embraced by them as an attractive value-add to their own facility. The study referred to previously by the College of Family Physicians enumerated the many psychological benefits of outdoor activities (such as cycling) and Fresh Start would be looking to take advantage of the pathway to increase their own on-site offerings to patients.

## Project Liabilities

An enumeration of benefits must be followed by an enumeration of liabilities from the project that must be considered and addressed. The researched items below have informed specific recommendations at the end of this document.

### Poor Design and Maintenance

The design and construction of a pathway is no small undertaking and there are many technical aspects that must be considered. Having engaged with technical expertise early on in this process has been an invaluable investment as infrastructure projects of any size or scale must be considered through many lenses. The collaborative effort of these technical experts, informed by their decades of experience, has mitigated many of the pitfalls new trail development groups can find themselves in. However, continued engagement with these and other professionals will be key to success.

As noted above in the section on 'Property Value Increases', bike paths typically add value to the regions through which they pass *except where the path is either poorly designed, poorly maintained, or both*. In the case where improper design or maintenance is present, the pathway itself can become a liability. Improper groundwork can lead to slumping or asphalt cracking. Improper installation of fences or other infrastructure can lead to slumping of posts, bench pads, or other natural degradation of infrastructure. If there is a proper plan and a responsible party identified with resources and continuity, these issues can be addressed through ongoing maintenance - but if there is not a robust maintenance plan, the pathway can suffer from overgrowth of weeds, unhealthy trees, or hazards created by degrading infrastructure. This liability will need to be addressed by ensuring there is a robust maintenance plan in place and a responsible party that can be held accountable by residents.

### Chemical Spraying

The Link Pathway will pass through active agricultural zones, past irrigated fields where pesticides, insecticides, herbicides, fungicides, fertilizers, and other chemicals are routinely used. There is a growing body of evidence that human exposure to various agricultural chemical applications can have adverse health impacts. A 2017 publication from Penn State does a good job of summarizing the range of applications and possible health impacts. The list is as long as the list of possible chemical applications and the authors conclude by stating:

*"All pesticides have the potential to be harmful to humans, animals, other living organisms, and the environment if used incorrectly. The key to reducing health hazards when using pesticides is to always limit your exposure by wearing PPE and use a low-toxicity pesticide when available"* (Lorenz).

Penn State also offers recommendations on how to mitigate these risks, advising that the basic formula for hazard is the toxicity of the specific chemical x the degree of exposure to that chemical. The standard mitigations are to reduce exposure and/or wear recommended personal protective equipment (Lorenz).

In the case of personal use of the pathway through agricultural zones, the mandate to impose PPE is clearly impractical, therefore reducing exposure will be the key factor informing recommendations at the

end of this document. We should note that the complete elimination of exposure is not practical and the realities of life in rural Alberta where a low level of exposure to agricultural chemical applications is shared by all members of society (particularly those who live in the country) is a simple fact of life. Reasonable goals should be to reduce exposure but to not be deterred by the impossible standard of complete elimination of exposure.



### **Irrigation Overspray**

Irrigation overspray involves field pivots spraying further than intended and inadvertently coating the surfaces that they are not intended to. Overspray can occur from a variety of mechanical, system, or environmental reasons and does not necessarily involve error on the part of the farm operator.

In our opinion, irrigation water should not be considered a hazard, but simply an environmental factor pathway users should be educated on and cognizant of.

### **Stakeholder Abandonment**

The typical apparatus for land access for the Link Pathway is an easement agreement with the property owner, and therefore a natural risk is the abandonment of commitment by the landowner to honor the easement.

Edwards Land, the agents acting on behalf of the Pathway, have advised that in such an event the landowner would have to file an application with an arbitrator under the *Arbitration Act* leading to the review by an independent third party arbitrator of the issues involved. In the opinion of Edwards Land, it is highly unlikely that public infrastructure would be removed from a parcel of land for which there was a legal easement due to a landowner's change of heart. In the event of a direct conflict between a landowner during development, the arbitration may result in a recommendation to reroute or re-site either the Pathway or the landowner's development components. Furthermore, the easement agreement

in use by the Link Pathway binds the infrastructure to the land itself such that the agreement survives changes in land ownership.

### **Neighbour Relations**

The project as proposed will route near several private residences - particularly in the Vista Meadows area, where its construction imposes a new physical reality in direct adjacency to properties where this did not previously exist. Naturally, the unknowns of a new reality come with concerns from those neighbours.

While Lethbridge County owns the land through this area and has the legal right to develop it, it behooves all parties to be good neighbours and seek to go above and beyond to listen to, and address the concerns of those landowners, and reflect their concerns meaningfully in project design, even at increase expense to the Link Pathway.

This liability has informed our engagement of all of the private landowners in the Vista Meadows area and is expanded on thoroughly in the section below, yielding specific recommendations in the final section.

### **Vandalism**

The addition of any built amenity will bring up concerns about vandalism both to the new feature as well as to adjacent property owners. Trails that are located near private property should take this increased risk into consideration. We have undertaken extensive research and review of past and existing stakeholder concerns and equipped ourselves with the tools and resources available to make sound recommendations. There are many mitigation tools available to reduce the likelihood of vandalism. Visual separation of the trail from private property in the form of vegetation or fencing is an effective mitigation measure. It should be restated that although there is an increased risk of vandalism - the actual incidents of where this has occurred are still very low. We will turn to look at comparable projects in the next section to expand on this claim.



## Comparable Projects and Public Safety

### Public Safety Overview (research)

An issue that comes up frequently when new trails are proposed are concerns about increased incidents of crime. After investigating this issue thoroughly, the overwhelming evidence from studies spanning hundreds of trails and from local enforcement data is that **trails are safe**. They do not pose a risk of increased crime to adjacent landowners or to users of a trail themselves. In fact, in several locales, **the rate of crime decreased**.

The trends evident in the literature are:

- Every major study of trails confirms that crime does not increase with the building of a new trail. This includes all studies which include input from local homeowners, law enforcement officers, real estate professionals and trail managers.
- After the trails are built, adjacent residents of properties and police agree that new trails do not increase crime for them and become enjoyable amenities.
- There are many positive testimonials from law enforcement officers regarding trails. Typically, they state that trail users watch out for each other and report crime as they see it occur, thus helping law enforcement to do its job.
- There is no supporting evidence that trails have led to increased homeowner crime (Shearin, 2018).

It is important to note that much of the research in this area has been done in the US, so to validate for a Canadian and more specifically - a rural Albertan perspective – PWC has undertaken lengthy research to either validate or refute the claims made above. Below are the testimonies we have received. All statements have been provided with the express consent of the individual.

*“Unaware of any calls for issues related to incidents in the trail area”* – Randy Peel, Police Information Manager, Medicine Hat Police

*“Unaware of any calls for issues related to incidents in the trail area” and “No increase in crime due to the presence of trails”*

- Sgt. Michael Corty, Acting Detachment Commander, Redcliff RCMP

*“Decrease in crime in the area”*

- Corporal Trepanier, Chestermere RCMP

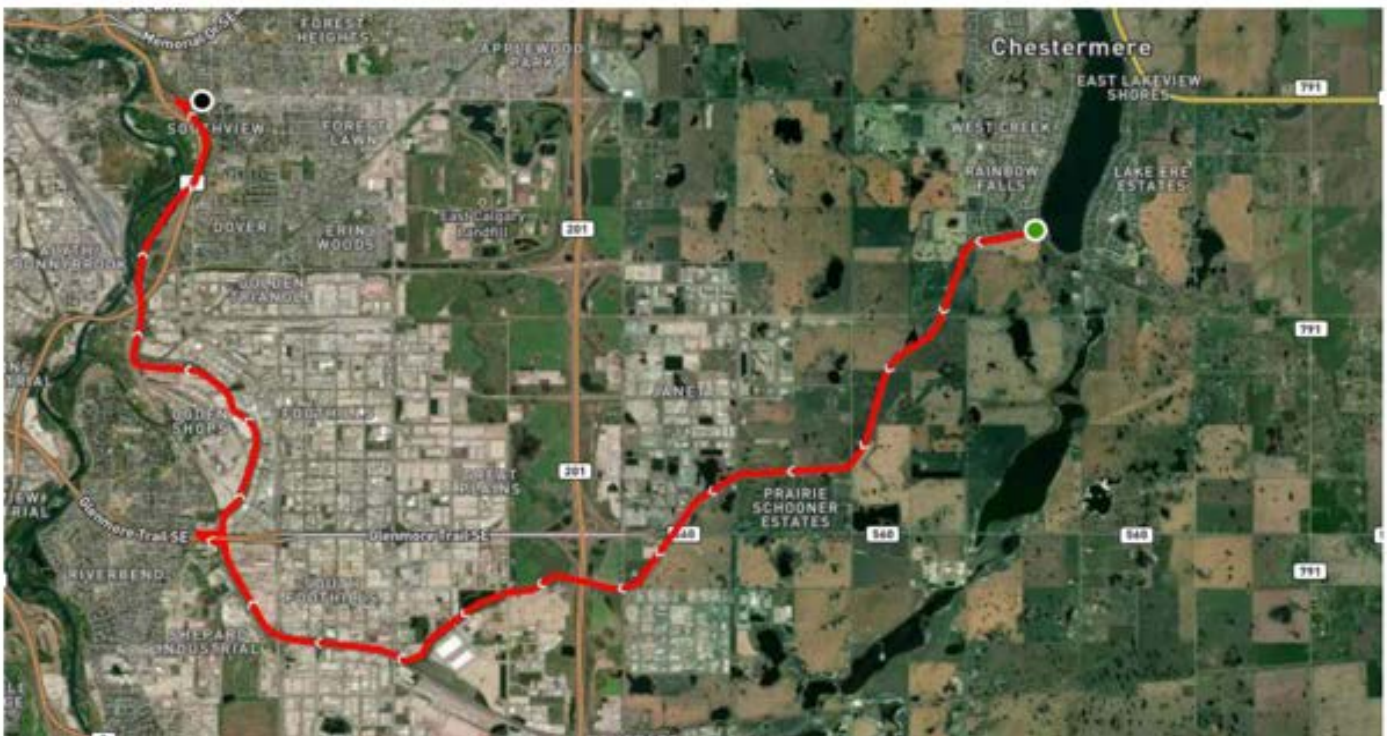
PWC has also spoken with the Kimberley RCMP detachment and although no formal statement was available, their experience was similar. **The overwhelming conclusion of both research and police officers is that rural bike trails do not increase crime. For reference, we’ve provided detailed information and maps below on the trails referred to in the RCMP interviews above.**



## Western Headworks Canal Pathway

25.3 km point to point paved pathway connecting the City of Calgary to the City of Chestermere via Rocky View County.

This pathway has a larger urban element than the LINK Pathway however, many of the components are the same - most notably the proximity to rural residential properties and the use of irrigation district infrastructure. The Western Headworks Canal pathway is owned and operated by Alberta Environment and Parks - outside of structural maintenance, the City of Calgary, Rocky View County, and the City of Chestermere have responsibility for weed control, grass cutting and garbage where the trail passes through their respective areas.



## North Star Rails to Trails

26km paved point to point trail connecting the City of Cranbrook to the City of Kimberley via the Regional District of East Kootenay.

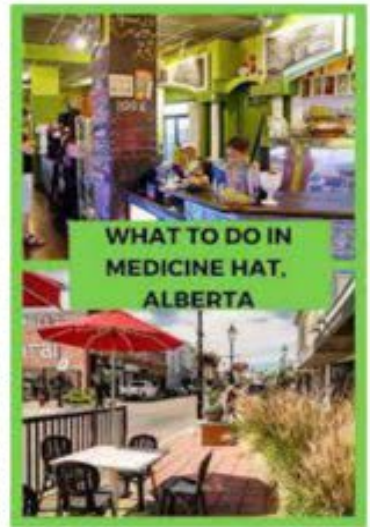
The trail is managed by the North Star Rails to Trails Society and is maintained by both the City of Cranbrook and the City of Kimberley. This pathway almost exclusively runs adjacent to highway 95A so there are no rural residential property owners along the route and exists within the highway right of way.



## Mr. Burnside Trail

10.6km out and back trail located between the City of Medicine Hat and the Town of Redcliff.

This is an unpaved, multi-use trail that connects directly into the mountain bike trails in the Town of Redcliff. The trail is maintained by the 670 Mountain Bike Club. This is the least similar in both use and design to the LINK pathway but offers important lessons for our purpose, as it relates to local experience.





## Take-aways

Residents and community members impacted by the development of trails have expressed concerns about safety from crime if the proposed trail is built. These are real and valid concerns that must be addressed. Unfortunately, trails are not immune to crime. Incidents happen in almost every kind of environment - bike and walking paths are no exception. However, this is a subject that has been researched extensively by academics, trail proponents, and economic development agencies including PWC. **When specifically looking at crime - the conclusions are unanimous: trail development does not lead to an increase in crime.** Even in instances where there was initial opposition - after the trails are built, adjacent residents of properties and police agree that new trails do not increase crime for them and become enjoyable amenities (Shearin, 2018).



## Adjacent Resident Consultation

Routing of the Link Pathway from Coaldale to Lethbridge is possible by making extensive use of Saint Mary's River Irrigation District right-of-ways which offers linear east-west lines owned by a single property owner. An inevitable result of this restriction is that the Link Pathway must pass along the irrigation ditch that runs adjacent to the Vista Meadows residential development and Mustang Acres. The stretch of land that passes through here adjacent to an SMRID drainage ditch is owned by Lethbridge County. New construction of a pathway near private residences changes the landscape and has caused concern from some residents who want to know precisely what will be going where, or who are not enthusiastic about a pathway routing near their properties. In previous years, the Link Pathway Committee had published possible routes and had expanded on plans to construct pathway infrastructure, such as a picnic kiosk, near this location, assuming that the addition of an amenity would be viewed favorably. When negative feedback was received it was evident that proper public consultation was needed. Progressive West Consulting was engaged by the Link Pathway to gather feedback from private residences who would be near the proposed pathway and to share this feedback with pathway stakeholders and with Lethbridge County to be used in further development of the pathway concept and conversations with the aim of being a good neighbour.

In addition to this, Lethbridge County sought advice from their lawyers on the use and development of the stretch of land on which the pathway is proposed to be installed through this area. According to a legal opinion by North & Company LLP dated August 17 solicited by Lethbridge County administration, the question was asked:

*"Does Lethbridge County have the ability to allow the creation of a public pathway for non-motorized vehicles on its PLU running behind the Vista Meadows Subdivision?"*

The opinion of North & Company found that Lethbridge County is certainly within their rights to construct a public pathway for pedestrians and non-motorized vehicles. However, they also found that the easement does not have any provisions relating to construction access or disturbance and that Lethbridge County should seek the Vista Meadows Homeowners' Association permission to conduct construction activities on any lots that Lethbridge County does NOT own, and that the homeowners association may request Lethbridge County enter into an agreement to ensure the clean-up of any construction debris (Kerry, 2020)

However, in our opinion legal right is not enough and sincere consultation with the intent of using that consultation to address specific concerns within project development and design - even at increased cost to the project - is best practice.

### **Approach**

Because of the multiple outcomes that Progressive West Consulting is responsible for with the Link Pathway, we secured the services of a third-party subcontractor to conduct the actual interviews. Karla Pyrch, a local realtor, was tasked with trying to discuss the project with every private landowner in the Vista Meadows and Mustang Acres developments to record their concerns, suggestions, and level of support for the project.

Between July and August 2021, Mrs. Pynch left a document at every door in the area requesting a conversation and made repeated returns to the developments to talk to as many folks as she could. After two months of efforts, it was her opinion that she had talked to everyone who was interested in talking in the area and she concluded her efforts and submitted her report.

Mrs. Pynch’s approach was to communicate that she was a third-party subcontractor hired to listen and record the opinions and thoughts of local residents on the project and report that feedback without alteration to the Link Pathway. Karla recorded notes on the conversations as they occurred, then at the end of the conversation she showed the notes to the interviewee and asked them to confirm if the notes accurately reflected their position and views. Only once the interviewee was satisfied with the record did she close the file on that conversation. The outcomes of the conversations are listed in the table below in detail.

Please note: Progressive West Consulting has redacted the addresses and names of the individual conversations, replacing specific home addresses with a general description of where the home is located. Other clearly and specifically identifying comments have been redacted as well. Progressive West Consulting retains the identifiers securely in our database. This is to protect backlash against any individual by any other individual.

### Findings

Note included in submission from Karla Pynch:

*“Consultations with residents, whose properties are adjacent to proposed routes of the Cor Van Raay Link Pathway, were completed during the months of July and August, 2021 by Karla Pynch. Each resident was visited in person by Karla; they were asked to provide their opinions and concerns about the pathway. They were then asked if they had any solutions or requests that would make placement of the pathway more enjoyable and/or tolerable if it were to abut their property. If no one answered the door, a flyer was left, inviting them to contact Karla by phone or email, to provide input or request an appointment for an in-person meeting. Please find the input gathered in the chart below.”*

Address	Date 2021	Name	Level of Support	Concerns & Suggestions
Area Acreage	July 15	[REDACTED]		Requested I speak to [REDACTED] first
Area Business	July 22	Left message with reception [REDACTED]	Supportive with conditions	Has been in contact with the land agent and provided concerns and condition to them
	August 3 August 16	Met with [REDACTED]		Reviewed acceptable route for pathway – includes donated land, partial use of existing hard surface. More discussion required for short distance between corner and <u>research</u> land. Suggest using ditch on west side of road. More viable option would be east side of roadway but may require a carrot. Wind fence perhaps?
Vista Meadows				
[REDACTED]	July 19	[REDACTED]	Support	Would like assurance that the maintenance of the path will be better than the current level of maintenance at the lake

█	July 21	█	Uncertain – somewhat negative	Concern with neighbourhood safety, vandalism and security. Perhaps a fence would help.
█	July 21	No answer – left flyer		
█	July 21	█	Support	Good - positive
█	July 21	█	Support	Positive overall but would prefer northside of canal. Concerned with plan for maintenance, cleanliness, and litter, as well as snow removal and weeds. Would not like the lake to be part of the route and no staging area nearby
█	July 21	█	Proponents	Concerned with level of lake maintenance and care. Suggest berm or other sound proofing
█	July 21	No answer – left flyer	Home sold	
█	July 21	No answer – left flyer		
█	July 21	No answer – left flyer		
█	July 21	No answer – left flyer	Positive	Contractor/friend said they were positive. Lady came to the door, seemed positive but said it was an inconvenient time to talk – invited her to contact me for further discussion at her convenience
█	July 21	█	Uncertain – Not opposed	Prefer it located on Northside of canal. Would like a berm and trees. Has large dogs that will be disruptive if there is a lot of traffic behind his fence.
█	July 21	█	Support	No concerns
█	July 21	█	Like the concept but many concerns	Lake is not a lake – is a storm pond and important water source. Not pleased with County's maintenance of pond and common areas. Who will provide and maintain garbage receptacles? Litter in lake will ruin system for irrigation. Many complaints have been voiced but no response from County. Believes crime will be an issue and again does not think response will be adequate. Fence to meet architectural controls may be okay – not chain-link, a berm would be better. There should be more transparency on costs, different location options, maintenance plans. Would not like pathway lighting and no stops in area – keep users moving through.
█	July 21	No answer – left flyer		
█	July 21	█	Indifferent	Would like to see better maintenance/cleaning than currently done at lake
█	July 21	No answer – left flyer		
█	July 30	█	Support	
█	July 30	No answer – left flyer		
█	July 30	No answer – Left Flyer		
█	July 30	█ in Drive. No answer – Left Flyer		
█	July 30	█	From Holland – Like Bike paths, might use it but has concerns	Concerned with public access to yards and pollution to water in ditch (not a canal) and lake. What will width of path be? Will ATV's use it? Berms will not be enough protection for backyards, fencing might be better. Who will be responsible for the liability of someone swimming in the lake? Prefers no picnic or stopping area.
█	July 30 August 5	No answer – Left Flyer Meeting requested by █ █ 5:30 pm	Opposed Would be neutral if path was on Northside of Canal	No reason to come through development. Purchased home there for peace and quiet, lifestyle. Unhappy with communication provided by █ regarding receivership of development, litigation with Gibraltar and County takeover of settlement and common grounds in the development. Homeowners do maintenance

				of green areas. Area for path is a utility easement and St Mary's bring in backhoes there for maintenance. Has tried to reach out to the Minister of Environment to discuss his discontent. Is concerned with path user's dogs, security for his property (he is a snowbird), gas line and irrigation line will be interfered with. Does not want a fence but a berm will cause a drainage issue.
█	July 30 August 3	No Answer – Left Flyer Meeting requested by █ █ 1:00 pm	Opposed Would be neutral if path was on Northside of Canal	Was told (by █ if access was given to the lake, path would go on northside of canal. St Mary's is supposed to put in culverts to bury the canal. Vista Meadows will not maintain pathway or adjacent land – County will have to pay to do that. Has sent correspondence to █ and County – no response. Concerned path will be used by ATVs. Thinks a berm would cause flooding –currently experiences backflow into his yard but does not want a fence. DOES NOT WANT ON SOUTHSIDE OF CANAL! Suggest bridge after the last house to the west, with no bridge access to the lake. He says that they have already compromised by agreeing to a pathway on the northside of the canal. Better suggestion would be to run along roadway 20-5 South and the Brown Road West.
█ █ █	July 30	No answer – Left Flyer		
█ █	July 30	█	Opposed to Path on Southside!!! Would support and use path on Northside	Zero barrier between path and his yard and home. (My impression was that it would feel strange as a path user to go through their yard) Has small children and is concerned for safety from path users, potential dogs and criminal activity. Would like to see safety analysis for path users. Thinks a fence or barrier would be better but does not want one. Suggestions include safety for kids, no stopping area, berm fence or trees would help. Concerned with barking from neighbors' dogs at passers-by – not a bother currently. Ensure no ability for path users to step off into yards, better if not see through. Stay away from the lake and put path on the North side!!! Then there will be no objection from him. Doesn't trust information provided by █ – too many changes are causing confusion.
Area Business	August 5	Left flyer with staff member		
Mustang Ranch				

