AGENDA
Council Meeting
9:00 AM - Thursday, March 16, 2023
Council Chambers

Page

A. CALL TO ORDER

B. ADOPTION OF AGENDA

C. ADOPTION OF MINUTES

4 - 10 1. **County Council Meeting Minutes**
Council Meeting - 02 Mar 2023 - Minutes

D. PUBLIC HEARINGS - 10:00 A.M.

11 - 29 1. **Bylaw 22-021 - Road Closure, Sale and Consolidation- Public Hearing**
Bylaw 22-021 - Road Closure, Sale and Consolidation - Public Hearing

E. DEPARTMENT REPORTS

E.1. COMMUNITY SERVICES

30 - 311 E.1.1. **Bylaw 23-002 - Country Crossroads Estate Area Structure Plan and Bylaw 23-003 Land Use Bylaw Amendment (Rural Agriculture to Grouped Country Residential) - First Reading**
Bylaw 23-002 - Country Crossroads Estate Area Structure Plan and Bylaw 23-003 Land Use Bylaw Amendment (Rural Agriculture to Grouped Country Residential) - First Reading

E.2. CORPORATE SERVICES

312 - 318 E.2.1. **2023 Bursary and Bursary Ad-Hoc Selection Committee**
2023 Bursary and Bursary Ad-Hoc Selection Committee

319 - 323 E.2.2. **2022 Year End Surplus/Deficit Report**
2022 Year End Surplus/Deficit Report

324 - 333 E.2.3. **2023 Business Tax Bylaw No. 23-010**
2023 Business Tax Bylaw No. 23-010

334 - 337 E.2.4. **2023 Business Tax Rate Bylaw #23-011**
2023 Business Tax Rate Bylaw #23-011

E.3. MUNICIPAL SERVICES

338 - 352 E.3.1. **Road Ban Information**
Road Ban Information

353 - 382 E.3.2. **Public Works - 2023 Level of Service**
Public Works - 2023 Level of Service

E.4. INFRASTRUCTURE

E.5. ADMINISTRATION

F. CORRESPONDENCE

383 1. **Minister of Transportation**
Minister of Transportation

384 - 385 2. **Minister of Municipal Affairs**
Minister of Municipal Affairs

386 3. **MP Thomas**
MP Thomas

387 - 388 4. **Fortis Alberta Invitation**
Fortis Alberta Invitation

389 - 391 5. **SouthGrow's Southern Alberta Economic Development Forum**
SouthGrow's Southern Alberta Economic Development Forum

392 6. **Prentice Institute for Global Population and Economy Invitation**
Prentice Institute for Global Population and Economy Invitation

393 - 399 7. **United Way Red Tie Gala Invitation**
United Way Red Tie Gala Invitation

400 - 401 8. **Vimy Dinner Invitation**
Vimy Dinner Invitation

402 9. **Link Pathway Committee Invitation**
Link Pathway Committee Invitation

G. COUNTY COUNCIL AND COMMITTEE UPDATES

403 - 406 1. **Lethbridge County Council Attendance Update - February 2023**
Lethbridge County Council Attendance Update - February 2023

H. NEW BUSINESS

I. CLOSED SESSION

J. ADJOURN

MINUTES
Council Meeting

9:00 AM - Thursday, March 2, 2023
Council Chambers

The Council Meeting of Lethbridge County was called to order on Thursday, March 2, 2023, at 9:00 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
Interim Chief Administrative Officer, Larry Randle
Director of Public Operations, Jeremy Wickson
Director of Infrastructure, Devon Thiele
Director of Finance & Administration, Jennifer Place
Interim Director of Community Services, Hilary Janzen
Executive Assistant, Candice Robison

A. CALL TO ORDER

Reeve Tory Campbell called the meeting to order at 9:01 a.m.

B. ADOPTION OF AGENDA

42-2023	Councillor Sayers	MOVED that the March 2, 2023 Lethbridge County Council Meeting Agenda be adopted as presented.

CARRIED

C. ADOPTION OF MINUTES

C.1. *County Council Meeting Minutes*

43-2023	Deputy Reeve Kuerbis	MOVED that the February 2, 2023 Lethbridge County Council Minutes be adopted as presented.

CARRIED

D. DELEGATIONS

D.1. *9:00 a.m. - Sgt. Mike Numan - RCMP*

S/Sgt. Mike Numan and Sgt. Dave Marentette were present to provide Council the quarterly RCMP update.

F. DEPARTMENT REPORTS

F.1. MUNICIPAL SERVICES

F.1.1. *Bylaw 22-018 - Speed Limit Bylaw*

44-2023	Councillor Hickey	MOVED to direct administration to bring forward information on the road ban bylaw to a future Council meeting.

CARRIED

45-2023	Deputy Reeve Kuerbis	MOVED that Bylaw 22-018 - Speed Limit Bylaw be read a second time as amended. CARRIED
46-2023	Councillor Sayers	MOVED that Bylaw 22-018 - Speed Limit Bylaw be read a third time. CARRIED

Reeve Campbell recessed the meeting at 9:55 a.m.

Reeve Campbell reconvened the meeting at 10:02 a.m.

E. PUBLIC HEARINGS - 10:00 a.m.

E.1. *Bylaw 23-005 - Lethbridge County and Town of Coaldale Intermunicipal Development Plan - Public Hearing*

Reeve Campbell called a recess to the Council Meeting, for the Public Hearing for Bylaw 23-005 at 10:02 a.m.

47-2023	Councillor Hickey	MOVED that the Public Hearing for Bylaw 23-005 commence at 10:03 a.m. CARRIED

Interim Director of Community Services Hilary Janzen introduced the Bylaw.

Reeve Campbell asked if anyone wished to speak in favour or opposition of Bylaw 23-005.

No Comments were provided.

48-2023	Councillor Hickey	MOVED that the Public Hearing for Bylaw 23-005 adjourn at 10:19 a.m. CARRIED

Reeve Campbell reconvened the Council meeting at 10:19 a.m.

49-2023	Councillor VanderVeen	MOVED that Bylaw 23-005 be read a second time as amended. CARRIED
50-2023	Deputy Reeve Kuerbis	MOVED that Bylaw 23-005 be read a third time. CARRIED

F. DEPARTMENT REPORTS

F.2. ADMINISTRATION

F.2.1. *Canadian Fallen Heroes Foundation - Donation Request*

51-2023	Councillor Sayers	MOVED that County Council approve a silver donation in the amount of $500.00 to the Canadian Fallen Heroes Foundation. CARRIED

F.2.2. ***Request for Sponsorship - Alberta / NWT Command - Royal Canadian Legion - Annual Military Service Recognition Book***

52-2023	Councillor Van Essen	MOVED that Lethbridge County purchase a 1/4 page full color advertisement in the 16th Annual Military Service Recognition Book, at a cost of $625.00, with funds coming from the Councillor's Discretionary Reserve. CARRIED
53-2023	Councillor Van Essen	MOVED to direct administration to bring back a report highlighting Council's donations history over the last five years. CARRIED

F.2.3. ***Truth and Reconciliation Advisory Committee Bylaw #23-007***

54-2023	Councillor VanderVeen	MOVED to strike a committee of three Council members and administration to work towards bringing back a potential land acknowledgement for Lethbridge County for Council consideration. CARRIED
55-2023	Councillor Sayers	MOVED that Councillors Mark Sayers, Councillor Lorne Hickey and Councillor Klaas VanderVeen be appointed to the Committee. CARRIED

Reeve Campbell recessed the meeting at 9:55 a.m.

Reeve Campbell reconvened the meeting at 11:02 a.m.

D. DELEGATIONS

D.2. ***Link Pathway Council Resolution Review - Phase 2***
11:00 a.m. - Peter Casurella - Link Pathway

Peter Casurella was present to provide a presentation to Council regarding the Link Pathway

56-2023	Councillor Van Essen	MOVED that Phase 2 of the Link Pathway and corresponding Memorandum of Understanding between Lethbridge County, the Saint Mary River Irrigation District and the Link Pathway Committee be approved excepting that the final route through the Vista Meadows section be later determined following any further discussions about relevant considerations. DEFEATED
57-2023	Deputy Reeve Kuerbis	MOVED that Phase 2 of the Link Pathway and corresponding Memorandum of Understanding between Lethbridge County, the Saint Mary River Irrigation District and the Link Pathway Committee be approved using the orange route through Vista Meadows as presented at the March 2, 2023 meeting. CARRIED
58-2023	Councillor Van Essen	MOVED to reconsider the amendment. CARRIED
59-2023	Deputy Reeve Kuerbis	MOVED that Phase 2 of the Link Pathway and corresponding Memorandum of Understanding between Lethbridge County, the Saint Mary River Irrigation District and the Link Pathway Committee be approved using the orange route through Vista Meadows as presented at the March 2, 2023 meeting. DEFEATED

60-2023	Councillor VanderVeen	MOVED that Phase 2 of the Link Pathway and corresponding Memorandum of Understanding between Lethbridge County, the Saint Mary River Irrigation District and the Link Pathway Committee be approved.

CARRIED

Reeve Campbell recessed the meeting at 12:44 p.m.

Reeve Campbell reconvened the meeting at 1:25 p.m.

F.3. COMMUNITY SERVICES

F.3.1. *Animal Control Bylaw 22-020*

61-2023	Deputy Reeve Kuerbis	MOVED that Bylaw 22-020 - Animal Control Bylaw be read a second time as amended.

CARRIED

62-2023	Councillor Hickey	MOVED that Bylaw 22-020 - Animal Control Bylaw be read a third time.

CARRIED

F.4. INFRASTRUCTURE

F.5. CORPORATE SERVICES

G. CORRESPONDENCE

G.1. *Gem of the West*

63-2023	Deputy Reeve Kuerbis	MOVED to direct administration to draft a letter to the Gem of the West Museum Society explaining Council's rationale for decisions in the past regarding community association funding.

CARRIED

G.2. *FCSS All Councils Invitation 2023*

The FCSS All Councils invitation was reviewed by Council.

F. DEPARTMENT REPORTS

H. COUNTY COUNCIL AND COMMITTEE UPDATES

H.1. *Lethbridge County Council Attendance Update - January 2023*

Council reviewed the highlights from the Lethbridge County Council Attendance Update for January 2023.

Division 1
Councillor Lorne Hickey

January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 11	Audit Committee Meeting
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 18	Green Acres Finance Meeting
January 26	CAO Farewell Supper

Division 2
Reeve Tory Campbell

January 9	CAO/Reeve Meeting
January 9	Meeting with Government Officials in Calgary
January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 18	EDL Board Meeting
January 19	State of the City Address
January 19	Exhibition Park Visioning Session
January 20	CBC Lethbridge Bureau Launch Round Table
January 24	Coaldale RCMP Indigenous Naming & Blessing Ceremony
January 26	Travel Alberta Ottawa Trade Mission Briefing
January 26	CAO Farewell Supper
January 27	Team Lethbridge Mission 2022 Wrap
January 30	South Region Storm Water Drainage Committee Meeting in Taber

Division 3
Councillor Mark Sayers

January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 26	CAO Farewell Supper
January 28	Coaldale Chamber of Commerce Awards Dinner
January 31	Emergency Advisory Committee

Division 4
Deputy Reeve John Kuerbis

January 6	Mayors and Reeves
January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 11	Audit Committee Meeting
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 17-20	ASB Conference – Grande Prairie
January 23	Lunch Meeting with Reeves
January 25	Meeting with Ratepayer
January 26	CAO Farewell Supper
January 31	Emergency Advisory Committee Meeting

Division 5
Councillor Eric Van Essen

January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 11	Audit Committee Meeting
January 12	Picture Butte Chamber of Commerce Meeting
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 26	CAO Farewell Supper
January 31	Emergency Advisory Committee Meeting

Division 6
Councillor Klaas VanderVeen

January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 17-20	ASB Conference – Grande Prairie
January 26	CAO Farewell Supper
January 27	SAEWA Board Meeting – Wheatland County

Division 7
Councillor Morris Zeinstra

January 10	Economic Development Workshop
January 10	CAO/Council Discussion
January 12	Lethbridge County Council Meeting
January 13	Foothills Little Bow Municipal Association
January 26	CAO Farewell Supper
January 30	South Region Storm Water Drainage Committee Meeting in Taber

H.2. ***2023 FCM Conference Discussion***

The 2023 FCM Conference in Toronto was discussed by Council.

H.3. ***Federal Government Fertilizer Application Emissions Reductions in Agriculture Sector - Councillor Zeinstra***

The Federal Government Fertilizer Application Emissions Reductions in Agriculture Sector will be further discussed at the next ASB Meeting.

I. CLOSED SESSION

I.1. - Public Messaging (FOIP Section 24 - Advice for Council)

I.2. - CAO Recruitment (FOIP Section 24 - Advice from Officials & Section 25 - Disclosure Harmful to Economic and Other Interests of a Public Body)

64-2023 Councillor Zeinstra

MOVED that the Lethbridge County Council Meeting move into Closed Session, pursuant to Section 197 of the *Municipal Government Act,* the time being 2:22 p.m. for the discussion on the following:

I.1. - Public Messaging (FOIP Section 24 - Advice from Officials)

I.2. - CAO Recruitment (FOIP Section 24 - Advice from Officials & Section 25 - Disclosure Harmful to Economic and Other Interests of a Public Body)

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

CARRIED

65-2023 Deputy Reeve Kuerbis

MOVED that the Lethbridge County Council Meeting move out of the closed session at 2:44 p.m.

CARRIED

J. NEW BUSINESS

K. ADJOURN

66-2023	Councillor Zeinstra	MOVED that the Lethbridge County Council Meeting adjourn at 2:45 p.m.

CARRIED

Reeve

CAO

AGENDA ITEM REPORT

Title:	Bylaw 22-021 - Road Closure, Sale and Consolidation- Public Hearing
Meeting:	Council Meeting - 16 Mar 2023
Department:	Community Services
Report Author:	Hilary Janzen

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 01 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☒

EXECUTIVE SUMMARY:

An application has been made to close a portion of Road Plan 9511762 (Township Road 9-0B) and to be consolidated with the adjacent lot to the north.

RECOMMENDATION:

- That Bylaw 22-021 be sent to the Minister of Transportation for Approval.
- That County Council waive the land cost fees.

REASON(S) FOR RECOMMENDATION(S):

After the Public Hearing and prior to receiving second and third reading the Bylaw must be sent to the Minister of Transportation for Approval. Once the Bylaw receives Ministerial approval, second and third reading of the Bylaw can proceed.

PREVIOUS COUNCIL DIRECTION / POLICY:

- Policy 109A - Road Allowance Closure and Sale approved by County Council on March 6, 2014 with revisions approved on November 5, 2020.
- Bylaw 22-021 received first reading on January 12, 2023

BACKGROUND INFORMATION:

An application has been received for the closure, sale and consolidation of a portion of the Road Plan 9511762. The road in question is undeveloped and upon review, County Administration has determined that the road is not required as part of the County's road network as the parcels to the north and east of the road are under the same ownership and the applicant intends to consolidate the parcels and the road area into one title.

Alberta Transportation has been circulated the proposed road closure and has no objections with the County proceeding with the closure, sale and consolidation.

The notice of public hearing for Bylaw 22-021 was advertised in the February 7 and 14 editions of the Sunny South News.

ALTERNATIVES / PROS / CONS:

County Council may decide not to send the proposed bylaw for Ministerial approval if there were concerns with the proposed road closure that come up during the public hearing.

Pros:

- None identified.

Cons:

- The County would forgo the sale revenue.
- The County would have to manage and maintain the road way.
- The County would have to require the removal of the obstructions from the Right-of-Way.

FINANCIAL IMPACT:

The applicant is requesting that the land costs be waived as the road in question was originally required by Alberta Transportation when Highway 3 was upgraded. The original landowner did not receive financial compensation for the dedicated lands which were purchased by Alberta Transportation for $1.00 on the condition that the canal crossing be installed by Alberta Transportation. The service road was paved by Green Prairie in 2013 at their sole cost and the road is currently maintained by Green Prairie.

LEVEL OF PUBLIC PARTICIPATION:

☐ Inform ☒ Consult ☐ Involve ☐ Collaborate ☐ Empower

ATTACHMENTS:

Bylaw 22-021 Road Closure Application - Green Prairie
Bylaw 22-021 - Green Prairie International Inc - Road Closure Sale & Consolidation

LETHBRIDGE COUNTY

LETHBRIDGE COUNTY
APPLICATION FOR ROAD CLOSURE

OFFICE USE		
Date of Application: October 11, 2022	Assigned Bylaw	No. 22-021
Date Deemed Complete: November 22, 2022	Application & Processing Fee:	$ 1500.00
	Assessed Value:	$

APPLICANT INFORMATION

Name of Applicant: Green Prairie International Inc

Mailing Address: 210072 Twp Rd 90B Lethbridge County

Phone: 403-315-4030

Postal Code: T1J 5P1

Email: craig.rumer@greenprairie.com

Name of Owner: Lethbridge County
(if not the applicant)

Mailing Address:

Phone:

Postal Code:

Email:

ROAD CLOSURE INFORMATION

The applicant shall provide the following information:

- A map showing proposed road closure area and the applicant's property,
- Copy of the certificate of title(s) to which the road closure would be consolidated to,
- Legal Description of the proposed Road Closure (acceptable at the Land Titles Office)
- If there are other adjacent landowners provide written confirmation that they have been consulted with on the proposed road closure,
- Provide the reasons for the road closure request, and
- Application fee payment (See Schedule of Fees).

RECEIVED
OCT 11 2022
Lethbridge County

DECLARATION OF APPLICANT/AGENT

The information given on this form is full and complete and is, to the best of my knowledge, a true statement of the facts in relation to the application.

The applicant is responsible for all road closure costs including the road closure application fee, all costs associated with the Transfer of Land (surveying costs, transfer documents, registration, etc.), land purchase costs (based on the assessed value).

Vice President

APPLICANT

October 6, 2022

DATE

FOIP STATEMENT: Personal information on this form is collected under the authority of section 33(c) of the Freedom of Information and Protection of Privacy (FOIP) Act. The information collected here will be used to by Lethbridge County for the purposes of reviewing the Road Closure application. ***This form is a public record that is available to anyone.*** *All information contained on this form (including personal information) is disclosed by Lethbridge County to anyone requesting a copy in according with Lethbridge County Policy No. 173 (Freedom of Information and Protection of Privacy (FOIP)). For further information about the collection and use of this information please contact the Lethbridge County FOIP Coordinator at foip@lethcounty.ca or call (403) 328-5525 or come into the office #100, 905-4th Avenue South, Lethbridge Alberta, T1J 4E4.*

Note: Information provided or generated in this application may be considered at a public meeting.

Green Prairie International Inc (GPI)
Attachment to Road Closure Application dated October 4, 2022

Other attachments to the Application

1) Extract from Google Maps showing adjacent properties
2) More detailed drawing of GPI plant site
3) Copy of Certificate of Title #951 168 846 for 4:21:9:1 – GPI main plant site
4) Copy of Certificate of Title #221 175 962 for 4:21:9:1:15 – being the property owned by GPI and bordering the east side of the main plant site

Legal Description of proposed Road Closure

The strip of land is titled to Lethbridge County and referenced as Service Road Plan 951 1762 (the Road Strip). GPI could not identify a specific title in Land Title connected to this plan.

The Road Strip is referred to as Twp Rd 90b.
The north side of Road Strip borders the south side of the GPI plant site.
The south side Road Strip borders the CP line.
The east side of the Road Strip borders the GPI property.
The west side of the Road Strip borders Range Road 211

Adjacent Landowners

The only adjacent landowners are Green Prairie International Inc and CP Rail.

Reasons for the Road Closure Request

GPI and Lethbridge County has proposed the following series of actions now that GPI owns the property that borders the east side of the main plant site:

1) Close the road subject to this Road Closure Application
2) Transfer title to the Road Strip to GPI
3) GPI consolidates into one parcel the
   a) Main plant site
   b) Property to the immediate east of the main plant site
   c) Road Strip
4) Alberta Highways closes the road access from Highway 3 into the east property
5) CP Rail eliminates the road into the east property from Highway 3 that crosses the rail line

The Road Strip is required by Alberta Transportation to provide access to the east property. If the east property is consolidated into a title with the main plant and the Road Strip then the designated road access into the east property will not be required.

Request to Waive a Transfer Fee

GPI requests Lethbridge County waive a fee for the transfer of title of the road strip to GPI. We offer the following comments.

1) GPI originally purchased the main plant parcel of land which included our current property title and the road strip.
2) The road strip was given to the County for a road access to the property to the east.
3) GPI built the road that is currently on County property.
4) GPI has maintained the road over the course of the County's ownership, without cost to the County or property tax offset.

These points suggest that while the County may own the road strip the County did not pay for its purchase, improvements or maintenance. Therefore it is appropriate to return the property to GPI in the same manner if the road access is no longer required.

Consolidating the Road Strip into one title offers GPI benefits including:

1) Flexibility in planning future expansions because of improved set back limits
2) Improved security of the property without a "public road" along the south edge. GPI has invested significantly in security cameras and alarms and good practices. GPI will breathe easier without the risk of easy public access from a public road.

GPI is committed to its operation in Lethbridge County. In order to:

1. rebuild and continue development, GPI invested and built a Storm Water Management System
2. ensure growth potential of the site, which would have been severely impaired had the storm water holding pond been located on the main plant site, GPI invested and purchased the property to the east.

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0022 173 926	4;21;9;1;;15	221 175 962

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 21 TOWNSHIP 9
SECTION 1
THAT PORTION OF LEGAL SUBDIVISION 15 IN THE NORTH EAST QUARTER
WHICH LIES TO THE NORTH WEST OF THE RAILWAY RIGHT OF WAY ON PLAN RY21
CONTAINING 2.738 HECTARES (6.76 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 221 046 571

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
221 175 962	23/08/2022	TRANSFER OF LAND	$800,000	$800,000

OWNERS

GREEN PRAIRIE INTERNATIONAL INC.
OF 210072 TWP RD 90B
LETHBRIDGE
ALBERTA T1J 5P1

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
1044D	.	RESTRICTIVE COVENANT
951 084 277	12/04/1995	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC. 320 - 17 AVENUE S.W. CALGARY

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
		ALBERTA T2S2Y1 PORTION AS DESCRIBED (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 001287332) (DATA UPDATED BY: CHANGE OF NAME 051028880)
071 031 596	20/01/2007	UTILITY RIGHT OF WAY GRANTEE - COUNTY OF LETHBRIDGE RURAL WATER ASSOCIATION LIMITED.

TOTAL INSTRUMENTS: 003

PENDING REGISTRATION QUEUE

DRR NUMBER	RECEIVED DATE (D/M/Y)	CORPORATE LLP TRADENAME	LAND ID
D005L8W	06/06/2022	TORRY LEWIS ABELLS LLP 403-329-7685 CUSTOMER FILE NUMBER: 25938153 CNE/VAL	
001		MORTGAGE	0022 173 926

TOTAL PENDING REGISTRATIONS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 25 DAY OF AUGUST, 2022 AT 02:00 P.M.

ORDER NUMBER: 45267167

CUSTOMER FILE NUMBER: 25938152CNE*

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).

(CONTINUED)

LAND TITLE CERTIFICATE

S
LINC 0026 464 081

SHORT LEGAL 4;21;9;1;NW

TITLE NUMBER 951 168 846

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 21 TOWNSHIP 9
SECTION 1
THAT PORTION OF THE NORTH WEST QUARTER
WHICH LIES NORTH OF ROAD PLAN 9511762
AND SOUTH EAST OF CANAL RIGHT OF WAY ON
PLAN 7510220
CONTAINING 14.2 HECTARES (35.02 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: LETHBRIDGE COUNTY

REFERENCE NUMBER: 941 326 565

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
951 168 846	27/07/1995	AMENDMENT-LEGAL DESCRIPTION		

OWNERS

GREEN PRAIRIE INTERNATIONAL INC.
OF RR-8-30-11
LETHBRIDGE
ALBERTA T1J 4P4
(DATA UPDATED BY: CHANGE OF NAME 011207792)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
8391GA .		RESTRICTIVE COVENANT "SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER"

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
1485KX .	21/06/1971	IRRIGATION ORDER/NOTICE THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT
951 084 276	12/04/1995	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC. 320 - 17 AVENUE S.W. CALGARY ALBERTA T2S2Y1 PORTION AS DESCRIBED (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 001287332) (DATA UPDATED BY: CHANGE OF NAME 051028880)
061 198 122	19/05/2006	MORTGAGE MORTGAGEE - FARM CREDIT CANADA. SUITE #1200, 10250-101 ST EDMONTON ALBERTA T5J3P4 ORIGINAL PRINCIPAL AMOUNT: $5,000,000
061 342 354	22/08/2006	UTILITY RIGHT OF WAY GRANTEE - COUNTY OF LETHBRIDGE RURAL WATER ASSOCIATION LIMITED.
131 110 000	13/05/2013	NOTICE OF SECURITY INTEREST RE : FIXTURES IN FAVOUR OF - GE CANADA LEASING SERVICES COMPANY. 3300, 525 - 8 AVE SW CALGARY ALBERTA T2P1G1 DEBTOR - GREEN PRAIRIE INTERNATIONAL INC. RR 8, SITE 30, COMP 11 LETHBRIDGE ALBERTA T1J4P4 AMOUNT: $1,987,895 EXPIRES: 2023/05/07
131 139 692	13/06/2013	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - FORTISALBERTA INC. 320 - 17TH AVENUE S.W. CALGARY ATTENTION: LAND DEPARTMENT ALBERTA T2S2V1 AGENT - JAY BRAR
131 143 680	18/06/2013	AMENDMENT AFFECTS INSTRUMENT: 131110000

(CONTINUED)

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
131 165 073	12/07/2013	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD.
131 280 696	31/10/2013	MORTGAGE MORTGAGEE - AGRICULTURE FINANCIAL SERVICES CORPORATION. 4910-52 ST CAMROSE ALBERTA T4V2V4 ORIGINAL PRINCIPAL AMOUNT: $5,000,000
131 280 697	31/10/2013	NOTICE OF SECURITY INTEREST RE : FIXTURES IN FAVOUR OF - ALBERTA AGRICULTURE FINANCIAL SERVICES CORPORATION. 4910-52ND STREET, BOX 5000, STN MAIN CAMROSE ALBERTA T4V2V4 DEBTOR - GREEN PRAIRIE INTERNATIONAL INC. RR 8-3-11 LETHBRIDGE ALBERTA T1J4P4 AMOUNT: $5,000,000 EXPIRES: INFINITY
141 328 853	04/12/2014	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD. AS TO PORTION OR PLAN:PORTION

TOTAL INSTRUMENTS: 012

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 26 DAY OF JULY, 2017 AT 04:11 P.M.

ORDER NUMBER: 33387382

CUSTOMER FILE NUMBER: 25938139 LJA

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).