█	August 5	█	Negative	Not pleased. Concerned with traffic from jail or treatment centre. Have free range chickens and dogs will cause barking problems. Moved to acreage for privacy, do not want to be on display or scoped out for crime. Husband █ has sent emails detailing opinion. Fence may help but don't want one, thinks that may be negative for pathway user experience as well. Understands the need for bike safety but does not want it in their backyard.
	September 22, 2021	█		<p>First communication he received was in spring 2021, when he also heard about a petition being circulated from the residents of Howe Road. Not happy about pathway on Southside of canal but will proceed with civil litigation if it goes on the Northside. No scenario for support on a route that passes his property but may use pathway if it does not go through any backyards. Is supportive of recreation in the area. Is a █ and says the impact of a pathway cannot be understated as a pathway for criminals. Moved to the country to get away from that and for privacy. Agreed that most users would be fine but that would not make up for the few with bad intentions.</p> <p>Wants to know if an environmental impact assessment has been completed and what effect this will have on taxes and who will cover maintenance costs. A large amount of infrastructure would be required if placed on north side of canal.</p> <p>Many acreage owners have free roaming dogs and other animals that may interfere with the users of the pathway and decrease their enjoyment. Would like to see the results of this consultation and receive information about the process and timelines for further development.</p>
█	August 5	█	Negative	Not in favor of pathway, particularly do not want on North side of canal or on their private access road, already too many people accessing from Broxburn Road which is dangerous for kids and animals. Do not want a midway meeting point or a picnic area near their homes.
█	August 5	█	Uncertain	Would enjoy having the pathway but are concerned it will cause their taxes to increase and about the maintenance cost. It would cost more to build on the north side and think care should be taken to be most cost effective. Are not concerned by the staging area.
█	August 5	█	Supportive	Prefer North side of canal – would like access but recommends putting pathway lower – stepped down to be closer to the level of the ditch. Say Jail Road is dangerous for cyclists and a safer alternative is necessary. More trees would be better between pathway and houses to provide a barrier.
█	August 5	Left flyer – Returned for in person visit August 20 █	Supportive if on Southside	Concerned with disrupting wildlife and excessive lighting. Bank is steep and their property butts right up to the bank of the canal and is intensively landscaped right to the bank and does not think there is enough room to terrace down closer to the canal. Concerned with dogs too close to pedestrians, would need a large fence. Also, the overflow stream may flood if the path is lowered.

## **Take-aways**

32 properties were approached by Mrs. Pynch. No response was received from 10 of the properties. of the remaining twenty-two 5 property owners were not supportive of the project (some with conditions), 12 were outright supportive, and an additional 5 were uncertain or indifferent.

Themes that emerged from the conversation are the following:

1. Vista Meadows area residents are concerned that any pathway development be properly maintained and kept in a visually appealing state of repair. County maintenance at the nearby storm pond has not inspired confidence.
2. Several respondents have indicated that a picnic kiosk in the area would not be welcome.
3. Privacy and security from directly adjacent properties is a repeated concern.
4. Free-roaming dogs interfering with pathway users and thus causing negative backlash on dog owners is a concern.
5. Motorized vehicles are a concern.

# Recommendations from Research and Consultations

## Health and Safety

1. If possible, secure a donation of bicycles to be gifted to the Fresh Start Treatment Centre to encourage their use of the pathway for patients to increase health outcomes.
2. Position highly visible signs at each end of the pathway and at key midpoints advising pathway users to avoid use of pathway if field spraying appears to be occurring. Consider including an interpretive board that educates users on chemical uses in agriculture and how to identify if spraying is occurring.
3. Position warning signs for possible irrigation overspray near sections of pathway where irrigating occurs.
4. Partner with Lethbridge College to install educational signage about irrigation near their Irrigation Demonstration site adjacent to the pathway.
5. Position signs along the pathway indicating that Lethbridge County is patrolled by the RCMP.
6. Ensure that there is a robust maintenance agreement in place with Lethbridge County to provide for life-cycle care of the project and an authority that can be appealed to by users and neighbours in the event that maintenance is lacking.

## Good Neighbour

1. Position clear and highly visible signage acknowledging trial boundaries and that accessing land not a part of the trail network is committing an act of trespass.
2. Ensure that adjacent property owners' concerns are reasonably accommodated related to visual separation of pathway from property, lighting, and other crime mitigation measures.

## Vista Meadows Specific Recommendations

1. Ensure that there is a robust commitment from Lethbridge County to provide timely maintenance and care for the pathway through the Vista Meadows area such that the physical surface is maintained in a good condition, weeds and garbage are mitigated and regularly addressed, and associated infrastructure is kept in a good state of repair.
2. Change development plans to not put a picnic kiosk on County land near the Vista Meadows storm-pond and relocate north of Highway 512 to land owned by the Link Pathway.
3. Install privacy fencing on the south side of the Pathway through the Vista Meadows corridor. Offer individual residents a lockable gate through the fence that they can put their own lock on.
4. Consider planting trees along the path through the Vista Meadows area in consultation with individual homeowners regarding their siting preferences if possible.



5. Install a low chain-link fence on the north side of the Link Pathway, separating it from the drainage ditch, to prevent loose dogs from going on the pathway.
6. Do not install pathway lighting through the area.
7. If home-owner irrigation extends beyond their legal land boundaries, offer to have irrigation professionally re-located back within their legal boundaries at Link Pathway expense.
8. Install signs at either end of Vista Meadow section advising that motorized vehicles are not permitted on the pathway.
9. Install posts and chains at either end of the Vista Meadows stretch allowing bike and pedestrian access but effectively shutting off motor vehicle access.



## Next Steps

We highly recommend that the Link Pathway Committee seriously considers the recommendations made above in their detailed development of the project and that this report be included in an information submission to Lethbridge County Council in advance of the request for final approval of the project by Council.

Of course, the opinions that matter on a regional project such as this are not limited to only the views and concerns of adjacent property owners. The merits and liabilities of a project have to also consider the views and opinions of the regional population for whom the project would serve as a new asset. Progressive West Consulting has been tasked with soliciting regional feedback on the project from residents of the City of Lethbridge, Lethbridge County, and the Town of Coaldale as soon as a feasible planned route has been finalized. With a viable route for the project all but established, PWC will be pushing out a Phase 2 call for regional input on the project in the coming weeks.

It will also be important to share information from this report with the public by posting it on the Committee's website so that it is publicly available. Several residents of the Vista Meadows area have followed up over the past few months to inquire about the status and outcome of the consultations they engaged in and this information should be available to them.



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## **Survey Campaign Report**

October 2022



## Quick Notes

As part of our public consultation activities, we launched a survey on the link pathway website ([linkpathway.org](http://linkpathway.org)) to ascertain the public's opinions about the pathway. We also encouraged participants of the LEAD Healthy Living Expo to fill out the survey. To bolster the number of responses, we launched a facebook ad that linked to the survey as well.

## Survey Results

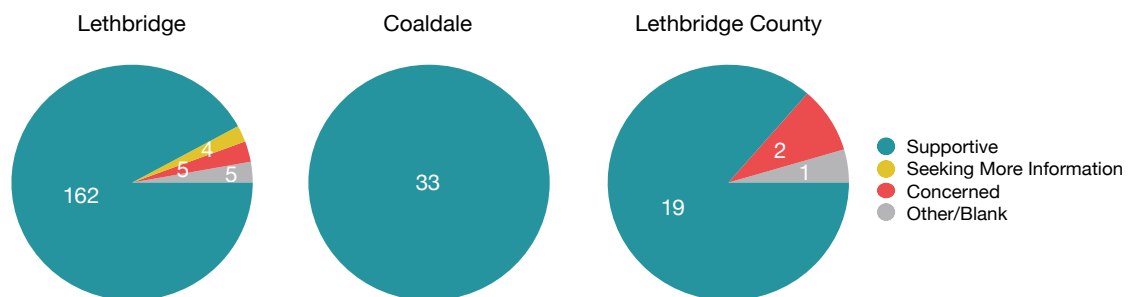
Overall, we had 243 responses. The overwhelming majority (93%) of respondents are supportive of the pathway. Positive comments included the themes of: increased safety for bikers and runners, the provision of an alternate mode of transportation that would be more environmentally friendly, a new option for pursuing fitness, a great way to link the communities of Lethbridge and Coaldale together, and a new family-friendly recreation opportunity.

Those seeking more information still had positive comments when asked about the pathway.

For the concerned individuals, expressed concerns included questions about the route, increased crime, increased traffic, and increased taxes. The individuals concerned about crime indicated that they did read the report stating there is no evidence in support of the assertion that bike paths increase crime.

Communities represented in the survey results include Lethbridge (176), Coaldale (33), Lethbridge County (19), Taber (3), Calgary (2), Raymond (2), Coalhurst (1), Stirling (1), and Nobleford (1).

The rate of support for the three primary communities (Lethbridge, Coaldale and Lethbridge County) are as follows:



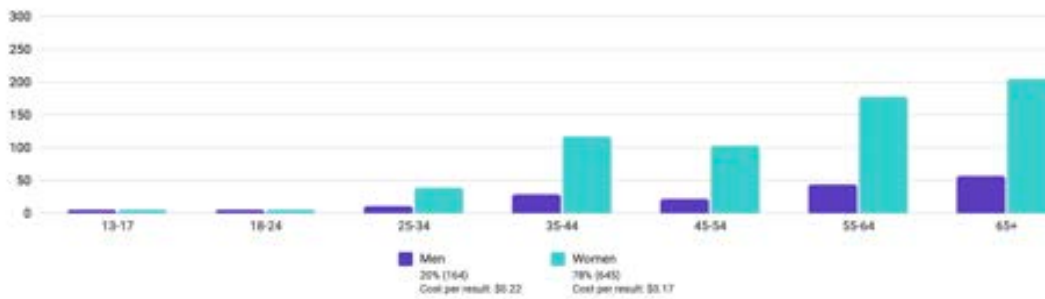
All responses from secondary communities were supportive of the pathway.

## Facebook Ad Results

We spent a total of \$150 on two campaigns on Facebook. As incentive for the survey we held a contest for a \$100 Park Place Mall gift card, where a survey completion with an email gave the respondent one entry into a draw. The ad creative can be seen below.

The campaign resulted in **829 clicks**, a **reach of 9,209** and an average **cost per click of \$0.18**.

Interestingly, the audience that was most engaged with our ads were females older than 45.



*Ad Creative*

## Survey Comments

Please see the following charts that include all of the comments left by respondents.

<b>Please let us know what you're most concerned about?</b>
The proposed route loops back and forth on Hwy512... Would it be better to follow the canals further south to connect into Lethbridge pathways at 24th Ave?
Crime, more traffic in my quiet area
NOT supportive, more taxes!!
get bikes off hwy 512 but am concerned about crime rising in area. am 1/2km from path
<b>Let us know your thoughts about the Link Pathway.</b>
In my humble opinion, the Link Pathway is a waste of time, money, effort and at this time, is an ill-conceived plan. At this time, the concentration should be on Albertans as a whole and not on some fancy pathway that only a select few would ever use. Take care of the essentials FIRST - help the most economically disadvantaged by our current Covid Crisis - BEFORE turning your attentions to yet another playground for the elite. In other words, get your priorities in order!
If not enough donations, Wondering if taxes will be required to cover costs
I have to question WHY it doesn't follow the canal down to the Brown Road canal crossing and then connecting West to the 24th Ave cycle path instead of looping back and forth on Hwy 512.. (how many do you think will follow that instead of shortcutting along 512?)
<b>Please tell us what you're most excited about?</b>
What ISNT there to be excited about. Beautiful landscape, fun family outing. Lovely idea.
I think it will be fun to take the kids on.
My family is already very active. Currently they run and bike on highways. I would prefer a safe path for them to use for exercise!
How it supports healthy living.
Building more amenities for people to get outside and exercise. It will be a great family activity!
It's a great activity to do with the family! It's much more fun biking with a destination instead of around busy parks In the city with lots of walking pedestrians
An rural pathway linking 2 communities with beautiful views and low interruptions to riding without heavy car traffic.
Very excited to have a route to the research centre that's not 512, and more paved cycling infrastructure in general. Also the canal crossings! I'm enthusiastic about this project and am pleased that it is moving forward.
I'm excited to explore the east side of Lethbridge and cycle to the bakery in Coaldale.
Expanded possibilities for recreation! Imagine being able to get to Coaldale without needing a car!
I love how safe bicycle infrastructure makes me feel as a cyclist. Cycling is my favorite way to be in nature, and being able to access great Coaldale features like the Birds of Prey centre and bakery by bike sounds like a fantastic way to spend a day.
Using it to visit family in coaldale.

Please tell us what you're most excited about?
Biking with my kids, getting exercise, the scenery
new recreation option in the region
Great way to get to Coaldale in summer without wasting gas.
Trans portion options that don't use fossil fuels
The areas that the paths will be sound exciting and a great way for us to discover Lethbridge and surrounding area
Most excited to be able to ride my bike to visit my grandchildren
That we'll actually get a safe way to travel by bicycle from in town to another without using highways
A well travelled, safe place to bike, run, and walk the dog.
I'm all about increasing outdoors exercising. More resources for the community.
another pathway to walk
Walking this path and the picnic sites ... possibly cycling, and the safety aspect
The opportunity to have a bike path connecting Coaldale to Lethbridge for families to enjoy
New safe place to ride
The opening
Having another option to enjoy biking and hiking in close proximity to my home
I look forward to having a longer bike path to ride on my ebike without worrying about too many street crossings or riding on streets and roads.
Riding the pathway! So excited to be able to go some distance without worrying about traffic.
People out biking, using a scooter or whatever to drive safely off the highway to work. Families enjoying it together as well.
Exploring new sites the trail will provide.
More bike trails
Opportunity for safe cycling recreation in a rural environment.
Having a walking and biking path of that length and quality.
A day trip to ride a bike, and go for lunch in a different town.
More bike lanes! Anything to get people moving on bikes I am very supportive of. Highway riding is simply becoming too risky and instigative with other users. I LOVE that it is simply not a straight line from Lethbridge to Coaldale, but actually gets you out into country areas passing operating farmland. Love it.
More biking paths
Being able to ride from Lethbridge to coaldale on a safe route for the whole family

Please tell us what you're most excited about?
Inter connected trails allowing users to get between Lethbridge and Coaldale without a car.
When I drive to coaldale, I always take jail road cause I think it's such a pretty area. A bike path would be a wonderful addition to the area, especially with ebikes making it much more accessible to people. I've always been envious of Calgary's bike path system. This is a great step towards that!
Family bike rides to the Birds of Prey
Recreational option on a longer route
Cor was a nice man and it's great to have a smooth pathway to walk on like the one along the Bow in Calgary.
Having a safe longer distance path. We currently ride down jail road and find it not ideal.
Great safe family recreation
A long running trail. Opportunity to ride my bike for a long distance, but I'm not a mountain / trail cyclist.
The opportunity to ride on a designated path allows riders to safely experience the rural area!
I'm excited to have a safe route to commute to Coaldale to visit with family who live there, as well as for runs to the bakery and other businesses there.
Opportunities for exercise
Inter-municipal connectivity is exciting.
The connection between communities and the beautiful pathway connecting us.
The option to bike out of the city with my family on a safe pathway that is off the highway.
A longer, safer path for biking with my family
A new path to utilize on the west side.
Somewhere new to ride it will be used a lot
As an avid cyclist and runner, I look forward to a long pathway, unobstructed by vehicle traffic. It is a great addition to a growing pathway network within the city of Lethbridge.
Enjoying. New bike path with a new destination
The commuting option for Coaldale followed by the recreational opportunities
Another opportunity to utilize our green space for recreation and encourage outdoor exploration. To enhance the outdoor appeal of our city.
Biking on a pretty path
Encouraging community members to engage in healthy environmental transportation
Safely cycling to coaldale for the bakery!
Can't wait to ride my bike to Coaldale, visit former church, friends, shop, without relying on a ride from others.
Increased safe, extended cycling opportunities

<b>Please tell us what you're most excited about?</b>
I am excited for the completion and being able to safely travel from Lethbridge to Coaldale with my family
Having a safer way of travelling by bike
Great way to link the community together and make the best of the already fantastic pathways our community has
Safe cycling and accessibilitu
I have always thought a path going from Lethbridge to Coaldale was a great idea! We used to walk the jail road, and other highway to Lethbridge when we were younger, which was a bit dangerous as there isn't a lot of room to do that on those roads!
A safe place to ride bikes in the country.
A new safe path to travel.
A safer way to bike to Coaldale
Being able to cycle to Coaldale without being on the highway
Long bike rides with our children to see grandparents.
Healthy activity to do with the kids. Nice to have a long bike path we can pedal and not have to worry about traffic
I think it will be a safe and fun way to get exercise and meet my grandchildren half way for a picnic. They live in Coaldale.
Another area to enjoy the outdoors
New physical activities to enjoy and creating community features that attract progressive residents.
Safe (traffic free) places to bike and run.
More safe options for cycling
We love to bike and would enjoy this lovely path as we find some of the other paths to steep and to many stop lights this looks like a wonderful nature path
Great idea we don't need to go on the highway now sounds like a great relaxing way to get from Lethbridge to coaldale
Awesome idea this path see the country and ride in safety thumbs up
Being able to ride me bike on the path.
Long path without a lot of stops
The possibility to enjoy new areas by bike with my family, without the concern of sharing a road with traffic.
Something new to do in the city
Safer cycling route. Traffic is fast and shoulder is small
My family enjoys biking together, it would just be a nice addition to the areas we currently explore
Safe cycling infrastructure between towns will be fun exercise for residents but also promote the area for cycling tourism!!
Travel done in a way that is safe for cyclists by avoiding the busy Highway 3

Please tell us what you're most excited about?
Safer and easier accessibility for cyclists. Lethbridge is small and easy to run out of new biking routes!
More biking infrastructure in Lethbridge
Hard to choose. There is so much good in expanding bike pathways to connect our communities. I used to road cycle for fitness and training, but do not feel safe sharing the road with texters. I have switched to mountain biking instead, and am so looking forward to riding longer distances safely - this pathway is part of that.
We cycle for pleasure and to commute. This pathway opens up the opportunity to make the town of Coaldale a destination for an after excursion to stop into the bakery, or pop into some shops before riding back. We could easily see ourselves choosing to cycle out to visit friends in town if this were available. There is no other designated trail like this in our area, and it is a great opportunity to connect these two communities. Also, I work seasonally at Country Blooms greenhouse and biked along the jail road daily to work for exercise and to save some gas money, but the "shoulder" is excruciatingly narrow for biking and you feel very vulnerable. It beats cycling on the busy highway, but I would RELISH a meandering bike route that could get me near my workplace safely!
I run and bike - having more routes to do so would be great.
Family use for physical activities
A long distance path with no vehicular traffic concerns
The chance to run and enjoy the ride...
Additional options for safe cycling routes appropriate for family use.
Biking to and from coaldale
The opportunity to do longer distance bike rides with my young family that don't involve the risk of traffic incidents. I grew up riding long distances with my family and it was always a joy to be able to travel an alternative way from place to place.
Biking to coaldale
I live in Lethbridge, parents live in Coaldale, this is a wonderful, safe, healthy way to choose to visit them by continuing to be active and not to worry about safety concerns from vehicles
Somewhere to ride for exercise that's safe and car free. Looks like a scenic ride too. Need more connected pathways!
I live near the start in Lethbridge and I love to cycle.
Riding a longer distance with my son
Riding my bike between Lethbridge and Coaldale, away from traffic and out in the countryside
a long pathway for extended rides
Enjoying the countryside by bike in a way that feels safe and supported.
If it supports multi use like cycling plus pedestrians then I support it. It is helpful to live an active lifestyle/. Bikes are cool again.
A safe way to ride to Coaldale!
Looks like it would be a fun bike trip!
A new pathway

<b>Please tell us what you're most excited about?</b>
Not being killed by a car biking on the jail road
The possibility of having a longer trail that links Lethbridge with Coaldale without having to ride the highway
Safe uninterrupted options for cycling
Healthy option to travel between 2 communities
It is a long nice path to get from one town to another it will save on emissions!
I love to bike almost daily this would be a safer way to bike out in the country. Love paved pathways. My wife and I just got a Tandem Recumbent bike and this path would be awesome to use it on.
I'd love to be able to safely ride to Coaldale to visit the bakery and shops on a Saturday for fun - we do this sometimes now using the Jail road and Highway 512 but the car traffic on those roads discourages some friends that would like to come with us, who are not comfortable riding on the road.
Cycling pathway
Any outdoor activity added to our community will always get my support.
Something new to explore outside that's also great for the community!
It getting done sooner rather than later.
I will use it daily for commuting to work
Another path for our r lke's and love to visit Coaldale business etc.
Being able to walk or bike to Coaldale for coffee.
Biking safely without traffic to Coaldale
Linking coaldale and lethbridge via a carless pathway
Bike paths enhance community safety and promote tourism and improve quality of life.
a great addition to our already fantastic foot and bike paths
Looks like a great recreational asset to our area
Maintained bike path
Another option to keep fit
Family bike rides
That this means there will be more things to do in the surrounding area! My parents took us on longer path bike rides when I was kid and I enjoyed it!
being able to ride with out being on the road with cars.
15 km of new bike trail to encourage opportunities for cycling
Safely exercising



Please tell us what you're most excited about?
Riding out of the city
Using the party with me family and the proposed features (bridges, picnic spaces).
Being able to take my family on a fun bike ride to visit friends and family in Coaldale. Also, giving me somewhere to go on regular bike rides outside of the city without needing to ride on busy highways.
The opportunity to bike or walk safely with family.
Great for distance riders and commuters
A new way to get my family outside and active in the spring/summer/fall while spending time together and making memories.
It would encourage further connection of communities and good health to all citizens. It would also add to the local social and cultural assets and increase safety for non-motorized transport on an otherwise risky highway. I'm tired of seeing the white ghost-bikes memorializing the athletes killed along Hwy 3 and would love to support this positive initiative.
I think it will be a great pathway and a fun route to bike on
A safe place to get out with the kids and see more!
Having a bike path to ride a substantial distance with out riding on city streets or highway. My wife & I ride 5 times a week ~ 12 Km per ride. We would use this path way!
Out of traffic for biking
Pathways are great for biking running and walking and make everyone safer
It would be great to be able to get to the pathway from the north side of lethbridge.
An option for people who live away from the city to reduce their global footprint.
A safe way to get from Lethbridge to Coaldale the jail road is very dangerous
Safe cycling route
a pleasant and safe off road connector between Lethbridge and Coaldale will allow me to plan day trips out to Coaldale.
The longer distance for biking and running without traffic
Being able to bike to work, feeling safer biking to Lethbridge
Being able to bike to see family, or maybe use it to get to work from coadale to the hospital in Lethbridge
Fitness on the extended pathway
A longer trail to safely bike. With such an indirect route to Lethbridge I don't foresee regularly commuting to work by bike, but more as a safe place to roadbike and bike leisurely.
Awesome biking and walking way to use
A longer pathway to use for running, biking and walking that is protective from vehicles.
Two fold - I like bike riding and having a safe space to do so will be wonderful! Also as a driver on the jail road/845, there are often bikes on the road and there is no real shoulder for them which to me feels unsafe.

Please tell us what you're most excited about?
The opportunity to safely ride to Lethbridge away from the main busy highway
Lacombe has something similar between Lacombe and Blackfalds. My kids LOVE that bikeride when going to visit the grandparents!
Safe away from high speed traffic where the family can relax and get exercise
Biking and running between Lethbridge and Coaldale!!!! Please please please complete this path!! Ever since I bought my home in Coaldale, my family and I have been waiting for this project to be completed! We would use the path every weekend for long runs, and biking trips.
Having a safe route to bike to lethbridge/coaldale with the family
Having bike path
Biking a majority of the way to Lethbridge off of the hiway itself- as the truck traffic with no shoulders has become too dangerous
Ride bikes to Lethbridge without loading them in a vehicle, don't feel safe riding bikes on highway. Enjoying the quiet agriculture sights while riding bike or walking
Gives people an option for activities, also beautiful scenery
New affordable recreational opportunity. Chance yo create something unique in southern Alberta which improves quality of life
Having a safe pathway from Coaldale to Lethbridge to ride my bike and walk on. There is way too much traffic on the Highways to ride or run safely.
Would love to be able to safely bike a distance from Coaldale.
Being able to have a safe biking and running path, and being able to safely commute to work at the research station by bike
Safe Family activities .
Longer distances to walk/bike
The ride to/from Lethbridge will be a great distance on an awesome surface not shared with general vehicle traffic - perfect.
A safe bike route for enthusiasts like me who prefer this form of exercise.
A safe place to ride a bike. Highways are not a safe option.
I love riding my bike and would love a safe option to ride to Lethbridge.
My husband wants to use his bicycle to get to work, and to be able to go on longer, safer bike rides with My children without having too many cars around constantly.
A new place to ride and run and a commuting option for biking to Lethbridge without having to go on the highway
Not having to use major highways as a link for bicycles
Family bike rides on a safe path
A safe way to bike to Lethbridge and back

Please tell us what you're most excited about?
To have a pathway long enough where I don't have to bike in circles! The opportunity to be able to bike or run into Lethbridge and not have to drive all the time. I will not bike or run on the highway, I find it dangerous and unsettling. Also to get people outside and active. One of the things that brings me the most joy when running and biking is seeing others enjoying the outdoors and saying hello with a wave and a smile.
A fredag option for uninterrupted biking
I am excited for the ability to bike from Land O Lakes in Coaldale (where mom lives) to Henderson Lake (where a friend lives) without needing to spend \$15k a year on owning and operating costs of a vehicle, and without needing to bike along the shoulder of the highway. Both my parents are also excited for it.
A travel destination in southern Alberta
Safe path for biking and running a longer distance off of the highway
I want to ride my bike on the pathway.
Cycling opportunities
Biking the pathway
Using the pathway
Bike trails and paths
A safe option to bike.
All of it! Think it's great.
Will be nice to see other areas where bikes can ride
Beautification of our city
Safe way for people to bike, rather than on the hiway. Some may use it to commute.
Riding my bike without taking my life in my hands on the highway
To be able to bike without looking out for pedestrians or cars.
path along a canal that is safe (free from cars) , quieter and you can take the kids there too. There should be more of them (We live close to Park Lake and always thought something like that would be great). Also could be used for commute to Lethbridge.
Having a safe place for pedestrians.
Somewhere to bike off roads
Exercise by biking or walking on a safe pathway instead of being on the very dangerous jail road.
Recreational opportunities away from traffic
get bikes off hwy 512 but am concerned about crime rising in area. am 1/2km from path
I think it will be a great addition to the region. I don't live close enough that I could utilize it regularly (maybe just the occasional weekend) but my family who lives in Lethbridge absolutely would. What a great opportunity!
Being able to safely ride for fitness

<b>Please tell us what you're most excited about?</b>
To be able to bike from coaldale to lethbridge. Or just walking along the path
all of it! I like walking the trails over s Alberta
Riding bikes with my family on it
Having more places to hike and get out in nature that don't involve driving hours to waterton or writing on stone
The path would be great to join the two communities
Using it

THIS AGREEMENT MADE EFFECTIVE THIS 24 DAY OF FEBRUARY, 2022.

BETWEEN:

ELK CREEK DAIRY FARMS LTD.  
(hereinafter referred to as "the Grantor")

-and-

LINK PATHWAY COMMITTEE  
(hereinafter referred to as "the Grantee")

WHEREAS the Grantor is the registered owner of the lands as set out in Schedule A hereto, and hereinafter referred to as Parcel A.

AND WHEREAS the Grantee is in the process of designing, developing and constructing a multi use paved pathway through Lethbridge County primarily along the banks of the St. Mary River Irrigation District South Lateral and across and through land as donated by various land owners by way of easement which pathway shall link the City of Lethbridge and the Town of Coaldale as set out in Schedule B hereto.

AND WHEREAS the pathway is being developed as a legacy for the use thereof by current and future residents and generations of the City of Lethbridge, Lethbridge County and the Town of Coaldale (hereinafter referred to as "the users") and shall be known as the Cor Van Ray Link Pathway (hereinafter referred to as "the pathway").

AND WHEREAS the Grantee requires an easement over that portion of Parcel A as set out in Schedule C hereto and highlighted as part of the pathway and the Grantor has agreed to grant to the Grantee such an easement.

AND WHEREAS the parties hereto acknowledge that the pathway may also be utilized by the Grantor for the purpose of providing the Grantor access to Parcel A as may be required.

NOW THEREFORE in consideration of the sum of TEN (\$10.00) DOLLARS now paid by the Grantee to the Grantor and the other good and valuable consideration as hereinafter set out, the receipt and sufficiency whereof is hereby acknowledged, the Parties hereto do covenant and agree with each other as follows:

1. The Grantor does hereby grant to the Grantee, an easement over that portion of Parcel A as set out in Schedule C hereto and highlighted as part of the pathway.
2. The Grantee shall be solely responsible for the following including but not be limited to all costs associated therewith:
  - (a) the construction of the pathway; and,

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(b) the repair, maintenance, upkeep and resurfacing of the pathway, which shall include but not be limited to all equipment, workers and materials require for such purpose; it being understood that the Grantee shall exercise its obligations in the construction, repair and maintenance of the pathway in a reasonable and workmanlike manner.

3. Neither party hereto shall:

- (a) park or permit to be parked any vehicle(s) and/or store any equipment and/or objects upon the pathway so as to interfere with the use thereof by the Grantee; or
  - (b) fence or build any structure upon or otherwise block off any portion of the pathway to prevent the use thereof by the users of the pathway, it being understood that the Grantee shall be constructing signs and kiosks along the pathway for the users of the pathway;
  - (c) move or alter the pathway without the consent of both parties;
- provided however that in the event that any vehicle(s), object(s), fence or other structure(s) is/are parked and/or stored and/or erected on the pathway without the consent of both parties hereto, the same may be removed at the expense of the party in breach of this agreement.

4. The rights, privileges and obligations contained herein:

- (a) shall run with and be legally annexed to the title of Parcel A and this Agreement may be registered at the Land Titles Office for the South Alberta Land Registration District against Parcel A by way of Caveat; and
- (b) shall not be extinguished in the event that title to or ownership of Parcel A shall be vested in any other person(s), corporation(s) or entity.

5. That any dispute with respect to the terms hereof which cannot be resolved by the parties hereto shall be referred to the arbitration of a single arbitrator pursuant to the Arbitration Act of Alberta.

6. This agreement shall extend to and be binding upon the respective heirs, beneficiaries, personal representatives and assigns of the parties hereto and where the context so requires any reference to the plural number shall also include the singular number or vice versa as the context may require.



7. Within the SE 05-009-20 W4M the pathway will be constructed as close to the northern bank of the existing SMRID canal as possible. The construction of the pathway will not further restrict the approach off of RR204 on to SE 05-009-20 W4M.

8. The Grantee will extend the north boundary of the existing approach off of RR204 on to SE 05-009-20 W4M by an equal width of what is being used by the pathway.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement effective the date above noted.

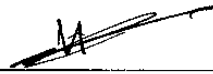
  
Witness **ADAM SPACKMAN**

**ELK CREEK DAIRY FARMS LTD.**

per:   
**BRIAN STOUTJESDYK**

  
Witness **ADAM SPACKMAN**

**LINK PATHWAY COMMITTEE**

per:   
\_\_\_\_\_

SCHEDULE A

PARCEL A

First:

MERIDIAN 4 RANGE 20 TOWNSHIP 9  
SECTION 9  
THE SOUTH HALF OF THE SOUTH EAST QUARTER  
CONTAINING 32.4 HECTARES (80 ACRES) MORE OR LESS  
EXCEPTING THEREOUT:  
PLAN NUMBER HECTARES ACRES  
CANAL RIGHT OF WAY IRR. 56 0.688 1.7  
PARCEL 'A' 494 JK 0.975 2.41  
SUBDIVISION 9211369 3.93 9.71  
SUBDIVISION 1810236 1.43 3.53  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME

Second:

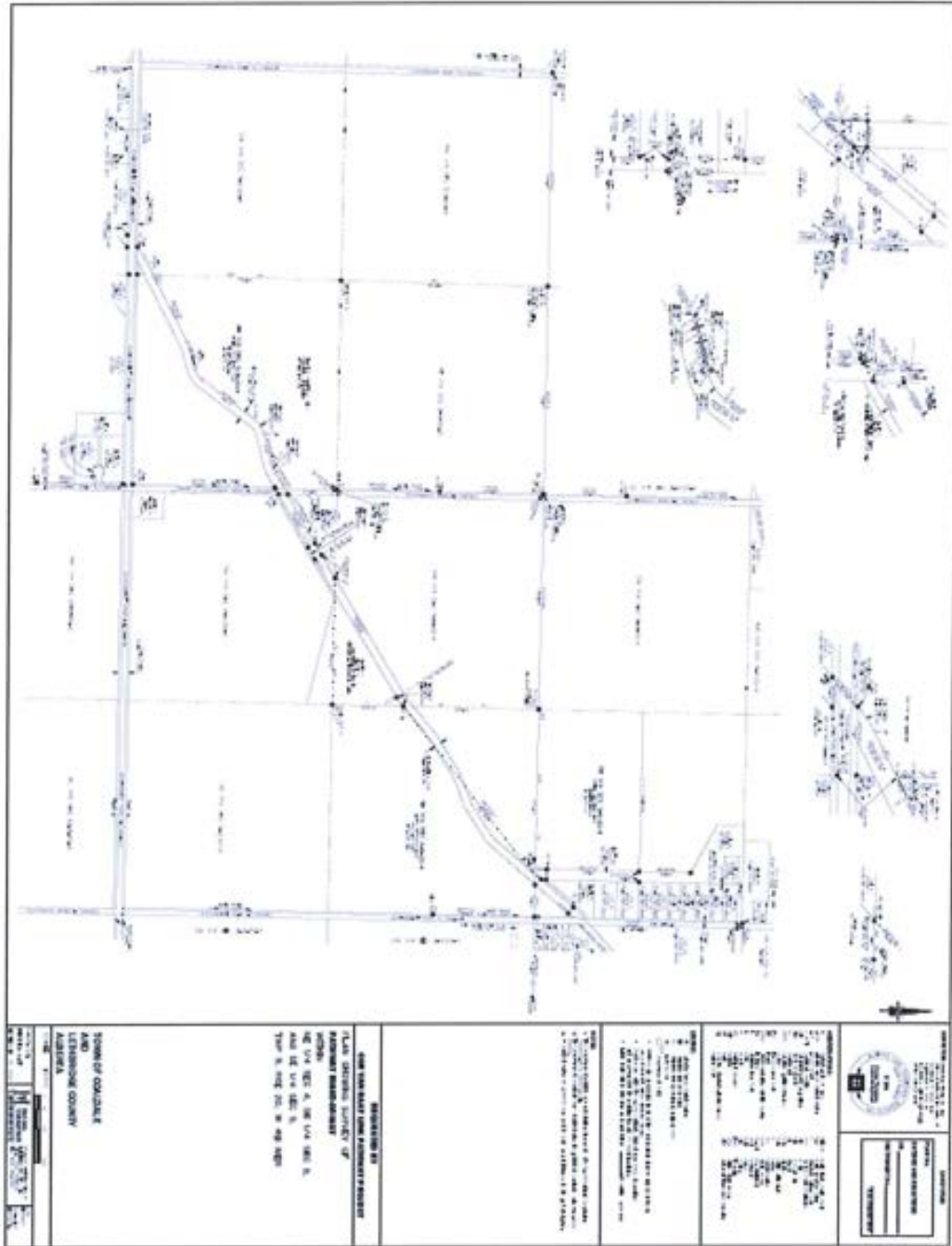
MERIDIAN 4 RANGE 20 TOWNSHIP 9  
SECTION 4  
THAT PORTION OF THE NORTH EAST QUARTER  
WHICH LIES NORTH AND WEST OF THE CANAL  
RIGHT OF WAY ON PLAN IRR56  
CONTAINING 16.7 HECTARES (41.3 ACRES) MORE OR LESS  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME

Third:

MERIDIAN 4 RANGE 20 TOWNSHIP 9  
SECTION 5  
THAT PORTION OF THE SOUTH EAST QUARTER LYING NORTH  
OF THE CANAL RIGHT OF WAY ON PLAN IRR. 56  
CONTAINING 37.51 HECTARES (92.68 ACRES) MORE OR LESS  
EXCEPTING THEREOUT  
2.97 HECTARES (7.34 ACRES) MORE OR LESS  
COMMENCING AT A POINT ON THE EAST BOUNDARY 182.880 METRES  
SOUTH OF THE NORTH EAST CORNER OF THE SAID QUARTER SECTION;  
THENCE NORTHERLY ALONG THE SAID EAST BOUNDARY TO THE NORTH  
EAST CORNER OF SAID QUARTER SECTION;  
THENCE WESTERLY ALONG THE NORTH BOUNDARY OF SAID QUARTER  
SECTION, 242.773 METRES;  
THENCE SOUTHERLY AND PERPENDICULAR TO THE SAID NORTH  
BOUNDARY 7.925 METRES;  
THENCE EASTERLY AND PARALLEL TO THE SAID NORTH BOUNDARY  
82.296 METRES;  
THENCE SOUTHERLY AND PERPENDICULAR TO THE SAID NORTH  
BOUNDARY 173.203 METRES;  
THENCE EASTERLY TO THE POINT OF COMMENCEMENT  
EXCEPTING THEREOUT ALL MINES AND MINERALS  
AND THE RIGHT TO WORK THE SAME