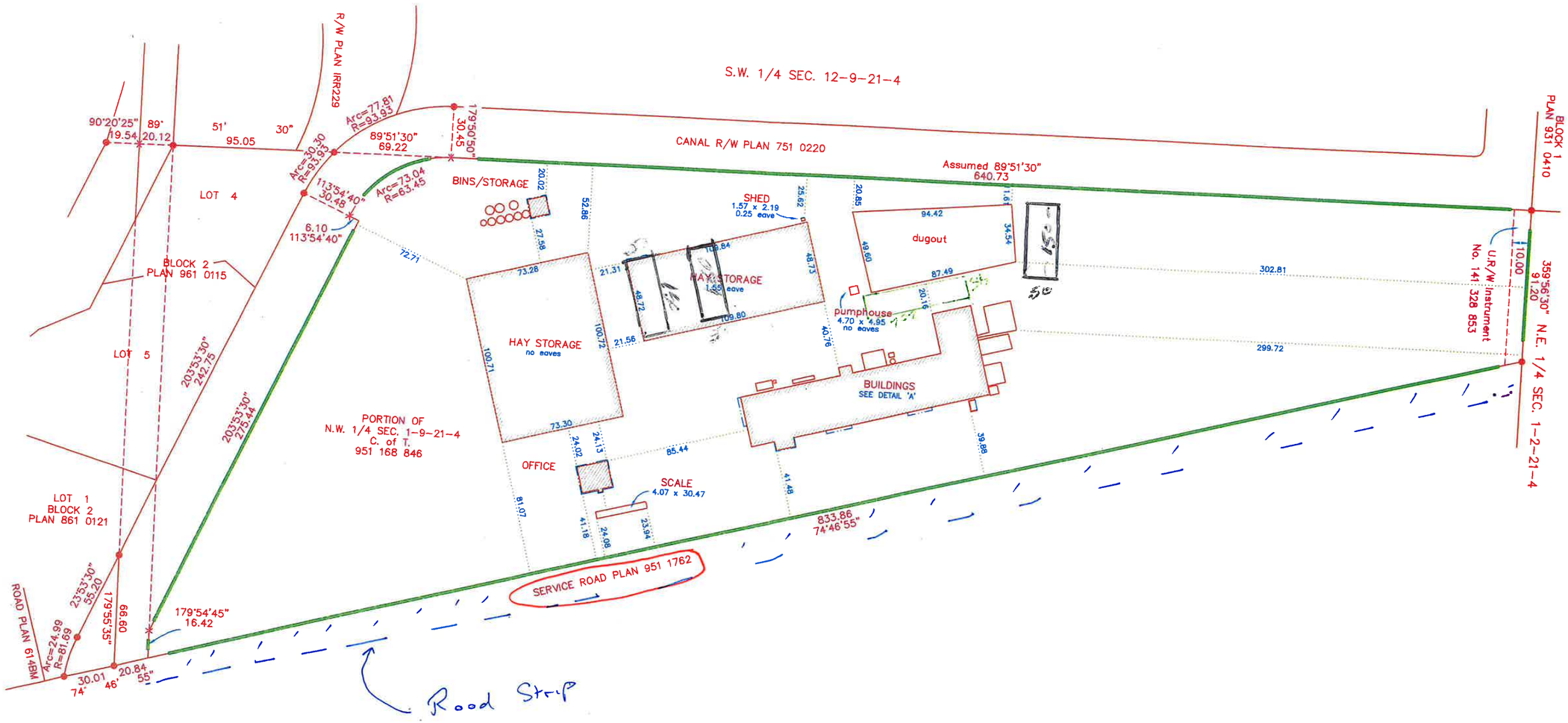
Green Prairie - Application for Road Closure
- All three properties

Main Plant Site
Title # - 951 168 846

East Property
Title # 221 175 962

Road Strip

Green Prairie Application for Road Closure
- Main Plant Site



Hilary Janzen

From: bruceb@mgcl.ca
Sent: November 17, 2022 3:37 PM
To: Hilary Janzen
Cc: 'Craig Rumer'; james@mgcl.ca
Subject: Proposed Road Closure Description for use in Lethbridge County Documents
Attachments: 20221117172037565.pdf

Hello Hilary,

Please use the following description in your documents related to this proposed road closure:

Lethbridge County proposes to close - "Area A, Plan 231_____ containing
2.502 hectares (6.18 acres) more or less, excepting thereout all mines and minerals and the right to work the same".

This description has been prepared in accordance with the design as outlined on the sketch attached to this email.

We will submit the legal Road Closure Plan once we receive notification that the closing by-law has been accepted by all involved. Please confirm otherwise.

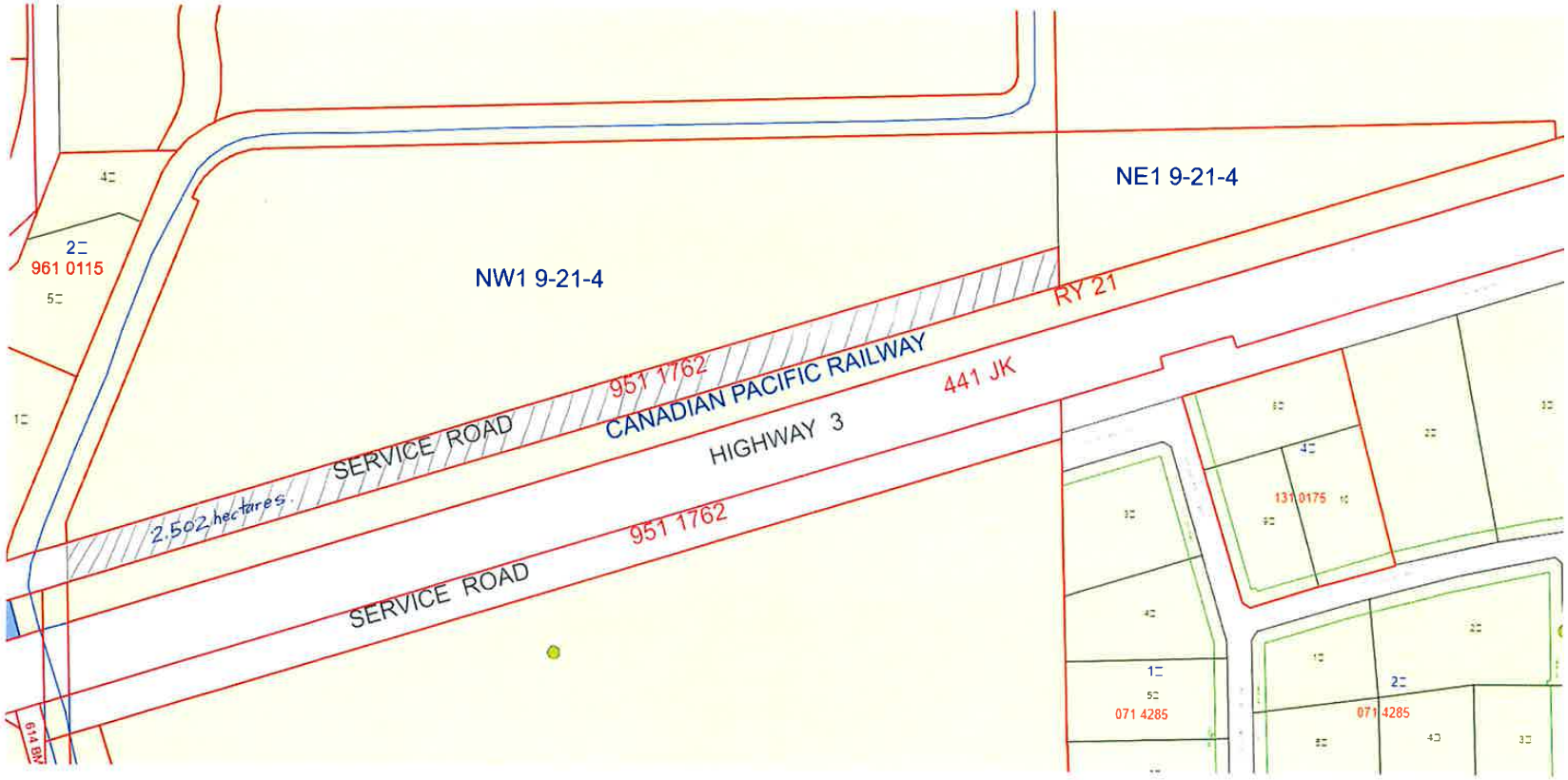
We understand that this description now completes the road closure application for your purposes as it was originally submitted by Green Prairie International earlier this month.

Please contact me with any questions.

Martin Geomatic Consultants Ltd.
Bruce Barnett, ALS, CLS, P.Eng.
Phone: 403-329-0050

Proposed Road Closure

(A)



LETHBRIDGE COUNTY
#100, 905 - 4 AVENUE SOUTH
LETHBRIDGE, ALBERTA
T1J 4E4
TELEPHONE: (403) 328-5525
FAX: (403) 328-5602

O F F I C I A L R E C E I P T

GREEN PRAIRIE INTERNATIONAL INC.

GST Reg. #: R106989023
Receipt #: 0337099
Date: 2022/10/11

Account #	Description	Opening Bal	Payment	Amount Due
1.3.424.30.0.00	ROAD CLOSURE		1,575.00	
		** Payment Total:	1,575.00	

10792 Cheque 1,575.00

Refunded $75.00 in overpayment.

LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

BYLAW 22-021

A BYLAW OF LETHBRIDGE COUNTY FOR THE PURPOSE OF CLOSING TO PUBLIC TRAVEL AND CREATING TITLE TO AND DISPOSING OF PORTIONS OF A PUBLIC HIGHWAY IN ACCORDANCE WITH SECTION 22 OF THE MUNICIPAL GOVERNMENT ACT, CHAPTER M26, REVISED STATUTES OF ALBERTA 2000, AS AMENDED.

WHEREAS, the lands hereafter described are no longer required for public travel,

WHEREAS, application has been made to Council to have the roadway closed, and;

WHEREAS, the Council of LETHBRIDGE COUNTY deems it expedient to provide for a bylaw for the purpose of closing to public travel certain roads or portions thereof, situated in the said municipality and thereafter creating title to and disposing of same, and;

WHEREAS, notice of intention of Council to pass a bylaw has been given in accordance with Section 606 of the Municipal Government Act, and;

WHEREAS, Council was not petitioned for an opportunity to be heard by any person claiming to be prejudicially affected by the bylaw;

NOW THEREFORE BE IT RESOLVED that the Council of LETHBRIDGE COUNTY in the Province of Alberta does hereby close to Public Travel and creating title to and disposing of the following described highways, subject to rights of access granted by other legislation.

AREA A, PLAN 231_____
CONTAINING 2.502 HECTARES (6.18 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

GIVEN first reading this _____ day of _____, 20____.

_____
Reeve

_____
Chief Administrative Officer

Approved this _____ day of _____, 20____.

_____
Minister of Transportation

GIVEN second reading this _____ day of _____, 20__.

_____
Reeve

_____
Chief Administrative Officer

GIVEN third reading this _____ day of _____, 20___.

_____
Reeve

_____
Chief Administrative Officer

First Reading	
Send to Minister of Transportation	
Public Hearing	
Second Reading	
Third Reading	

AGENDA ITEM REPORT

Title:	Bylaw 23-002 - Country Crossroads Estate Area Structure Plan and Bylaw 23-003 Land Use Bylaw Amendment (Rural Agriculture to Grouped Country Residential) - First Reading
Meeting:	Council Meeting - 16 Mar 2023
Department:	Community Services
Report Author:	Hilary Janzen

APPROVAL(S):

Hilary Janzen, Supervisor of Planning & Development	Approved - 02 Mar 2023
Larry Randle, Interim Chief Administrative Officer	Approved - 06 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☒

EXECUTIVE SUMMARY:

An application was received for the Country Crossroads Estate Area Structure Plan (Bylaw 23-002 and to re-designate a 66 acre title in the SW5-8-20-W4 from Rural Agriculture to Grouped Country Residential (Bylaw 23-003). This would allow for the phased subdivision of the parcels for Country Residential use.

RECOMMENDATION:

That Bylaw 23-002 (Country Crossroad Estate ASP) be read a first time.

That Bylaw 23-003 (Land Use Bylaw Amendment - RA to GCR) be read a first time.

REASON(S) FOR RECOMMENDATION(S):

First reading of Bylaw 23-002 and Bylaw 23-003 will allow County Administration to set the date for the Public Hearing and send out the required notices for the proposed bylaws.

PREVIOUS COUNCIL DIRECTION / POLICY:

- 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.

BACKGROUND INFORMATION:

An application was received for the Country Crossroad Estate Area Structure Plan (Bylaw 23-002) and to re-designate a 66 acre title in the SW5-8-20-W4 from Rural Agriculture to Grouped Country Residential (Bylaw 23-003). This would allow for the phased subdivision of the parcels for Country Residential use.

The Country Crossroads Estate Area Structure Plan provides a plan for the future subdivision of the subject lands in a manner that attempts to meet the County's current policies and requirements.

The application has been circulated to all County Departments and external agencies for review. Any comments or concerns will be presented at the Public Hearing along with the planning considerations. It is anticipated that the public hearing will be held in April 2023.

ALTERNATIVES / PROS / CONS:

County Council may refuse first reading of the Bylaws. Refusing the bylaws would be contrary to legal advice which has been that first reading of the bylaws shall be given as the applicant and the public have the right to attend and speak at a public hearing which is set upon first reading of the bylaws. The public hearing process allows County Council the opportunity to hear all positions (in favour and opposed) on the bylaws and make an informed decision. If first reading of the bylaws is not given, the applicant could appeal that decision to the Alberta Court of Appeal.

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:

Bylaw 23-002- Country Crossroad Estate - ASP
Country Crossroads Estate ASP-Issued for County Application March 6, 2023 - Compiled-1
Bylaw 23-003 - Country Crossroad Estate - Amendment to LUB
23_003_RA_GCR_Ortho
Rezoning Application - RA to GCR

LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

BYLAW NO. 23-002

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 the 5-8-20-W4 being that portion of the southwest quarter lying to the west of the 65 metre canal right-of-way and lying north of the south halves of legal subdivisions 3 and 4, and lying to the north of the 30 metre canal right-of-way on Plan 8210212;

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 66.8 acres (27 hectares);

AND WHEREAS the landowner/developer have prepared the "Country Crossroad Estate 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 "Country Crossroad Estate Area Structure Plan" Bylaw No. 23-002, attached as "Appendix A".

GIVEN first reading this 16th day of March, 2023.

_____
Reeve

_____
CAO

GIVEN second reading this _____ day of _____, 20___.

_____
Reeve

_____
CAO

GIVEN third reading this _____ day of _____, 20_____.

_____
Reeve

_____
CAO

1st Reading	March 16, 2023
2nd Reading	
Public Hearing	
3rd Reading	

X:\Executive Files\115 Bylaws\2023 Bylaws\Bylaw 23-002 – Country Crossroads Estate ASP.doc

Country Crossroads Estate

AREA STRUCTURE PLAN

SW$\frac{1}{4}$ Sec.05 - 8-20-W4M

February 2023

Prepared for: Jody Nakamura
Prepared by: Martin Geomatic Consultants Ltd.

MARTIN
GEOMATIC CONSULTANTS

082154CE

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1. Property Ownership Titles
2. Geotechnical Evaluation
3. Environmental Site Assessment
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   a. Letter To Adjacent Landowners
   b. Neighborhood Comments
   c. Receipt From Water Coop For 27 Water Units
   d. Telus Map
   e. SMRID Maps
   f. Triple W Gas Co-op Map
5. Stormwater Management Plan

1.0 INTRODUCTION

1.1 PURPOSE OF THE PLAN

The purpose of the Country Crossroads Estate Area Structure Plan (ASP) is to provide a comprehensive planning framework for development of the land within the southwest quarter of Sec. 05-8-20-W4M. The Plan Area is located in Lethbridge County and is shown on **Figure 1 - 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.

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.

1.2 PLAN PREPARATION

Prior to commencing the preparation of the area structure plan document, Martin Geomatic Consultants Ltd. (MGCL) had discussions and met with representatives from:

- Lethbridge County
- Alberta Environment and Parks,
- Alberta Transportation,
- County of Lethbridge Rural Water Association,
- Exon Mobil,
- Fortis Alberta,
- Lethbridge County,
- Saint Mary River Irrigation District,
- Shaw Cable,
- Telus Communications,
- the landowner of the proposed plan area,
- Triple W Natural Gas Co-op Ltd.

2.0 LEGISLATIVE FRAMEWORK

2.1 THE MUNICIPAL GOVERNMENT ACT

Country Crossroads Estate 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 SW. 1/4 Sec. 5-8-20-W4M into Grouped Country Residential classified area.

2.2 THE SOUTH SASKATCHEWAN REGIONAL PLAN

The Country Crossroads Estate ASP aims to follow the Alberta Government South Saskatchewan Regional Plan (SSRP) 2014 – 2024, Amended February 2017.

Strategic Outcomes of the SSRP aligned with the Country Crossroads Estate ASP include: sustainable development wherein economic development takes into account environmental sustainability and social outcomes, conserving and maintaining the benefits of biodiversity, advancing watershed management, promoting efficient use of land, and strengthening communities.

2.3 LETHBRIDGE COUNTY MUNICIPAL DEVELOPMENT PLAN

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

The MDP outlines specific requirements necessary for residential development in Lethbridge County. Based on these requirements the Country Crossroads Estate ASP sets the stage for the proposed development.

Part 4, Sec. 4 - Land Use and Development Requirements of the MDP, outlines specific requirements in order that land in the County is properly planned and serviced based on the proposed use. County Crossroads Estates ASP and Land Use request is compatible with these detailed prerequisites for ASP's, land use re-designation, Geotechnical and soil reports.

This ASP has been designed such that the requirements outlined in Part 4 Plan Policies; Sec. 5 - Subdivision and Sec. 6 - General Residential Land Use, can be met when the development is ready for subdivision. The detailed design will be required to confirm as closely as possible to the policies in Sec. 11 - Infrastructure and Servicing and with the County's requirements in "Engineering Guidelines and Minimum Servicing Standards".

This ASP has endeavored to meet the requirements as detailed in Part 4, Sec. 8 - Grouped Country Residential. Particularly the criteria for siting, servicing roadways and fire suppression have generally been met. Notwithstanding these requirements, 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.

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.

2.4 Lethbridge County, Grouped Country Residential Land Use Strategy

The main purpose of the above strategy is the identification of suitable site criteria for GCR developments.

This section of the ASP addresses the siting criteria as detailed in the county's strategy.

2.4.1. Siting Criteria

One of the siting criteria is that GCR sites should be located on lands that are already subdivided or are fragmental areas and land where the adjacent properties are currently subdivided for grouped country residential purposes.

Country Crossroads Estates falls within land that meets the above, preferred, siting criteria. The SW ¼ of Section 28 is divided in half with Highway 4 and the railway right of way running diagonally through the quarter section. Additionally, the triangular SW half is further divided in half by the SMRID main canal. This leaves a fragmented site that is difficult to farm. Existing grouped country residential sites are adjacent to the site's north and south boundaries. In total there are about 45 residential sites within 800 meters of the Country Crossroads ASP area.

2.4.2. Servicing

The site meets the following criteria from the GCR land use strategy:

- Potable water can be obtained
- Supply of irrigation water from SMRID
- Soils on the site can handle individual, private septic systems. (refer to **Appendix 2 - Geotechnical Evaluation.**)
- A Storm Water Management Plan has been completed and is attached as **Appendix 5 – Stormwater Management Plan**; this demonstrates that all stormwater up to the 1 in 100 year event will be stored on site and as such will not impact any adjacent or downstream landowners.
- The various shallow utility companies have been contacted and they have verified that gas, electrical and telephone services are available to the site

2.4.3. Roads

The ASP area is accessed off of Range Roads 205 which is currently paved. All roads in the development will be paved. A T.I.A will be undertaken prior to subdivision approval and any upgrades to the existing roads that are required as a result of this the subdivision will be undertaken by the developer.

2.4.4. Fire Suppression

The lots will be a minimum of 2 acres in size which will enable the houses to be setback a considerable distance from each other. Fire fighting water will be available on site from the wet pond. Additionally, the Coaldale fire department is the responsive fire department and the site is approximately 18 minutes from the fire station. If needed, the Lethbridge fire station is about 13 minutes from the site.

2.5 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.

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 the SW. 1/4 Sec. 5-8-20-W4M, approximately 12 km driving distance southeast of the Lethbridge City limits along Highway 4. It is bordered on the north by existing group country residential; on the east by a an irrigation main canal, on the south by existing group country residential and a drainage channel, and on the west by Range Road 205 *refer to* ***Figure 2 - Land Ownership Map***. The plan area includes one land parcel: Title Number 051 470 968 in the name of Jody Nakamura. Refer to **Appendix 1 - Property Ownership Titles** and to **Figure 2 - Land Ownership Map.**

The site presently has one occupied house surrounded by irrigated crop land. The subject property is surrounded by farmsteads to the west, Ritchie Bros Auctioneers to the east (beyond the irrigation canal), and by country residential to the north and south. The site is nearly level with an average slope of 0.5% dropping from north to south. A single dwelling exists in the central part of the site. A single dugout exists east of the dwelling. A former irrigation canal has been backfilled and runs across the plan area from the northwest corner to the south boundary of the site.

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 paved Range Road 205 via Highway 508, which connects between Highway 4 and Highway 5.
- There is an existing 50 mm waterline owned by County of Lethbridge Rural Water Association, which runs parallel with Rge Rd. 205 adjacent to the site.
- There is an existing irrigation Canal along the east boundary of the plan area,
- There is an existing drainage channel along a portion of the southwest boundary of the plan area,
- There is an existing 25 mm gas line owned by Triple W Natural Gas Co-op Ltd., which runs across the site to service the existing dwelling,
- Overhead power follows the east ditch of Range. Rd. 205 and borders the west side of the plan area.
- One existing residential dwelling is located in the plan area which is currently using septic field disposal of wastewater.
- There is an existing abandoned well site along the south boundary as shown on **Figure 3 - Existing Site.**
  There is an existing Commercial septic field on the east side of the SMRID Canal.

3.3 SOILS

According to the Alberta Soils Information System, the site soils are characterized as “Orthic Dark Brown Chernozem on medium textured (L, SiL) sediments deposited by wind and water (LET). The polygon includes soils that are finer textured than the dominant or co-dominant soils (5). Undulating, low relief landform with a limiting slope of 2% (U1l).”

The "Geotechnical Evaluation, Proposed Rural Residential Subdivision, SW-5-8-20-W4, County of Lethbridge" report prepared by Wood, May 31, 2018 (refer to the attached **Appendix 2.0 - Geotechnical Evaluation)** indicates that the soil stratigraphy was found to have topsoil underlain by clay fill, clay, silty sand, sandy clay till, 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.

3.4 Topography

The site is relatively flat with an average slope of 0.5% dropping from north to south. The high point of the plan area is at an elevation of about 926.0 m along the east boundary. The low point is at 922.26 m in the south-west area adjacent to the drainage channel. Refer to **Figure 3.0 - Existing Site.**

3.5 Water And Hydrology

The above noted Geotechnical Evaluation found that the depth to ground water varied between 2.3 and 3.4 meters.

- There are no natural bodies of water within the plan area,
- A S.M.R.I.D. irrigation canal exists adjacent to and along the east boundary of the plan area,
- A S.M.R.I.D. drainage channel exists adjacent to and along the south boundary of the plan area,
- A highway ditch along Range Road 205 runs parallel to and adjacent to the west boundary of the site.
- A human made dugout exists adjacent to the existing house near the center of the property.

3.6 Habitat And Vegetation

The plan area consists mainly of irrigated crop land.

3.7 Environmental, Historical And Archaeological Significance

The "Phase 1 Environmental Site Assessment, Nakamura Residential Subdivision, SW 05-008-20 W4M near Lethbridge, Alberta" report prepared by Amec Foster Wheeler Environment & Infrastructure, Lethbridge, Alberta, April 2018 (refer to the attached **Appendix 3 - Environmental Site Assessment**) indicates:

- The site has been used for pasture and farm land since at least 1950,
- An irrigation canal traversed the site until it was backfilled prior to 1983,
- A farm house was built on a concrete foundation in 1996,
  A former Mobil Oil C.P.R Wilson No.5-4 well was identified south of the site, drilled to a depth of 1306 meters in 1955 and abandoned in 1958,

- A Phase 2 environmental investigation has been recommended in the Environmental Assessment due to the former oil well. The Developer wishes to secure approval of this ASP prior to completing the Phase 2 ESA. The Phase 2 ESA, if required, would be done prior to subdivision.
- Recommendations pertaining to hazardous building materials should be considered.

3.8 EXISTING USE OF LAND

- The plan area is mainly used for agriculture, with approximately 66.21 acres (26.79 ha) of irrigated cropland *(refer to **Figure 3 - Existing Site**)*,
- There is a house situated near the center of the plan area. This house is intended to remain in place and is incorporated in the development layout,
- Range Road 205 passes along the west side of the site which provides access to the plan area.

4.0 SITE FEATURES

4.1 LOCATION

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

4.2 HIGHWAY ACCESS

- The paved Range Road 205 and Highway 508 provides access between the site and the City via Highway 4 and Highway 5.

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. Nine (9) existing residents either border or back onto the plan area.

4.4 SURROUNDING USES OF LAND

- Existing agricultural land uses will not have a detrimental effect on housing within ASP.
- The residential nature of the proposed development is not likely to affect any existing land uses surrounding the plan area.
- The Ritchie Bros Auction development immediately east of the plan area is shielded to a great extent by the high banks of the adjacent irrigation canal. Further to this, the auction type use is not an impediment to a rural residential lifestyle.
- There is an existing commercial septic field as part of the auction development to the east. The Subdivision and Development Regulations require a 300 metre separation between the septic field and any residential building. This is reflected in the ASP.
- There is no known natural resource development within the vicinity of the plan area which can either restrict or be impacted by the purposed residential subdivision.
- Existing grouped county residential sites are adjacent to the sites North and South boundaries. In total there are about 45 residential sites within 800 meters of the Country Crossroads Estates ASP areas.

4.5 LIFESTYLE

- This development will provide a type of residential land use that allows the residents to have full utility services and still live in a community offering a rural lifestyle.

5.0 PLAN GOALS, OBJECTIVES AND LAND USE

5.1 PLAN GOALS

The Country Crossroads Estate 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.

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

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

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 irrigation water,
- supply of potable water,
- sanitary sewage disposal,
- drainage and stormwater management,
- other related matters.

5.2 PLAN OBJECTIVES

The Country Crossroads Estate Area Structure Plan will adhere to the following objectives:

- create lots with a minimum size of 2 acres (0.81 ha),
- institute a drainage and storm water management system for the planned development,
- review alternatives for the supply of potable water and the delivery of the water to each lot,
- consider road access and circulation for the development,
- analyze the impact on traffic in the surrounding roads,
- 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 requirements.

6.0 DESIGN AND LAND USE

6.1 PROPOSED LAND USE

A total of 25 lots with a minimum size of 2 acres (0.81 ha) will be created on the proposed development which is proposed to be re-zoned as Grouped Country Residential, as shown on **Figure 4** – Land Use. This layout is preliminary and may have minor changes when the detailed design is done. Any changes to the layout or number of lot will require approval during the subdivision process.

6.2 DENSITY AND POPULATION

The housing density within the proposed development is comprised of 25 lots or 0.37 units per acre (0.93 units per ha.) of net area (*refer to* ***Figure 5 - Proposed Lot Layout*****).**

Based on an average occupancy of 3 persons per household, the population within the plan area is estimated to be approximately 75 persons.

6.3 MUNICIPAL RESERVE REQUIREMENTS

The County has indicated they do not want park land for the Municipal Reserve; rather they want cash-in-lieu for the 10% municipal reserve requirement.

6.4 ABANDONED OIL WELL SETBACK

There is an abandoned oil well near the southern site boundary with the coordinate of this shown on **Figure 5.0 – Proposed Lot Layout and Figure 7.0 – Building Setbacks.**

The minimum setback for any building or structure is 5.0 metres from the old well site.

6.5 RITCHIE BROS. COMMERCIAL SEPTIC FIELD SET BACK

The required minimum setback for any residential building to the commercial septic field is 300 meters as shown on **Figure 5.0 – Proposed Lot Layout and Figure 7.0 – Building Setbacks.**

7.0 ROADS

Access into the proposed development area will be from the paved Range Road 205 which connects to the north with Highway 4 and to the south Highway 508. A paved local road is proposed to extend east from Rge-Rd. 205 to a loop road and cul-de-sac through the site back to Rge-Rd 205 to create access for 25 residential lots (*refer to* ***Figure 5 - Proposed Lot Layout***). The loop road includes two access points to the Rge-Rd. 205. The proposed loop road and cul-de-sac turn around will be paved and will be constructed according to the Lethbridge County Standards.

Alberta Transportation has stated that a detailed Transportation Impact Assessment is required for this development. They have indicated that it is not required to have the TIA at the Area Structure Plan stage. However, prior to any subdivision of the site, a TIA must be completed to meet Alberta Transportation requirements.

The Developer will be responsible for the upgrade cost of adjacent roads if the TIA determines that upgrades are required because of this development.

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

8.2.1 GEOTECHNICAL EVALUATION FOR SEWAGE DISPOSAL

The "Geotechnical Evaluation, Proposed Rural Residential Subdivision, SW-5-8-20-W4, County of Lethbridge" report prepared by Wood, May 31, 2018 (refer to the attached **Appendix 2 - Geotechnical Evaluation**) indicates:

- Ten (10) boreholes were completed to a depth of 6.1 m, with depth to groundwater varying from 2.2 m to 3.4. Soil stratigraphy was found to have topsoil underlain by clay fill, clay, silty sand, sandy clay till, and clay till deposits.
- The groundwater depths generally satisfy the septic treatment requirements,
- The soil textures are marginally suitable for conventional septic effluent,
- The soil textures may warrant treatment mounds or secondary treatment,
- The detailed design of each septic field will determine the classification requirements.

8.2.2 ALBERTA SEWAGE SYSTEM REQUIREMENTS

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. All on- site waste water treatment and disposal systems must adhere to these regulations.

8.2.3 INDIVIDUAL LOT REQUIREMENTS

The owner or builder for each lot must use a qualified septic system designer and contractor to determine the type of septic system necessary for each lot. The type of system will be based on house design and soil conditions which vary throughout the lots.

The geotechnical study for the site indicates that a treatment mound or secondary efficient treatment may be required instead of a conventional treatment field.

8.2.4 POSSIBLE CONFLICT WITH STORM WATER DRAINAGE

No on-site septic system components shall be installed in areas designated for stormwater conveyance or detention of runoff.

8.3 STORM WATER MANAGEMENT

Stormwater within the development will be managed such that runoff will be stored and controlled on-site and then directed to the existing Tiffin Drainage channel running along the south property boundary (*refer to* ***Figure 6 – Site Drainage***). Post-development runoff will be controlled and released per the Tiffin Drain - Master Drainage Plan, Alberta Environment and Parks requirements, and the Lethbridge County Engineering Guidelines and Minimum Service Standards. Existing site topography will be utilized to minimize site grading. A brief 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 5 - Stormwater Management Plan**;

8.3.1 EXISTING CONDITION

The land generally slopes down to the southwest at an average grade of 0.5% and drains in to an existing drainage channel. A portion of the runoff from the site is trapped on site in a localized depression which spills in to the drainage channel. The drainage channel (R/W plan 821 0212) flows west and north through farmland and discharges to Sixmile Coulee and in to the Oldman River at the City of Lethbridge.

8.3.2 DRAINAGE CONCEPT

- The stormwater management concept is outlined in the attached Stormwater Management Plan, *Refer to* ***Appendix 5 – Storm Water Management Plan.***
- Runoff from the site will drain to a storm water detention pond to retain water on site and will then be released at the designated rate (Tiffin Drain – Master Drainage Plan, Lethbridge County) through a controlled outlet in to the existing Tiffin drainage channel, which flows down to the Oldman River,
- The proposed storm water detention pond is designed to accommodate the runoff from a storm event up to a 100 year storm,
- Runoff will be directed to the storm water detention pond through individual lot swales and a system of drainage ditches or dry ponds along the boundaries of some lots. Storm drainage will then flow through ditches located in the road right of ways to the storm pond. The conveyance concept is outlined on **Figure 6 – Site Drainage**.
- All of the designated drainage conveyance routes and storage facilities within the plan area will be protected by caveat, easements, or right-of-way as required.
- Currently we are planning that the storm water detention pond will be a wet pond with a normal water level being maintained with irrigation water. The pond design may change to a dry pond during detailed design.

8.3.3 SITE GRADING

The subdivision will be graded to be consistent with the overall Stormwater Management Plan as shown on **Figure 6 - Site Drainage**. Individual lots will be graded, by the Lot Owner, such that all surface runoff will be directed to perimeter swales and ditches, designed to carry the runoff into the stormwater detention facilities. Drainage ditches will be graded by the Developer.

Design grades with corner elevations for all lots will be provided to the County prior to subdivision. Elevations for individual lots will be provided to lot owners.

As built lot elevations must be checked and approved by the Consultant to ensure compliance with design grades.

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 advised that there be will no problems supplying gas to this development.

8.4.3 Telecommunications/Cable Service

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

8.4.4 Solid waste management

Individual solid waste will be disposed of at local transfer stations for the development unless a municipal fee-for-service is available.

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 or possibly as a source of grey water for each lot. This irrigation water will be supplied by SMRID either directly from the canal turn out or through an irrigation storage pond. Any irrigation water storage pond will be separate from the storm water management pond. The water will be supplied through a communal pipeline system with lateral connections supplying each lot.

8.5.2 Water Supply and Storage

Water for fire protection will be supplied through either this irrigation water storage pond or the storm water management pond, which will have its level maintained with irrigation water supplied by SMRID. This irrigation water supply system will require approval for SMIRD.

8.5.3 Operation of System

A homeowner's association will be formed to own and operate the irrigation system within the development. The irrigation piping will be installed in an easement through the lots in favor of the homeowner's association. '

9.0 PROTECTIVE SERVICES

9.1 FIRE PROTECTION

The Coaldale Fire Department is the responding fire station and is located approximately 18 km from the plan area. Additional support, when needed, will be from the City of Lethbridge fire department. Fire Station #3 (2614 16 Ave. South) is approximately 13 minutes from the plan area

A dry hydrant will be installed at the irrigation water storage pond to provide an on-site water supply.

9.2 POLICE PROTECTION

Policing in the development area is provided by the R.C.M.P. which has a detachment located in the Town of Coaldale, which is approximately 20 kilometers from the plan area.

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.
- Roadway signage including culvert markers.

11.0 ARCHITECTURAL CONTROLS

11.1 Purpose Of Controls

The developer of County Crossroad Estates will establish a set of aarchitectural controls in order to achieve standards and development limitations throughout the area. These architectural controls will be administered by the Developer.

11.2 Typical Items Included In Controls

Typically the controls that will be in effect within County Crossroads Estate will include the following:

- Minimum dwelling unit area and site coverage (building footprint),
- Diversity in home design,
- Incorporation of energy efficiency features,
- Roof pitch & materials,
- Exterior finishing materials,
- Fencing materials,
- Minimum landscaping requirements in which xeriscaping will be considered,
- Hobby farm animals such as horses,
- Accessory building.
- Backfill requirements for the old irrigation canal
- Building and lot drainage requirements
- Sanitary Sewage Disposal

11.3 Site Specific Building Restriction

11.3.1 Building on The Old Irrigation Canal

The Architectural Controls will also contain a sketch depicting the old irrigation canal that has been backfilled and the existing dugout that will be backfilled. (Refer to **Figure 8 – Footprint of Old Canal and Dugout** by the Old Irrigation Canal)

It's not known if these areas were backfilled and compacted properly. Therefore, the Architectural Controls will have a requirement that the portion of any building or structure falling within the footprint of the old canal or dugout must have that portion excavated and back filled to 98% Standard Proctor density. This backfill must be done under the supervision of a geotechnical engineer.

11.3.2 Building Near the Abandoned Oil Well

The Architectural Controls will also depict the location of the abandon oil well which is near the south boundary. Refer to **Figure 5 - Proposed Lot Layout** and **Figure 7 – Building Setbacks.**

Provincial regulations require that there be no structures built within 5.0 metres of the abandoned well. Therefore a caveat will be filed on any lot or portion of a lot within 5 meters of the well location. The Architectural Controls will also identify this setback requirement.

11.3.3 Sanitary Sewage Disposal

The Architectural Controls will require the lot owner to use a qualified designer to undertake a soils evaluation and design the sewage disposal system. The soil is marginally acceptable for a conventional treatment field and alternative methods of treatment may have to be employed.

12.0 IMPLEMENTATION AND DEVELOPMENT CONTROL

- This Area Structure Plan will become a Bylaw of Lethbridge County.
- The Land Use Bylaw must be amended to represent this ASP.
- 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.
- The developer of Country Crossroads Estate subdivision will establish a level of architectural standards and development limitations in order to achieve the desired results within the proposed subdivision. These standards and limitations are beyond the normal statutory requirements of Lethbridge County and will thus be administered by either the Developers or agents acting on their behalf and within their legal authority.
- The owners of any lot falling within the old footprint of the irrigation canal or dugout will receive notification with respect to the old irrigation canal at the time of purchase. This notification will advise that any portion of a building or structure falling within this area must be excavated and backfilled with compaction to 98% standard provided density. Further the notification will advise that this work must be undertaken under the supervision of a geotechnical engineer.
- Lethbridge County may utilize other bylaws and policies that will regulate aspects of activity within the boundaries of the Area Structure Plan.

13.0 PHASING

This development will be constructed in phases.

The first phase will be about 6 to 10 lots built along the southerly site access road. During this phase the road fronting these lots and the storm water management wet pond and the irrigation water storage pond will be constructed. Irrigation and potable water, as well as shallow utilities will also be made available to each lot.

Future phases will be developed in groups of lots as consumer demand for the lots dictates.

14.0 ADJACENT LANDOWNER CONSULTATION AND OTHER CORRESPONDENCE

14.1 Notice Sent To Adjacent Owners

A letter and drawings were hand delivered to residences in immediate vicinity of the ASP. (See **Appendix 6 – Adjacent Owner Consultation)**

14.2 Neighborhood Comments

One letter outlining concerns was received from John & Laura Prins.

14.3 Other Correspondence

- Letter from John & Laura Prins
- Receipt for the down payment to the County of Lethbridge Rural Water Association for 27 water units
- Maps from SMRID showing irrigable land and the current irrigation turnout for the ASP site.
- Telus map
- Triple W Natural Gas Co-op map

15.0 MARKET DEMAND

The County's Group Residential strategy requires that a market demand study be included with the ASP. Consultation with land appraisers and realtors has determined that a market demand study in a rural residential development setting is difficult to undertake.

Regardless, 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 24 lots, the developers of Country Crossroad Estates 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 owners have about 5 buyers that are interested in purchasing now. As such his plan is to service all 5 to 10 lots right away. 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.

CLOSURE

We are pleased to present to you the Crossroads Country Estates Area Structure Plan.

We trust this meets your requirements. Please contact the undersigned if you have any questions or comments.

Respectfully submitted February 1, 2023.

PROFESSIONAL ENGINEER E. I. MARTIN ALBERTA

Feb 7/23

Prepare by
Ed Martin, P.Eng.

PROFESSIONAL ENGINEER RAY E. MARTIN ALBERTA

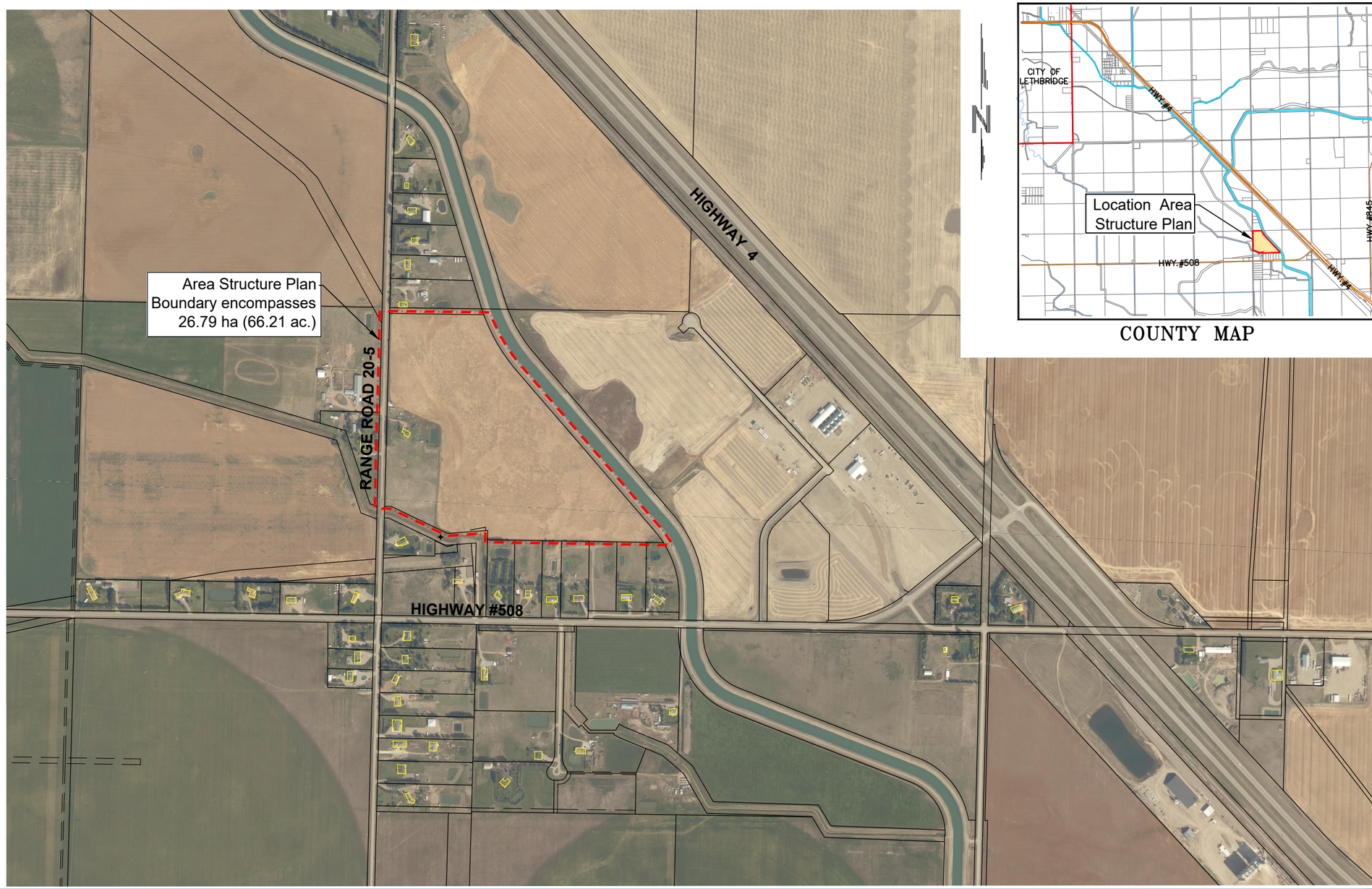
2023-02-07

Reviewed by
Ray Martin, P.Eng.

PERMIT TO PRACTICE
Martin Geomatic Consultants Ltd.
Signature:
Date: 2023-02-07
PERMIT NUMBER: P 5852
The Association of Professional Engineers and Geoscientists of Alberta

FIGURES

1. Location Plan
2. Land Ownership Map
3. Existing Site
4. Land Use
5. Proposed Lot Layout
6. Site Drainage
7. Building Setbacks
8. Lots Affected By Old Irrigation Canal & Dugout



Country Crossroads Estate

AREA STRUCTURE PLAN

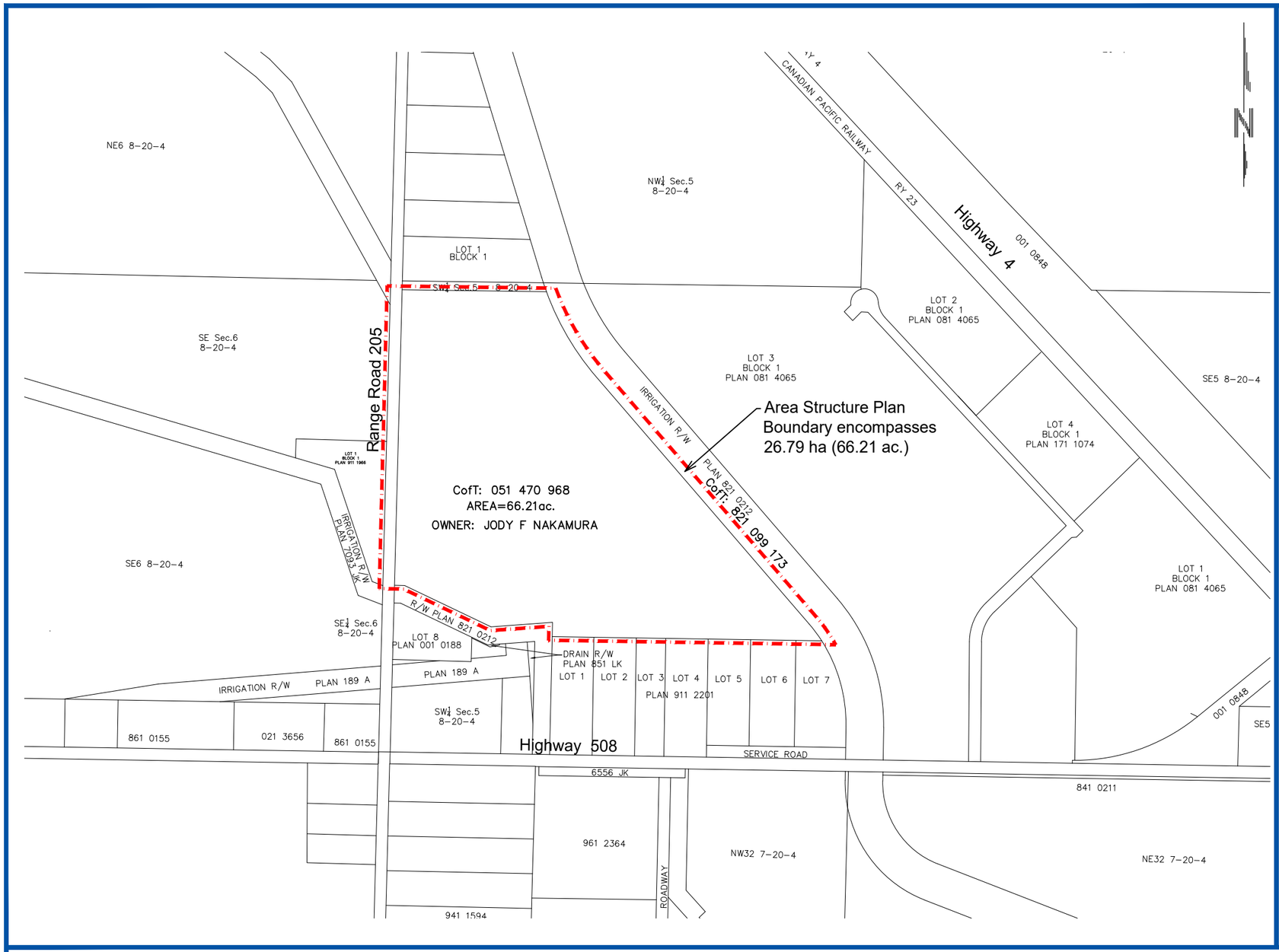
Feb 06, 2023

LOCATION PLAN

FIGURE 1.0

082154CE

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



Country Crossroads Estate

AREA STRUCTURE PLAN
Feb 06, 2023

LAND OWNERSHIP MAP
FIGURE 2.0

082154CE

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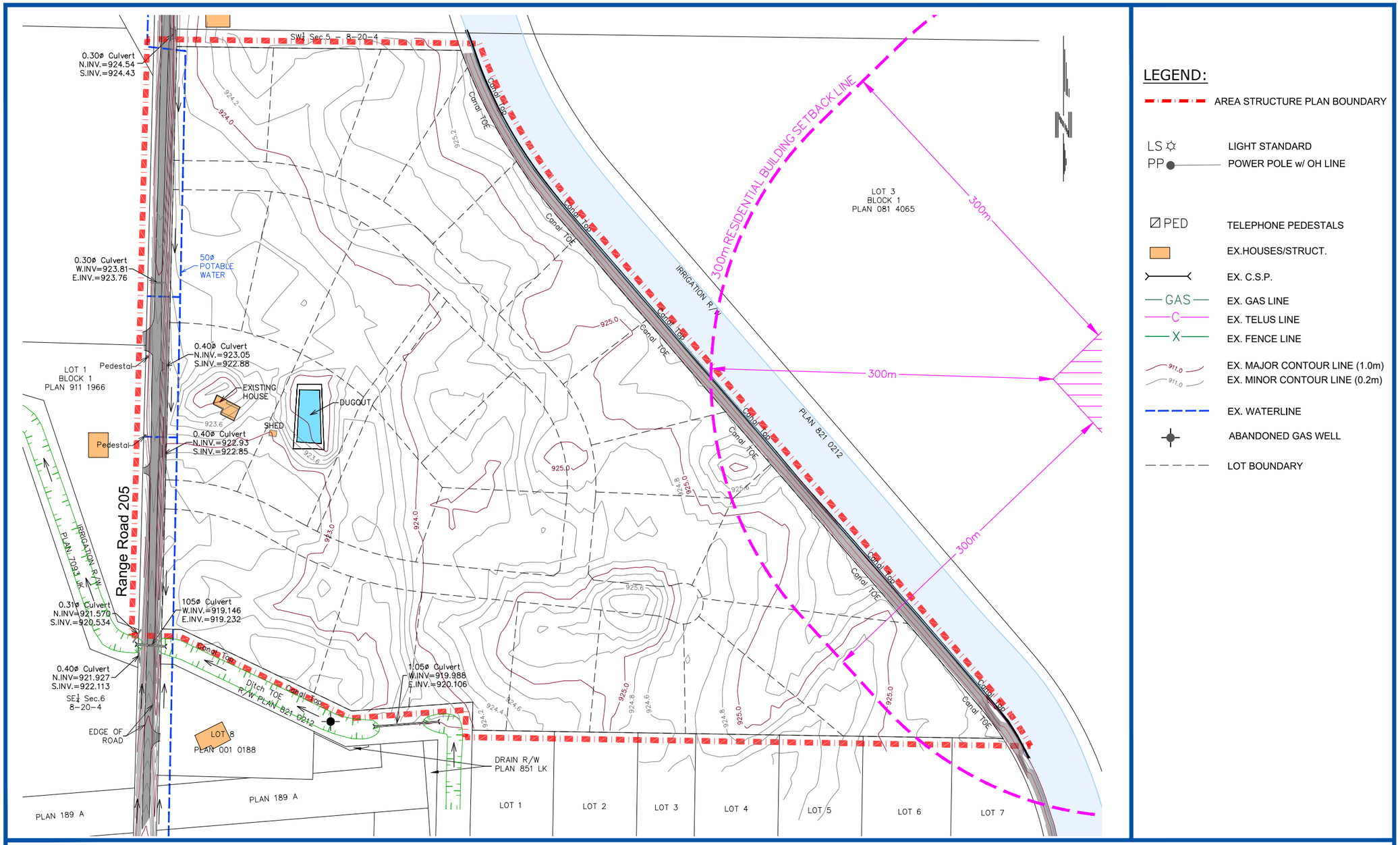
GEOMATIC CONSULTANTS
Consulting Engineers, Planners, and Land Surveyors
255-31st Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594



LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- LS — LIGHT STANDARD
- PP — POWER POLE w/ OH LINE
- PED — TELEPHONE PEDESTALS
- EX.HOUSES/STRUCT.
- EX. C.S.P.
- GAS — EX. GAS LINE
- C — EX. TELUS LINE
- X — EX. FENCE LINE
- 911.0 — EX. MAJOR CONTOUR LINE (1.0m)
- 911.0 — EX. MINOR CONTOUR LINE (0.2m)
- EX. WATERLINE
- ABANDONED GAS WELL
- LOT BOUNDARY

Country Crossroads Estate

AREA STRUCTURE PLAN

Feb 06, 2023

EXISTING SITE
FIGURE 3.0

082154CE

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

LEGEND:

AREA STRUCTURE PLAN BOUNDARY

EXISTING: BUSINESS LIGHT INDUSTRIAL (BLI)

EXISTING: RURAL GENERAL INDUSTRIAL (RLI)

EXISTING: GROUPED COUNTRY RESIDENTIAL (GCR)

EXISTING: RURAL AGRICULTURE (RA)

FROM: RURAL AGRICULTURE (RA)
TO: GROUPED COUNTRY RESIDENTIAL (GCR)

Country Crossroads Estate

AREA STRUCTURE PLAN
Feb 06, 2023

LAND USE
FIGURE 4.0

082154CE

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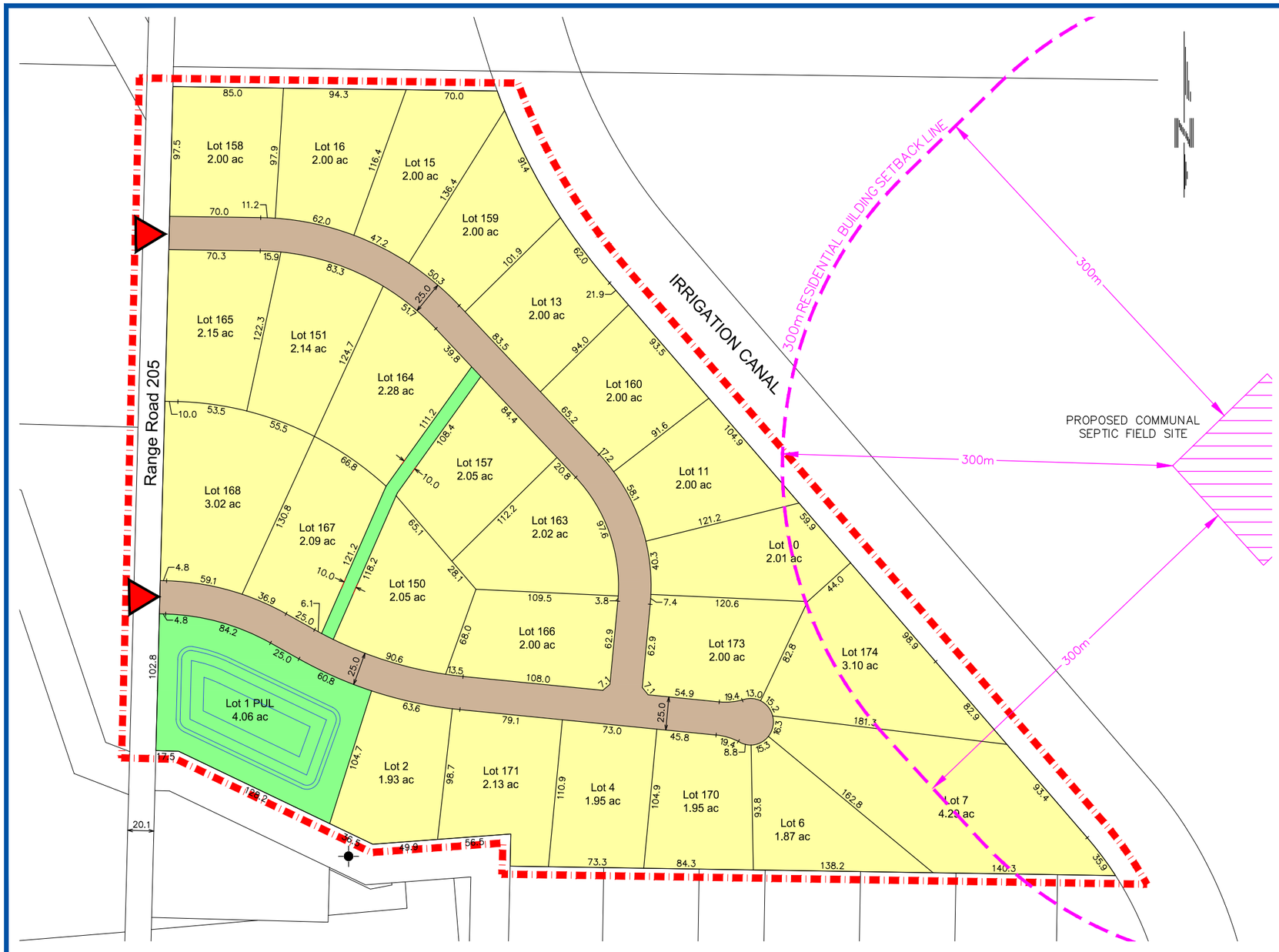
GEOMATIC CONSULTANTS
Consulting Engineers, Planners, and Land Surveyors
255-31st Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594



LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- SUBDIVISION ENTRANCE

NOTE:
LOT LINE ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL LOT LAYOUT WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

AREA STRUCTURE PLAN
Feb 06, 2023

PROPOSED LOT LAYOUT
FIGURE 5.0

082154CE

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

LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- SUBDIVISION ENTRANCE
- DRAINAGE DITCH FLOW
- LOT DRAINAGE ARROWS
- LOT DRAIN DITCH (SEE DETAIL 'B')
- PROPOSED CULVERT
- 25.39 BOD + BOTTOM OF DITCH ELEVATION
- 25.39+ CENTERLINE OF ROAD ELEVATION
- HP HIGH POINT
- LP LOW POINT
- OUTFALL

NOTE:
DRAINAGE & ELEVATIONS ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY AND WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

AREA STRUCTURE PLAN
Feb 06, 2023

SITE DRAINAGE
FIGURE 6.0

082154CE

MARTIN GEOMATIC CONSULTANTS
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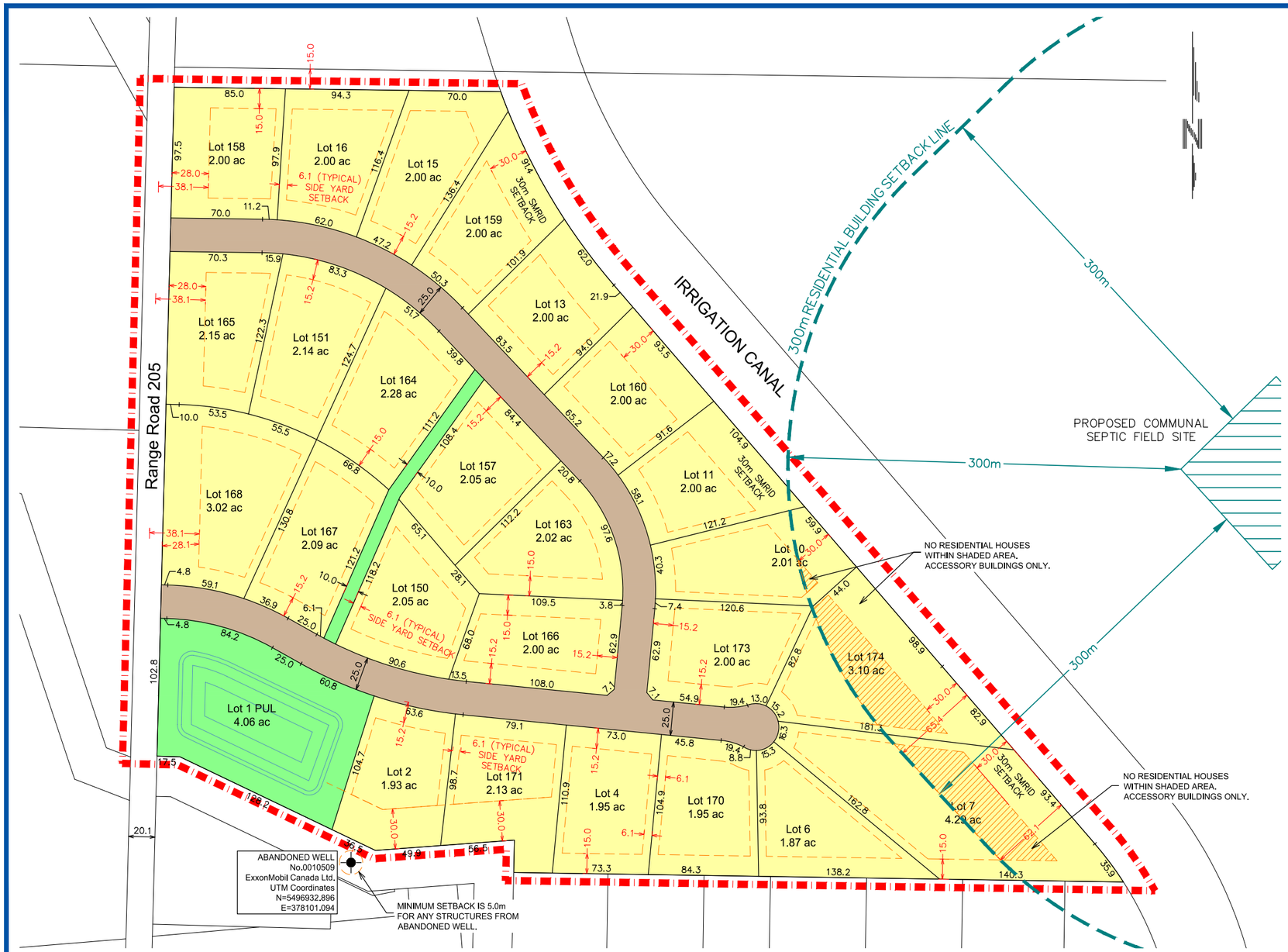

LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- ABANDONED WELL SITE. NO STRUCTURES ALLOWED WITHIN 5.0m
- BUILDING SETBACK
- NO RESIDENTIAL HOUSES WITH SHARED AREA. ONLY ACCESSORY BUILDING PERMITTED.