SCHEDULE B



DATE:	_____
PROJECT:	_____
SCALE:	_____

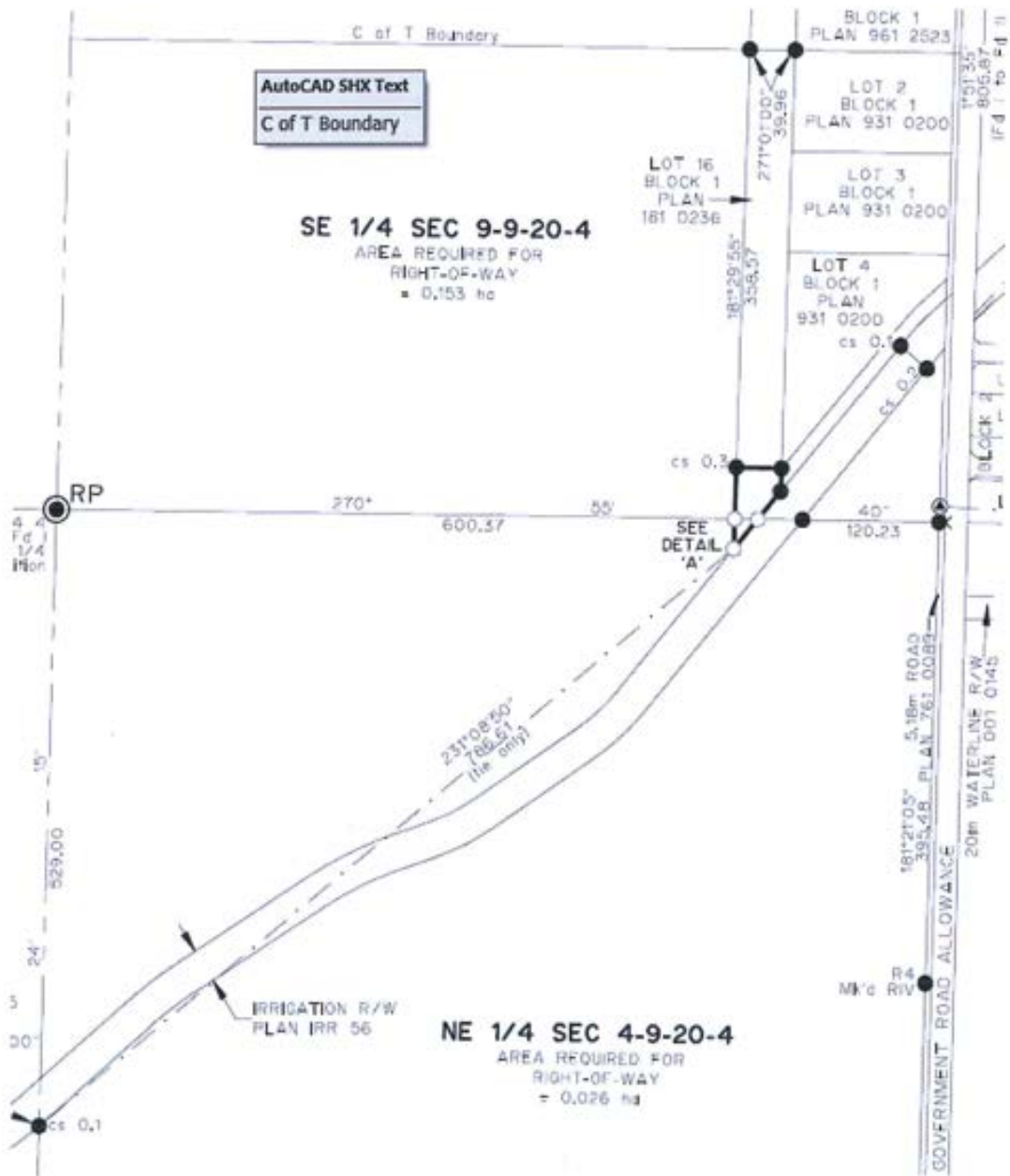
NOT TO SCALE  
 SEE PLAN FOR ALL DIMENSIONS  
 ALL DIMENSIONS IN FEET AND INCHES  
 UNLESS OTHERWISE SPECIFIED

CONSTRUCTION SPECIFICATIONS TO BE USED SHALL BE THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC WORKS, AS PUBLISHED BY THE MISSOURI DEPARTMENT OF TRANSPORTATION.

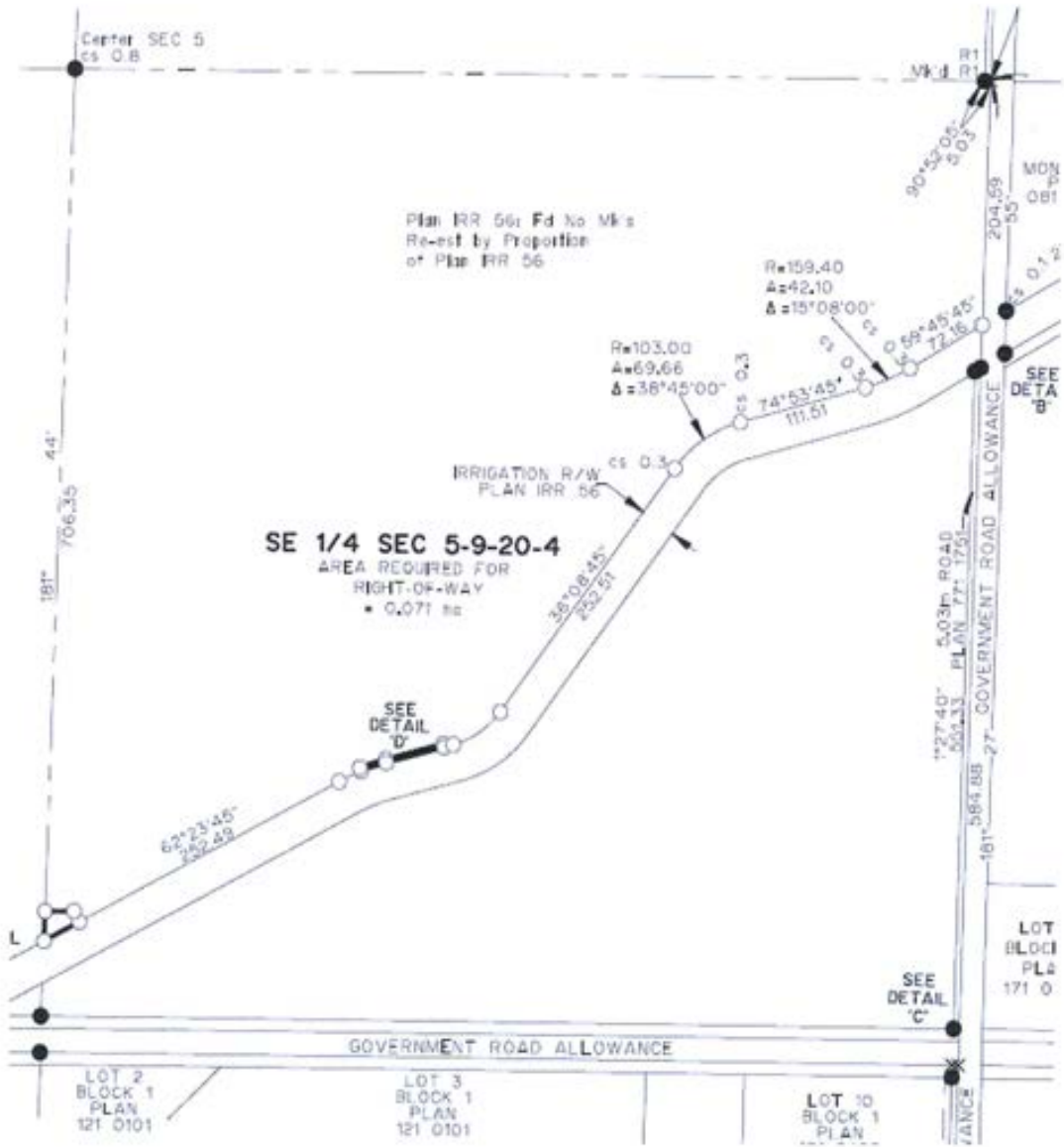
**REVISIONS TO**  
 SANITARY SEWER SYSTEM  
 PLAN SHEET 101 OF 102  
 PROJECT NO. 2018-01  
 DATE: 10/15/2018

<p>TOWN OF COASTALE                  AND                  LEWISBORO COUNTY                  MISSOURI</p>	<p>DATE: 10/15/2018</p>
--	-------------------------

SCHEDULE C



SCHEDULE C



THIS AGREEMENT MADE EFFECTIVE THIS 26 DAY OF April, 2022.

BETWEEN:

**GREEN LIFE FARMS LTD.**  
(hereinafter referred to as "the Grantor")

-and-

**LINK PATHWAY COMMITTEE**  
(hereinafter referred to as "the Grantee")

WHEREAS the Grantor is the registered owner of the lands as set out in Schedule A hereto, and hereinafter referred to as Parcel A.

AND WHEREAS the Grantee is in the process of designing, developing and constructing a multi use paved pathway through Lethbridge County primarily along the banks of the St. Mary River Irrigation District South Lateral and across and through land as donated by various land owners by way of easement which pathway shall link the City of Lethbridge and the Town of Coaldale as set out in Schedule B hereto.

AND WHEREAS the pathway is being developed as a legacy for the use thereof by current and future residents and generations of the City of Lethbridge, Lethbridge County and the Town of Coaldale (hereinafter referred to as "the users") and shall be known as the Cor Van Ray Link Pathway (hereinafter referred to as "the pathway").

AND WHEREAS the Grantee requires an easement over that portion of Parcel A as set out in Schedule C hereto and highlighted as part of the pathway and the Grantor has agreed to grant to the Grantee such an easement.

AND WHEREAS the parties hereto acknowledge that the pathway may also be utilized by the Grantor for the purpose of providing the Grantor access to Parcel A as may be required.

NOW THEREFORE in consideration of the sum of TEN (\$10.00) DOLLARS now paid by the Grantee to the Grantor and the other good and valuable consideration as hereinafter set out, the receipt and sufficiency whereof is hereby acknowledged, the Parties hereto do covenant and agree with each other as follows:

1. The Grantor does hereby grant to the Grantee, an easement over that portion of Parcel A as set out in Schedule C hereto and highlighted as part of the pathway.
2. The Grantee shall be solely responsible for the following including but not be limited to all costs associated therewith:
  - (a) the construction of the pathway; and,
  - (b) the repair, maintenance, upkeep and resurfacing of the pathway, which shall include but not be limited to all equipment, workers and materials require for such purpose;

PB

it being understood that the Grantee shall exercise its obligations in the construction, repair and maintenance of the pathway in a reasonable and workmanlike manner.

3. Neither party hereto shall:

- (a) park or permit to be parked any vehicle(s) and/or store any equipment and/or objects upon the pathway so as to interfere with the use thereof by the Grantee; or
- (b) fence or build any structure upon or otherwise block off any portion of the pathway to prevent the use thereof by the users of the pathway, it being understood that the Grantee shall be constructing signs and kiosks along the pathway for the users of the pathway;
- (c) move or alter the pathway without the consent of both parties;

provided however that in the event that any vehicle(s), object(s), fence or other structure(s) is/are parked and/or stored and/or erected on the pathway without the consent of both parties hereto, the same may be removed at the expense of the party in breach of this agreement.

4. The rights, privileges and obligations contained herein:

- (a) shall run with and be legally annexed to the title of Parcel A and this Agreement may be registered at the Land Titles Office for the South Alberta Land Registration District against Parcel A by way of Caveat; and
- (b) shall not be extinguished in the event that title to or ownership of Parcel A shall be vested in any other person(s), corporation(s) or entity.

5. That any dispute with respect to the terms hereof which cannot be resolved by the parties hereto shall be referred to the arbitration of a single arbitrator pursuant to the Arbitration Act of Alberta.

6. This agreement shall extend to and be binding upon the respective heirs, beneficiaries, personal representatives and assigns of the parties hereto and where the context so requires any reference to the plural number shall also include the singular number or vice versa as the context may require.

7. The Grantee covenants and agrees to indemnify and save harmless the Grantor from any and all liabilities, damages, costs, claims, suits or actions caused by or resulting from the construction, operation, maintenance and/or repairs to the pathway other than through willful damage or gross negligence by the Grantor

8. The Grantor will not be restricted in their use of the remaining balance of the lands and will not be held responsible or liable for any negative impacts to the pathway due to regular farming operations, including but not limited to irrigation, chemical spray, and excessive dust. *including any other adverse effect, including smell.*

9. The Grantor's farming operations will not be compromised in any way due to the presence of the pathway, including ongoing unobstructed access to the Grantor's property.

10. Any fences that are taken down during the construction of the pathway will be replaced at the sole expense of the Grantee. The Grantor will be consulted prior to the installation of the new fence. *The Grantee agrees to install a new 4-wire fence on the boundary of the pathway.*

P.B.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement effective the date above noted.

**GREEN LIFE FARMS LTD.**

  
\_\_\_\_\_  
Witness **ADAM SPACKMAN**

  
\_\_\_\_\_  
Per:

  
\_\_\_\_\_  
Witness **ADAM SPACKMAN**

**LINK PATHWAY COMMITTEE**

  
\_\_\_\_\_  
Per:

SCHEDULE A

PARCEL A

**DESCRIPTIVE PLAN 0511070**

**BLOCK 1**

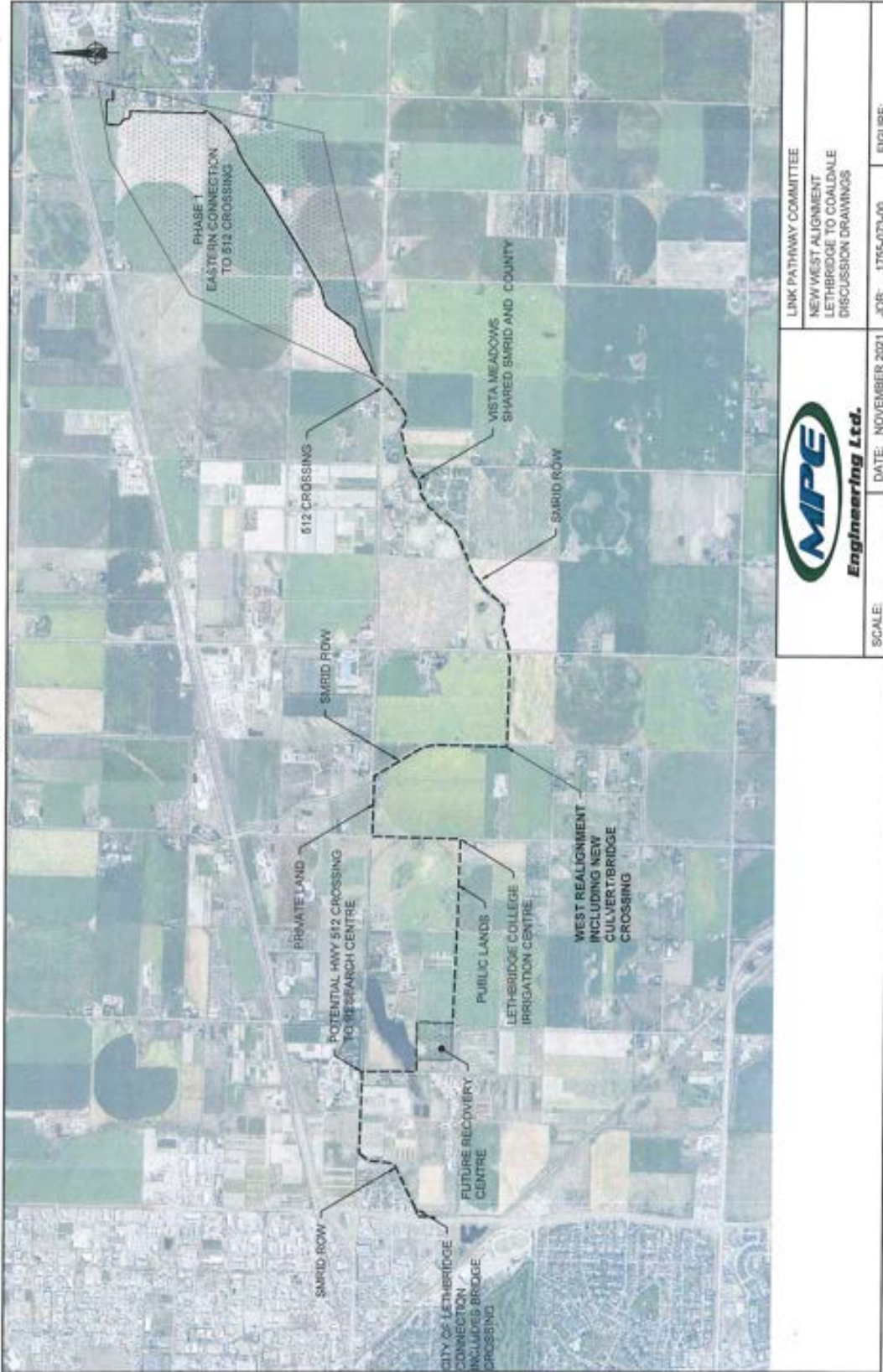
**LOT 2**

**EXCEPTING THEREOUT ALL MINES AND MINERALS**

**AREA: 71.663 HECTARES (177.08 ACRES) MORE OR LESS**

P.R.

Schedule "B"



LINK PATHWAY COMMITTEE  
NEW WEST ALIGNMENT  
LETHBRIDGE TO COALDALE  
DISCUSSION DRAWINGS

SCALE:	DATE: NOVEMBER 2021	JOB: 1755-075-00	FIGURE:
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P.B



Schedule "C"

LOCATION  NW   SEC. 36   TWP. 8   RGE. 21   MERIDIAN W4M



REGISTERED OWNER			TITLE NUMBER	
GREEN LIFE FARMS LTD.			051 092 541 +1	
RIGHT-OF-WAY REQUIRED	PREVIOUSLY REQUESTED RIGHT-OF-WAY	CANCELLED PREVIOUSLY REQUESTED RIGHT-OF-WAY	CONSTRUCTION BASEMENTS	OPTIONAL PURCHASES
0.6 ac 0.25 ha	0.0 ac 0.00 ha	0.0 ac 0.00 ha	0.6 0.25 ha	0.0 ac 0.00 ha
				ARBAS ARE ESTIMATED AND WILL BE UPDATED ONCE CONFIRMED IN DETAILED DESIGN AND CONSTRUCTION.
ROW REQUEST: 4.3	SCALE: 1:5000	DATE: MAR 2022	MPE JOB No.: 1755-073-00	

P.B.



CITY OF  
*Lethbridge*

September 12, 2016

The Link Pathway Committee  
c/o Alvin Reinhard Fritz Architect Inc.  
5801 – 1<sup>st</sup> Avenue South  
RR8 S28 C14  
Lethbridge, AB T1J 4P4

To Whom It May Concern

**RE: Letter of Support - Regional Trail Project - Lethbridge to Coaldale**

---

On behalf of Lethbridge City Council I am pleased to provide this Letter of Support for the Regional Pathway Project to the Regional Trail Project Steering Committee, representing an authorized Town of Coaldale project.

The project involves creating a pedestrian and bicycle-friendly pathway to link Henderson Lake Park in southeast Lethbridge to the Alberta Birds of Prey Centre in Coaldale, AB. City Council has had an opportunity to review the details and the vision of the pathway which would follow the bank of the St. Mary River Irrigation District South Lateral right-of-way, and then tie-in through private lands, to a point of connectivity near the intersection of 43rd Street and South Parkside Drive/10th Avenue.

The City of Lethbridge endorses this vision in principal, and sees the benefit of linking the Coaldale pathway to the regional pathway of the City of Lethbridge. The City of Lethbridge will appoint a councillor to the Regional Trail Project Steering Committee and will hereby assist in facilitating the advancement of the same.

Yours truly,

Chris Spearman, Mayor

Cc: Lethbridge City Council

*Excerpt from Minutes  
City Council Meeting held Tuesday, September 6, 2016*

---

4.4 Alvin Fritz, Principle of Alvin Reinhard Fritz Architect Inc., re: Regional Pathway Linking the Alberta Birds of Prey Centre with Henderson Lake

625-D  
650-A

J.A. Coffman:

BE IT RESOLVED THAT the communication from Alvin Fritz, Alvin Reinhard Fritz Architect Inc., on behalf of the Link Pathway Committee regarding a potential regional pathway between Coaldale and Lethbridge, be received as information and filed; and

FURTHER BE IT RESOLVED THAT the Mayor's Office write the appropriate letters of support; and

FURTHER BE IT RESOLVED THAT Councillor Coffman be appointed to represent the City of Lethbridge on the Regional Trail Project Steering Committee; and

FURTHER BE IT RESOLVED THAT Mr. Fritz, and Lethbridge County Councillor Doeve be thanked for their presentation.