NOTE:

LOT LINES ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL LOT LAYOUT WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

AREA STRUCTURE PLAN

Feb 06, 2023

BUILDING SETBACKS

FIGURE 7.0

082154CE

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

1. ALL BUILDINGS AND STRUCTURES FALLING WITHIN THE FOOTPRINT OF THE OLD IRRIGATION CANAL OR DUGOUT (AS IDENTIFIED IN THIS SKETCH) MUST HAVE THAT PORTION OF THE BUILDING OR STRUCTURE EXCAVATED TO NATURAL GROUND AND THEN BACKFILLED TO 98% STANDARD PROCTOR DENSITY .
2. ALL WORK SHALL BE DONE UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.

LEGEND:

AREA STRUCTURE PLAN BOUNDARY

APPROXIMATE LOCATION OF EXITING CANAL.
ACTUAL DISTURBED BOUNDARIES MUST BE DETERMINED IN THE FIELD DURING EXCAVATION.

NOTE:
LOT LINE ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL LOT LAYOUT WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

AREA STRUCTURE PLAN
Feb 06, 2023

LOTS AFFECTED BY OLD IRRIGATION CANAL & DUGOUT
FIGURE 8.0

082154CE

MARTIN
GEOMATIC CONSULTANTS
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255-31st Street North Lethbridge, Alberta T1H 3Z4
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APPENDICES

1. Property Ownership Titles
2. Geotechnical Evaluation
3. Environmental Site Assessment
4. Correspondence
   a. Letter To Adjacent Landowners
   b. Neighborhood Comments
   c. Receipt From Water Coop For 27 Water Units
   d. Telus Map
   e. SMRID Maps
   f. Triple W Gas Co-op Map
5. Stormwater Management Plan

APPENDIX 1

PROPERTY OWNERSHIP TITLES

Certificate of Title		Landowner
C of T #051 470 968	-	Jody Nakamura

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0020 144 473	4;20;8;5;SW	051 470 968

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 20 TOWNSHIP 8
SECTION 5
THAT PORTION OF THE SOUTH WEST QUARTER LYING TO THE
WEST OF THE 65 METRE CANAL RIGHT OF WAY AND LYING
NORTH OF THE SOUTH HALVES OF LEGAL SUBDIVISIONS 3
AND 4, AND LYING TO THE NORTH OF THE 30 METRE CANAL
RIGHT OF WAY ON PLAN 8210212
CONTAINING 27 HECTARES (66.8 ACRES) MORE OR LESS
EXCEPTING THEREOUT:
THE NORTH 15 METRES CONTAINING 0.37 OF A HECTARE MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: COUNTY OF LETHBRIDGE

REFERENCE NUMBER: 941 226 700

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
051 470 968	10/12/2005	TRANSFER OF LAND	$414,000	$414,000

OWNERS

JODY F NAKAMURA
OF 4611-50 AVE
TABER
ALBERTA T1G 1G3

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
1485KX .	21/06/1971	IRRIGATION ORDER/NOTICE THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT
3432U .		RESTRICTIVE COVENANT
3903EM .	24/10/1934	CAVEAT CAVEATOR - ALBERTA RAILWAY AND IRRIGATION CO..
941 261 421	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
941 261 422	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
051 470 969	10/12/2005	MORTGAGE MORTGAGEE - THE TORONTO DOMINION BANK. 300,10004 JASPER AVE EDMONTON ALBERTA T5J1R3 ORIGINAL PRINCIPAL AMOUNT: $250,000

TOTAL INSTRUMENTS: 006

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 14 DAY OF MAY, 2010 AT 09:51 A.M.

ORDER NUMBER:16529001

CUSTOMER FILE NUMBER: 082154

END OF CERTIFICATE

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APPENDIX 2

GEOTECHNICAL EVALUATION

Wood - Geotechnical Investigation dated May 31, 2018

469 – 40 Street S
Lethbridge, Alberta T1J 4M1
T: +1 403 327-7474
F: +1 403 327-7682
www.woodplc.com

May 31, 2018
Wood File: BX30531

Ed Martin, P. Eng.
Martin Geomatic Consultants Ltd.
255 31 Street North
Lethbridge, Alberta T1H 3Z4

Dear Mr. Martin:

Re: GEOTECHNICAL INVESTIGATION
Proposed Rural Residential Subdivision
SW-5-8-20-W4, County of Lethbridge

1.0 INTRODUCTION

At the request of Martin Geomatic Consultants Ltd., (Martin Geomatics), Wood Environment & Infrastructure Solutions (Wood) has carried out a geotechnical investigation for the above-captioned project.

Based on information provided to Wood, it is understood that the development of a rural residential subdivision is being proposed at the above-captioned location, complete with site servicing, paved streets, and a storm-water management pond.

This report summarizes the results of the current geotechnical investigation, and provides geotechnical discussion and recommendations to support the proposed development.

2.0 GEOTECHNICAL INVESTIGATION – METHODOLOGY AND RESULTS

2.1 Methodology

In order to assess the subsurface soil and groundwater conditions at the subject site, Wood visited the site on May 4, 2018 and monitored the drilling of a series of ten boreholes at the locations denoted on Figure 1 as BH18-01 to BH18-10, inclusive. The boreholes were generally laterally distributed across the proposed development area, with BH18-10 advanced near the proposed storm pond. In addition, boreholes BH18-01 and BH18-05 were advanced within a former irrigation canal right of way to assess depth of fill.

The boreholes were advanced using a truck-mounted drill equipped with continuous flight solid stem augers. The boreholes were terminated at depths ranging between about 5.0 m and 6.1 m below grade.

During the drilling, disturbed soil samples were collected from the auger flights. In addition, Standard Penetration Tests (SPTs) were also carried out at regular intervals to assess the soil consistency/ compactness, and to obtain representative samples for identification.

Upon completion of the drilling, 25 mm diameter hand-slotted standpipes were installed in boreholes BH18-01, BH18-03, BH18-05, BH18-07, and BH18-10. The annular space was backfilled with drill cuttings, with a bentonite cap at the surface. The remaining boreholes were backfilled with the auger cuttings.

The drilling was carried out under the supervision of a Wood representative, who collected the soil samples and logged the subsurface conditions. The recovered soil samples were transported to Wood's Lethbridge laboratory for further review by a geotechnical engineer and selected laboratory classification testing. Laboratory testing for this project consisted of routine moisture content determinations and Atterberg Limits testing, with results presented on the appended borehole logs and summarized in the following paragraphs.

Samples remaining will be stored for a period of three months following this report at which time they will be discarded unless we are requested otherwise by the Client.

2.2 Soil and Groundwater Conditions

The subsurface conditions encountered are detailed on the attached borehole logs and summarized in the following paragraphs. It must be noted that boundaries of soil indicated on the borehole logs are inferred from non-contiguous sampling and observations during drilling. These boundaries are intended to reflect transition zones for the purposes of geotechnical design, and should not be interpreted as exact planes of geological change.

The boreholes were each surfaced with a 100 mm to 150 mm thick layer of topsoil.

Underlying the topsoil, layers of clay fill were encountered in boreholes BH18-01, BH18-04, and BH18-05. The clay fill extended to depths of 1.5 m and 1.0 m below grade at BH18-01 and BH18-05, respectively. The clay fill was generally described as low to medium plastic, silty and sandy with trace fibrous organics, trace red shale, organic staining, light brown to dark brown, and moist.

The predominant natural mineral soil encountered within the boreholes was clay, becoming clay till at depth. The clay and clay till were generally described as low to medium plastic, silty and sandy with trace gravel, coal and oxide inclusions, light brown to dark brown, and soft to very stiff (based on observed drill resistance, tactile observations, and SPT N-values ranging between about 4 and 22 blows per 300 mm of sampler penetration. Based on laboratory testing, the *in situ* water content of the clay and clay till ranged between about 9 percent and 21 percent, generally indicative of damp to moist soil conditions. Fissuring of the near surface clay and clay till was also observed in several boreholes.

Layers of silty sand were encountered in boreholes BH18-02 and BH18-10. The silty sand was generally described as fine to coarse grained, trace to some clay with trace gravel, coal and oxide inclusions, brown, and damp to moist.

The results of Atterberg Limits testing carried out on three representative samples of the clay are provided on the borehole logs, and detailed in the following table. The results of the Atterberg Limits testing indicated that the clay is of low to medium plasticity.

Table 1: Atterberg Limits

Borehole / Sample No.	Liquid Limit, w_L	Plasticity Index, I_P	Moisture Content, w
BH18-01/S4	34%	17%	16.5%
BH18-05/S6	31%	16%	15.0%
BH18-10/S8	36%	17%	16.3%

No free groundwater or seepage was encountered at the borehole locations. As indicated previously, standpipes were installed in selected boreholes upon completion of the drilling; however, the standpipes had been destroyed prior to measurement of the depth to groundwater at those locations. While groundwater depths are indicated on the borehole logs, those depths are inferred from observations of the soil profile during drilling, and the results of the laboratory testing. As indicated on the borehole logs, these inferred depths ranged between depths of about 2. 2 m and 3.4 m below existing grades.

It is further noted that groundwater conditions are expected to fluctuate seasonally in response to spring thaw and periods of heavy precipitation, and may differ at the time of construction.

3.0 GEOTECHNICAL DISCUSSION AND RECOMMENDATIONS

3.1 General

As indicated in Section 1.0, it is understood that the subject site will be developed into about 23 residential building lots, complete with site servicing, paved streets, and a storm-water management pond in Lot 13.

Based on a historical records and air photo review, the site has previously been traversed by an irrigation canal, as illustrated on Figure 1. It is noted that there may be extensive fill and pockets of soft soils related to the historical canal. Boreholes BH18-01 and BH18-05 were advanced in the area of the historical canal, and the results of drilling indicated up to 1.5 m of fill soils, with marginally soft conditions below the fill. Accordingly, full subgrade reconstruction within proposed building footprints would be required where the proposed building footprint encroaches onto the former canal alignment. The affected building lots include Lots 1, 12, 13, 16, 17, 22, 24, and 25. Similarly, there is an existing dugout at Lot 16 which will also require subgrade reconstruction prior to lot development. Further discussion pertaining to subgrade reconstruction is provided in Section 3.2.

Based on our understanding of the proposed development as discussed above, in conjunction with the results of the current investigation, the following paragraphs provide geotechnical discussion and recommendations pertaining to excavations, site grading, site servicing, storm-water management pond construction, and pavement construction, with preliminary discussion and recommendations addressing residential construction and onsite sanitary sewage disposal.

3.2 Excavations, Site Grading, and Dewatering

All excavations should conform to Part 32 of the Alberta Occupational Health and Safety Code.

Prior to placement of any fill, site stripping will be required. As indicated in Section 2.2, topsoil thicknesses ranging between 100 mm to 150 mm were encountered at the borehole locations. As indicated previously, clay fill soils were encountered to depths of up to about 1.5 m in the area of the former irrigation canal. For roadway areas, this fill should also be fully excavated as part of the site stripping. It is noted that actual fill thicknesses in the area of the former canal, or in other areas of the site between boreholes, may be in excess of the 1.5 m indicated at borehole BH18-01.

It is further recommended that as part of the rough site/subdivision grading, that all fill associated with the former canal also be sub-excavated and the subgrade reconstructed. This would minimize the potential for foundation bearing problems at the time of residential lot development as a result of less than adequate construction control of the subgrade reconstruction in the area of the canal.

Prior to placement of structural fill at the site, the exposed subgrade should be reviewed by the geotechnical engineer to confirm adequacy of the site striping, and be proof-rolled. Any loose or soft zones noted during the inspection should be further assessed by the geotechnical engineer for appropriate remedial action.

The material used for structural fill that will support footings, slabs, or roadways should comprise of approved fine-grained material or imported granular material. The native clay and clay till soils are generally acceptable for use as structural fill, provided the material is free of organics and/or otherwise deleterious materials, and is inspected by a geotechnical engineer prior to placement. Structural fill that will support foundation elements should be placed in maximum 200 mm thick lifts, moisture conditioned as required and uniformly compacted to 100 percent Standard Proctor Maximum Dry Density (SPMDD) at a moisture content within about three percent of optimum. Any structural fill should also extend laterally beyond the edges of foundation elements a minimum distance equal to the thickness of fill beneath the foundation or slab. Structural fill that will support slabs or roadways should be compacted to a minimum of 98 percent of SPMDD, as a moisture content within three percent of optimum. In situ compaction testing should be carried out during the fill placement to ensure that the specified compaction is being achieved.

During rough grading, positive site grading should be maintained at all times in order to minimize the potential for water ponding at the site.

As indicated in Section 2.2, the boreholes were open and dry on completion, with the inferred groundwater table below 2 m below grade. Accordingly, excessive groundwater seepage into conventional foundation and buried utility excavations is not anticipated at this site. Minor groundwater accumulations, where encountered, can likely be removed with conventional sump pumping techniques.

3.3 Buried Services and Trench Backfill

Where spatial restrictions do not allow for the required safe trench sideslope inclinations, conventional shoring (i.e., trench boxes) can be considered. For shoring design, the following parameters can be used for the soils encountered at the site:

Table 2: Parameters for Shoring Design

Parameter	Native Clay and Clay Till
Total Unit Weight, y, kN/m^3	18.5 kN/m^3
Active Earth Pressure Coefficient, k_a	0.40

The weight of the adjacent structures must also be considered in the calculation of the lateral earth pressures where these structures fall within a line drawn up at 45° from the base of the excavations. Where trench boxes or shoring are used, adjacent structures should be inspected prior to and following construction to ensure damage has not occurred to the foundations.

For frost protection, it is recommended that a minimum of 2.1 m of soil cover be provided above watermains and sanitary sewer pipes.

Bearing problems are not anticipated for pipes founded on the natural soil deposits. It is noted that the trench bases, where left open for extended periods, will likely be susceptible to softening and loosening in the presence of weather and/or construction traffic. Accordingly, short sections should be worked at a time, and backfilling should follow relatively closely behind the pipe installation. Excavating or trenching should be done so that the slope of the walls is adequate for above mentioned soils and conforms to Part 32 of the 2009 Alberta Occupational Health and Safety Code.

The pipeline excavations should be reviewed by a qualified geotechnical engineer to confirm that the bearing soils exposed are as anticipated in design. Loose or disturbed materials should be removed from the pipeline excavation prior to placement of pipes, and hand cleaning may be required to prepare an acceptable bearing surface. Accordingly, the pipeline subgrade should be protected at all times from rain, snow, freezing temperatures and the ingress of free water.

The bedding course may be thickened if portions of the subgrade become unduly wet during excavation. The bedding aggregate should be provided around the pipe to at least 300 mm above the pipe. The bedding aggregate should be compacted to a minimum 95 percent of Standard Proctor Maximum Dry Density (SPMDD). In wet zones, the incorporation of geotextile and uniformly graded, clear, crushed stone can be considered.

The trenches above the service pipes should be backfilled with inorganic on-site soils placed in maximum 300 mm thick lifts and compacted to at least 98 percent of SPMDD. The natural on site excavated soil can be generally used as trench backfill, provided the material is conditioned to or within three percent of the optimum moisture content as determined by the Standard Proctor test. As the near surface soils were relatively dry, moisture conditioning of the soils should be anticipated.

3.4 Concrete Mix Considerations

In general, the natural mineral soil deposits and groundwater in the Lethbridge area contain high levels of water soluble sulphates, indicating severe potential for sulphate attack on concrete in contact with native mineral soil deposits (CSA Class S-2 exposure). Accordingly, sulphate resisting cement (i.e., Type HS or HSb) should be used in the manufacture of concrete in contact with soil at this site. A minimum 56 day compressive strength of 32 MPa and a maximum water/cement ratio of 0.45 should also be specified.

An air entrainment agent is recommended for concrete exposed to cyclic freeze-thaw action. In addition to the improved durability, the air entraining will provide improved workability of the plastic concrete.

3.5 Curbs and Sidewalks

The concrete for the curbs and gutters should be proportioned, mixed, placed and cured in accordance with City of Lethbridge specifications. During cold weather, the freshly placed concrete should be covered with insulating blankets, or hoarded and heated, to protect against freezing.

The subgrade for the sidewalks should comprise of undisturbed native soil or well-compacted fill. A minimum 150 mm thick layer of compacted (minimum 98 percent SPMDD) granular material meeting the City of Lethbridge gradation specification for GBC should be placed below the sidewalk slabs.

3.6 Pavement Construction

Recommendations for site preparation are provided in Section 3.2.

Subgrade preparation of all pavement areas will be required prior to placement of the pavement structure. This should include scarification to a depth of 150 mm, moisture conditioning to within three percent of optimum, and recompaction to a minimum of 98 percent of SPMDD. Any loose or soft zones noted during the inspection should be further assessed by the geotechnical engineer for appropriate remedial action.

Silty sand and sandy clay soils were noted in some areas of the site, accordingly there is a risk of subgrade dilatency and deterioration particularly under construction wheel loading, particularly during unfavourable weather conditions. The risk of subgrade deterioration can generally be reduced by minimizing heavy wheel loads on the exposed subgrade. Where subgrade deterioration by dilatant conditions occurs, the subgrade can typically be stabilized by sub-excavation and granular base thickening, as well as the incorporation of geotextiles and grid into the pavement structure. Wood can provide further support in this regard, as required.

Provided the preceding recommendations are followed, the pavement thickness design requirements given in the following table are recommended for the anticipated traffic loading and subgrade conditions.

Table 3: Recommended Pavement Structure Thicknesses for Pavement Areas

Pavement Layer	Compaction Requirements	Light Duty Residential Structure Thicknesses
Asphaltic Concrete	97% Marshall Density	90 mm Type 3[1]
Granular Base Course[1] (GBC)	100% SPMDD	200 mm
*Notes: 1) City of Lethbridge Specification 2) The subgrade must be compacted to 98% SPMDD. 3) The above recommendations are minimum requirements		

The recommended pavement structures provided in the above table are based on the natural subgrade soil properties determined from visual examination and textural classification of the soil samples. Consequently, the recommended pavement structures should be considered for preliminary design purposes only, and should be verified during construction based on actual site subgrade conditions. The subgrade for asphalt and gravel surfaced areas should be proof-rolled to check for excessive deflection, soft or loose areas prior to placing base or subbase gravel. Any deficient areas should be remediated with use of additional gravel or possibly with geogrid. Details of the remediation measures are best determined during construction when subgrade conditions are exposed and evident.

If construction is undertaken under adverse weather conditions (i.e., wet or freezing conditions) subgrade preparation and granular base requirements should be reviewed by the geotechnical engineer. As well, if only a portion of the pavement will be in place during construction, the granular base may have to be thickened, and the subgrade improved with a geotextile separator, in order to withstand the conditions imposed by construction traffic.

Samples of both the aggregates and asphaltic concrete paving materials should be checked for conformance to the City Lethbridge specifications prior to use on site, and during construction.

Good drainage provisions will optimize pavement performance. The pavement subgrade and the finished surface should be free of depressions and should be sloped (preferably at a minimum grade of two percent) to provide effective surface drainage toward catch basins. Surface water should not be allowed to pond adjacent to the outside edges of pavement areas.

A program of in situ density testing must be carried out to verify that satisfactory levels of compaction are being achieved.

For detailed pavement design, specific geotechnical investigation will be required. Further, the traffic loading requirements and desired functional design life of the pavement should also be taken into consideration for detailed design.

3.7 Storm Water Management

Based on information provided by the client, it is understood that a Storm-Water Management (SWM) Pond will also be constructed as part of the current development. The SWM Pond will generally be located within proposed Lot 13, near borehole location BH18-10.

Based on the results of the current investigation, it is anticipated that the base of the proposed pond would be set into the natural clay till stratum. It is noted that the inferred groundwater table was estimated to be about 3.4 m below existing grade at the proposed pond location.

Given the soil conditions at the proposed pond location, the base of the pond should be set no deeper than about 3.0 m below existing grades. Full lining of the SWM Pond will be required, either using compacted clay or a synthetic membrane such as high density polyethylene (HDPE).

To support the design and construction of the SWM Pond, the following discussion and recommendations are offered:

- The design and construction of the storm water detention pond should conform to the latest edition of the Alberta Environmental Protection 'Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems'.
- The interior side slopes of the pond should be sloped with a maximum gradient of 3 horizontal to 1 vertical (i.e., 3H:1V). The exterior side slopes of the pond embankments should be sloped at a maximum gradient of 4H:1V. The top of the embankment should have a minimum width of 3 m to provide suitable width for maintenance vehicles.
- The natural soils are generally considered suitable for the construction of the perimeter berms. Prior to placement of berms, the footprint of the berms should be stripped of any topsoil, organics and/or otherwise deleterious material, and the exposed subgrade should be approved by geotechnical engineer. The stripped subgrade that will support the new berms should be scarified to a depth of 150 mm, moisture conditioned and recompacted to minimum 98 percent of Standard Proctor Maximum Dry Density (SPMDD) prior to placing fill for the lagoon berms. The initial lift of fill should be worked and compacted to 'knit' the prepared subgrade and overlying fill into a relatively homogeneous mass. The berm fill material should placed in maximum 150 mm thick lifts and compacted to a minimum of 98 percent of SPMDD at a moisture content within three percent of optimum (as determined by standard Proctor testing).
- For a clay liner solution, a clay liner with a minimum thickness of 0.6 m should be provided across the pond base, and a clay liner with a minimum thickness of 0.75 m should be provided along the pond sideslopes. The material proposed for use for the clay liner should have a permeability in the order of 10^{-8} m/s, and be approved by a geotechnical engineer prior to use. The approved clay material should be placed in maximum 150 mm thick lifts and compacted to a minimum of 98 percent of SPMDD at a moisture content ranging between optimum and three percent above optimum (as determined by standard Proctor testing).

- To reduce potential for drying and shrinkage cracking of the liner, it is recommended that an additional earth cover of 0.3 m thickness be placed above the liner as a protective layer. The protective layer should be compacted to minimum 95 percent of SPMDD.

- Following construction of the liner, the side slopes of the pond above the normal water level as well as the exterior side slopes should be dressed with a 150 mm thick layer of topsoil, and seeded with deep-root grass species native to the area to minimize the potential for erosion of the pond sideslopes.

- Clay collars should be provided at inlet/outlets of pipes connected to the pond where there is less than a metre of hydraulic head across the clay plug, in order to minimize the potential for internal erosion or piping along the inlet or outlet piping. The clay collars should extend between 1 m and 2 m along the length of the piping, and extend laterally to the natural subgrade soils. The clay material should be approved by a geotechnical engineer prior to placement, and should be placed in maximum 150 mm lifts and compacted to a minimum of 95 percent of SPMDD at a moisture content ranging between optimum and three percent above optimum (as determined by standard Proctor testing). Concrete seepage cutoff collars should be provided where there is potential for more than a meter of hydraulic head to develop along the pipe.

- As an alternative to a compacted clay liner, consideration can be given to using a synthetic geomembrane, such as a High Density Polyethylene (HDPE) liner. In this regard, an HDPE liner should have a minimum thickness of 60 mil, and be placed in accordance with the manufacturer's recommendations. Inlet and outlet pipes should be fully booted and welded to the liner material to facilitate a water tight seal at the pipe protrusions. The liner should be anchored at the top of the berms into a minimum 0.6 m deep by 0.6 m wide trench. Following construction of the liner, consideration should be given to covering the liner with a 0.3 m thick compacted clay layer, or with Class 1M rip rap (Alberta Transportation – Specifications for Bridge Construction).

For a clay liner solution, full-time geotechnical supervision should be provided during construction. Compaction should be carried out using a heavy, self-propelled sheepsfoot compactor. Lift surfaces that have been allowed to dry out should be scarified, moisture conditioned and recompacted prior to placement of the subsequent lift. Where lift surfaces have degraded due to excess precipitation, etc., the material should be either removed or allowed to dry to the required moisture content and recompacted. In situ density testing should be provided to verify that the target liner density is achieved.

For synthetic liner construction, full quality control testing will be required to verify field welds. In addition, the subgrade will require geotechnical review prior to the placement of the liner material.

3.8 Residential Construction – Preliminary Comments

For preliminary design purposes, the following general discussion and recommendations are offered to support the development of single family residential and related ancillary structures within the study area. Specific, detailed geotechnical investigations are required for non-residential developments in the subdivision, and may be needed for some residential structures if there are unusual design features associated with the residence.

Conventional Strip and Spread Footing Foundations

Based on Wood's review of the soil conditions within the widely spaced boreholes at the site, the natural occurring clay and clay till encountered within the boreholes is generally considered suitable for the support of conventional strip and spread footings for proposed single family residences. For preliminary design, a Serviceability Limit States (SLS) bearing pressure of 75 kPa is recommended, with a corresponding unfactored Ultimate Limit States (ULS) bearing pressure of 225 kPa. A geotechnical resistance factor of 0.5 should be applied to the ULS bearing pressure, per current building code requirements.

As indicated above, further investigation and/or review of the bearing soils associated with any non-residential structures will be required to support detailed design of the various proposed structures.

For protection against frost action, perimeter footings in heated areas should be extended to provide at least 1.5 m of soil cover. For any unheated buildings or portions of the building, footings should have at least 2.1 m of soil cover. Alternatively, insulation can be used to reduce the thickness of soil cover required.

Basements

All below grade walls, such as for the residential basements, should be designed to resist a horizontal earth pressure 'p' at any depth 'h' below the surface as given by the following equation:

$$p = k_0 (¥h + q)$$

where:
- p = lateral earth pressure in kPa acting at a depth h
- K_0 = lateral at-rest earth pressure coefficient (use k_0 = 0.50),
- ¥ = unit weight of backfill (use ¥ = 18.5 kN/m^3 for clay)
- h = depth to point of interest in m (ft)
- q = equivalent value of any surcharge on the ground surface.

The above expression assumes a fully drained condition along the base of the below-grade walls.

Damp-Proofing and Drainage

While only minor groundwater was encountered during the current investigation, the installation of weeping tile around residences is still recommended, regardless of groundwater elevation. The requirements for weeping tile installation are outlined in Section 9.14 of the Alberta Building Code. Weeping tiles must discharge to either a gravity outlet, or to a pumped sump, in accordance with local regulatory requirements.

In conjunction with installation of weeping tile, below grade foundation walls around basements require damp proofing, in accordance with the current Alberta Building Code.

Weeping tile flow due to surface water infiltration along foundation walls can be minimized by providing a modest amount of compaction to the exterior foundation wall backfill, thus minimizing future settlement of the backfill. The backfill within two metres of the residence foundation should be graded

away from the foundation at approximately a ten percent slope. Downspout roof leaders should discharge onto splash pads at least a metre from the foundation walls.

Construction of Grade-Supported Slabs

In general, it is anticipated that engineered fill or the natural clay till at the site will provide adequate support for grade supported basement floors, concrete garage slabs, driveways and parking slabs, provided the subgrade is adequately prepared by stripping topsoil and fill, and reconstruction to achieve design elevations by placement of thin lifts compacted to a minimum of 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

Following preparation of the subgrade surface, a levelling course of 25 mm nominal size well graded crushed gravel at least 150 mm in compacted thickness is recommended directly beneath the slabs. The gravel should also be compacted to at least 98 percent of SPMDD.

As an alternative to compacted gravel, a vapour break consisting of a minimum of 200 mm thick layer of 25 mm washed gravel fill can be provided beneath basement floor slabs. If floor coverings that are sensitive to moisture penetration will be installed in basement areas, additional vapour break considerations (such as the inclusion of a polyethylene vapour barrier should also be considered.

The excavated subgrade for the slabs on grade, including basement slabs, should be protected at all times from rain, snow, freezing temperatures, excessive drying and the ingress of free water. To minimize the potential negative effects of settlement or heave in soil below the slabs, it would be preferable to allow slabs to float with no rigid connections to walls or foundation elements except at doorways.

Some relative movement between the slabs-on-grade and adjacent walls or foundations and differential movements within the slabs should be anticipated. Where recommendations outlined in this report are followed, these movements are expected to be within tolerable limits.

The water-to-cement ratio and slump of concrete utilized in the floor slabs should be strictly controlled to minimize shrinkage of the slabs. Adequate joints should be provided in the floor slab to further control cracking.

3.9 Onsite Sanitary Sewage Disposal – Preliminary Comments

It is understood that the subject lots will be serviced by private sewage systems which will be developed by the buyers of the individual lots in conjunction with the design and construction of proposed residences.

The design and construction of private onsite sanitary sewage disposal systems in Alberta is subject to the requirements of the *Alberta Private Sewage Systems Standard of Practise 2015* (hereafter referred to as the *2015 Standard*).

One of the most significant changes encompassed in the 2015 Standard compared to the prior 2009 Standard of Practice is a shift from a design based on percolation testing to a design based on soil profile and textural classification. Percolation rates can only be used to support a design based on soil profile.

In accordance with the *2015 Standard*, a site (i.e., lot) specific evaluation and report is required to support the detailed design and construction of individual private sewage systems. Detailed requirements for the Site Evaluation are provided in Part 7 of the *2015 Standard*.

Using the results of the Site Evaluation, a type of private sewage system best suited for the site is proposed. Selection of the type of system is based on various factors including soil profile, vertical separation between groundwater or impervious layer and point of effluent infiltration, design effluent volume and anticipated effluent strength.

The typical and most cost efficient private sewage system for a single family residential lot generally involves primary treatment of effluent using a septic tank with discharge to a conventional treatment field. The treatment field typically utilizes perforated piping laid in a bed of gravel in trenches, which distributes the effluent in the trenches to the natural subsurface soils.

Where there are limits imposed by proximity to water table or very low permeable soils, a treatment mound can be considered as an alternative to a conventional treatment field. A treatment mound generally refers to a system where effluent from a septic tank is distributed onto an imported sand layer that is constructed above grade. In this case, the effluent must be discharged into the treatment mound using a pressurized system. Accordingly, the costs associated with importing sand for the treatment mound and operation of a discharge pump make this style of treatment system costlier than the conventional treatment field.

As an alternative, secondary treatment of the effluent can be considered. Secondary treatment of the effluent, as outlined in Part 5 of the *2015 Standard*, can be carried out by means of a sand filter, a re-circulating gravel filter, or a Packaged Sewage Treatment Plant. Where effluent quality meets Level 2 or better (as outlined in Table 5.1.1.1 of the 2015 Standard), the options for disposal of the effluent are less restrictive, and effluent may even be used for sub-surface drip dispersal and irrigation (subject to Section 8.5 of the 2015 Standard).

For the proposed lots, the inferred groundwater table was below about 2 m depth, as discussed in the previous Section 2.2. The groundwater depths observed generally satisfy the vertical separation requirements for soil-based treatment as outlined in Paragraph 8.1.1.4 of the *2015 Standard*.

Based on the current investigation and visual review of samples recovered from boreholes at the site, the soils indicate a textural classification of about SiCL (silty clay loam). Based on the results of the textural classification, the site is considered marginally suitable for effluent discharge using a conventional treatment field, and a treatment mound or secondary treatment of the effluent may be warranted.

It is noted that the detailed design of each proposed discharge field must be based on a soil profile assessment and textural classification of test pits within the footprint of the proposed discharge fields, and that these textural classifications will vary somewhat from the classification indicated above.

3.10 Testing and Inspection

All engineering design recommendations presented in this report are based on the assumption that an adequate level of inspection and review will be provided during construction and that all construction will be carried out by a suitably qualified contractor experienced in foundation and earthworks construction. An adequate level of inspection is considered to be:

- For earthworks: full time monitoring and representative compaction testing
- For concrete construction: testing of concrete supplier mixes for conformance with prescribed and/or performance concrete specifications

4.0 CLOSURE

The recommendations given in the above sections are based upon interpreted conditions found within the ten boreholes advanced at this site. Should subsurface conditions other than those presented in this report be encountered during construction, the Client should notify our office so that these recommendations can be reviewed.

Soil conditions, by their nature, can be highly variable across a site. A contingency should be included in the construction budget to allow for the possibility of variations in soil conditions, which may result in modification of the design, and/or changes in the construction procedures.

Wood requests the opportunity to review the design drawings and the civil works during construction of the subdivision to confirm that the recommendations in this report have been correctly interpreted and implemented. If not afforded the opportunity to conduct this review, Wood cannot accept responsibility for the interpretation of this report. Wood would be pleased to provide any further information that may be needed during design and to advise on the geotechnical aspects of specifications for inclusion in contract documents.

This report has been prepared for the exclusive use of Martin Geomatic Consultants Ltd. and their designers for the specific application to the development described in this report. Any use that a third party makes of this report, or any reliance or decisions based on this report are the sole responsibility of those parties.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

We trust that this report satisfies your present requirements, and we look forward to assisting you in the completion of this project. Should you have any questions, please contact the undersigned at your convenience.

Yours truly,

Wood Environment & Infrastructure Solutions
A Division of Wood Canada Limited

June 5, 2018

PROFESSIONAL ENGINEER ALBERTA
JOHN LOBBEZOO

John Lobbezoo, P.Eng.
Associate Engineer, Geotechnical
Branch Manager, Lethbridge & Medicine Hat

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

Permit to Practice No. P-04546

Attachments:
- Figure 1 Borehole Location Plan
- Borehole Logs
- Explanation of Symbols and Terms

	CLIENT LOGO	CLIENT: Martin Geomatic Consultants Ltd.	DWN BY: BJ CHK'D BY: BM DATUM: NA PROJECTION: NA SCALE: NTS	TITLE: BOREHOLE LOCATION PLAN	DATE: MAY 2018 PROJECT NO: BX30531
		Wood Environment & Infrastructure Solutions 469 - 40th Street South Lethbridge, Alberta CANADA T1J 4M1 Tel. (403) 327-7474 Fax (403) 327-7682 wood.		PROJECT: Geotechnical Investigation Rural Residential Subdivision - SW5-8-20-W4M County of Lethbridge, Alberta	REV. NO.: A FIGURE 1

T:\Drafting\Brent\E&E PROJECTS\LETHBRIDGE\BX30531 – Residential Subdivision\BX30531.dwg – FIGURE1 – Jun. 01, 2018 3:15pm – brent.johnson

This drawing was originally produced in colour.

PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-01**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	SLOTTED PIEZOMETER	OTHER TESTS COMMENTS
0	**TOPSOIL** (100mm)					
	CLAY FILL -low to medium plastic, silty, sandy, trace fibrous organics and organic staining, soft to firm, light brown and dark brown, moist			S1		
1						
	...sand lens (100mm thick) at 1.4m depth					
	CLAY TILL -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, firm to stiff, brown, moist	4		S2		
2				S3		PP=1.0kg/cm2
3		8		S4		
				S5		PP=2.0kg/cm2
4						
5		10		S6		
	End of Borehole at 5.05m depth					
6						
7						
8						
9						
10						

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. 25mm PVC standpipe installed upon completion of drilling, hand-slotted from 5.0m to 1.0m depth. Annular space backfilled with drill cuttings, bentonite cap at surface.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-02**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (100mm)				
	CLAY TILL -medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, light brown, damp, fissured			S1	
1					
	SILTY SAND -fine to coarse grained, trace gravel, oxide inclusions, compact, brown, damp	23		S2	
2				S3	
3	**CLAY TILL** -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, stiff to very stiff, brown, moist	16		S4	
				S5	PP=2.5kg/cm2
4					
		10		S6	
5	**End of Borehole at 5.05m depth**				
6					
7					
8					
9					
10					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. Borehole backfilled with drill cuttings.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

BX30531.GPJ 18/05/31 11:53 AM (BOREHOLE LOG)

PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-03**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube | No Recovery | SPT Test (N) | Grab Sample | Split-Pen | Core

BACKFILL TYPE: Bentonite | Pea Gravel | Slough | Grout | Drill Cuttings | Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	SLOTTED PIEZOMETER	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)					
	CLAY TILL -medium plastic, silty, sandy, trace gravel, oxide inclusions, brown, damp to moist					
				S1		
1	...fissured, light brown below 1.0m depth					
	SANDY CLAY TILL -low plastic, silty, trace gravel, coal and oxide inclusions, very stiff, brown, damp to moist	19		S2		
2				S3		
3	**CLAY TILL** -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, stiff to very stiff, brown, damp to moist	17		S4		
				S5		PP=3.0kg/cm2
4						
		10		S6		
5	**End of Borehole at 5.05m depth**					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. 25mm PVC standpipe installed upon completion of drilling, hand-slotted to 5.0m to 1.0m depth. Annular space backfilled with drill cuttings, bentonite cap at surface.

6 7 8 9 10

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-04**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)				
	CLAY FILL -low to medium plastic, silty, trace to some sand, organic staining, dark brown, moist				
	CLAY -medium plastic, silty, sandy, brown, moist			S1	PP=4.5kg/cm2
1					
	CLAY TILL -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, stiff to very stiff, brown, damp	21		S2	
2				S3	
3	...medium plastic, moist below 3.0m depth	16		S4	
				S5	PP=2.5kg/cm2
4					
		14		S6	
5	**End of Borehole at 5.05m depth**				
6					
7					
8					
9					
10					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. Borehole backfilled with drill cuttings.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-05**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	SLOTTED PIEZOMETER	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)					
	CLAY FILL -medium plastic, silty, sandy, trace red shale, organic staining, brown to dark brown, damp to moist			S1		
1	**CLAY TILL** -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, light brown to brown, damp, fissured					
	SANDY CLAY TILL -low plastic, silty, trace gravel, coal and oxide inclusions, very stiff to stiff, brown, damp to moist	18		S2		
2				S3		
	...becoming low to medium plastic clay till below 2.5m depth					
3				S4		
				S5		PP=1.5kg/cm2
4						
		10		S6		
5	**End of Borehole at 5.05m depth**					
6						
7						
8						
9						
10						

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. 25mm PVC standpipe installed upon completion of drilling, hand-slotted from 5.0m to 1.0m depth. Annular space backfilled with drill cuttings, bentonite cap at surface.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-06**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (100mm)				
	SILTY SAND -low to medium plastic, fine to medium grained, some clay, silty, brown, damp			S1	
1	**CLAY** -low to medium plastic, silty, sandy, light brown, damp, fissured				
	CLAY TILL -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, very stiff, brown, damp to moist, fissured to 3.0m depth	18		S2	
2				S3	
3		20		S4	
				S5	
4					
		15		S6	
5	**End of Borehole at 5.05m depth**				
6					
7					
8					
9					
10					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. Borehole backfilled with drill cuttings.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-07**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	SLOTTED PIEZOMETER	OTHER TESTS COMMENTS
0	**TOPSOIL** (100mm)					
	CLAY -low to medium plastic, silty, sandy, organic staining, brown, moist					
				S1		PP=1.5kg/cm2
1	**CLAY TILL** -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, very stiff to stiff, light brown, damp					
	...brown, damp below 1.5m depth	22		S2		
2				S3		PP=4.0kg/cm2
3	...moist below 3.0m depth	12		S4		
				S5		PP=2.0kg/cm2
4						
5				S6		PP=3.0kg/cm2
	End of Borehole at 5.05m depth					
6						
7						
8						
9						
10						

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. 25mm PVC standpipe installed upon completion, hand-slotted from 5.0m to 1.0m depth. Annular space backfilled with drill cuttings, bentonite cap at surface.

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Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-08**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)				
	CLAY -low to medium plastic, silty, sandy, organic staining, dark brown, moist				
	CLAY TILL -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, stiff, brown, moist			S1	PP=2.0kg/cm2
1					
	...organic staining at 1.5m depth	9		S2	
2					
				S3	PP=2.0kg/cm2
3		12		S4	
				S5	PP=1.75kg/cm2
4					
		13		S6	
5	**End of Borehole at 5.05m depth**				
6					
7					
8					
9					
10					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. Borehole backfilled with drill cuttings.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-09**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SPT (N)	SAMPLE TYPE	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)				
	CLAY -low to medium plastic, silty, sandy, organic staining, dark brown, moist				
	CLAY TILL -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, stiff to very stiff, brown, damp, fissured to 1.5m depth			S1	
1					
		9		S2	
2					
				S3	PP=3.0kg/cm2
3	...moist below 3.0m depth	16		S4	
				S5	PP=2.0kg/cm2
4					
		12		S6	
5	**End of Borehole at 5.05m depth**				
6					
7					
8					
9					
10					

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. Borehole backfilled with drill cuttings.

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 5.05 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

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PROJECT NAME: Proposed Residential Subdivision	DRILLER: Chilako Drilling Services Ltd.	BOREHOLE NO: **BH18-10**
CLIENT: Martin Geomatic Consultants Ltd.	DRILL/METHOD: Truck Mounted C-1150 Drill/ SSA	PROJECT NO: BX30531
LOCATION: See Figure 1.		ELEVATION: --

SAMPLE TYPE: Shelby Tube, No Recovery, SPT Test (N), Grab Sample, Split-Pen, Core

BACKFILL TYPE: Bentonite, Pea Gravel, Slough, Grout, Drill Cuttings, Sand

STANDARD PEN (N) 20 40 60 80

PLASTIC M.C. LIQUID 20 40 60 80

Depth (m)	SOIL DESCRIPTION	SAMPLE NO	OTHER TESTS COMMENTS
0	**TOPSOIL** (150mm)		
	CLAY -medium plastic, silty, sandy, light brown, damp, fissured	S1	
1		S2	
	SILTY SAND -fine to coarse grained, trace to some clay, trace gravel, coal and oxide inclusions, brown, moist	S3	
2			
3	**CLAY TILL** -low to medium plastic, silty, sandy, trace gravel, coal and oxide inclusions, very stiff to stiff, brown, damp	S4	PP=4.5kg/cm2
4		S5	PP=4.5kg/cm2
	...moist below 4.6m depth	S6	PP=4.5kg/cm2
5		S7	PP=2.5kg/cm2
6		S8	PP=2.5kg/cm2
	End of Borehole at 6.1m depth		
7			
8			
9			
10			

Notes:
1. Borehole log to be read in conjunction with Wood report BX30531. For definitions of terms and symbols used on log refer to sheets following logs.
2. Borehole open and dry upon completion.
3. 25mm PVC standpipe installed upon completion of drilling, hand-slotted form 6.1m to 1.0m depth. Annular space backfilled with drill cuttings, bentonite cap at surface.

SLOTTED PIEZOMETER

Wood Environment & Infrastructure Solutions	LOGGED BY: BM	COMPLETION DEPTH: 6.10 m
	REVIEWED BY: JL	COMPLETION DATE: 4/5/18
		Page 1 of 1

BX30531.GPJ 18/05/31 11:53 AM (BOREHOLE LOG)

EXPLANATION OF TERMS AND SYMBOLS

The terms and symbols used on the borehole logs to summarize the results of field investigation and subsequent laboratory testing are described in these pages.

It should be noted that materials, boundaries and conditions have been established only at the borehole locations at the time of investigation and are not necessarily representative of subsurface conditions elsewhere across the site.

TEST DATA

Data obtained during the field investigation and from laboratory testing are shown at the appropriate depth interval.

Abbreviations, graphic symbols, and relevant test method designations are as follows:

*C	Consolidation test	*ST	Swelling test
D_R	Relative density	TV	Torvane shear strength
*k	Permeability coefficient	VS	Vane shear strength
*MA	Mechanical grain size analysis and hydrometer test	w	Natural Moisture Content (ASTM D2216)
		w_l	Liquid limit (ASTM D 423)
N	Standard Penetration Test (CSA A119.1-60)	w_p	Plastic Limit (ASTM D 424)
N_d	Dynamic cone penetration test	E_f	Unit strain at failure
NP	Non plastic soil	γ	Unit weight of soil or rock
pp	Pocket penetrometer strength (kg/cm²)	γ_d	Dry unit weight of soil or rock
*q	Triaxial compression test	ρ	Density of soil or rock
q_u	Unconfined compressive strength	ρ_d	Dry Density of soil or rock
*SB	Shearbox test	C_u	Undrained shear strength
SO_4	Concentration of water-soluble sulphate	→	Seepage
		▼	Observed water level

* The results of these tests are usually reported separately

Soils are classified and described according to their engineering properties and behaviour.

The soil of each stratum is described using the Unified Soil Classification System[1] modified slightly so that an inorganic clay of "medium plasticity" is recognized.

The modifying adjectives used to define the actual or estimated percentage range by weight of minor components are consistent with the Canadian Foundation Engineering Manual[2].

Relative Density and Consistency:

Cohesionless Soils		Cohesive Soils		
Relative Density	SPT (N) Value	Consistency	Undrained Shear Strength c_u (kPa)	Approximate SPT (N) Value
Very Loose	0-4	Very Soft	0-12	0-2
Loose	4-10	Soft	12-25	2-4
Compact	10-30	Firm	25-50	4-8
Dense	30-50	Stiff	50-100	8-15
Very Dense	>50	Very Stiff	100-200	15-30
		Hard	>200	>30

Standard Penetration Resistance ("N" value)
The number of blows by a 63.6kg hammer dropped 760 mm to drive a 50 mm diameter open sampler attached to "A" drill rods for a distance of 300 mm.

1 "Unified Soil Classification System", Technical Memorandum 36-357 prepared by Waterways Experiment Station, Vicksburg, Mississippi, Corps of Engineers, U.S. Army. Vol. 1 March 1953.
2 "Canadian Foundation Engineering Manual", 4th Edition, Canadian Geotechnical Society, 2006.

MODIFIED UNIFIED CLASSIFICATION SYSTEM FOR SOILS

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	COLOUR CODE	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN 75µm)	GRAVELS MORE THAN HALF THE COARSE FRACTION LARGER THAN 4.75mm	CLEAN GRAVELS (LITTLE OR NO FINES)	GW		RED	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 4;\ C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1 \text{ to } 3$	
			GP		RED	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY GRAVELS (WITH SOME FINES)	GM		YELLOW	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12 %	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			GC		YELLOW	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
	SANDS MORE THAN HALF THE COARSE FRACTION SMALLER THAN 4.75mm	CLEAN SANDS (LITTLE OR NO FINES)	SW		RED	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} > 6;\ C_C = \frac{(D_{60})^2}{D_{10} \times D_{60}} = 1 \text{ to } 3$	
			SP		RED	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY SANDS (WITH SOME FINES)	SM		YELLOW	SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12 %	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			SC		YELLOW	CLAYEY SANDS, SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE P.I. MORE THAN 7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT SMALLER THAN 75µm)	SILTS BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 50\%$	ML		GREEN	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY SANDS OF SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (SEE BELOW)	
		$W_L < 50\%$	MH		BLUE	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDS OR SILTY SOILS		
	CLAYS ABOVE "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 30\%$	CL		GREEN	INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY OR SILTY CLAYS, LEAN CLAYS		
		$30\% < W_L < 50\%$	CI		GREEN-BLUE	INORGANIC CLAYS OF MEDIUM PLASTICITY, SILTY CLAYS		
		$W_L > 50\%$	CH		BLUE	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
	ORGANIC SILTS & CLAYS BELOW "A" LINE	$W_L < 50\%$	OL		GREEN	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	WHENEVER THE NATURE OF THE FINES CONTENT HAS NOT BEEN DETERMINED, IT IS DESIGNATED BY THE LETTER "F", E.G. SF IS A MIXTURE OF SAND WITH SILT OR CLAY	
		$W_L > 50\%$	OH		BLUE	ORGANIC CLAYS OF HIGH PLASTICITY		
HIGHLY ORGANIC SOILS			Pt		ORANGE	PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOUR OR ODOUR, AND OFTEN FIBEROUS TEXTURE	

SPECIAL SYMBOLS

LIMESTONE		OILSAND	
SANDSTONE		SHALE	
SILTSTONE		FILL (UNDIFFERENTIATED)	

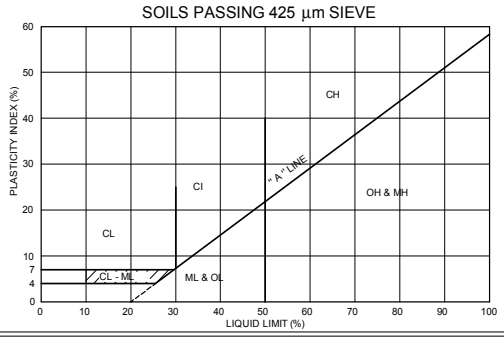
SOIL COMPONENTS

FRACTION	U.S. STANDARD SIEVE SIZE		DEFINING RANGES OF PERCENTAGE BY WEIGHT OF MINOR COMPONENTS	
GRAVEL	PASSING	RETAINED	PERCENT	DESCRIPTOR
COARSE	76mm	19mm	35-50	AND
FINE	19mm	4.75mm		
SAND			20-35	Y/EY
COARSE	4.75mm	2.00mm		
MEDIUM	2.00mm	425µm	10-20	SOME
FINE	425µm	75µm		
FINES (SILT OR CLAY BASED ON PLASTICITY)	75µm		1-10	TRACE

OVERSIZED MATERIAL

ROUNDED OR SUBROUNDED:	NOT ROUNDED:
COBBLES 76mm TO 200mm	ROCK FRAGMENTS > 76mm
BOULDERS > 200mm	ROCKS > 0.76 CUBIC METRE IN VOLUME

PLASTICITY CHART FOR SOILS PASSING 425 µm SIEVE



NOTES:

1. ALL SIEVE SIZES MENTIONED ON THIS CHART ARE U.S. STANDARD A.S.T.M. E.11
2. COARSE GRAIN SOILS WITH 5 TO 12% FINES GIVEN COMBINED GROUP SYMBOLS, E.G. GW-GC IS A WELL GRADED GRAVEL SAND MIXTURE WITH CLAY BINDER BETWEEN 5 AND 12% FINES.

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APPENDIX 3

ENVIRONMENTAL SITE ASSESSMENT

Amec Foster Wheeler- Phase 1 Environmental Site Assessment dated April 2018

PHASE I ENVIRONMENTAL SITE ASSESSMENT
Nakamura Residential Subdivision
SW 05-008-20 W4M
near Lethbridge, Alberta

CONFIDENTIAL

Submitted to:
Martin Geomatic Consultants Ltd.

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
Lethbridge, Alberta

April 2018

Project No.: BX20137

13 April 2018
BX20137

Martin Geomantic Consultants Ltd.
255 – 31 Street North
Lethbridge, AB, T1H 3Z4

Re: Phase I Environmental Site Assessment
Nakamura Residential Subdivision

SW 05-008-20 W4M

Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) is pleased to submit this report describing the results of the Phase I Environmental Site Assessment for the above-referenced property.

If you have any questions regarding our findings or recommendations, please contact the undersigned at 403-327-7474. Thank you for allowing Amec Foster Wheeler to be of service. We look forward to working with you again.

With appreciation,

Amec Foster Wheeler
Environment & Infrastructure,

Scott Roughead, C.E.T.
Senior Environmental Technologist
ASET Member #: 098653

469 40 Street South
Lethbridge, AB T1J 4M1
Tel +1 403 327 7474
Fax +1 403 327 7682
amecfw.com

Amec Foster Wheeler Environment & Infrastructure
Registered office: 2020 Winston Park Drive, Suite 700, Oakville, Ontario L6H 6X7
Registered in Canada; GST: 899879050 RT0008; DUNS: 25-362-6642

EXECUTIVE SUMMARY

Project:	Phase I Environmental Site Assessment
Site Civic Address:	No Site Civic Address
Short Legal Description:	4;20;8;5;SW
Alberta Township System:	SW 05-008-20 W4M
Site Size:	Approximately 27 hectares (66.6 acres)
Site Owners:	Jody F Nakamura
Site Occupant:	Jody F Nakamura (Farmer)

Martin Geomatic Consultant Ltd. retained Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) to conduct a Phase I Environmental Site Assessment (ESA) of an approximate 27 hectare, zoned Rural Agricultural (RA) property with legal land description of SW 05-008-20 W4M, within the County of Lethbridge, Alberta, herein referred to as the 'Site'.

The objective of the Phase I ESA was to identify actual or potential substances or conditions of environmental concern at the Site that could be associated with previous or current land use, construction, management or operation of the Site or surrounding properties, and to determine if additional investigations are warranted. These substances or conditions are commonly referred to as either Areas of Potential Environmental Concern (APECs) or Items of Potential Environmental Concern (IPECs).

METHODOLOGY

The Phase I ESA was conducted in accordance to the 2001 Canadian Standards Association (CSA), *Phase I Environmental Site Assessment (CAN/CSA Z768-01 R2016)* guideline which is referenced by the Canadian Mortgage and Housing Corporation and the major financial institutions. The Phase I ESA methodology also adheres to the Alberta Environment and Parks (AEP) 2016 *Alberta Environmental Site Assessment Standard.*

Amec Foster Wheeler's Phase I ESA standards, procedures and policies were adhered to during the completion of this assessment.

At the time of the Site visit, the ground surfaces on the property and surrounding properties were clear.

FINDINGS AND RECOMMENDATIONS

The on-site and off-site environmental concerns are summarized as follows and include the recommendations for further work or actions to be considered to IPECs or APECs.