Absent: J.H. Carlson, S.R. Miyashiro

In Favour: C.A. Spearman, B.E. Hyggen, J.A. Coffman, L.M. Iwaskiw, J.P. Mauro, B.D. Mearns, R.K. Parker

----- CARRIED

<b>ACTION:</b>	<i>City Clerk, Mayor's Office</i>
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\*\*\* \*\*

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2022-10-21

**Subject:** RE: Link Pathway follow up.  
**From:** "Coady, Maria (AAFC/AAC)" <[maria.coady@agr.gc.ca](mailto:maria.coady@agr.gc.ca)>  
**Sent:** 2022-10-19 6:05:25 AM  
**To:** "Peter Casurella" <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>;  
**CC:** "Maltais, Eric (AAFC/AAC)" <[eric.maltais@agr.gc.ca](mailto:eric.maltais@agr.gc.ca)>; "Gallant, Lisa (AAFC/AAC)" <[lisa.gallant@agr.gc.ca](mailto:lisa.gallant@agr.gc.ca)>; "Chomicki, Laura Lee (AAFC/AAC)" <[lauralee.chomicki@agr.gc.ca](mailto:lauralee.chomicki@agr.gc.ca)>;

Hi Peter,

Great timing! And some good news! The multi use pathway project has been approved to proceed on AAFC's Lethbridge Research and Development Centre (RDC) property.

I'm connecting you by way of this email to Laura Lee Chomicki, the Integrated Services Manager at the Lethbridge RDC, and to Lisa Gallant, our Real Estate Advisor, who will be in contact with you shortly to inform on next steps and seek the required information to draft the formal agreement that will need to be established prior to beginning any project/construction work.

Thank you

Maria Coady

Real Property Analyst  
Owner Investor Group, Real Estate Services  
Real Property and Asset Management  
Corporate Management Branch  
Agriculture and Agri-Food Canada  
Tel: 613-608-3911



---

**From:** Peter Casurella <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>  
**Sent:** October 18, 2022 5:27 PM  
**To:** Coady, Maria (AAFC/AAC) <[maria.coady@agr.gc.ca](mailto:maria.coady@agr.gc.ca)>; Maltais, Eric (AAFC/AAC) <[eric.maltais@AGR.GC.CA](mailto:eric.maltais@AGR.GC.CA)>  
**Subject:** Link Pathway follow up.

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.  
**ATTENTION:** Ce courriel provient de l'extérieur de l'organisation. Ne cliquez pas sur les liens et n'ouvrez pas les pièces jointes à moins que vous ne reconnaissiez l'expéditeur et que vous sachiez que le contenu est sûr.

Hello Maria and Eric,

I hope this email finds you well.

1/2

2022-10-21

I'm following up on the approval process for Link Pathway access across Federal lands at the Federal Research station. We've finalized agreements with the Provincial people adjacent to your property.

Would you be able to tell us how the approvals process is going over there?

Also: Lethbridge County Council is going to be doing an important review of the route on November the 3rd and I was wondering if it was possible to get an email form yourselves indicating what steps remain in the approval process?

Thank you for considering this request. Have a great day!

Peter Casurella  
1-403-849-7225

2022-10-18

**Subject:** Lethbridge Link Pathway  
**From:** "Lucy Adamson" <[Lucy.Adamson@gov.ab.ca](mailto:Lucy.Adamson@gov.ab.ca)>  
**Sent:** 2022-10-03 5:36:58 PM  
**To:** "Peter Casurella" <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>;  
**CC:** "Wayne Widuk" <[wayne.widuk@gov.ab.ca](mailto:wayne.widuk@gov.ab.ca)>; "Trevor Robertson" <[trevor.robertson@gov.ab.ca](mailto:trevor.robertson@gov.ab.ca)>;

Good afternoon Peter;

Trevor Robertson and I had a meeting with the Lethbridge College to discuss the pathway and impacts to their research program. Utilizing the property just behind the Correctional Centre is not an option any longer due to the security/safety concerns I mentioned previously, so meeting with the Lethbridge College to come to an agreement was the next step.

Below you will find in yellow the proposed "approved" path from Infrastructure, Justice & Solicitor General, as well as the Lethbridge College. I realize that this is likely further south than you would have wished for, but we believe this is a good compromise. Lethbridge College requires the 2 gravel roads between their fields to remain off-limits as much as possible. They are currently gated and not accessible to general traffic. You had mentioned previously that you had discussions with the acreage owners who did not want the path on their property, and you will notice the yellow line is distinctly within the Lethbridge College fields. It is understood that the pathway would be on the property side that the Government owns and not on the public property side, so this will eliminate any concerns from the acreage owners. The path will be on the other side of the road.

I trust this will meet your needs and your team can begin planning for construction next. I wish you all the best in all the community improvement work you are undertaking.



Kind regards;

**Lucy Adamson** | Planning Manager  
Strategic Asset & Accommodation Planning, Alberta Infrastructure  
3<sup>rd</sup> Floor | Infrastructure Building | 6950 – 113 Street | Edmonton, AB | T6H 5V7  
Cell: 780-886-3757 | Email: [lucy.adamson@gov.ab.ca](mailto:lucy.adamson@gov.ab.ca)



Classification: Protected A



403.328.4401 (Phone)  
403.328.4460 (Fax)



525 40 Street South  
Lethbridge, AB T1J 4M1

January 18, 2022

Henry Doeve  
Chair  
Link Pathway Committee

**Re: Link Pathway Letter of Support**

---

Dear Link Pathway Committee,

On behalf of the Saint Mary's River Irrigation District, I wish to acknowledge in writing that our organization is committed to working with you to realize the actualization of the intended route, as proposed by MPE Engineering. This is not a legally binding commitment and should be interpreted as permission from the SMRID to advance the conversation together. All work is subject of course to the successful resolution of contractual negotiations and the negotiation of specific engineering or environmental concerns which will be addressed in due course and resolved by our agents or representatives.

We commend you for your vision in advancing this community project and affirm our commitment to work cooperatively with you to realize the final outcomes.

Please feel free to contact me if you have any questions.

Yours truly,

David Westwood  
General Manager  
St. Mary River Irrigation District



**Lethbridge College**  
ph. 403.320.3202 • Fax. 403.329.0530  
3000 College Drive South • Lethbridge, AB T1K 1L6

August 11, 2022

Cor Van Raay Link Pathway Committee  
C/O Henry Doeve  
Chairperson  
Cor Van Raay Link Pathway

**RE: Lethbridge College Support for Link Pathway Alignment**

To Whom it Concerns,

Knowing that the Cor Van Raay Link Pathway is working diligently to advance project timelines in a complex project environment we wish to provide this **letter of intent** to confirm that Lethbridge College is committed to accommodating the passage of the pathway across lands leased by us from Alberta Infrastructure at the location known as the Lethbridge College Demonstration Farm.

Lethbridge College is committed to advancing public awareness of the opportunities present in the rapidly growing agri-food economy of southern Alberta and we look forward to working with the Cor Van Raay Link Pathway to showcase the work being done by our institution by further partnering with the Pathway in the development of a picnic shelter at our Irrigation Display and to honor the legacy of Cor Van Raay himself who gave so generously to advance the regional agricultural ecosystem.

The final details of the specific route remain under discussion and will be finalized in the coming months. However, this should not serve as a barrier to the advancement of the project on other fronts.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Lenci".

Dr. Samantha Lenci  
Interim President & CEO, Provost & Vice President Academic  
Lethbridge College





2022-10-21

**Subject:** Lethbridge Link Pathway  
**From:** "Lucy Adamson" <[Lucy.Adamson@gov.ab.ca](mailto:Lucy.Adamson@gov.ab.ca)>  
**Sent:** 2022-10-03 5:36:58 PM  
**To:** "Peter Casurella" <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>;  
**CC:** "Wayne Widuk" <[wayne.widuk@gov.ab.ca](mailto:wayne.widuk@gov.ab.ca)>; "Trevor Robertson" <[trevor.robertson@gov.ab.ca](mailto:trevor.robertson@gov.ab.ca)>;

Good afternoon Peter;

Trevor Robertson and I had a meeting with the Lethbridge College to discuss the pathway and impacts to their research program. Utilizing the property just behind the Correctional Centre is not an option any longer due to the security/safety concerns I mentioned previously, so meeting with the Lethbridge College to come to an agreement was the next step.

Below you will find in yellow the proposed "approved" path from Infrastructure, Justice & Solicitor General, as well as the Lethbridge College. I realize that this is likely further south than you would have wished for, but we believe this is a good compromise. Lethbridge College requires the 2 gravel roads between their fields to remain off-limits as much as possible. They are currently gated and not accessible to general traffic. You had mentioned previously that you had discussions with the acreage owners who did not want the path on their property, and you will notice the yellow line is distinctly within the Lethbridge College fields. It is understood that the pathway would be on the property side that the Government owns and not on the public property side, so this will eliminate any concerns from the acreage owners. The path will be on the other side of the road.

I trust this will meet your needs and your team can begin planning for construction next. I wish you all the best in all the community improvement work you are undertaking.



Kind regards;  
**Lucy Adamson** | Planning Manager  
Strategic Asset & Accommodation Planning, Alberta Infrastructure  
3<sup>rd</sup> Floor | Infrastructure Building | 6950 – 113 Street | Edmonton, AB | T6H 5V7  
Cell: 780-886-3757 | Email: [lucy.adamson@gov.ab.ca](mailto:lucy.adamson@gov.ab.ca)



Classification: Protected A

2022-10-21

**Subject:** RE: Letter stating in-principle approval.  
**From:** "Lucy Adamson" <[Lucy.Adamson@gov.ab.ca](mailto:Lucy.Adamson@gov.ab.ca)>  
**Sent:** 2022-10-18 4:49:20 PM  
**To:** "Peter Casurella" <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>; "Raj Dass" <[raj.dass@gov.ab.ca](mailto:raj.dass@gov.ab.ca)>; "Trevor Robertson" <[trevor.robertson@gov.ab.ca](mailto:trevor.robertson@gov.ab.ca)>;

Hi Peter;

I am thrilled that you have accepted the proposed plan. Very happy for your team. I can look into what can be provided for a letter, but I do not believe I'd be able to get you anything by this Friday. Could you use my proposed path email as confirmation until then? Once I find out more about what could be provided I'll get back to you.

Kind regards;

**Lucy Adamson** | Planning Manager  
Cell: 780-886-3757 | Email: [lucy.adamson@gov.ab.ca](mailto:lucy.adamson@gov.ab.ca)



Classification: Protected A

---

**From:** Peter Casurella <[peter.casurella@progressivewestc.com](mailto:peter.casurella@progressivewestc.com)>  
**Sent:** October 18, 2022 3:01 PM  
**To:** Lucy Adamson <[Lucy.Adamson@gov.ab.ca](mailto:Lucy.Adamson@gov.ab.ca)>; Raj Dass <[raj.dass@gov.ab.ca](mailto:raj.dass@gov.ab.ca)>; Trevor Robertson <[trevor.robertson@gov.ab.ca](mailto:trevor.robertson@gov.ab.ca)>  
**Subject:** Letter stating in-principle approval.

**CAUTION:** This email has been sent from an external source. Treat hyperlinks and attachments in this email with care.

Dear Lucy, Raj, and Trevor,

As a follow up to the previous email gratefully accepting your suggested route for the pathway across Alberta Infrastructure lands, would it be possible to get a note from your office stating that there is an in-principle agreement to allow the pathway to cross Alberta Infrastructure lands, subject to finalization of the appropriate legal paperwork and all other approvals as are necessary?

We are hoping to get Lethbridge County approval for the entire route on November the 3rd and just want to see that we have that preliminary permission in place that such a letter would designate.

Thank you again for all you do and for considering this request. I've included a sample text below. I'm hoping to submit these documents to the County by **this Friday**.

Sincerely,

Peter Casurella  
1-403-849-7225

1/2

2022-10-21

Sample Text:

To whom it Concerns,

Please consider this letter as indication of Alberta Infrastructure's intent to allow the Cor Van Raay Link Pathway access across Alberta Infrastructure lands along the agreed upon route discussed between our respective representatives. This permission is subject to the completion of a formal legal agreement, review and approval of that agreement from the necessary signing authorities, and other engineering reviews as are necessary.

Sincerely,

Alberta Transportation File:  
2511-NW 32-8-20-W4M & SW 5-9-20-W4M (512)

October 20, 2022

Larry Randle  
[lrandle@lethcounty.ca](mailto:lrandle@lethcounty.ca)  
Director of Community Services  
Lethbridge County  
#100, 905 – 4<sup>th</sup> Avenue, South  
Lethbridge, AB T1J 4E4

Dear Mr. Randle:

**SUBJECT: PREDETERMINATION REQUEST FOR THE LINK PATHWAY UNDERPASS**

Reference to the above noted predetermination request for The Link Pathway underpass development.

To that end, pursuant to the Highways Development and Protection Act and the corresponding Highways Development and Protection Regulation, being Alberta Regulation 326, 2009 development of The Link Pathway underpass crossing under Highway 512 from the NW 32-8-20-W4M to the SW 5-9-20-W4M will require the benefit of a permit from Alberta Transportation. A permit and detailed drawings can be submitted to <https://roadsideplanning.alberta.ca/rpath>

Final approval of The Link Pathway underpass at this location will be subject to receipt of a formal development application supported by a detailed site plan.

Alberta Transportation is unable to provide comments on The Link Pathway alignment south of Highway 512 to the City of Lethbridge corporate limits as plans have not been submitted to Alberta Transportation for review and/or consideration.

Yours truly,

**Leah.Olsen**  
Leah Olsen  
Development/Planning Technologist  
403-388-3105

Digitally signed by  
Leah.Olsen  
Date: 2022.10.20 09:27:30  
-06'00'

.../2

cc:

Southgrow Regional Economic Development - [peter.casurella@southgrow.com](mailto:peter.casurella@southgrow.com); [edo@southgrow.com](mailto:edo@southgrow.com)

Lethbridge County – [dthiele@lethcounty.ca](mailto:dthiele@lethcounty.ca); [development@lethcounty.ca](mailto:development@lethcounty.ca)

Darren Davidson, Regional Director

Jerry Lau, Infrastructure Manager

Kenneth Mulhall, Operations Manager

Ubaid Khan, Acting Bridge Manager

Tim Davies, MCI

**MEMORANDUM OF UNDERSTANDING**

THIS MEMORANDUM OF UNDERSTANDING (the "MoU") is made effective as of the ~~1<sup>st</sup> day of September, 2022~~ DATE TO BE INSERTED (the "Effective Date"),

BETWEEN:

**Lethbridge County,**  
a municipal corporation incorporated pursuant  
to the laws of the Province of Alberta  
(the "County")

- and -

**ST. MARY RIVER IRRIGATION DISTRICT,**  
a corporation established pursuant  
to the Alberta *Irrigation Districts Act*  
("SMRID")

- and -

**THE LINK PATHWAY COMMITTEE,**  
a society established pursuant  
to the Alberta *Societies Act*  
(the "Society")

**WHEREAS** SMRID is the beneficial holder of interests in the Right of Way Plans listed in the attached **Schedule "A"** (the "**ROWs**");

**AND WHEREAS** the Society wishes to construct and maintain ~~Phase 1 of~~ an asphalt pathway within the County boundaries within the parameters of the ROWs (the "**Pathway**");

**AND WHEREAS** SMRID, the County and the Committee wish to enter into this Memorandum of Understanding (the "**MoU**") to confirm the terms and conditions of the construction and maintenance of the Pathway.

**NOW THEREFORE THIS MoU WITNESSETH** that in consideration of payment of One Dollar (\$1.00) by the Society to SMRID and in consideration of the mutual terms and conditions contained herein, the parties agree as follows:

**1. PURPOSE**

This MoU outlines the terms and conditions whereby the Society will construct ~~Phase 1 of~~ the Pathway and is considered binding upon the parties hereto being the sole agreement among the parties as to the subject of this MoU.

**2. GRANT**

SMRID hereby grants the County and the Society access to the ROWs for the purpose of the construction and maintenance of ~~Phase 1 of~~ the Pathway as described herein.

**3. TERMS OF MoU****a. Use**

The Pathway will be a three-meter wide structure running within the municipal boundaries of the County following the path of the ROWs on the route as shown in the attached **Schedule "B"** and will be intended for use by pedestrians and non—motorized bicycles and other human-powered vehicles including scooters.

**b. Construction**

The Society will be responsible for the engineering, design and construction of the Pathway, including but not limited to drafting all plans for the Pathway, preparing land and soil, laying of bedding and asphalt, installation of all markings and signage on the Pathway, and the restoration of the adjacent lands to their former condition as reasonably as possible. All construction will be carried out in a good and workmanlike manner so as to cause as little damage and inconvenience to the ROWs as is reasonably possible and shall be done in accordance with the plans and specifications for the Pathway. The Society shall forward to SMRID and the County for its approval all design plans for ~~Phase 1 the pathway~~ prior to commencement of construction of ~~Phase 1 the pathway~~ and where SMRID and/or the County does not approve of such plans, the County and SMRID shall collectively review and provide direction to the Society regarding such plans. SMRID and the County and its agents shall have access to all sites during construction.

**c. Structure**

The Pathway will be constructed of asphalt and will be installed adjacent to the SMRID service roads running throughout the ROWs. The Pathway will be three meters in width.

**d. Interference with ROW**

The Pathway will in no way impede access to the adjacent SMRID service road and shall not obstruct, curtail, restrict or hinder movement along the service roads. In the event that the Pathway should, at any point, interfere with the use or access to the service roads, SMRID shall inform the County and the Society of such

interference and the County and the Society will immediately remove and relocate any portion of the Pathway causing such interference at the Society's expense. The County and the Society acknowledge and agree that SMRID employees, contractors, agents, licensees, and/or equipment may from time to time have to cross, travel along, and/or temporarily occupy portions of the Pathway to access, maintain, or improve existing works or construct new works. SMRID covenants to use reasonable efforts to conduct such activities in a manner that minimizes interference with the Pathway.

**e. Maintenance**

The County at their sole discretion will be responsible for the maintenance and upkeep of the Pathway including maintaining the structure and chattel of the Pathway in usable condition for its purpose. The County will maintain the Pathway clear of all weeds and other growth that may train onto the pathway.

**f. Costs**

The Society will bear all costs for the construction of the Pathway. However, if necessary, Lethbridge County will restore the land to its original state after removal of the Pathways to the extent reasonably possible.

**g. Permits**

The Society will acquire all necessary permits, licenses, and authorizations as may be required for the construction of the Pathway.

**h. Contractors**

The Society will ensure that it will retain competent engineering expertise as required to implement the design and construction of the Pathway and that all contractors and sub-contractors engaged to complete the construction of the Pathway will be duly certified and approved by the County and SMRID for the work undertaken.

**i. Removal**

In the event that the County determines that the Pathway is no longer required or feasible to maintain, the County will remove the Pathway or that portion thereof which is deemed no longer necessary or useful and shall notify SMRID and Society of such removal. Removal of the Pathway will be done such that the lands will be returned to their original state as reasonably as possible and such removal shall be undertaken so as to impede access to the adjacent service road as little as possible.

**j. Liability**

The Society will assume liability for damages of any nature whatsoever caused by the County, its servants, workmen, or agents during the construction of the Pathway. Liability for ongoing maintenance and insurance will lie with the County



after completion of construction and upon the commencement of use by the general public.

**k. Ownership**

SMRID acknowledges that notwithstanding any rule of law or equity to the contrary, the Pathway and all structures erected along the Pathway are deemed to be chattels and not fixtures and will remain the property of the Society even where attached to the lands within the ROW for so long as the Society exists as a legal entity.

**4. TERMINATION**

- a. This MoU shall terminate on the occurrence of any one or more of the following events (each a **"Termination Event"** and collectively the **"Termination Events"**):
  - i. By mutual written agreement of the County, the SMRID and the Society;
  - ii. In the event that the County shall determine that the Pathway is no longer required and is subsequently removed by the County with notice to SMRID and the Society.; or
  - iii. on one years' written notice from SMRID to the County and the Society in the event that SMRID in its discretion determines that an improvement, rehabilitation, or replacement of its works located in the ROWs require the lands on which the Pathway is built.

Following a Termination Event, the County and the Society shall remove the Pathway and return the lands to their original state as reasonably as possible and such removal shall be undertaken so as to impede access to the adjacent service road as little as possible.