Methane

The aerial photograph review did identify potential wetlands that have been filled in on the southern portion of Site, as well as a backfilled irrigation canal that crossed the Site from north

to south. A methane survey would be required to determine the presence or absence and actual concentrations of methane at the Site or within Site buildings.

Radon

Shales and coal beds which may be present in the subsurface are a potential source for radon generation. There is, therefore, a potential for radon concentrations present in the subsurface to exceed the annual occupational exposure limit on-site. However, a radon survey would be required to determine the actual concentrations in the buildings on-site.

Equipment Containing Regulated Substances

Equipment potentially containing liquid and vapour mercury (thermostats and light tubes and bulbs), and small quantities of radioactive material (smoke detectors) were identified within the Site building. Amec Foster Wheeler recommends that when this equipment is serviced or removed during routine maintenance, renovation, alterations or demolition of the building, the units (>10 bulbs/tubes and/or >two smoke detectors/thermostats) are segregated, packaged to avoid breakage and disposed of in accordance with the waste management regulations.

Ozone-Depleting Substances

Amec Foster Wheeler recommends that when equipment containing refrigerants are serviced or removed during maintenance, renovation, alteration or demolition of the building, the units be inspected by qualified personnel and the presence or absence of ODS confirmed. If the units contain ODSs, they should be handled and disposed of in accordance with the ODS regulations.

Asbestos-Containing Materials

Based on the construction date of the Site building (1996), there is a possibility of non-friable asbestos-containing materials (ACMs) being present in, but not limited to, the roofing materials, vinyl flooring and mastics, caulking compounds, drywall joint compounds, floor levelling compounds, and penetration mastics. Amec Foster Wheeler recommends that if these items or other suspect materials are to be disturbed during routine maintenance, renovations, alterations or demolition, the materials should be assessed, sampled and tested by qualified environmental health practitioners in accordance with the asbestos management and waste regulations.

Lead-Containing Paint

Based on the construction date of the Site building (1996), although unlikely, there is the potential for lead-containing paints to be present within the building. Amec Foster Wheeler recommends that when potential lead-containing paints are to be disturbed during routine maintenance or renovations, alterations or demolition of the building, the painted surfaces be assessed by a qualified environmental practitioner prior to disturbance and if required, abated in accordance with the occupational health and safety and waste control regulations.

Pipelines and Oil and Gas Wells

A search of the Abacus database (AbaData) identified one well, Mobil Oil C.P.R. Wilson No. 5-4, located 10 m south of Site. The well was drilled in 1955 and abandoned in 1958. It is believed that it was an exploration well as no production report is available. The completion depth was

1306.1 m. The lease plan was available and shows that a portion of the lease covered approximately 3 acres of the southern portion of the Site.

There were no records pertaining to environmental spills in relation to the above noted well site, however environmental impacts can result from the drilling and production process, specifically in areas surrounding the well head, flare pits and sumps. Potential parameters of concerns can include elevated metals, petroleum hydrocarbons and/or salinity concentrations.

Based on the limited information available for the former well site, including specific operations, production activity, spills, remediation activities (if completed), reason for closing and planned activities for the property, along with overlapping of the lease and close proximity of the well to the Site (10 m south), the former Mobile Oil well represents an on- and off-site APEC. Further investigation (Phase II ESA) would be required to determine if this property has affected the Site.

In summary, based on Amec Foster Wheeler's review of the available information for the Site and surrounding properties as presented herein,

i) a Phase II intrusive environmental investigation is recommended.

ii) recommendations pertaining to the assessment of methane, radon and potential hazardous building materials as described in this report should also be considered.

The opinions in this report are based on the assumption that information provided to Amec Foster Wheeler, and information presented by others in reports to various agencies is accurate and complete.

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Amec Foster Wheeler Environment & Infrastructure is committed to achieving sustainability through balancing economic growth, social responsibility and environmental protection. Learn more at: http://amecfw.com/aboutus/sustainability.htm.

GLOSSARY OF ABBREVIATIONS

ACM	Asbestos-Containing Material(s)
AECB	Atomic Energy Control Board
AEP	Alberta Environment and Parks
AER	Alberta Energy Regulator
AHS	Alberta Health Services
APEC	Area of Potential Environmental Concern
AST	Above-ground Storage Tank
CCME	Canadian Council of Ministers of the Environment
CFC	Chlorofluorocarbon
CMHC	Canadian Mortgage and Housing Corporation
CSA	Canadian Standards Association
ELC	Environmental Law Centre
EPEA	(Alberta) *Environmental Protection and Enhancement Act*
ESA	Environmental Site Assessment
ESAR	Environmental Site Assessment Repository
FIP	Fire Insurance Plans
FOIP	Freedom of Information and Protection of Privacy
HCFC	Hydrochlorofluorocarbon
HPA	*Hazardous Products Act*
HWY	Highway
IPEC	Item of Potential Environmental Concern
L	Litres
LCP	Lead-Containing Paint(s)
masl	Metres Above Sea Level
mbgl	Metres Below Ground Level
mbgs	Metres Below Ground Surface
ODS	Ozone-Depleting Substances
PCB	Polychlorinated Biphenyl(s)
PHC	Petroleum Hydrocarbons
PTMAA	Petroleum Tank Management Association of Alberta
RD	Routine Disclosure
TDG	*Transportation of Dangerous Goods Act*
UFFI	Urea Formaldehyde Foam Insulation
UST	Underground Storage Tank
WHMIS	Workplace Hazardous Materials Information System
WL	Working Level

1.0 INTRODUCTION

The following provides a description of the project background, objectives of this assessment and methodology used to complete this assignment.

1.1 Project Background

Martin Geomatic Consultant Ltd. retained Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) to conduct a Phase I Environmental Site Assessment (ESA) of an approximate 27 hectare, zoned Rural Agricultural (RA) property with legal land description of SW 05-008-20 W4M, within the County of Lethbridge, Alberta, herein referred to as the 'Site'.

Approval to proceed with this assessment was provided by Ed Martin on 22 March 2018. Amec Foster Wheeler understands the assessment has been undertaken for potential rezoning of the Site from Rural Agricultural to Grouped Country Residential.

1.2 Objectives

The objective of the Phase I ESA was to identify actual or potential substances or conditions of environmental concern at the Site that could be associated with previous or current land use, construction, management or operation of the Site or surrounding properties, and to determine if additional investigations are warranted. These substances or conditions are commonly referred to as either Areas of Potential Environmental Concern (APECs) or Items of Potential Environmental Concern (IPECs).

The Canadian Standards Association (CSA) notes that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions about a property. Performance of a standardized environmental site assessment protocol is intended to reduce, but not to eliminate, uncertainty regarding the potential for recognized environmental conditions about the property, given reasonable limits of time and cost.

1.3 Methodology

Amec Foster Wheeler's methodology in conducting Phase I ESAs is based on the requirements of the 2001 CSA *Phase I Environmental Site Assessment (CAN/CSA Z768-01 reaffirmed 2012)* guideline, which is referenced by the Canadian Mortgage and Housing Corporation (CMHC) and major financial institutions. The guideline sets standards for the review of mandatory and optional information pertaining to a property and its surroundings, completion of checklists, property viewing procedures, interviews, and preparation of the final report. Our report methodology also complies with the requirements of the 2016 Alberta Environment and Parks (AEP) *Alberta Environmental Site Assessment Standard*. Amec Foster Wheeler's standard procedures for health and safety, site viewing and evaluation, and Amec Foster Wheeler's report writing and review policies were adhered to during the completion of this assessment.

The assessment comprised five main components:

1. identifying the background environmental setting of the Site and surrounding properties;

2. reviewing readily-available historical archives and government and public agency records for the Site and selected surrounding properties;
3. completing a viewing of the Site and perimeter-viewing of surrounding properties;
4. interviewing representatives knowledgeable about the Site and surrounding properties; and,
5. preparing a report summarizing the methodology and findings of the Phase I ESA and providing recommendations.

Background information gathered for surrounding properties was limited to information that was readily-available during this assessment. Historical records reviewed included records available for properties located within a 150 m radius of the subject Site boundaries as selected by the Client. Search radius for other parameters including historical aerial photographs, geology, topography, etc., met the AEP Phase I Guidelines. This assessment included an overview of the surrounding land uses and does not constitute a complete assessment of those properties.

The following records were reviewed and methodologies applied in the completion of this Phase I ESA:

- Topographical elevations for the Site and surrounding lands provided by Abacus Datagraphics Ltd. (AbaData) were reviewed.
- The Quaternary Geology Map of Southern Alberta provided by the Alberta Research Council (1987) was reviewed for the Site.
- The Surficial Geology Map of Southern Alberta (2013), Map 601, published by the Alberta Geological Survey was reviewed.
- A map of the bedrock geology of the Site and surrounding lands titled Bedrock Geology of Alberta, Map No. 600 published by Alberta Geological Survey in 2013 was reviewed.
- Water well drilling reports from Alberta Environment and Parks' (AEP) on-line groundwater database were reviewed on 25 March 2018.
- Historical and current land titles for the Site were reviewed to identify landowners and potential land uses. Land titles were provided by the Alberta Government Services Calgary land titles office and obtained from the on-line Spatial Information System and are included in Appendix A.
- Historical aerial photography of the Site and surrounding properties was reviewed to identify land uses and development. Photographs were obtained through the Alberta Environment and Parks (AEP) Air Photo Services (including select images archived in Amec Foster Wheeler's resource library) and from Abacus Datagraphics Ltd. (AbaData), and Google Earth Images™. Reproductions of selected photographs are included in Appendix B.
- A review of available Fire Insurance Plans (FIPs) was completed to identify historical building materials, structures and equipment on the Site and surrounding properties.

- Research of FIP collections listed in the Catalogue of Canadian Fire Insurance Plans 1875-1975 published by L. Dubreuil and C.A. Woods was completed.
- A review of available urban and rural directories was completed to identify historical occupants of the Site and surrounding properties.
- Federal, provincial and municipal government and public agencies were contacted and databases were researched to obtain readily-available environmental information for the Site and selected surrounding properties. Documents received from the agencies and databases are included in Appendix C or maintained in Amec Foster Wheeler's project file.
- Scott Roughead of Amec Foster Wheeler conducted the Site viewing on 29 March 2018. The Site and surrounding lands and improvements were viewed to identify evidence of potential impacts, including but not limited to, forms of soil disturbance, waste storage/spillage, staining of ground surfaces or discolouration of soils, and hazardous materials or chemical management issues. Viewing of surrounding properties was limited to publicly-accessible areas. Copies of selected photographs taken at the time of viewing are included in Appendix D. Completed environmental checklists are maintained in Amec Foster Wheeler's project files. Mr. Roughead's Statement of Qualifications is included in Appendix E.
- A interview was conducted with Jody Nakamura, Site owner and occupant, on 29 March 2018. This individual is hereafter referred to as the Site Representative in this report.

2.0 SITE AND PHYSICAL SETTING

The following sections provide a description of the physical setting of the Site including improvements and land topography, drainage, geology and hydrogeology.

2.1 Site Facilities and Land

The Site is located within SW 05-008-20 W4M. A map showing the location of the Site in the County of Lethbridge is provided as Figure 1. Access to the Site is from Range Road 20-5, located west of the Site. The Site is zoned by the County of Lethbridge as Rural Agricultural (RA) and has been owned by Jody F Nakamura since 2005.

It is understood that the subject parcel encompasses the triangular shaped area just north of an irrigation canal, along Range Road 20-5, west of the Saint Mary River irrigation Canal (SMRID). It is understood that the proposed parcel will be developed into 40 residential building lots, complete with full site servicing and paved streets.

The Site was originally used as pasture and farm land from at least 1950 (as evident in aerial photograph and historical land title review). The most recent Site activity was farming. One residential farm house (Alberta Rural Address of 80025 Rge Rd 20-5) and several small sheds are located on the west side of the Site (Photo #1 and #2, Appendix D). The 2000 square foot, two storey house with basement, was constructed in 1996. The house is situated on a concrete foundation, with hardy plank siding and asphaltic shingled roof. A septic field is located on the east side of the house with a 500,000-gallon dugout for water storage. Power and natural gas are supplied to the house from a utility right of way located along Range Road 20-5. The farm house is surrounded to the north, south and east by 6 acres of pasture land and 60 acres of alfalfa field.

An irrigation canal transvers the Site from prior to 1950 until its abandonment and backfill prior to 1983, as evident in aerial photograph review. The location of the former irrigation canal, can be seen on Figure 2.

A water pipeline right of way is located adjacent west of the Site and includes a 300 mm diameter irrigation water pipeline owned by the SMRID (Photo #3, Appendix D). The main SMRID canal is located along the east property line, with a smaller canal along the south property line (Photo #4, Appendix D). The smaller canal along the south property line was constructed between 1961 and 1970 as evident in aerial photography review.

A former Mobil Oil C.P.R Wilson No. 5-4 well was identified south of the Site adjacent to the small irrigation canal. The well was drilled to a depth of 1306.1 m in December of 1955 and abandoned in April of 1958. The lease access road was located south of Site, with the well lease covering approximately 3 acres of the present Site pasture (Photo #4, Appendix D and Figure 2). The well is discussed further in Section 5.6 of subject report.

2.2 Geology and Hydrogeology

The Quaternary Geology Map of Southern Alberta provided by the Alberta Research Council (2012) indicates the Site consists primarily of glacial deposits including gravel, sand, silt and clay, with some exposed local till and bedrock. These deposits can be up to 60 m thick deposited mainly in floors and terraces of river valleys and melt water channels and deltas. The area is characterized by flat to undulating topography. Surficial geology in the area is dominated by sediments including fine sand, silt and clay, and some minor gravel beds.

Bedrock Geology of Alberta, Map No. 600 published by Alberta Geological Survey in 2013 was reviewed and indicates that the bedrock geology for the Site is the Bears Paw Formation (KBp), characterized by dominantly dark grey to brown mudstone with concretionary sideritic bentonite concretionary layers; concentrations locally yield ammonites; deposition was in a marine to marginal marine environment.

The Old Man River is located approximately 10 km west of the Site at its closest distance. Regional horizontal groundwater flow direction is anticipated to be west towards Old Man River. However, a site-specific groundwater investigation would be required to determine the directions of groundwater flow beneath the Site, which is beyond the scope of a Phase I ESA. Underground utility trenches, conduits, installed drainage systems, structures, fill placement, variations in soil type and minor fluctuations in topography may influence the shallow groundwater flow. In addition, seasonal fluctuations of the groundwater elevation and flow direction can be expected.

3.0 HISTORICAL RECORDS

The following sections include the results of the review of available land titles, aerial photographs, fire insurance plans, urban and rural directories, and government and public-agency regulatory records.

3.1 Land Titles

The Alberta Land Titles records list Jody Nakamura as the current Site owner since 2005. A listing of the previous landowners of the Site from 1932 to present is provided in Table 1. Amec Foster Wheeler's summary of the findings is presented below. Copies of the current and historical land titles are included in Appendix A.

Table 1: Land Titles

Short Legal	Dates of Ownership	Name of Owner(s)
4;20;8;5;SW	2005 to present	Jody F Nakamura
4;20;8;5;SW	1982 - 2005	Robert D Wilson (Farmer)
4;20;8;5;SW	1954 - 1982	Her majesty the Queen in Right of The Province of Alberta As Represented by The Manager of The St. Mary and Milk Rivers Development
4;20;8;5;SW	1948 - 1954	His majesty the King in the right of Alberta
4;20;8;5;SW	1932 - 1948	Alberta Railway and Irrigation Company

There were no easements, orders, liens, rights-of-way, caveats of concern or IPECs/ APECs identified on the Site in the land title review.

3.2 Aerial Photographs

Aerial photographs of the Site and surrounding lands were reviewed. The aerial photographs ranged in dates from 1950 to 2009 and the scale of the images ranged from 1:20,000 to 1:40,000.

Aerial photography does not provide a continuous record of Site development and activities. It is possible that features of interest will have appeared and disappeared between the dates of coverage. In addition, photographic-quality and scale are variable and may make features difficult to identify, or their purpose difficult to establish. An interpretation of the aerial photography is presented in Table 2. Amec Foster Wheeler's summary of the findings is provided below. Reproductions of aerial photographs from the years 1950 (Figure B-1), 1961 (Figure B-2), 1970 (Figure B-3), 1983 (Figure B-4), 1999 (Figure B-5) and 2009 (Figure B-6) are included in Appendix B.

Table 2: Aerial Photographs

Photo Date and Scale	Photography Interpretation	
1950 1:40,000	Site	The east portion of the Site appears to be agricultural farm land. An area of sparse vegetation and wetland is visible on the southwest corner of Site. The historical irrigation canal is visible through the center of Site, running from northwest corner to south center. Pasture land is visible on the west side of the irrigation canal.
	Surrounding Properties	A road is visible at the present-day location of Range Road 20-5. A small farm appears to be located west of the Range Road. A second historical irrigation canal is visible south of the Site with farm land and a Township road beyond. Farm land primarily surrounds the Site in all directions with small farm structures visible to the north of the Site.
1961 1:40,000	Site	A low lying wet area (possibly marshy area, irrigation canal or dugouts) are visible along the south side of the Site between the Range Road and the irrigation canal. The remainder of the Site appears like the 1950 aerial photo.
	Surrounding Properties	The main SMRID canal is now visible along the east side of Site. The remainder of the Site appears similar to the 1950 aerial photo.
1970 1:31,680	Site	The low-lying dugout area located on the south corner of the Site is now filled in and the small irrigation canal is visible to the south of Site.
	Surrounding Properties	Further farm structures are visible north of the Site. The irrigation canal south of the site has been filled in and now appears to be only an irrigation ditch. A smaller canal has been constructed.
1983 1:31,680	Site	The historical irrigation canal that ran across the Site from north to south is now filled in. The outline (land scar) is still visible. The majority of the Site is now farm land.
	Surrounding Properties	The small irrigation canal south of the Site is well defined and a small structure is visible south of the small canal. A new barn is visible on the farm located west of Range Road 20-5.
1999 1:20,000	Site	The present farm house and 500,000-gallon fresh water storage dugout is now visible on Site. A drive way for the farm house is visible. What appears to be irrigation pipe is visible in the southeast corner of the Site. Most of the Site is farm land with a small pasture south of the farm house and dugout. Generally, the Site appears like present day.
	Surrounding Properties	Grouped Country Residential properties are now visible south and north of the Site. Increased development is visible on the farms located west of Site.
2009 1:20,000	Site	The site appears like 1999 aerial photo and present day. The outline of the former irrigation canal is still visible.
	Surrounding Properties	The surrounding properties appear similar to the 1999 air photo.

Based on the review of the historical aerial photographs it appears that the Site was used as rural agricultural farm land from 1950 until present.

It should be noted that aerial coverage from 1955 to 1958 was not available for the Site (period when Mobil Oil C.P.R. Wilson No. 5-4 may have been visible).

3.3 Fire Insurance Plans

In Canada, Fire Insurance Plans (FIPs) were first published in 1874 and were discontinued from publication in 1975. FIPs were not listed in the *Catalogue of Canadian Fire Insurance 1875-1975* plans and none were available in the collections archived at the University of Calgary Libraries and Cultural Resources, the Glenbow Museum Archives, the Galt Museum Archives or Amec Foster Wheeler's resource library.

3.4 Urban and Rural Directories

Urban and rural directories were not available for the Site.

3.5 Government and Public Agency Records

Amec Foster Wheeler contacted federal, provincial and municipal government and public agencies and researched databases to obtain current and historical publicly-available environmental information about the Site and selected surrounding properties. The responses received from the agencies and obtained from the databases are presented in Table 3. Amec Foster Wheeler's summary of the findings is presented below. Copies of the correspondence are provided in Appendix C.

Table 3: Publicly-Available Environmental Records

National Pollutant Release Inventory (NPRI) – *Inventory of pollutant releases (to air, water and land), disposals and transfers for recycling:* A search of the NPRI did not identify any pollution releases for the Site for the years searched (1994 to 2016) within a 300 m radius of the Site.
Treasury Board of Canada – *Canadian Federal Contaminated Sites:* A search of the Treasury Board of Canada's online database indicated there were no Canadian Federal Contaminated Sites on the Site or within a 2 km radius of the Site.
Canadian Nuclear Safety Commission (CNSC) – *Licensing of Nuclear Facilities:* A search of the CNSC online database did not identify the Site or the current landowner in ongoing, completed or cancelled nuclear environmental assessments.
Alberta Environment and Sustainable Resource Development (AEP) and Environment Canada's Help End Landfill Pollution (H.E.L.P.) Project Registry (1988) – *Registered Landfills or Dumps:* A search of the H.E.L.P. registry did not identify a landfill within a 300 m[1] radius of the Site Quarter Section (SW ¼ 05-008-20-W4M).
AEP – *Authorization and Approvals for the Site and Surrounding Properties:* A search of the AEP Authorizations and Approvals database did not identify records of active or inactive authorizations or approvals for the Site or surrounding area.

[1] The Alberta Subdivision and Development Regulation establish set back limits and development restrictions for properties within 300 m and up to 450 m from a landfill, waste site and other facilities.

AEP Water Well Drilling Reports – *Groundwater wells within the Site quarter section:* The search of the AEP groundwater records did not identify any groundwater wells on-Site. Two groundwater wells are located within the SW ¼ 05-008-20-W4M. The closest well is located approximately 10 m south of the Site. The drilling report is incomplete and does not identify purpose or yield, or owner, only a completion depth of 4284 ft. (1305.7 m). This well is suspected to be the Mobil Oil C.P.R. Wilson No. 5-4 well. The second well is located 15 m south of Site to a completion depth of 265 ft. The well is used for domestic purpose and was installed in 1983 and owned by Lionel Stokell. The static water level is 140 ft. The groundwater drilling reports are available in Appendix C. Groundwater monitoring wells were not identified on-Site. The Site representative was not aware of any water wells on-Site.
AEP Environmental Site Assessment Repository (ESAR) – *ESAR reports on the Site and neighboring properties:* A search of AEP's ESAR database did not identify reports for surrounding properties within 150 m of the Site.
AEP Routine Disclosure (RD) and Freedom of Information and Protection of Privacy (FOIP) Office – *Potential environmental issues at the Site:* The responses received from the AEP FOIP Office on 27 March 2018 stated there are no routinely available records pertaining to nature and extent of soil, ground and surface water contamination, remedial measures taken to clean-up; status, or external correspondence between submitter and the Department of Environment for the Site.
Alberta Environmental Law Centre (ELC) – *Stop orders, control orders, tickets, violations of various Environmental Acts and wellsite reclamation certificates:* The responses received from the ELC stated there had been no enforcement actions issued against the Site owner.
Alberta Energy Regulator (AER) – *Information on oil and gas wells, facilities, batteries, incident reports and pipeline township maps:* At the time of issue of the Phase I ESA, response from the AER for the well file had not yet been received, when received the findings will be updated.
Abacus Datagraphics Limited Database (AbaData)[2] – *Oil/gas wells, groundwater wells, pipelines, facilities and batteries, AER waste control location or landfill, or environmental spills:* A search of the Abacus database (AbaData) identified one well (Mobil Oil C.P.R. Wilson No. 5-4) located 10 m south of Site. The well was drilled in 1955 and abandoned in 1958. It is believed that it was an exploration well as no production report is available. The completion depth was 1306.1 m (4285.1 feet). The lease plan was available and shows that a portion of the lease covered approximately 3 acres of the southern portion of the Site. There were no records pertaining to environmental spills in relation to the above noted well site.
Petroleum Tank Management Association of Alberta (PTMAA) – *Above-ground and Underground Bulk Storage Tanks reported since 1992 or surveyed in 1992:* The response received from the PTMAA did not identify any USTs or ASTs for the Site.
County of Lethbridge – *Records of known contamination or compliance concerns, landfills, bylaw complaints or infractions or surface drainage issues:* The County of Lethbridge issued development permits for the Site in September of 1994. The County also forwarded a letter to Amec Foster Wheeler from Mobil Oil of Canada Ltd. dated August 1, 1957 that indicates an abandoned well was located on LSD. 4-5-8-20-W4M and that all equipment was removed in May and June of 1956.

[2] Abacus Datagraphics obtains their data from the AER, Alberta Energy, Alberta Environment and other sources.

4.0 HISTORICAL ENVIRONMENTAL REPORTS

Amec Foster Wheeler did not receive any previous environmental reports for the Site.

5.0 ENVIRONMENTAL ISSUES INVENTORY

The following sections describe environmental issues evaluated during the course of this assignment.

5.1 Land In-Filling

An irrigation canal was infilled on the Site between 1970 and 1983. The outline of the former canal is visible on current air photos and is presented on Figure 2.

Review of historical development and construction details or an intrusive investigation would be required to confirm the presence or absence of non-native fill materials on the Site. However, there could be no assurances that even an extensive investigation sampling and analytical program would detect impacts to the Site, if any, associated with the fill material. Therefore, no Phase II ESA is recommended to assess the fill at this time.

5.2 Dumps and Landfills

Background

The *Subdivision and Development Regulation* (*43/2002*) outlines the development restrictions and setback distances associated with construction of a school, hospital, food establishment, or residence in the vicinity of an active or inactive/closed dump or landfill. Construction, management and closure of a landfill are regulated under the *Waste Control Regulation* (*192/1996*) *(as amended)* and the *Alberta Environment Code of Practice for Landfills*. Dumps and landfills may represent potential sources of soil and groundwater contamination, or health hazards.

Site

According to the available records, no active or inactive registered landfills or dumps are known to be located on the Site or within a 300 m radius of the Site. There was no evidence of potential landfills or dumps identified on the Site in the historical review or during the Site viewing. The Site Representative was not aware of historical dumps on the Site. Based on the available information, Amec Foster Wheeler does not anticipate dumps or landfills are present on the Site.

5.3 Methane

Background

Methane is a gas derived from the breakdown of organic material or waste under anaerobic conditions (e.g., dumps and landfills). The primary concern with respect to methane is its potential to accumulate in enclosed spaces and explode upon ignition. Methane also acts as an

asphyxiant, decreasing the oxygen content of the air, which may cause health concerns, including increased breathing and pulse rates, impaired muscular coordination and fatigue. The *2010 National Building Code* includes provisions for the construction of new buildings which address soil gas ingress into buildings.

Site

The Site is not located within 500 m of a registered active or inactive landfill or a dump, as discussed in Section 5.2. No evidence of potential landfills or dumps or other sources of potentially buried organics were identified on the Site during the Site viewing or in the historical review. A Groundwater Well Drilling Report lithology was reviewed for a groundwater well located in NW¼ 05-008-20 W4M. The report did not indicate any organic shales within the upper 130 m from ground surface.

The aerial photograph review did identify potential wetlands that have been filled-in on the southern portion of Site, as well as the backfilled irrigation canal.

Based on this available information, there is potential for methane gas to be a potential environmental concern at the Site, however testing would be required to determine the presence or absence and concentration (if present), of methane on Site.

5.4 Radon and NORM

Background

Radon is a colourless, odourless gas that occurs naturally from the breakdown of uranium. Radon can be found in high concentrations where there are soils and rocks containing high levels of uranium, granite, shale, sandstones or phosphate. In open air or in areas with high air circulation, radon is not considered a health hazard. However, in confined spaces (such as basements), radon can concentrate and become a health hazard. According to Health Canada's 2011 *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*, radon released from soil beneath a building gives rise to an average indoor background concentration of about 45 Bq/m^3 (Becquerel's per cubic metre), but much higher values are possible in some areas. The *2010 National Building Code* (R2012), includes provisions for the construction of new buildings which address soil gas ingress into buildings. In addition, the 2014 Alberta Building Code incorporated these provisions, which require all buildings to include a "rough-in" for a subslab depressurization system for protection against potential radon ingress. Municipalities across the province have been incorporating the enforcement of these protective measures as part of building development permit applications at varying timelines.

Health Canada and Canadian Mortgage and Housing Corporation (CMHC) have issued a guide and other papers, which address radon concerns (CMHC 2007). Health Canada recommends that the level of radon in the air in a home in a normal living area be no more than 200 Bq/m^3 per year and recommends that action be taken to reduce the radon level to a value as low as reasonably achievable, if values are above this level. If the annual radon concentration reaches or exceeds 600 Bq/m^3, action should be taken sooner and within one year to reduce the value.