**5. COVENANTS**

- a. SMRID covenants that it will not erect or build any buildings, structure, material, equipment, vehicles, agricultural products or other obstructions, including any trees, shrubs or landscaping in, on, over or under the Pathway without the County's consent. All consent by the County will be considered in accordance with established protocols, practices, permitting procedures, etc.
- b. SMRID will use best commercial efforts to notify the County if any maintenance of any buildings, structure, material, equipment, vehicles, agriculture products or other obstructions including any trees, shrubs or landscaping must be completed along its infrastructure that may encroach or impede the Pathway.
- c. County and the Society covenant that they will not erect or build any buildings, structure, material, equipment, vehicles, agricultural products or other obstructions, including any trees, shrubs or landscaping in, on, over or under the Pathway without the SMRID's consent.

## 6. GENERAL PROVISIONS

### a. Confidentiality and Non-Disclosure Obligations

The County, the Society and SMRID agree, and agree to cause their affiliates, to maintain the negotiations regarding the proposed transactions herein, including all correspondence, documents, discussions, and third party communications arising therefrom, in confidence except where required to disclose such information by the order of access to information legislation, by any other law, by any court, tribunal or agency having authority in such matters upon approval from county council.

### b. Governing Law

This MoU shall be interpreted and construed in accordance with and under the laws of the Province of Alberta and the federal laws of Canada applicable therein, and the parties hereto attorn to the jurisdiction of the courts of the Province of Alberta.

### c. Amendments

Any changes, modifications, revisions or amendments to this MoU which are mutually agreed upon by all parties hereto shall be incorporated by writing into this MoU except for those amendments, specifications or details which may be incorporated into this MoU pursuant to the terms hereof.

### d. Further Agreement

SMRID, the Society and the County agree that the parties to this MoU shall enter into any agreement which the parties hereto deem necessary to achieve the purposes of this MoU. Should the Society propose any amendments to the proposed route or additions to it, secure routing for Phase 2, a subsequent MoU, or relevant amendments to this MOU, shall be entered into between the Society, the County, and the SMRID.

### e. Entirety of Agreement

This MoU constitutes the entire agreement between the parties and no other writing or conversations will be deemed a part of this MoU, excepting formal changes evidenced by written assent of both parties subsequent to the date of execution.

### f. Invalidity

The invalidity or unenforceability of any portion or provision of this MoU shall in no way affect the validity or enforceability of any other portion or provision hereof. Any invalid or unenforceable portion or provision shall be severed from the MoU and the balance of the MoU shall be construed and enforced as if the MoU did not contain such invalid or unenforceable portion.

### g. Indemnity

The County and the Society will, subject to the laws in force in the Province of Alberta, jointly and severally indemnify and hold harmless SMRID and its directors, officers, employees, contractors, agents, affiliates, and assigns from all cost, expense, loss or damage arising from all actions, demands and claims of whatever kind and nature that may be brought against them by any third party which relate to the construction, maintenance, management, use or removal of the Pathway.

The liability of the Society will survive the termination of this MoU.

The liability of the County will survive the termination of this MoU.

#### **h. Insurance**

- i. Without restricting the generalities of clause 5(g), the County and the Society shall procure, maintain, keep in force for the duration of this MoU, and pay coverage listed in this condition, unless otherwise stipulated, in a form acceptable to the other parties with insurers licensed in Alberta.
- ii. Minimum scope of coverage
  1. Commercial General Liability Insurance (occurrence form coverage) as respects liability arising out of activities performed by or on behalf of the County, including Non-Owned Automobile Liability, Broad Form Property Damage Liability, Legal Liability, Contingency Employer Liability, Contractual Liability, with a minimum limit of \$5,000,000.00 Automobile Liability insurance covering all vehicles owned, operated, or licensed in the name of the County to be used in Path construction, maintenance or removal.
  2. Worker's Compensation insurance/assessments to protect the County and the Society from claims arising from injuries to workers and Employment Insurance Assessments in accordance with the requirements of the Employment Insurance Act.
- iii. The County and the Society shall maintain limits no less than:
  1. General liability: \$5,000,000.00 combined single limit per occurrence for personal injury (including bodily injury including death and/or property damage) sustained by any person or persons.
  2. Automobile liability: \$5,000,000.00 combined single limit per accident for bodily injury and property damage.
- iv. The insurance policies are to contain or be endorsed to contain, the following General extensions:

1. The County and the SMIRD, its officers, officials, employees and volunteers are to be added as Additional Insured as respects liability arising out of activities performed by or on behalf of the Society. The coverage shall contain no special limitations on the scope of protection afforded to the County and SMIRD, its officers, officials, and employees.
2. The Society and the SMIRD, its officers, officials and employees are to be added as Additional Insured as respects liability arising out of activities performed by or on behalf of the County. The coverage shall contain no special limitations on the scope of protection afforded to the Society and the SMIRD, its officers, officials and employees.
3. The coverage shall include a Cross Liability or Severability of Interest wording to the effect that the coverage shall apply to each Insured in the same manner as if separate policies had been issued to each. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Society, SMIRD or County, its officers, officials or employees.
4. All the foregoing insurance coverage shall be primary and shall not require the pro rata sharing of any loss by an insurer of the other party.
5. Each insurance policy required by the clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days prior notice by registered mail has been given to each party.
6. The County and the Society shall furnish the other parties with Certificates of Insurance and original endorsements effecting coverage required by this clause, said documents to be signed by a person authorized by the insurer to bind coverage on its behalf. All certificates and endorsements are to be received and approved by each party. Each party reserves the right to require complete, certified copies of all required insurance policies at any time and to accept or reject the other party's insurer.
7. The County does not make any representation or warranty with respect to the extent or adequacy of the insurance protection as noted in the foregoing

i. **Third Party Beneficiaries**

The parties to this MoU agree and acknowledge that the parties do not intend to create in any other individual or entity the status of a third party beneficiary, and

this MoU shall not be construed so as to create such status. The rights, duties and obligations contained in this MoU shall operate only between the parties hereto and shall enure solely to the benefit of those parties. The provisions of this MoU are intended only to assist the parties in determining and performing their obligations hereunder. The parties expressly agree that only the parties signatory to this MoU shall have any legal or equitable right to seek performance of the terms and conditions contained herein.

**j. Notices**

- i. The addresses for service and the fax numbers of the parties shall be those of the respective parties delivered to the other parties at the execution of this MoU.
- ii. All notices, communications and statements required, permitted or contemplated hereunder shall be in writing and shall be delivered by registered post, facsimile transmission or email transmission to a party to the address, facsimile number or email address of such party set out above in which case the item to be transmitted shall be deemed to have been received by that party when confirmation of transmission of facsimile is received, the email is delivered to the server of the recipient, or except in the event of an actual or threatened postal strike or other labour disruption that may affect mail service, by mailing first class registered post, postage prepaid, to a party at the address of such party set out above, in which case the item so mailed shall be deemed to have been received by that party on the third business day following the date of mailing.
- iii. A party may from time to time change its address for service, its facsimile number or its email address by giving written notice of such change to the other party.

**k. Assignment**

This MoU may not be assigned by any party herein without the prior written consent of the other parties.

**l. Enurement**

This MoU shall be binding upon and enure to the benefit of the parties, their heirs, executors, administrators, attorneys, trustees, successors, franchisees, licensees and permitted assigns, as the case may be.

**m. Execution in Counterpart**

This MoU may be executed in any number of counterparts and delivered to the other parties by facsimile or email and all such counterparts when added together shall form one Agreement.

**n. Transmission by Facsimile and Email**

The parties hereto agree that this MoU and any Schedules attached hereto may be transmitted by facsimile or such similar device, or by email or electronic mail, and that the reproduction of signatures by such methods will be treated as binding as if originals.

**IN WITNESS WHEREOF** the parties have executed this MoU as of the date set out above, and confirm that they have read and understood, and agreed to the terms and conditions provided herein.

**LETHBRIDGE COUNTY**

Per: \_\_\_\_\_ (c/s)  
Name:  
Title: Reeve

Per: \_\_\_\_\_  
Name: Ann Mitchell  
Title: Chief Administrative Officer

**ST. MARY RIVER IRRIGATION DISTRICT**

Per: \_\_\_\_\_ (c/s)  
Name:  
Title:

Per: \_\_\_\_\_  
Name:  
Title:

**THE LINK PATHWAY COMMITTEE**

Per: \_\_\_\_\_ (c/s)  
Name:  
Title:

Per: \_\_\_\_\_  
Name:  
Title:

**SCHEDULE A**

**~~Phase 1~~ – Right of Way Plans**

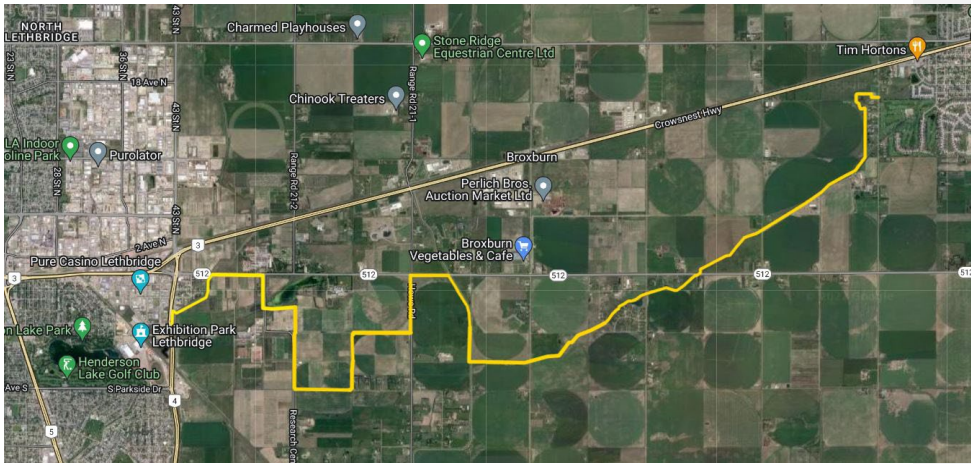
1. Right of Way Plan [Elk Creek Dairy Farms No. x](#)
2. Right of Way Plan [Green Life Farms Ltd. No. x](#)
3. Right of Way Plan [SMRID ROW No. x](#)
4. Right of Way Plan [Lethbridge County No. x](#)
5. [Right of Way Plan Alberta Infrastructure](#)
- 4.6. [Right of Way Plan Federal Research Station](#)

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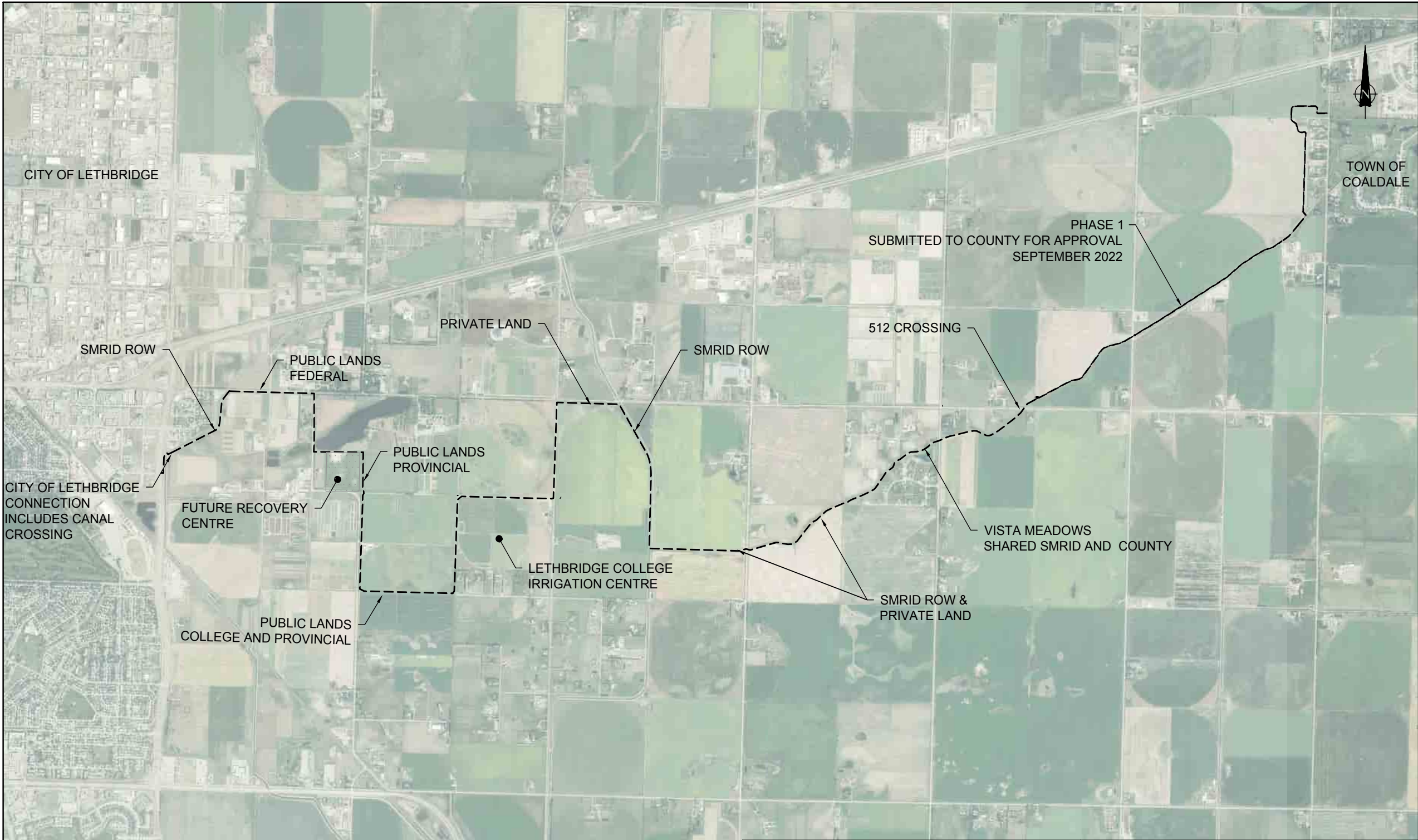
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**SCHEDULE B**


**Pathway Route**







NOTES:  
 1. FINAL ALIGNMENT OF PATHWAY PROPOSED FOR COUNTY APPROVAL  
 2. DETAILED DESIGN INCLUDING GRADING AND CROSSINGS TO BE COMPLETED FOLLOWING APPROVAL

  
**MPE**  
**Engineering Ltd.**

LINK PATHWAY COMMITTEE			
FULL PATHWAY ALIGNMENT LETHBRIDGE TO COALDALE LETHBRIDGE COUNTY COUNCIL			
SCALE:	DATE: OCTOBER 2022	JOB: 1755-073-00	PAGE: 1 OF 5



NOTES:  
 1. PHASE 2 WORKS INCLUDE 512 CROSSING AND PATHWAY CONSTRUCTION TO CANAL LATERAL EXTENT.




LINK PATHWAY COMMITTEE  
 FULL PATHWAY ALIGNMENT  
 LETHBRIDGE TO COALDALE  
 LETHBRIDGE COUNTY COUNCIL

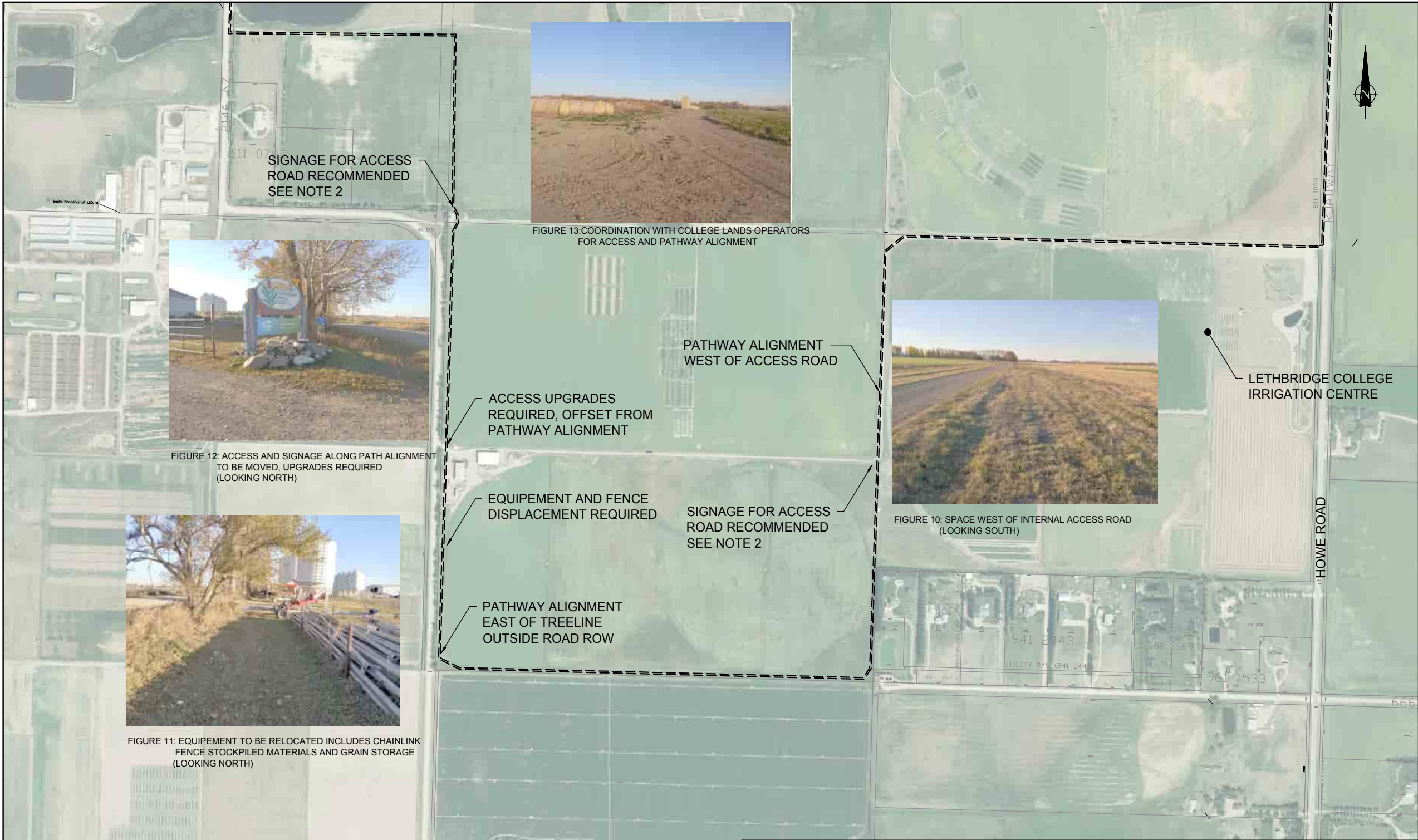
SCALE:	DATE: OCTOBER 2022	JOB: 1755-073-00	PAGE: 2 OF 5
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- NOTES:
1. CONSTRUCTION OF PATHWAY ALONG SHOULDER OF ROAD WOULD REQUIRE 3.5M WIDENING OF HOWE RD.
  2. CONSTRUCTION OF PATHWAY ALONG BACKSLOPE OF DITCH COULD BE FACILITATED BY RELOCATION OF OVERHEAD LINES TO BURIED CONDUIT OR DRAINAGE AND FENCELINE ADJUSTMENTS TO ACCOMMODATE PATHWAY STRUCTURE (MIN OFFSET FROM LATERAL OBSTRUCTIONS 0.6m).
  3. SIDESLOPE AND DITCH CROSS SECTION EAST OF HOWE ROAD WOULD REQUIRE ROADSIDE BARRIER BASED ON SPEED LIMIT AND SIDESLOPE.