Health Canada (2011) also recommends that all workplaces be assessed for potential elevated levels of radon. Derived Working Limits (DWLs) have been determined and provide an estimate of dose from the quantities that may be directly measured in the workplace. The investigative DWL for radon in the workplace is 200 Bq/m^3. Where the annual average concentration of radon gas is expected to be above 200 Bq/m^3, measurements should be made to estimate the average annual radon gas concentration. Radon is also governed by the *Occupational Health and Safety Regulation, Alta. Reg. 62/2003*.

A 2011 Radon Potential Map of Canada, published by Radon Environmental Management Corporation, identified three zones of the relative radon hazard across Canada based on geologic conditions (i.e., geology, geophysics and geochemistry). The regions depicted in the map reflect conditions where higher radon readings might be found in Zone 1 (High) versus Zone 2 (Elevated) and Zone 3 (Guarded), respectively. A radon survey of private Canadian residences was published in 2012 by Health Canada in connection with Health Canada's National Radon Program. The survey included the evaluation of a select number of private homes from regional health units across Canada. The study estimated that of the 121 health regions, 92.6% had homes with radon concentrations above the Canadian Radon Guideline of 200 Bq/m^3. In Alberta, employers are required to develop and implement safe work practices and procedures for all workers who deal with, or come into contact with a radiation source under the OHS regulations.

Naturally-occurring radioactive material (NORM) is material that contains radioactive elements derived from a natural source. NORM primarily contains uranium and thorium which release radium, radon and potassium as they decay. NORM may be found in its natural state in rocks or sand, but can also be associated with oil and gas production residue as a mineral scale in pipes, as a sludge or on contaminated equipment. According to the Canadian Nuclear Safety Commission, NORM can also be present in consumer products such as bricks and cement blocks, granite counter tops, phosphate fertilizers, tobacco products, etc. (see: http://nuclearsafety.gc.ca/eng/resources/fact-sheets/naturally-occurring-radioactive-material.cfm). The federal government, through Health Canada, issued the document "*Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials* (revised 2011)" which was last published in 2014.

In Alberta, employers are required to develop and implement safe work practices and procedures for all workers who deal with, or come into contact with a radiation source under the OHS regulations.

Site

The Site falls into Zone 1 (High) radon potential within the Chinook Health Region (Alberta Health Services Southern Region), however a radon survey of private Canadian residences was published in 2012 by Health Canada in connection with Health Canada's National Radon Program for the Chinook Health Region, which indicated that 91% of the respondents were below the Canadian Radon Guideline of 200 Bq/m^3.

Bedrock Geology of Alberta, Map No. 600 published by Alberta Geological Survey in 2013 was reviewed and indicates that the bedrock geology for the Site is the Bears Paw Formation (KBp),

characterized by dominantly dark grey to brown mudstone with concretionary sideritic bentonite concretionary layers; concentrations locally yield ammonites; marine to marginal marine in origin. Based on the bedrock information, and the anticipated thickness of overlying fine-grained sediments, and results from the 2012 Radon survey for the Chinook Health Region, naturally-occurring radon is not expected to be a concern at Site. A radon survey would be required to definitively determine the presence or absence of radon and the concentrations if present, however based on available information, NORM are not considered a concern on Site.

5.5 Water and Groundwater Wells

Background

The *Water Act* outlines the regulatory requirements for obtaining water from natural water systems in Alberta. A water well license, permit or approval must be obtained for groundwater wells. Unused groundwater wells must be properly decommissioned in accordance with the *Water (Ministerial) Regulation 205/1998* (as amended up to and including Alberta Regulation 185/2015). Groundwater wells in themselves do not typically represent a contaminant source of environmental concern; however, they can act as a conduit for liquid-phase contamination.

Site

The search of the AEP groundwater records did not identify any groundwater wells on-Site. Two groundwater wells are located within the SW ¼ 05-008-20-W4M. The closest well is located approximately 10 m south of the Site (Well ID: 118269). The drilling report is incomplete and does not identify purpose or yield, or owner, only a completion depth of 4284 ft. This well is suspected to be the Mobil Oil C.P.R. Wilson No. 5-4 well.

The second well is located 15 m south of Site to a completion depth of 265 ft. (Well ID: 118268). The well is used for domestic purpose and was installed in 1983 and owned by Lionel Stokell. The static water level is 140 ft. The groundwater drilling reports are available in Appendix C.

Groundwater monitoring wells were not identified on-Site. The Site representative was not aware of any water wells on-Site.

5.6 Pipelines and Oil and Gas Wells

Background

Oil and gas wells can represent an environmental concern from a number of related sources including drilling mud, sumps/earthen pits, flare pits/stacks, produced fluids, storage tanks, pipelines, chemicals and waste, etc.

Ground disturbance in the right-of-way of a pipeline is defined by and regulated under the *Pipeline Act RSA 2000* (revised 2014) and the *Pipeline Regulation Alta. Reg. 91/2005 (as amended)*. Ground disturbance must be completed in accordance with the applicable Alberta AER regulations and must meet the requirements of the licensee. Ground disturbance may not be undertaken within the right-of-way for a pipeline without the approval of the licensee of the pipeline. If approval cannot reasonably be obtained from the licensee, approval must be obtained from the AER prior to the commencement of any ground disturbance. Reclamation of

pipelines in Alberta is regulated under the *Environmental Protection and Enhancement Act* the *Public Lands Act*, the *Water Act* and the 1994 *Environmental Protection Guidelines for Pipelines*.

Pipeline leaks may be caused by a single catastrophic event or by a combination of events including excavation damage, corrosion, material/weld defects, or vandalism. Indicators of a possible pipeline failure or leak in the environment can include: dead or discoloured vegetation, sunken or depressed soils along the right-of-way, pools of hydrocarbon liquid at the surface of the right-of-way, odours, surface gas bubbles or clouds of vapour.

Site

A search of the Abacus database (AbaData) identified one well, Mobil Oil C.P.R. Wilson No. 5-4, located 10 m south of Site (Photo #4 Appendix D and Figure 2). The well was drilled in 1955 and abandoned in 1958. It is believed that it was an exploration well as no production report is available. The completion depth was 1306.1 m. The lease plan was available and shows that a portion of the lease covered approximately 3 acres of the southern portion of the Site.

The AbaData records are available in Appendix C. There were no records pertaining to environmental spills in relation to the above noted well site, however environmental impacts can result from the drilling and production process, specifically in areas surrounding the well head, flare pits and sumps.

Potential impacts can include metals, petroleum hydrocarbons and/or salinity parameters criteria exceedances.

Based on the limited information available for the former well site, including specific operations, production activity, spills, remediation activities (if completed), reason for closing and planned activities for the property, along with overlapping of the lease and close proximity of the well to the Site (10 m south), the former Mobile Oil well represents an on and off-site APEC. Further investigation (Phase II ESA) would be required to determine if this property has affected the Site.

5.7 Chemical Inventory, Storage and Handling

Background

In Alberta, the storage, handling and transportation of hazardous chemicals is regulated by the Occupational Health and Safety Regulation, Alta Reg. 62/2003, the 2014 Alberta Fire Code (as amended), Workplace Hazardous Materials Information System (WHMIS-2015) and the *Transportation of Dangerous Goods Act* (TDG). WHMIS 2015 incorporates the Globally Harmonized System of Classification and Labelling for chemicals (GHS). The historical and current chemical handling and storage practices as well as incidents or accidents are factors which will contribute to the likelihood of chemical impacts to a property. The effect of chemical drips, leaks, spills or releases will depend on a number of influencing factors. The type and volume of chemical, duration of the discharge, type and condition of the affected substance, ambient and ground temperatures, and precipitation are a few of these factors.

Site

No chemical storage or handing was identified on-Site. Fertilizers and pesticides are used in farming applications however at the time of the Site visit the farm fields were leased out and no fertiliser or pesticide was stored on-Site.

5.8 Storage Tanks

Background

Fuel storage at industrial facilities in Alberta is regulated by the following regulations and codes and agencies: the *2010 National Fire Code of Canada*; the 2014 *Alberta Fire Code*; the *Waste Control Regulation*, *Alta Reg. 192/1996 (as amended)*, the 2003 *Environmental Code of Practice for Above-ground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products,* the PTMAA and the local Fire Departments. In general, the codes and regulations apply to storage tanks associated with flammable and combustible liquids, and chemicals and include petroleum products as well as some thinners, solvents and inks. The Alberta Fire Code provides construction requirements of storage tanks and associated connections. Under the authority of Alberta Labour, which has delegated this authority to the PTMAA, all underground storage tanks and above-ground storage tanks with a capacity of 2,500 L or greater, excluding agricultural properties, unrefined petroleum products, and upstream oil and gas facilities require registration with the PTMAA. Both of the PTMAA databases (active tank sites and inventory of abandoned tank sites) are not complete.

The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. Registration with PTMAA was not required for agricultural tanks and PTMAA only maintains records for flammable refined petroleum hydrocarbons and waste oil. Upstream or midstream oil and gas industry tanks are regulated through AER Directive 055: *Storage Requirements for the Upstream Petroleum Industry*. The PTMAA cannot guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy.

Site

A search of the PTMAA did not identify any active or abandoned tanks for the Site. Storage tanks and pipelines were not identified during the Site visit. There were no ASTs observed during the Site visit.

The detailed response received from the PTMAA is located in Appendix C of the subject report.

5.9 Pesticides

Background

In Alberta, storage, handling and use of pesticides (herbicides, insecticides, fungicides and rodenticides) are regulated under the Alberta *Environmental Protection and Enhancement Act*, the *Pesticide (Ministerial) Regulation 43/97 (1997a)*, the *Pesticide Sales Handling, Use and*

Application Regulation 24/97 (1997c) and the Environmental Code of Practice for Pesticides. The human health concerns associated with pesticides are varied, depending on the specific pesticide. They can range from non-carcinogenic effects such as hepatotoxicity to carcinogenic effects.

Site

There was no evidence of pesticide storage or use noted during the Site inspection. The farm fields are leased out yearly. No fertilizer of pesticide was stored on Site.

5.10 Non-Hazardous and Hazardous Waste

Background

The *Waste Control Regulation (192/1996) (as amended)* of the EPEA and the *TDG Act* outline the specific regulatory requirements of waste (non-hazardous, hazardous and hazardous recyclables) generation, handling, transporting and disposal in Alberta. Section 179 of the EPEA requires that a Personal Identification Number be obtained from AEP if the facility generates, transports, stores or disposes of hazardous waste beyond the small quantities exemption listed in the *Waste Control Regulation*. The *TDG Act* requires that anyone transporting hazardous wastes and recyclables, which are considered dangerous goods, must carry a current certificate of TDG training.

Site

There were no areas of potential environmental concern associated with waste handling or disposal, or evidence of unauthorized dumping observed or reported during the Site reconnaissance

5.11 Air Emissions

Background

Requirements for an Air Emissions Approval in Alberta are outlined in the *Environmental Protection and Enhancement Act* (EPEA), specifically within the *Activities Designation Regulation (276/2003*). The Substance Release Division of the Activities Designation Regulation specifically identifies substance release activities that require air emissions approvals. The operation of fuel burning equipment for comfort heating in a building does not require an approval under the EPEA.

Site

There are no known historical or current activities which generate emissions from the Site, which would require an air emissions approval. Amec Foster Wheeler has not identified a source of air emission, exempt from an approval, which represents a potential source of environmental concern to the Site.

5.12 Storm, Sanitary and Process Wastewater

Background

The *Water Resources Act* outlines the regulatory requirements for discharging wastewater to natural water systems in Alberta. The requirements for approval, with respect to wastewater and stormwater drainage in Alberta, are outlined in the EPEA, specifically within the *Activities Designation Regulation (276/2003)*. The Substance Release Division of the Activities Designation Regulation specifically identifies substance release activities, which require wastewater and stormwater drainage approvals. Regulatory control of wastewater and stormwater discharges is regulated by the *Alberta Wastewater and Storm Drainage Regulation (119/1993) (as amended)* and the *Wastewater and Storm Drainage (Ministerial) Regulation (120/1993)*. The release of normal domestic sewage and normal stormwater to the municipal sanitary and storm sewerage systems does not require an approval under EPEA. Control of discharges to the municipal sewerage system is the responsibility of the municipality or municipal (city) government.

Site

Water is supplied to Site by pumping it form the SMRID irrigation canal and storing it in the 500,000 gallon dugout. A septic field is located on the east side of the house. All stormwater is directed to the county ditch located along the west side of the Site.

Amec Foster Wheeler did not identify areas of potential environmental concern associated with Site drainage.

5.13 Spills, Surface Staining and Stressed Vegetation

Background

The *Transportation of Dangerous Goods Act*, 1992, S.C. 1992, c. 34, and the Transportation of Dangerous Goods (TDG) Regulations (SOR/2001 – 286) identify the nine classes of regulated substances. The regulation outlines under what conditions a release or ‘spill’ of a substance into the environment must be reported to the appropriate local authorities and if applicable, to AEP.

The properties of a substance, in combination with the physical condition and properties of the material which are stained, will affect the nature, degree and extent of impact caused by a release. Surface discolouration or staining of the ground surface as well as surface films, odour, or textural anomalies may be representative of either a one-time spill or release event or the result of long-term spills, drips or leaks which may have occurred during storage, decanting or filling. Localized or widespread stressed vegetation, evident by foliage discolouration, changes in vegetation cover, areas of predominant chemical tolerant plant species, or areas devoid of vegetation may also be evidence of subsurface impacts associated with historical spills or releases. The application of new gravel or surface materials or the relocation of the filling/ decanting stations or storage facilities can make evidence of a potential subsurface issue difficult to identify.

Site

There was no evidence of spills, surface staining or stressed vegetation during the Site reconnaissance.

The Site Representative was not aware of reportable spills or leaks occurring on the Site.

5.14 Mould

Background

Many different mould species can cause health concerns, especially in indoor environments. Moulds can produce allergens that can trigger allergic reactions or even asthma attacks in people allergic to mould. They can cause potentially life-threatening infections in people with compromised immune systems. Some mould species such as *Aspergillus versicolor* and *Stachybotrysatra* produce toxins that can have both acute and chronic health effects.

Different species can grow on a variety of substrates such as wood, paper, carpet, foods, and insulation. Moulds can grow on just about any organic substrate as long as moisture and oxygen are present. Controlling moisture can control mould growth but spores already present will not be eliminated. Mould can often be hidden from immediate view and can grow on the undersides of carpet, ceiling tiles or drywall. In damp areas or places where water leaks are known to have occurred, mould growth should be suspected. Qualified Occupational Health and Safety personnel can confirm this by inspection.

Care must be taken in the removal or clean-up of mould affected building materials. The minimum personal protective equipment recommended is eye-goggles, gloves, and an N-95 respirator. It is particularly important not to raise dust during the removal, as this will spread the spores. Amec Foster Wheeler recommends that only qualified people be involved in the removal of mould-affected materials.

Suspected mould growth on building materials is identified by visual growth or evidence of water intrusion/damage. Microbial growth may occur within enclosed spaces and may not be evident during a walk through building assessment. Removal of materials containing mould should be done in accordance with *Occupational Health and Safety Regulation, Alta Reg. 62/2003* (with amendments up to and including *Alta. Reg. 182/2013*) and the *Occupational Health and Safety Code* 2009.

Site

Mould or conditions conducive to mould growth were not observed during the Site viewing; the Site Representative was not aware of mould or locations of potential mould growth on the Site.

5.15 Equipment Containing Regulated Substances

Background

Hydraulic fluids include a large group of liquids the most common of which include mineral oils, organophosphate ester, and polyalphaolefin. Some fluids have an odour, some do not, and some are combustible and some are not. Hydraulic fluids are either petroleum hydrocarbon

derivatives or man-made. The health and environmental effects of hydraulic fluids is also variable; however, their carcinogenicity has not been evaluated. In the environment, hydraulic fluids tend to degrade rapidly but may be persistent for more than a year. The toxic effects of hydraulic fluids on humans and other organisms are poorly understood.

Building operating equipment such as hydraulic lift equipment, in-ground vehicle hoists, hydraulic piston-style elevators, some escalators, and hydraulic dock levellers operate with hydraulic fluids and possibly lubricants within their system and in reservoirs. The construction of a building and installation of these types of equipment typically include in-ground hydraulic cylinders and/or below floor pits or vaults which are either lined with concrete or open to the soils or aggregate material beneath a building floor. The equipment requires regular inspection and maintenance. In the event of manufacturing defects, damage or as the equipment deteriorates over time, seals and valves may fail and fluids can be released.

Mercury has historically been employed in the construction of thermostats, switches and lamps. Commercial switches and thermostats reportedly may contain 2 to 18 mg of mercury with industrial switches and equipment containing 5 kg or more. Older mercury-containing lamps can contain up to 80 mg of mercury per lamp. Fluorescent lamps manufactured since 2000 have in the order of 4 to 12 mg of mercury per lamp. Other types of lamps, such as metal-halide and high-pressure sodium vapour, can also contain mercury in the order of 20 to 250 mg/lamp. Mercury was also commonly added to leaded paints as a fungal retardant (biocide); however, it is not commonly tested for as the proper handling and disposal of lead-containing paints would typically minimize any safety or disposal issues for mercury. The Surface Coating Materials Regulations (April 2005 as amended in 2010) restricted the maximum total mercury content of paints and other liquid coating materials to 10 mg/kg in or around premises attended by children or pregnant women.

Ionization smoke detectors use a small radioactive source in detecting smoke particles. The radionuclide used is an oxide of Americium-241, which is bonded to a metallic foil and sealed in an ionization chamber. Americium-241 emits alpha particles and low-energy gamma rays. The smoke detector alarm is activated when the flow of alpha particles is interrupted by smoke particles. When smoke detectors are used in accordance with manufacturer requirements and are not opened, they do not pose a radiation human health risk. The Atomic Energy Control Board (AECB) achieves regulatory control of nuclear materials and nuclear facilities through a comprehensive licensing system, which is administered through the cooperation of federal and provincial government departments such as health, environment, transportation and labour.

The handling and disposal of mercury wastes are regulated by *the Waste Control Regulation 192/1996 (as amended)* and the *Canadian Environmental Protection Act*. Disposal of small quantities of radioactive/liquid mercury waste (one to two smoke detectors or thermostats), and mercury vapour waste (10 or less lamps), into non-hazardous waste receptacles is generally acceptable. Larger quantities are regulated for disposal as Special Wastes.

Site

Equipment potentially containing liquid and vapour mercury (thermostats and light tubes and bulbs), and small quantities of radioactive material (smoke detectors) were identified within the

Site building. Amec Foster Wheeler recommends that when this equipment is serviced or removed during routine maintenance, renovation, alterations or demolition of the building, the units (>10 bulbs/tubes and/or >two smoke detectors/thermostats) are segregated, packaged to avoid breakage and disposed of in accordance with the waste management regulations.

5.16 Equipment Containing Ozone-Depleting Substances

Background

An ozone-depleting substance (ODS) refers to any substance containing chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC), Halon or any other material capable of destroying ozone in the atmosphere. ODSs have been used in rigid polyurethane foam and insulation, packaging, laminates, aerosols, air conditioning and refrigerants, propellants, fire extinguishers, cleaning solvents, and in the sterilization of medical equipment. Federal regulations introduced in 1995 required the elimination of production and import of CFCs by 01 January 1996 (subject to certain essential uses), a suspension on the production and import of HCFC-22 by 01 January 1996, and the complete elimination of HCFC-22 by the year 2020. The HPA does not require the licensing, approval, or registration of property at which ODSs have been identified. However, Alberta regulations require the licensing of contractors who handle ODSs through equipment servicing.

Site

Amec Foster Wheeler recommends that when equipment containing refrigerants are serviced or removed during maintenance, renovation, alteration or demolition of the building, the units be inspected by qualified personnel and the presence or absence of ODS confirmed. If the units contain ODSs, they should be handled and disposed of in accordance with the ODS regulations.

5.17 Equipment Containing Polychlorinated Biphenyl Fluids

Background

Polychlorinated biphenyl (PCB) containing products were manufactured for use in applications where stable, fire-resistant, and heat-transfer properties were demanded up to approximately 1980. Most PCBs were sold for use as dielectric fluids (insulating liquids) in electric transformers and capacitors. Other uses included dye carriers in carbonless copy paper, heat transfer fluid, hydraulic fluid, some electrical and communication components, plasticizers, paints, coatings and sealants, plastics, rubbers, lubricants, wax extenders, adhesives/mastic, caulking and grout, roofing and siding materials, insulation materials and other materials that required durability and resistance to thermal and photo-reactive processes and weathering for industrial applications.

In 1977, the Government of Canada banned the importation, manufacture and sale for reuse of PCBs. Since 1977, the government has adopted various regulations and taken measures to manage PCB manufacture, processing, use, import, export, sale, storage, transportation, destruction and releases into the environment. PCBs are currently regulated under the *PCB Regulations (SOR/2008-273 as amended)* of the 1999 *Canadian Environmental Protection Act.* The *PCB Regulations* set deadlines for ending the use of PCBs, eliminating all PCBs and

equipment containing PCBs currently in storage, and limiting the period of time PCBs can be stored before being destroyed. These deadlines apply based on the liquid or solid state of the PCB, the concentration of the PCB or the type of equipment or materials the PCB is contained in. In Alberta, waste (liquid, solid, substance or equipment) containing PCBs at a concentration equal to or greater than 50 mg/kg is hazardous waste and is regulated under the *Waste Control Regulation (Alberta Regulation 192/1996)*.

Human health concerns associated with PCBs include carcinogens, if they are ingested, and toxic by-products including furans and dioxins, if they are burned.

Site

Transformers were not identified on-Site during the Site assessment. It is unlikely that PCBs are present on Site.

5.18 Asbestos-Containing Materials

Background

Asbestos-containing materials (ACMs) were generally discontinued from use in Canada in the late 1970s to early 1980s, although non-friable asbestos is still found in many more recent buildings. ACMs are fibrous hydrated silicates, and can be found in building materials as either 'friable' or 'non-friable' asbestos products. Friable asbestos (material containing 0.1% or greater asbestos fibres), refers to materials that can be readily crumbled using hand pressure, separating asbestos fibres from the binding materials with which they are associated. Non-friable material (material containing 1.0% or greater asbestos fibres) refers to asbestos that is associated with a binding agent (such as tar or concrete), preventing ready release of airborne fibres. Friable asbestos is commonly found in boiler and pipe insulation. Non-friable or bound asbestos is typically found in roofing tars, floor tiles, and precast asbestos concrete products commonly referred to as 'transite'. The only method of confirming whether materials are asbestos-containing is to sample and analyze the suspect materials. Any potential ACM must be treated as an ACM unless laboratory analysis indicates otherwise. Alberta Labour and the Alberta Asbestos Abatement Manual state that asbestos/asbestos fibres are not permitted in or to enter into building air plenums. Employees present in buildings with known or suspect ACMs must be informed and all ACMs must be identified. Materials that are identified as containing asbestos which are in poor condition should immediately be managed, either by proper encapsulation or removal. ACMs will also become an issue during renovation, alteration, maintenance or demolition activities during which these materials would be disturbed. Removal of materials containing asbestos should be done in accordance with *Alberta Human Resources & Employment Health and Safety, Alberta Asbestos Abatement Manual current edition, Occupational Health and Safety Regulation, Alta Reg. 62/2003* and the *Occupational Health and Safety Code* 2009.

Site

Based on the construction date of the Site building (1996), there is a possibility of non-friable asbestos-containing materials (ACMs) being present in, but not limited to, the roofing materials, vinyl flooring and mastics, caulking compounds, drywall joint compounds, floor levelling

compounds, and penetration mastics. Amec Foster Wheeler recommends that if these items or other suspect materials are to be disturbed during routine maintenance, renovations, alterations or demolition, the materials should be assessed, sampled and tested by qualified environmental health practitioners in accordance with the asbestos management and waste regulations.

5.19 Lead Containing Paint

Background

Lead was used extensively for pigmentation, sealing, and as a drying agent in oil based paints up until the early 1950s. Exterior paints typically contained up to 60% lead by dry weight. Beginning in the 1960s, a decrease in the content of lead employed in paints was initiated. In 1976, the federal government passed the *Liquid Coating Materials Regulations* under the Canadian *Hazardous Products Act* limiting the amount of lead for interior paints to 0.5% by weight of the dried paint film. Exterior and commercial paints could still contain lead and these lead paints were routinely used in buildings until the early 1980s. In 2005, under the *Hazardous Products Act*, the federal government issued the *Surface Coating Materials Regulations SOR/2010-224*, which limited the amount of lead permissible in paints and other surface coating materials to 0.009% lead by dry weight (90 mg/kg). This reduction does not generally apply to surface coating applied to buildings or other structures used for agricultural or industrial purposes as an anti-weathering or anti-corrosive coating.

The presence of lead-containing paints (LCPs) in buildings represents the most significant hazard where persons, notably small children, may ingest peeling or flaking LCPs. The generation of airborne lead-containing dust created during renovation, demolition, or construction activities (i.e., during sanding and grinding), or like actions on deteriorated painted surfaces (peeling/flaking) also comprises a potential health concern. The Alberta Occupational Health and Safety Regulation occupational exposure limits for an eight-hour period for lead in air is 0.05 mg/m^3. The Canadian Council of Ministers of the Environment has also established allowable concentrations of lead in soil, sediment and water.

The presence of LCPs can only be verified through sampling and analysis of suspect paint samples. If present LCPs may be addressed through the implementation of appropriate management or abatement plans to protect the health of persons working at the property, as required under the *Occupational Health and Safety Act*. Appropriate management and disposal plans are also required where maintenance, alteration, renovation, or demolition activities undertaken at a property may disturb these lead-containing materials and generate waste materials as required under the *Occupational Health and Safety Code 2009*.

Site

Based on the construction date of the Site building (1996), although unlikely, there is the potential for lead-containing paints to be present within the building. Amec Foster Wheeler recommends that when potential lead-containing paints are to be disturbed during routine maintenance or renovations, alterations or demolition of the building, the painted surfaces be assessed by a qualified environmental practitioner prior to disturbance and if required, abated in accordance with the occupational health and safety and waste control regulations.

5.20 Urea Formaldehyde Foam Insulation

Background

Urea Formaldehyde Foam Insulation (UFFI) was widely used as an insulating material in the 1970s and up until December 1980, when a ban on the use of UFFI was enacted under the HPA. UFFI is low-density foam that is formed by the polymerization of urea and formaldehyde liquids. Some buildings were constructed with UFFI. In addition, UFFI was commonly injected through walls by drilling injection holes, typically in roof structures, ceilings and overhangs. The HPA does not require the licensing, approval or registration of a property where UFFI has been identified except for residential properties. The human health concerns associated with UFFI are the release of gases as the UFFI cures, ages and degrade. Sampling and analysis is required to confirm the presence of UFFI in suspect materials.

Site

The Site building was constructed in 1996. No exposed wall cavities, insulation or evidence of potential UFFI applications were identified on the Site. Based on the available information, UFFI is not expected to be present.

5.21 Surrounding Land Uses

Amec Foster Wheeler visually-inspected the surrounding land uses on 07 November 2016 via car and on foot to identify current surrounding land uses and to identify off-site issues of potential environmental concern to the subject Site. Surrounding lands were viewed from the boundaries of the subject Site and from publicly-accessible areas and Amec Foster Wheeler did not enter any of the observed off-site buildings.

As discussed in Section 2.2, the regional groundwater in the area of the Site is anticipated to flow towards the west. However, a groundwater study of the Site has not been completed to date to confirm this assumption. The Site and surrounding lands are illustrated on Figure 2. A summary of observations regarding surrounding land use is provided below.

North

A farm house, with agricultural land, borders the Site to the North (Photo #8, Appendix D).

Amec Foster Wheeler did not identify off-site issues on the north-surrounding properties with the potential to pose an off-site APEC/IPEC to the Site.

East

The SMRID canal borders the Site to the east (Photo #9, Appendix D).

Amec Foster Wheeler did not identify off-site issues on the east-surrounding properties with the potential to pose an off-site APEC/IPEC to the Site.

South

Land to the south of the Site includes the small irrigation canal followed by the grouped country residential subdivision. (Photo #3, #10 and #11, Appendix D).