  
**MPE**  
**Engineering Ltd.**

LINK PATHWAY COMMITTEE			
FULL PATHWAY ALIGNMENT LETHBRIDGE TO COALDALE LETHBRIDGE COUNTY COUNCIL			
SCALE:	DATE: OCTOBER 2022	JOB: 1755-073-00	PAGE: 3 OF 5



- NOTES:
1. PATHWAY ALIGNMENT ALONG COLLEGE FACILITIES AND PUBLIC LANDS.
  2. SIGNAGE TO BE CONSIDERED AROUND INTERNAL ACCESS ROADS, LOCAL TRAFFIC OBSERVED ON SITE.
  3. CHAINLINK FENCE, STORAGE BINS AND STOCKPILED MATERIALS TO BE MOVED.
  4. COORDINATION WITH COLLEGE SITE OPERATORS REQUIRED TO ACCOMODATE PATHWAY LOCATION RELATIVE TO INTERNAL ACCESS ROAD NETWORK



**MPE**  
Engineering Ltd.

LINK PATHWAY COMMITTEE			
FULL PATHWAY ALIGNMENT LETHBRIDGE TO COALDALE LETHBRIDGE COUNTY COUNCIL			
SCALE:	DATE: OCTOBER 2022	JOB: 1755-073-00	PAGE: 4 OF 5



NOTES:  
 1. SPACIAL CONCERNS ALONG WEST BANK OF CANAL AT HIGHWAY TRANSITION. BRIDGE ALONG HIGHWAY 512 WOULD REQUIRE WIDENING. MORE FEASIBLE ALIGNMENT OPTION INCLUDES PATHWAY OFFSET FROM DRIVING BANK ALONG EAST SHOULDER AND CONSTRUCTION OF CULVERT/BRIDGE CROSSING TO CITY LAND



LINK PATHWAY COMMITTEE  
 FULL PATHWAY ALIGNMENT  
 LETHBRIDGE TO COALDALE  
 LETHBRIDGE COUNTY COUNCIL

SCALE:                      DATE: OCTOBER 2022      JOB: 1755-073-00      PAGE: 5 OF 5



NOTES:  
 1. SPACIAL CONCERNS ALONG WEST BANK OF CANAL AT HIGHWAY TRANSITION. BRIDGE ALONG HIGHWAY 512 WOULD REQUIRE WIDENING. MORE FEASIBLE ALIGNMENT OPTION INCLUDES PATHWAY OFFSET FROM DRIVING BANK ALONG EAST SHOULDER AND CONSTRUCTION OF CULVERT/BRIDGE CROSSING TO CITY LAND



LINK PATHWAY COMMITTEE  
 FULL PATHWAY ALIGNMENT  
 LETHBRIDGE TO COALDALE  
 LETHBRIDGE COUNTY COUNCIL

SCALE:                      DATE: OCTOBER 2022                      JOB: 1755-073-00                      PAGE: 5 OF 5

# AGENDA ITEM REPORT



**Title:** Planning and Development Department - 3rd Quarter Report 2022  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** Community Services  
**Report Author:** Hilary Janzen

## APPROVAL(S):

Larry Randle, Director of Community Services,  
Ann Mitchell, Chief Administrative Officer,

Approved - 17 Oct 2022  
Approved - 18 Oct 2022

## STRATEGIC ALIGNMENT:



Governance



Relationships



Region



Prosperity

## EXECUTIVE SUMMARY:

This is the 3rd Quarter Report for the Planning and Development Department.

## RECOMMENDATION:

That County Council receive this report for information.

## REASON(S) FOR RECOMMENDATION(S):

This report is strictly to inform County Council on the activities of the Planning and Development Department.

## PREVIOUS COUNCIL DIRECTION / POLICY:

The Planning and Development Department takes direction from the bylaws approved by County Council including:

- Lethbridge County Land Use Bylaw 1404
- Lethbridge County Municipal Development Plan Bylaw 22-001

## BACKGROUND INFORMATION:

Lethbridge County's Planning and Development Department takes direction from the Bylaws and guiding documents that have been approved by County Council including the Lethbridge County Municipal Development Plan, Intermunicipal Development Plans, Lethbridge County Land Use Bylaw, and Area Structure Plans. The Planning and Development Department manages the issuance of development permits, amendments and updates to the Land Use Bylaw, planning projects, Intermunicipal relations and referrals, Road Closures and Licenses, land sales and leases and enforcement of the Land Use Bylaw, and other planning bylaw regulations.

In the 3rd quarter of 2022 the following items can be reported:

### Development Authority

From January 1 to September 30, 2022, 176 development permit applications were received. This is a decrease from 2021 when 221 development permit applications were submitted.

A total of 171 development permits were issued, 3 were refused, and 12 applications were under review in the first two quarters of 2022. This includes development permit applications made at the end of 2021. Of the permits that were issued, 52 were residential, 53 accessory buildings (ie. personal shops, sheds, garages), 28 commercial/industrial, 21 agriculture (farm shops, hay sheds), 4 signage, 4 home occupations, 2 institutional and 7 miscellaneous.

### Building Permits

Between January 1 and September 30 2022 the following safety codes permit applications were submitted:

- 155 Building Permits
- 307 Electrical Permits
- 176 Gas
- 104 Plumbing
- 41 private septic disposal systems

### Subdivision Applications

County Council acting as the Subdivision Authority approved 22 subdivisions from January 1 to September 30, 2022.

### Subdivision and Development Appeal Board

There were four appeals so far in 2022:

- Development Permit 2021-0-258 (setback waiver request denied)
- Development Permit 2022-0-040 (setback waiver request denied)
- Development Permit 2022-084 (Dog Park application denied)
- Stop Order Appeal - Unauthorized Development in Shaughnessy (appeal denied)

### Bylaws

- 22-009 - MacLaine Acres Area Structure Plan - Public Hearing in November
- 22-010 - Rezoning from Lethbridge Urban Fringe to Grouped Country Residential (in conjunction with MacLaine Acres Area Structure Plan) - Public Hearing in November
- 22-012 - Rezoning from Rural Agriculture to Rural Recreation - Approved
- 22-013 - Rezoning from Rural Urban Fringe to Grouped Country Residential - Approved
- 22-014 - Rezoning from Rural Agriculture to Grouped Country Residential - Approved

### Road Closures

- Bylaw 22-003 (Lafarge/Pavan) - Approved and sent to the Minister of Transportation for Approval
- Bylaw 22-011 (Anker) - Approved and sent to the Minister of Transportation for Approval
- Bylaw 22-015 (Van Maanan) - first reading received on October 6, 2022
- Road Plan 5110BM (near Diamond City) Road Closure by Resolution - Approved and sent to the Minister of Transportation for Approval
- Road Plan 4725BM (near Iron Springs) Road Closure by Resolution - Approved and sent to the Minister of Transportation for Approval

### Intermunicipal Relations and Referrals

- Reviewed 30 intermunicipal referrals
- Work has commenced on the New Lethbridge County/Town of Coaldale Intermunicipal Development Plan



- the preliminary draft of the plan is complete
- Open House will be held in November 2022

Miscellaneous

- All the Lethbridge County residential lots that were for sale in Monarch have been sold
- All the Lethbridge County industrial lots that were for sale in Turin have been sold
- Sale of the old Lethbridge County Grader Shed parcel in Coalhurst to the Town of Coalhurst is in process
- Compiled Lethbridge County Statistic from 2021 Canadian Census
- Completed the review of eight Natural Resources Conservation Board referrals (January 1 to September 30, 2022)
- A review of Industrial-Commercial Land Use Strategy has commenced, anticipate reporting back to County Council in early 2023

**ALTERNATIVES / PROS / CONS:**

Not Applicable

**FINANCIAL IMPACT:**

From January 1 to September 30 2022 the County has received \$111,787.86 in revenue from Park Enterprises for the issuance of Safety Codes Permits. In the same period in 2021 the County received \$107,689.35 from the issuance of Safety Codes Permits.

**LEVEL OF PUBLIC PARTICIPATION:**

**Inform**
     
  **Consult**
     
  **Involve**
     
  **Collaborate**
     
  **Empower**

# AGENDA ITEM REPORT



**Title:** Range Road 22-5 Gravel Conversion  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** Infrastructure  
**Report Author:** Devon Thiele

## APPROVAL(S):

Ann Mitchell, Chief Administrative Officer,

Approved - 26 Oct 2022

## STRATEGIC ALIGNMENT:



**Governance**



**Relationships**



**Region**



**Prosperity**

## EXECUTIVE SUMMARY:

Based on the current condition of Range Road 22-5 and the volume of complaints received, operations would like to revert this road back to gravel in phases. Operations has completed a portion of this work already to mitigate severe potholes. Operations would like to continue to pulverize the remainder of the existing asphalt, grade it to ensure a consistent base is established, and pack it. This will provide a smoother surface through the winter. Next year operations would recondition the roadway, mixing the pulverized asphalt in the base, and complete the conversion to a gravel road. Dust control will be placed in front and adjacent to residents upon construction completion to reduce the dust. Once converted, this road would be treated as a Priority 1 or 2 roadway and will receive maintenance according to the Level of Service document.

## RECOMMENDATION:

Council approves the conversion of Range Road 22-5, from Township Road 9-4 to the CP Rail yard entrance, from an asphalt surface to a gravel surface.

## REASON(S) FOR RECOMMENDATION(S):

Maintaining this road is becoming cost prohibitive, reverting to gravel will decrease maintenance and capital replacement costs.

## PREVIOUS COUNCIL DIRECTION / POLICY:

None

## BACKGROUND INFORMATION:

Range Road 22-5, otherwise known as the CP Rail road, is an old cold mix road that extends from the Kipp road to the CP Rail yard. This road is well beyond its lifecycle and is in need of significant maintenance. The existing asphalt surface is severely cracked and deformed with several large potholes forming. Several complaints have been received for this roadway, mainly from CP Rail staff.

A 20 year lifecycle analysis was completed comparing paving the existing road to converting to gravel.

Convert to gravel: \$8,871 per year  
Rebuild and Pave: \$57,772 per year

These figures include the initial construction costs and maintenance over 20 years.

**ALTERNATIVES / PROS / CONS:**

1) Leave the road as asphalt and continue to maintain.

Pro: The existing surface will remain asphalt

Con: Maintenance of this road will become more frequent and expensive

**FINANCIAL IMPACT:**

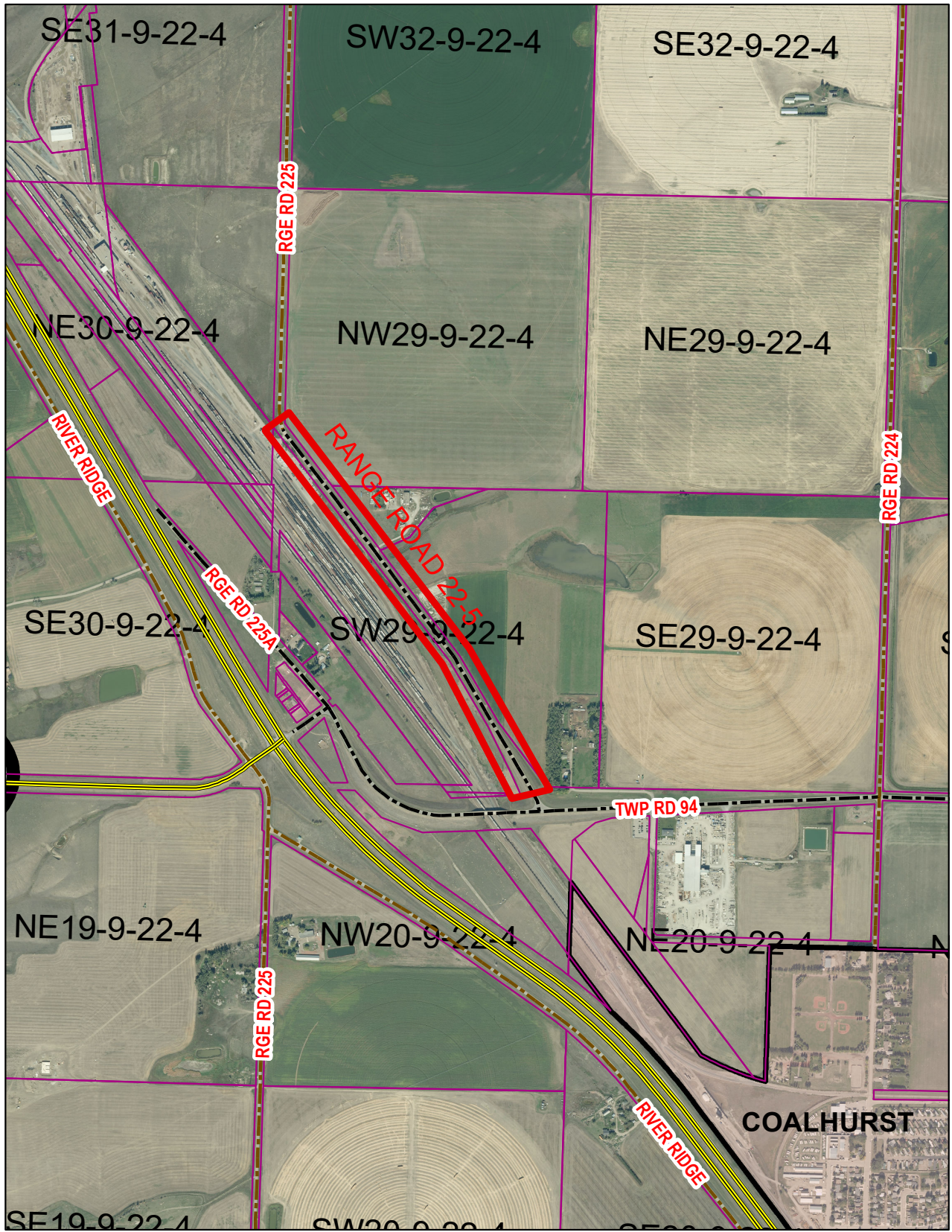
There are sufficient funds within the operating budget to complete this work. It is estimated this project will cost \$112,500 to complete.

**LEVEL OF PUBLIC PARTICIPATION:**

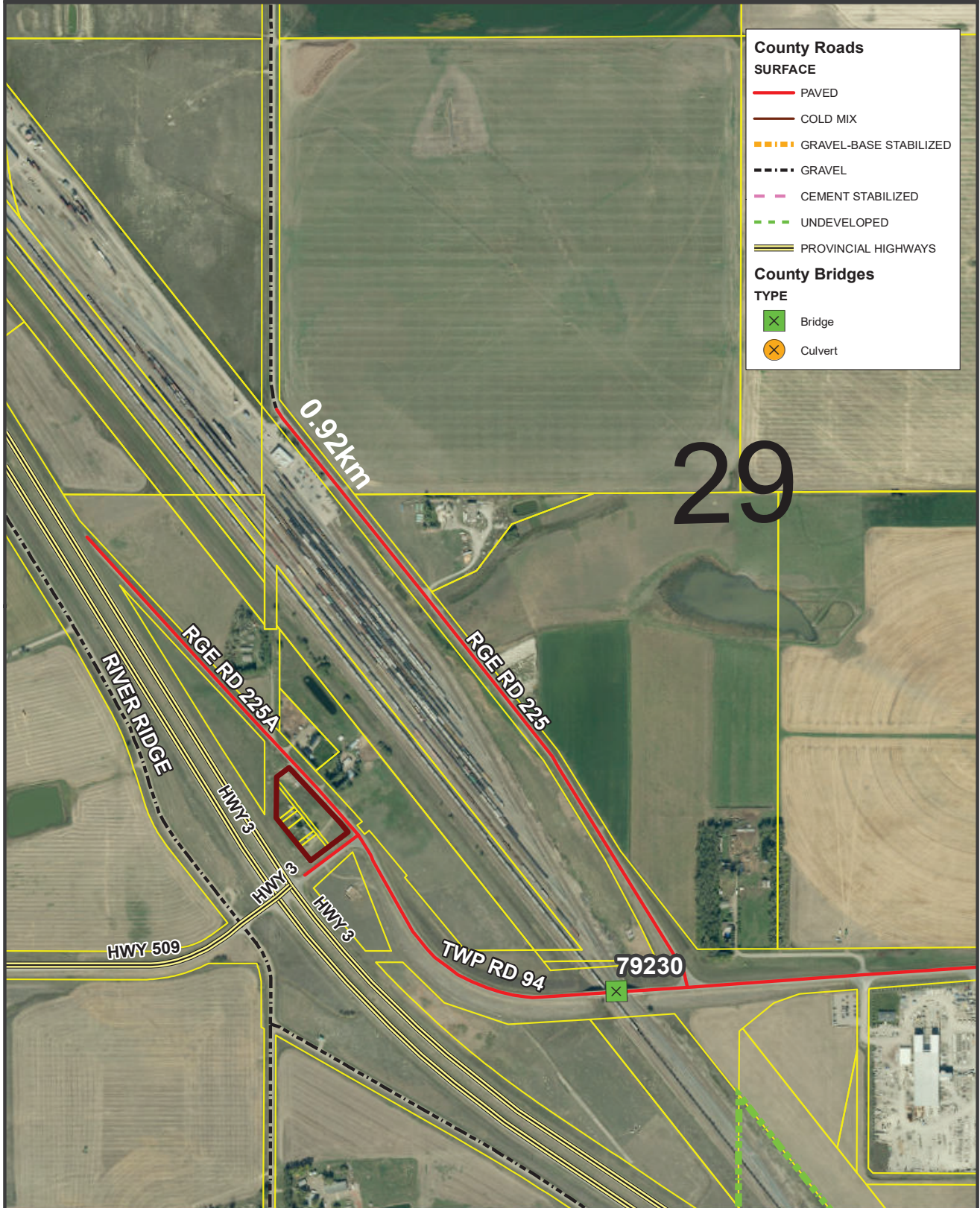
Inform     Consult     Involve     Collaborate     Empower

**ATTACHMENTS:**

[RR225 MAP](#)  
[CPRail Analysis](#)



# RANGE RD 22-5 (CPR RD)



29

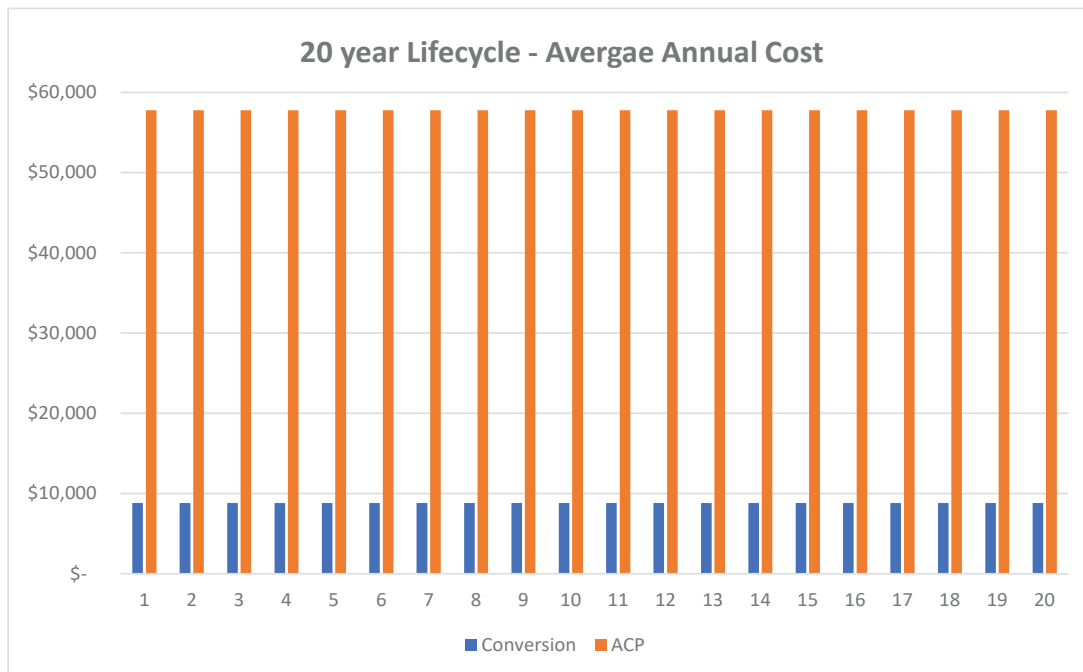
➤ **Range Rd 22-5 (CPR Road)**

Range Rd 22-5 is 1.2 km in total length and sees an average daily traffic of 283 vehicles. A major user of this roadway is Canadian Pacific Railway as it is home to their main Lethbridge office and the Kipp railyard. The analysis showed that annually it costs 555% more to maintain this as an asphalt roadway compared to that of gravel.

<b>ACP to Gravel Conversion - 20-year lifecycle</b>	
Total cost over 20 years	\$ 176,349
<b>Costs per year</b>	<b>\$ 8,817</b>

<b>ACP 20-year Lifecycle</b>	
Total cost over 20 years	\$ 1,155,448
<b>Costs per year</b>	<b>\$ 57,772</b>

Annual Savings	\$ 48,955
Total savings over 20 years	\$ 979,099



# AGENDA ITEM REPORT



**Title:** Lethbridge & District Exhibition Request  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** Corporate Services  
**Report Author:** Jennifer Place

## APPROVAL(S):

Ann Mitchell, Chief Administrative Officer,

Approved - 26 Oct 2022

## STRATEGIC ALIGNMENT:



**Governance**



**Relationships**



**Region**



**Prosperity**

## EXECUTIVE SUMMARY:

At the October 20th council meeting, Mike Warkentin gave a presentation regarding the construction and financial status of the Lethbridge Exhibition building project. Mr. Warkentin spoke to some of the anticipated cost overages related to the project and made a request to council for a \$2 Million grant (donation) to help offset a portion of the cost overages.

## RECOMMENDATION:

That County Council provide a donation in the amount of \$2 Million to the Lethbridge & District Exhibition to help fund project cost overruns related to the construction of the Agri-food Hub and Trade Centre.

OR

County Council deny the donation in the amount of \$2 Million to the Lethbridge & District Exhibition for the purpose of assisting with project cost overruns related to the construction of the Agri-food Hub and Trade Centre.

## REASON(S) FOR RECOMMENDATION(S):

Two recommendations have been provided as this decision is outside of the parameters of the Donation Policy and of a political nature, for which administration felt it was not appropriate to provide a recommendation on.

## PREVIOUS COUNCIL DIRECTION / POLICY:

This request is well outside the scope of Donation Policy #161 both in terms of amount and scope and would have to be considered separately from that policy.

## BACKGROUND INFORMATION:

The Lethbridge & District Exhibition has been constructing a new Agri-food Hub and Trade Centre at the Lethbridge Agriculture grounds that can offer updated and sizable meeting spaces that can host large conferences and events, that will help to attract events and tourism to the area.

Since the start of the project in 2020, some project cost overages have been experienced in addition to some project scope changes such as the demolition and abatement of the existing pavilions (slated for summer 2023).

Due to some of these overages and changes the Lethbridge & District Exhibition made a presentation with a request of Council, to contribute (by way of grant) \$2 Million towards the project capital for the Agri-food Hub and Trade Centre. It was noted in Mr. Warkentin's presentation that the City of Lethbridge has contributed \$25 Million to the project and that the agricultural grounds although in the city are close to the county in proximity and offer services utilized by the agricultural industry.

**ALTERNATIVES / PROS / CONS:**

Provide grant funding of \$2 Million as requested

PRO - Will show support of the Lethbridge & District Exhibition organization and help to fund the project cost overruns

CON - Could be perceived as precedent setting

Deny grant funding request of \$2 Million

PRO - No financial impact to Lethbridge County

CON - Could delay project completion and tarnish relationship with Lethbridge & District Exhibition

Determine an alternate amount that County Council is comfortable with

PRO - A smaller portion will still show support of the Lethbridge & District Exhibition organization and help to fund a smaller portion of the project cost overruns

CON - Could be perceived as precedent setting

**FINANCIAL IMPACT:**

The County has a few large projects in the que that may impact and significantly reduce county reserve balances, depending upon funding allotments and grant opportunities.

If the decision was made to offer grant funding to the Lethbridge & District Exhibition, the funding could come from a reserve. The Tax Equalization Reserve as of November 2022 has a balance of \$4,941,133, noting that this balance may be subject to change upon completion of the 2022 year end.

**LEVEL OF PUBLIC PARTICIPATION:**

Inform     Consult     Involve     Collaborate     Empower

**ATTACHMENTS:**

[161 Donations to Community Organizations Lethbridge District Exhibition](#)





## Lethbridge County Policy Handbook

**EFFECTIVE:** August 1, 2013      **SECTION:** 100 NO. 161 Page 1 of 7  
**APPROVED BY:** County Council      **SUBJECT:** Donations to Community Organizations, Programs, Events & Activities  
**REVISED DATE:** November 24, 2014

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### **Purpose**

- To establish consistent guidelines for Council to donate financial resources or provide in-kind support to community programs, organizations, events & activities.
- To provide the authority to the Chief Administrative Officer (CAO) regarding requests for donations up to a value of \$200.
- To provide clear procedures for Administration and Council to provide and respond to requests for donations.

### **Policy Statement**

Lethbridge County appreciates the positive contributions that community organizations make to the quality of life in the County, and recognizes that municipal government support may be required to help further the goals of community programs, organizations, events and activities.

### **Policy Guidelines and Procedures**

#### 1. Eligibility

- a. Consideration of providing support of community programs, organizations, events and activities through donations shall be limited to those that demonstrate any of the following:
  - (i) a need for financial support or specific in-kind from the County;
  - (ii) are held for the enjoyment and benefit of the general public;
  - (iii) are hosted on a yearly basis or recognize significant milestones events; and/or
  - (iv) take place within the County boundaries.
- b. The following are not eligible for support under this policy
  - (i) private functions;
  - (ii) capital facilities and equipment including requests for gravel donations;



## Lethbridge County Policy Handbook

**EFFECTIVE:** August 1, 2013      **SECTION:** 100 NO. 161 Page 2 of 7

**APPROVED BY:** County Council      **SUBJECT:** Donations to Community Organizations, Programs, Events & Activities

**REVISED DATE:**

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- (iii) youth and adult sports teams and associated programs/events, activities and school reunions; and
  - (iv) programs, organizations, events and activities that receive support from the County through other programs or policies.
  - (v) major County and inter-County events (eg. Lethbridge International Air Show).
- c. Requests for financial assistance for capital items should be made through the Land Trust Reserve Fund Grant Program. Applicants who receive funding through the Land Trust Reserve Fund Grant Program are not eligible to also receive support under this Policy in the same calendar year.

### 2. Donations

- a. Donations may be cash or in-kind contributions
- b. In-kind contributions are donations that do not involve a direct cash contribution but instead might include providing promotional items or County services or other materials or supplies.

### 3. Criteria

- a. In evaluating each application, decisions will be based on merit with consideration being given to the following:
  - (i) evidence for the need;
  - (ii) number of local residents served;
  - (iii) quality of management (established track record, proposal well thought out, etc.);
  - (iv) number of local volunteers;



## Lethbridge County Policy Handbook

**EFFECTIVE:** August 1, 2013      **SECTION:** 100 NO. 161 Page 3 of 7

**APPROVED BY:** County Council      **SUBJECT:** Donations to Community Organizations, Programs, Events & Activities

**REVISED DATE:**

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- (v) mitigation of barriers to services for people with mental and physical disabilities and minority groups;
- (vi) level of involvement with other community partners;
- (vii) agreement to acknowledge the County's contribution in all publicity related events or activities relating to the event.

#### 4. Funding Allotment & Allocation

- a. The County shall support this policy through an annual budget allotment to establish the amount of cash or goods and services in-kind that the County is able to donate, based on the following:
  - (i) \$0.50 per capita based on the current year's official population of Lethbridge County. Applicants are able to request a maximum amount of \$500 or up to \$1,000 for in-kind donations. No gravel will be granted. The funds will be provided from the Donations Reserve. Any donations exceeding the policy limits will be allocated from Councillor's Discretionary Reserve funds.

#### 5. Grant Applications

- a. Applications must be completed in full and contain the following:
  - (i) name, address and contact information for the organization;
  - (ii) the amount of financial support being requested;
  - (iii) a description of the program, event or activity and associated dates and timelines;
  - (iv) a budget identifying the proposed revenue and expenditure pertinent to the request;
  - (v) an explanation of how the County's support will be recognized during the program, event or activity.



## Lethbridge County Policy Handbook

**EFFECTIVE:** August 1, 2013      **SECTION:** 100 NO. 161 Page 4 of 7  
**APPROVED BY:** County Council      **SUBJECT:** Donations to Community Organizations, Programs, Events & Activities  
**REVISED DATE:**

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- (vi) completed application forms must be submitted to the County. If the application is not properly filled-out, the grant application will not be considered.
- (vii) must be received at least 30 days before the date of the need for support.

- b. County Council shall be the deciding authority on all applications, except for donation requests of \$200 or less, which the CAO will have the authority to approve.

### 6. Accountability of Funds

- a. Applicants will be notified in writing once a final decision on their application has been made.
- b. Applicants who are provided with support pursuant to this policy shall be accountable for the expenditures of funds provided.
- c. The entire amount of financial support provided must be used exclusively for the program, organization, event or activity identified in the application.
- d. The community programs, activities and events must be conducted within six months of the date the donation is approved.
- e. If the community programs, activities or events do not occur within the allotted time, a written letter of request for an extension must be submitted. If an extension is not received, or if an extension is not granted, the community organization or group shall return all the funds provided by the County.
- f. The County's support must be recognized during the program, event or activity in the manner described in the application.



## Lethbridge County Policy Handbook

**EFFECTIVE:** August 1, 2013      **SECTION:** 100 NO. 161 Page 5 of 7  
**APPROVED BY:** County Council      **SUBJECT:** Donations to Community  
Organizations, Programs,  
Events & Activities  
**REVISED DATE:**

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- g. Organizations, programs, events and activities receiving support pursuant to this policy must be conducted in accordance with all applicable laws, statutes, and regulations.

### 7. Door Prizes

- a. If the request is for a door prize, silent auction item or other similar promotional item, a written request is required. Funds for door prizes, silent auctions items or promotional items of a value of a \$200 or less shall be decided upon by the CAO.



## Lethbridge County Policy Handbook

### --- DONATION REQUEST APPLICATION ---

Community Organization: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number/Cell Number: \_\_\_\_\_

Board of Directors (Names & Positions): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Amount of Funding Requested or Description of In-Kind Donation Requested:  
\$ \_\_\_\_\_

Description of Request including Timelines:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other sources of funding: \_\_\_\_\_

Total cost of program, event or activity: \$ \_\_\_\_\_

Total Budget:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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## Lethbridge County Policy Handbook

Description of how Lethbridge County's contribution may be recognized:

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Other supporting information (Please attach separate sheet if necessary):

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\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Signature on behalf of Community Organization

\_\_\_\_\_  
Date

Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_  
**\*\*\* Donations made by Lethbridge County are not to be regarded as a  
commitment by the County to continue such donations in the future.**





# Lethbridge County– Project Budget Ask



2022 – Lethbridge & District Exhibition



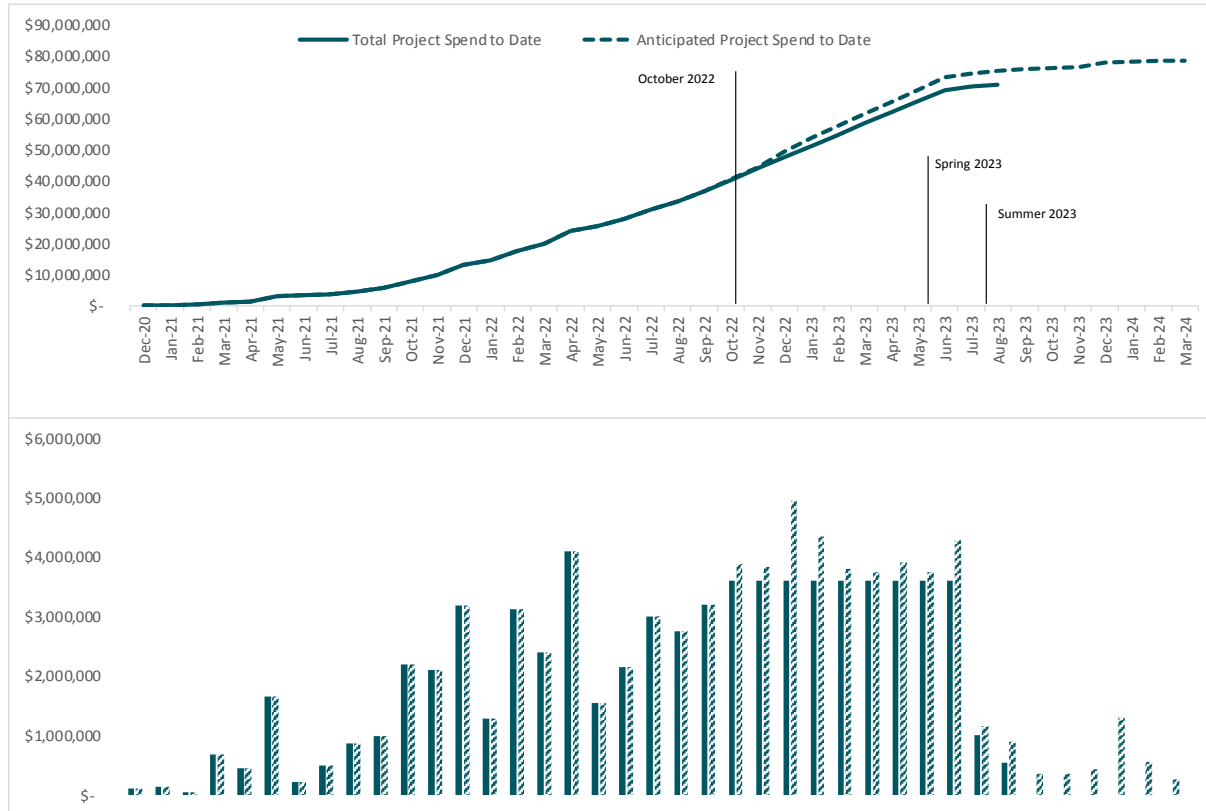


2022 – Lethbridge & District Exhibition

Lethbridge County – Project Budget Ask

# Anticipated Cash Flow and Monthly Expenditures – October 2022

## Key Milestones on Horizon of the Project



**October 2022:**  
 - Anticipated cost overages on non-stipulated sum project items and cost increases on out-of-scope items

**Spring 2023:**  
 - Anticipated building opening, bookings are occurring now

**Summer 2023:**  
 - Demolition and abatement of existing pavilions is slated to begin (outside of original project scope)

**Project Ask:**  
 - Lethbridge & District Exhibition is asking Lethbridge County to contribute by way of grant, \$2.0 million of project capital to the Agri-food Hub and Trade Centre.



Thank you – Questions



2022 – Lethbridge & District Exhibition

# AGENDA ITEM REPORT



**Title:** Invitation - 2022 University of Alberta Celebration of Planning Fundraiser - Edmonton Convention Centre - November 17, 2022  
**Meeting:** Council Meeting - 03 Nov 2022  
**Department:** Administration  
**Report Author:** Mattie Watson

## APPROVAL(S):

Larry Randle, Director of Community Services,  
Ann Mitchell, Chief Administrative Officer,

Approved - 25 Oct 2022  
Approved - 25 Oct 2022

## STRATEGIC ALIGNMENT:



Governance



Relationships



Region



Prosperity

## EXECUTIVE SUMMARY:

Council has received an invitation for the 2022 Celebration of Planning Fundraiser at the University of Alberta, hosted by the School of Urban and Regional Planning. The event will be held on November 17 at the Edmonton Convention Centre. Tickets are \$125 per person, and organizations may also sponsor the event, with sponsorships ranging from \$500 to \$2,500.

## RECOMMENDATION:

That Council determine if a member may be authorized to attend the event, and/or if the County should provide sponsorship for the event.

## REASON(S) FOR RECOMMENDATION(S):

Council may wish to authorize a member to attend the event and/or provide a sponsorship.

## PREVIOUS COUNCIL DIRECTION / POLICY:

Council has not attended nor sponsored this event in the past.

## BACKGROUND INFORMATION:

The 2022 Celebration of Planning fundraiser will bring together attendees from industry, government, and academia, including current University of Alberta students. The evening includes food and beverages, as well as talks from community builders and networking opportunities.

Doors open at 5:30 p.m., speeches take place at 6:00 p.m., with the evening wrapping up around 8:30 p.m.

Sponsorships are available at \$500, \$1,250 and \$2,500. Each sponsorship includes one or several guest registrations. Complete details are included in the attachments.

**ALTERNATIVES / PROS / CONS:**

**Option #1: Member(s) of Council attend the event, but do not provide sponsorship**

**PRO** - Opportunity to network and learn from U of A staff/students, industry, and other government representatives

**CON** - Financial impact of ticket purchase, mileage, and per diem

**Option #2: Member(s) of Council attend the event and provide sponsorship**

**PRO** - Opportunity to network and learn from U of A staff/students, industry, and other government representatives while providing a sponsorship to support the U of A School of Urban and Regional Planning

**CON** - Financial impact of sponsorship, mileage, and per diem

**Option #3: Member(s) of Council do not attend the event but provide sponsorship**

**PRO** - Sponsorship supports the U of A School of Urban and Regional Planning, no financial impact of mileage or per diem

**CON** - Missed opportunity to network and learn from U of A staff/students, industry, and other government representatives

**Option #4: Member(s) of Council do not attend the event and do not provide sponsorship**

**PRO** - No financial impact

**CON** - Missed opportunity to network and learn from U of A staff/students, industry, and other government representatives, as well as to support the U of A School of Urban and Regional Planning

**FINANCIAL IMPACT:**

Tickets: \$125 each

Mileage: \$0.58 per km

Per diem: \$306 (full day)

Sponsorship levels:

- Bronze: \$500 (includes 1 registration)
- Silver: \$1,250 (includes 2 registrations)
- Gold: \$2,500 (includes 5 registrations)

**LEVEL OF PUBLIC PARTICIPATION:**

Inform     Consult     Involve     Collaborate     Empower

**ATTACHMENTS:**

[2022 U of A Celebration of Planning - Invitation & Sponsorship](#)  
[2022 U of A Celebration of Planning - Sponsorship Levels](#)

From: Bob Summers <[robert.summers@ualberta.ca](mailto:robert.summers@ualberta.ca)>

Date: October 20, 2022 at 4:05:27 PM MDT

To: Robert Summers <[robert.summers@ualberta.ca](mailto:robert.summers@ualberta.ca)>

Subject: Ticket Sales Open for 2022 U of A Celebration of Planning

Reply-To: [robert.summers@ualberta.ca](mailto:robert.summers@ualberta.ca)

Hello Everyone,

Ticket sales are now open for our 2022 Celebration of Planning fundraiser. Each year (excluding some covid years) we bring together City and Community Builders from industry, government, and academia (including some of our students) to attend our annual Celebration of Planning fundraiser.

It's a fun evening with lots of food and beverages. There are a few entertaining and informative pecha kucha style talks from key community builders and lots of time to connect with others.

Funds raised at the event go towards supporting scholarships for students in the School of Urban and Regional Planning at the University of Alberta. With more than 20 sponsors signed on already for the event, we could break our previous record for funds raised.

The event takes place on November 17th at the Edmonton Convention Centre and tickets are \$125 per person. They can be purchased [at this link](#). Note, if your organization would like to sponsor the event, you can also do so at that link.

Doors open at 5:30pm, with speeches taking place at 6pm and things wrapping up by about 8:30pm.

Please feel free to reach out to me with any questions at [robert.summers@ualberta.ca](mailto:robert.summers@ualberta.ca).

Regards,

Bob

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Robert J. Summers, Ph.D., RPP, MCIP

Academic Director, University of Alberta Sustainability Council (SC)

Co-Chair, Environmental Studies Program, EAS Dept.

SC Office 2-06 North Power Plant

(780) 492-7162

The University of Alberta is located in ᑭᓄᓐᓄᓐᓄᓐ (Amiskwiaciwiasihikan) on Treaty 6 Territory, the territory of the Peapaschase, and the homeland of the Métis Nation.



## Sponsorship

*Thursday, November 17, 4 p.m. - 9 p.m. MST*

### Gold Sponsor

\$2,500

- Company logo on the event poster
- Company logo on signage at event (signs, screens, etc.). The prominence of logos will be based on the level of sponsorship.
- Verbal recognition at the event (a thank you from both the MC and the U of A Representative)
- Registration for five (5) representatives from your organization to attend the event
- Provides the opportunity for two students to attend the event with recognized sponsorship on a student name tag

### Silver Sponsor

\$1,250

- Company logo on the event poster
- Company logo on signage at event (signs, screens, etc.). The prominence of logos will be based on the level of sponsorship.
- Registration for two (2) representatives from your organization to attend the event
- Provides the opportunity for one student to attend the event with recognized sponsorship on student name tag

### Bronze Sponsor

\$500

- Company logo on signage at event (signs, screens, etc.). The prominence of logos will be based on the level of sponsorship.
- Registration for one (1) representative from your organization to attend the event