The Mobil Oil C.P.R. Wilson No 5-4 well was located south of the Site from 1955 to 1958. The lease extended on-Site and covered approximately 3 acres of the southern portion (Figure 2). There were no records pertaining to environmental spills in relation to the above noted well site, however environmental impacts can result from the drilling and production process, specifically in areas surrounding the well head, flare pits and sumps. Potential impacts can include metals, petroleum hydrocarbons and/or salinity parameters. criteria exceedances

Based on the limited information available for the former well site, including specific operations, production activity, spills, remediation activities (if completed), reason for closing and planned activities for the property, along with overlapping of the lease and close proximity of the well to the Site (10 m south), the former Mobile Oil well represents an on and off-site APEC. Further investigation (Phase II ESA) would be required to determine if this property has affected the Site.

West

The Site is bordered to the west by Range Road 20-5 followed by Rural Agricultural land (Photo #12, Appendix D).

Amec Foster Wheeler did not identify off-site issues on the west-surrounding properties with the potential to pose an off-site APEC/IPEC to the Site.

Assumptions

These opinions as described above are based on the assumption that information provided to Amec Foster Wheeler, and information presented by others in reports to various agencies, is accurate and complete.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The on-site and off-site environmental concerns are summarized as follows and include the recommendations for further work or actions to be considered to address IPECs or APECs which are summarized as follows.

Methane

The aerial photograph review did identify potential wetlands that have been filled in on the southern portion of Site, as well as a backfilled irrigation canal that crossed the Site from north to south. A methane survey would be required to determine the presence or absence and actual concentrations of methane at the Site or within Site buildings.

Radon

Shales and coal beds which may be present in the subsurface are a potential source for radon generation. There is, therefore, a potential for radon concentrations present in the subsurface to exceed the annual occupational exposure limit on-site. However, a radon survey would be required to determine the actual concentrations in the buildings on-site.

Equipment Containing Regulated Substances

Equipment potentially containing liquid and vapour mercury (thermostats and light tubes and bulbs), and small quantities of radioactive material (smoke detectors) were identified within the Site building. Amec Foster Wheeler recommends that when this equipment is serviced or removed during routine maintenance, renovation, alterations or demolition of the building, the units (>10 bulbs/tubes and/or >two smoke detectors/thermostats) are segregated, packaged to avoid breakage and disposed of in accordance with the waste management regulations.

Ozone-Depleting Substances

Amec Foster Wheeler recommends that when equipment containing refrigerants are serviced or removed during maintenance, renovation, alteration or demolition of the building, the units be inspected by qualified personnel and the presence or absence of ODS confirmed. If the units contain ODSs, they should be handled and disposed of in accordance with the ODS regulations.

Asbestos-Containing Materials

Based on the construction date of the Site building (1996), there is a possibility of non-friable asbestos-containing materials (ACMs) being present in, but not limited to, the roofing materials, vinyl flooring and mastics, caulking compounds, drywall joint compounds, floor levelling compounds, and penetration mastics. Amec Foster Wheeler recommends that if these items or other suspect materials are to be disturbed during routine maintenance, renovations, alterations or demolition, the materials should be assessed, sampled and tested by qualified environmental health practitioners in accordance with the asbestos management and waste regulations.

Lead-Containing Paint

Based on the construction date of the Site building (1996), although unlikely, there is the potential for lead-containing paints to be present within the building. Amec Foster Wheeler recommends that when potential lead-containing paints are to be disturbed during routine maintenance or renovations, alterations or demolition of the building, the painted surfaces be assessed by a qualified environmental practitioner prior to disturbance and if required, abated in accordance with the occupational health and safety and waste control regulations.

Pipelines and Oil and Gas Wells

A search of the Abacus database (AbaData) identified one well, Mobil Oil C.P.R. Wilson No. 5-4, located 10 m south of Site. The well was drilled in 1955 and abandoned in 1958. It is believed that it was an exploration well as no production report is available. The completion depth was 1306.1 m. The lease plan was available and shows that a portion of the lease covered approximately 3 acres of the southern portion of the Site.

There were no records pertaining to environmental spills in relation to the above noted well site, however environmental impacts can result from the drilling and production process, specifically in areas surrounding the well head, flare pits and sumps. Potential concerns can include elevated metals, petroleum hydrocarbons and/or salinity concentrations.

Based on the limited information available for the former well site, including specific operations, production activity, spills, remediation activities (if completed), reason for closing and planned activities for the property, along with overlapping of the lease and close proximity of the well to the Site (10 m south), the former Mobile Oil well represents an on- and off-site APEC. Further investigation (Phase II ESA) would be required to determine if this property has affected the Site.

In summary, based on Amec Foster Wheeler's review of the available information for the Site and surrounding properties as presented herein,

i) a Phase II intrusive environmental investigation is recommended.

ii) recommendations pertaining to the assessment of methane, radon and potential hazardous building materials as described in this report should also be considered.

The opinions in this report are based on the assumption that information provided to Amec Foster Wheeler, and information presented by others in reports to various agencies is accurate and complete.

7.0 CLOSURE

This report was prepared for the exclusive use of Martin Geomatic Consultants Ltd. and is intended to provide an environmental assessment of the property described by short legal 4;20;8;5;SW located near Lethbridge, Alberta, at the time of the Site visit. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Amec Foster Wheeler will be required. With respect to third parties, Amec Foster Wheeler has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The report is based on data and information collected during the Phase I ESA of the property conducted by Amec Foster Wheeler. It is based solely on the conditions of the Site encountered at the time of the Site visit on 29 March 2018, supplemented by a review of historical information and data obtained by Amec Foster Wheeler as described in this report, and discussion with a representative of the owner/occupant, as reported herein. Except as otherwise maybe specified, Amec Foster Wheeler disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Amec Foster Wheeler after the time during which Amec Foster Wheeler conducted the Phase I ESA.

In evaluating the property, Amec Foster Wheeler has relied in good faith on information provided by other individuals noted in this report. Amec Foster Wheeler has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. Amec Foster Wheeler accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Amec Foster Wheeler makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This Report is also subject to the further Standard Limitations contained in Appendix F.

We trust that the information presented in this report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

With appreciation,

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Reviewed by:

Scott Roughead C.E.T.
Senior Environmental Technologist
ASET Member#: 98653

David Parbery, M.N.R.M., P.Geo.
Senior Environmental Geoscientist

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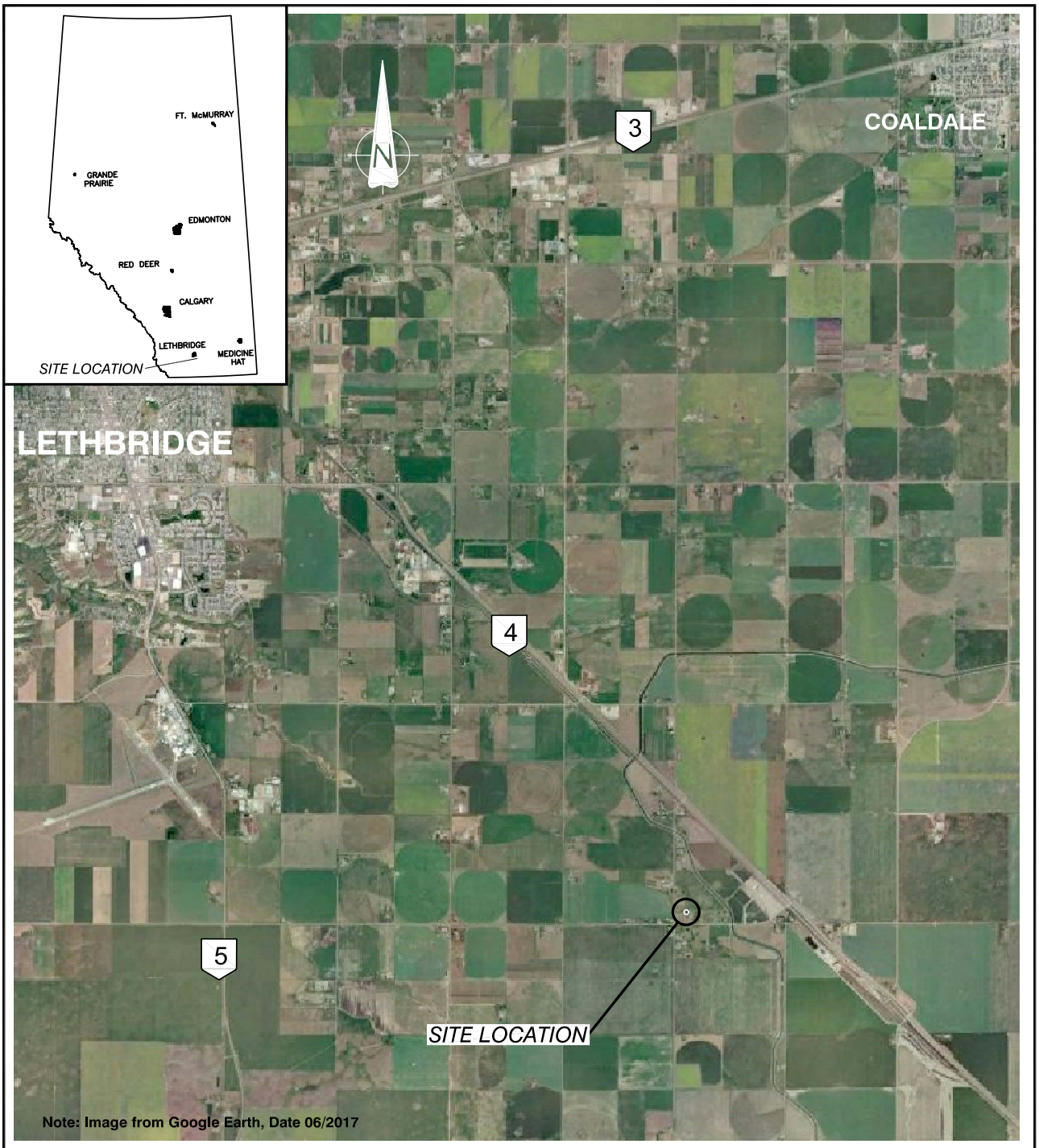
Figures

Figure 1: **Location Plan**
Figure 2: **Site Plan**



Amec Foster Wheeler Environment & Infrastructure 469 - 40th Street South Lethbridge, Alberta CANADA T1J 4M1 Tel. (403) 327-7474 Fax (403) 327-7682	amec foster wheeler	Martin Geomatic Consultants Ltd.		
TITLE LOCATION PLAN		DWN BY: BJ	DATUM: NA	DATE: APRIL 2018
PROJECT Phase I Environmental Site Assessment Nakamura Residential Subdivision - SW5-8-20-W4M near Lethbridge, Alberta		CHK'D BY: SR SCALE: NTS	PROJECT NO: BX20137	FIGURE 1

Amec Foster Wheeler Environment & Infrastructure 469 - 40th Street South Lethbridge, Alberta CANADA T1J 4M1 Tel. (403) 327-7474 Fax (403) 327-7682	amec foster wheeler	Martin Geomatic Consultants Ltd.		
TITLE: SITE PLAN		DWN BY: BJ	DATUM: NA	DATE: APRIL 2018
PROJECT: Phase I Environmental Site Assessment Nakamura Residential Subdivision - SW5-8-20-W4M near Lethbridge, Alberta		CHK'D BY: SR SCALE: NTS	PROJECT NO: BX20137	FIGURE 2

Appendix A

Land Titles

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0020 144 473	4;20;8;5;SW	051 470 968

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 20 TOWNSHIP 8
SECTION 5
THAT PORTION OF THE SOUTH WEST QUARTER LYING TO THE
WEST OF THE 65 METRE CANAL RIGHT OF WAY AND LYING
NORTH OF THE SOUTH HALVES OF LEGAL SUBDIVISIONS 3
AND 4, AND LYING TO THE NORTH OF THE 30 METRE CANAL
RIGHT OF WAY ON PLAN 8210212
CONTAINING 27 HECTARES (66.8 ACRES) MORE OR LESS
EXCEPTING THEREOUT:
THE NORTH 15 METRES CONTAINING 0.37 OF A HECTARE MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: COUNTY OF LETHBRIDGE

REFERENCE NUMBER: 941 226 700

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
051 470 968	10/12/2005	TRANSFER OF LAND	$414,000	$414,000

OWNERS

JODY F NAKAMURA
OF 4611-50 AVE
TABER
ALBERTA T1G 1G3

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
1485KX .	21/06/1971	IRRIGATION ORDER/NOTICE THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT
3432U .		RESTRICTIVE COVENANT
3903EM .	24/10/1934	CAVEAT CAVEATOR - ALBERTA RAILWAY AND IRRIGATION CO..
941 261 421	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
941 261 422	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
051 470 969	10/12/2005	MORTGAGE MORTGAGEE - THE TORONTO DOMINION BANK. 300,10004 JASPER AVE EDMONTON ALBERTA T5J1R3 ORIGINAL PRINCIPAL AMOUNT: $250,000

TOTAL INSTRUMENTS: 006

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 14 DAY OF MAY, 2010 AT 09:51 A.M.

ORDER NUMBER:16529001

CUSTOMER FILE NUMBER: 082154

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.

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LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
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LEGAL DESCRIPTION

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WEST OF THE 65 METRE CANAL RIGHT OF WAY AND LYING
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AND 4, AND LYING TO THE NORTH OF THE 30 METRE CANAL
RIGHT OF WAY ON PLAN 8210212
CONTAINING 27 HECTARES (66.8 ACRES) MORE OR LESS
EXCEPTING THEREOUT:
THE NORTH 15 METRES CONTAINING 0.37 OF A HECTARE MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: COUNTY OF LETHBRIDGE

REFERENCE NUMBER: 941 226 700

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
051 470 968	10/12/2005	TRANSFER OF LAND	$414,000	$414,000

OWNERS

JODY F NAKAMURA
OF 4611-50 AVE
TABER
ALBERTA T1G 1G3

8211 3681 7B

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

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

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Certificate of Title

Canada

NO 8 2 1 1 3 6 8 1 7 B
8 1 1 2 3 9 4 4 0 A
REF 8 1 1 2 3 9 4 4 0 B
VALUE $ 1 1 2 2 6 8 5 0 0

RK 1 4 2 0 1 8 5 5 W 1

2 PLAN BLK LOT PT

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE, IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN, LYING TO THE WEST OF THE 65 METRE CANAL RIGHT OF WAY AND LYING NORTH OF THE SOUTH HALVES OF LEGAL SUBDIVISIONS THREE (3) AND FOUR (4) AND LYING TO THE NORTH OF THE 30 METRE CANAL RIGHT OF WAY ON PLAN ~~8210213~~ 8210212 - CORRECTED 08/08/84, CONTAINING 27 HECTARES (66.8 ACRES) MORE OR LESS

EXCEPTING THE NORTH 15 METRES CONTAINING 0.37 HECTARES MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS

CONVERTED AND CANCELLED

OCT 16 1991

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 6 day of AUGUST A.D. 19 82

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA
T1K 2H6

SOUTH ALBERTA LAND REGISTRATION DISTRICT LAND TITLES OFFICE

Registrar
South Alberta Land Registration District

A G 1819 V 1232
Rev 9-73

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tfr – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN Tax Notification
WE – Writ of Execution
CC Covenants and Conditions
ENCUM Encumbrance

Certificate of Title

NAME ROBERT D. WILSON

LAND 4 20 8 5 PTN SW¼

Show Other Abbreviations Here

TITLE NO 8|2|1|1|3|6|8|1|7 B

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
CC	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C	3903 EM	24	10	34		SW¼ TO ALBERTA RAILWAY AND IRRIGATION COMPANY						
M IRRIGABLE UNIT	811183564	29	09	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST. MARY RIVER IRRIGATION DISTRICT)						
M C	841183525	8	11	84		THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT (RE: EASEMENT AGREEMENT) BOX 238 LETHBRIDGE, ALBERTA, T1J 3Y7 (AGENT - F. J. BRENNAN)		841205476	19	12	84	M

Certificate of Title

Canada

NO 8 1 1 2 3 9 4 4 0 B
REF 8 1 1 0 7 1 3 1 9 A
VALUE $ 1 9 4 5 0 0 0 0

VL 1 4 2 0 8 5 9 4

PLAN BLK LOT PT
2

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5) ~~LYING~~ TO THE WEST OF THE WESTERLY LIMIT OF THE CANAL RIGHT OF WAY SHOWN ON PLAN IRR 1442 EXCEPTING THEREOUT THE SOUTH HALF OF LEGAL SUBDIVISION THREE (3) AND THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) OF THE SAID SECTION FIVE(5) CONTAINING 28.3 HECTARES (70) ACRES) MORE OR LESS /CORRECTED 15/1/82

CORRECTED 15/1/82

IN TOWNSHIP EIGHT (8), RANGE TWENTY (20), WEST OF THE FOURTH MERIDIAN WHICH LIES

EXCEPTING THEREOUT ALL MINES AND MINERALS

THIS C... IN FULL - ON RENEWAL

IN AL...

ABOVE OWNER

AND ... 811239440

ISSUED ... 15 JANUARY '82

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 1981

Post Office Address 1615 - 21 STREET SOUTH

LETHBRIDGE, ALBERTA

SOUTH ALBERTA LAND REGISTRATION DISTRICT

Registrar

South Alberta Land Registration District

A.G. 1818 - 1232
Rev. 9-73

Certificate of Title

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tfr – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
C C – Covenants and Conditions
ENCUM – Encumbrance

Show Other Abbreviations Here

NAME ROBERT D. KILSON

LAND 4 - 20 - 8 - 5 - SW PTN

TITLE NO 811123914 0 B

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT	—					
CC	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER	—					
C	3903 EM	29	10	34		SWE THE ALBERTA RAILWAY AND IRRIGATION COMPANY	—					
C	3373 KX	5	9	72		PTN DESCRIBED IN INSTRUMENT THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT	—					
URW	791045238	14	5	79		16.5 FT TRIP TO ALBERTA GOVERNMENT TELEPHONES	—					
IRRIGABLE UNIT	811153564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGATION ACT (ST. MARY RIVER IRRIGATION DISTRICT)						

ENTERED 20/1/82
RENEWAL 15/1/82

Certificate of Title

NO 8 1 1 2 3 9 4 4 0 B
REF 8 1 1 0 7 1 3 1 9 A
VALUE $ 9 4 5 0 0 0 0

REF. 811239439A
Canada 811239439B

THIS CERT. IS CANCELLED AS TO PORTION OF THE NORTHLY 15 METRES
IN ACCORDANCE WITH THE TRANSFER TO THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT
AND A NEW CERT. OF TITLE No. 821099172 A
ISSUED THIS 4 DAY JUNE 1982
AD REG

GOVERNMENT OF THE PROVINCE OF ALBERTA

VL 1 420 8 55 W

PLAN BLK LOT PT
2

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5), IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN WHICH LIES TO THE WEST OF THE WESTERLY LIMIT OF CANAL RIGHT OF WAY SHOWN ON PLAN IRR. 1442

EXCEPTING THEREOUT THE SOUTH HALF OF LEGAL SUBDIVISION THREE (3) AND THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) OF THE SAID SECTION FIVE (5) CONTAINING 28.3 HECTARES (20 ACRES) MORE OR LESS

CANCELLED

EXCEPTING THEREOUT ALL MINES AND MINERALS

THIS CERT. IS CANCELLED AS TO PORTIONS OF THE CANAL RIGHT OF WAY ON PLAN 8210212
IN ACCORDANCE WITH THE TRANSFER TO THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT
AND A NEW CERT. OF TITLE No. 821099172
ISSUED THIS 4 DAY JUNE 19 82
AD. REG.

THIS CERT. IS CANCELLED IN FULL ON RENEWAL
IN ACCORDANCE WITH THE ABOVE OWNER
AND A NEW CERT. OF TITLE No. 811239440 B
ISSUED THIS 4 DAY JUNE 19 82
AD. REG.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 19 81

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

SOUTH ALBERTA LAND REGISTRATION DISTRICT LAND TITLES OFFICE

Registrar

South Alberta Land Registration District

A.G. 1818 V 1232
Rev. 9/73

Certificate of Title

ABBREVIATIONS

E Easement
C Caveat
Tr Transmission
Tfr Transfer
Mtge Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
C C – Covenants and Conditions
ENCUM – Encumbrance

Show Other Abbreviations Here

TITLE NO 811239440B

NAME ROBERT D. WILSON

LAND 4 – 20 – 8 – 5 – SW PTN

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
CC	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C	3903 EM	14	10	74		SWE THE ALBERTA RAILWAY AND IRRIGATION COMPANY						
C	3373 KX	5	9	72		PTN DESCRIBED IN INSTRUMENT THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT		821099171	4	6	82	
URW	741045238	14	5	74		(16.5 FT. STRIP) TO ALBERTA GOVERNMENT TELEPHONES						
IRRIGABLE UNIT	811183564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST. MARY RIVER IRRIGATION DISTRICT)						

M

CANCELLED

Certificate of Title

RENEWAL: 4/6/82

Canada

REFERENCES:

811239439A
811239439B

NO 8 1 1 2 3 9 4 4 0 B
8 1 1 0 7 1 3 1 9
REF 8 1 1 1 0 7 1 1 3 1 1 9 A
VALUE $ 1 9 1 4 5 1 0 0 0 1 0 0

MD 1 MRD TWP RGE O PT
5 2 0 1 8 1 5 3 4 1

2 PLAN BLK LOT PT

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5)
IN TOWNSHIP EIGHT (8)
RANGE TWENTY (20)
WEST OF THE FOURTH MERIDIAN WHICH LIES TO THE NORTH OF THE
SOUTH HALVES OF LEGAL SUBDIVISION THREE (3) AND FOUR (4)
AND WHICH LIES TO THE WEST OF THE 65 METRE CANAL RIGHT OF WAY
ON PLAN 8210212
CONTAINING 28.1 HECTARES (69.5 ACRES) MORE OR LESS

EXCEPTING: FIRSTLY THE 30 METRE CANAL RIGHT OF WAY ON PLAN 8210212 CONTAINING 0.718 HECTARES (1.77 ACRES) MORE OR LESS

SECONDLY THAT PORTION OF THE NORTH 15 METRES OF THE SAID QUARTER SECTION WHICH LIES WEST OF THE 65 METRE CANAL RIGHT OF WAY ON PLAN 8210212 CONTAINING 0.37 HECTARES (0.91 ACRES) MORE OR LESS

CANCELLED

THIS CERT IS CANCELLED IN FULL
ON SEPARATION
IN ACCORDANCE WITH THE TRANSFER TO
ROBERT D. WILSON
AND A NEW CERT OF TITLE NO 8 2 1 1 3 6 8 1 7
ISSUED THIS 6 DAY AUGUST 19 82
AD. REG.

EXCEPTING THEREOUT ALL MINES AND MINERALS

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 19 81

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

Registrar

A G 1818 V 1232
Rev 9 73

South Alberta Land Registration District

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tfr – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
CC – Covenants and Conditions
ENCUM – Encumbrance

TITLE NO 811239440B

Certificate of Title

NAME ROBERT D. WILSON

LAND 4 - 20 - 8 - 5 - PTN SWL

Show Other Abbreviations Here

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
CC	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C	3903 EM	24	10	34		SWL TO ALBERTA RAILWAY AND IRRIGATION COMPANY						
IRRIGABLE UNIT	811183564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST. MARY RIVER IRRIGATION DISTRICT)						

CANCELLED

ENTERED 20/1/82
AND CONSOLIDATION WITH 811239439

Certificate of Title

NO 8 1 1 0 7 1 3 1 9
REF 8 1 1 0 1 2 4 3 4 A
VALUE $ 1 8 5 4 7 0 0 0

Canada
THIS CERT. IS CANCELLED IN FULL
ON SEPARATION
IN ACCORDANCE WITH
ABOVE OWNER
AND A NEW CERT. OF 8 1 1 2
ISSUED THIS 29 DAY DECEMBER

GOVERNMENT OF THE PROVINCE OF ALBERTA

LM

	ARG	TWP	SEC	Q	PT
1	20	8	5	SW	

	PLAN	BLK	LOT	PT
2				

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON, OF THE CITY OF LETHBRIDGE, IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

FIRST... THE SOUTH WEST QUARTER AND THE WEST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) IN THE SOUTH WEST QUARTER OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN, CONTAINING 6.07 HECTARES (15 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SECONDLY... THAT PORTION OF THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) OF THE SAID SOUTH WEST QUARTER OF SECTION FIVE (5) LYING SOUTH AND EAST OF THE IRRIGATION RIGHT OF WAY ON PLAN IRR. 46, CONTAINING 6.151 HECTARES (15.2 ACRES) MORE OR LESS

EXCEPTING THE CANAL RIGHT OF WAY ON PLAN IRR. 1307, CONTAINING .692 OF A HECTARES (1.71 ACRES) MORE OR LESS

EXCEPTING OUT OF THE SECONDLY DESCRIBED ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 23 day of APRIL A.D. 19 81

Post Office Address 1615 - 21 STREET S.
LETHBRIDGE, ALBERTA

Registrar
South Alberta Land Registration District

A.G. 1818 V 1.32
Rev. 9 73

Certificate of Title

ABBREVIATIONS

E - Easement
C - Caveat
Tr - Transmission
Tfr - Transfer
Mtgr - Mortgage
URW - Utility Right of Way
BL - Builders Lien
TN - Tax Notification
WE - Writ of Execution
CC - Covenants and Conditions
ENCUM - Encumbrance

Show Other Abbreviations Here

NAME ROBERT D WILSON

LAND 4 - 20- 8 - 5 - SWL PTN

TITLE NO S 1 1 0 7 1 3 1 9

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
C	3903 EM	24	10	34		THE ALBERTA RAILWAY AND IRRIGATION COMPANY						
C	1494 LB	29	6	71		7 KUIPERS HOLDINGS LTD.		811071320	23	4	81	
C	3373 KX	5	9	72		AS TO PTN OF SEL CONT. 3.72 AC THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT						
IRRIGABLE UNIT	811183564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGATION ACT (ST. MARY RIVER IRRIGATION DISTRICT)						

Certificate of Title

NO 8 1 1 0 7 1 3 1 9

REF 8 1 1 0 1 2 4 3 4 A

VALUE $ 1 8 5 4 7 0 0 0

Canada
THIS CERT IS CANCELLED IN FULL
ON SEPARATION
IN ACCORDANCE
ABOVE OWNER
AND A NEW CERT 8 1 1 2
ISSUED THIS 24 DAY DECEMBER

GOVERNMENT OF THE PROVINCE OF ALBERTA

LH

	MRD	TWP	TO	Q	PT
1	420	8	55	4	

	PLAN	BLK	LOT	PT
2				

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON, OF THE CITY OF LETHBRIDGE, IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

FIRST... THE SOUTH WEST QUARTER AND THE WEST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) IN THE SOUTH WEST QUARTER OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN, CONTAINING 6.07 HECTARES (15 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SECONDLY... THAT PORTION OF THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) OF THE SAID SOUTH WEST QUARTER OF SECTION FIVE (5) LYING SOUTH AND EAST OF THE IRRIGATION RIGHT OF WAY ON PLAN IRR. 46, CONTAINING 6.151 HECTARES (15.2 ACRES) MORE OR LESS

EXCEPTING THE CANAL RIGHT OF WAY ON PLAN IRR. 1307, CONTAINING .692 OF A HECTARES (1.71 ACRES) MORE OR LESS

EXCEPTING OUT OF THE SECONDLY DESCRIBED ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 23 day of APRIL A.D. 19 81

Post Office Address 1615 - 21 STREET S.
LETHBRIDGE, ALBERTA

Registrar
South Alberta Land Registration District

A.G. 1818 V 1232
Rev. 9-73

Tr – Transmission
Ttr – Transfer
Mtgr – Mortgage

BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
CC – Covenants and Conditions
ENCUM – Encumbrance

Certificate of Title

NAME ROBERT D WILSON

LAND 4 - 20- 8 - 5 - SW¼ PTN

Show Other Abbreviations Here

TITLE NO. 811071319

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY MO YR	Signature of Registrar
	1485 KX			THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT				
C	3903 EM	24 10 34		THE ALBERTA RAILWAY AND IRRIGATION COMPANY				
C	1494 LB	29 6 71		7 KUIPERS HOLDINGS LTD.				
C	3373 KX	3 9 72		AS TO PTN OF SE¼ CONT. 3.72 AC THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT		811071320	23 4 81	
IRRIGABLE UNIT	811183564	29 9 81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGATION ACT (ST. MARY RIVER IRRIGATION DISTRICT)				

M

Certificate of Title

NO 8 1 1 2 3 9 4 3 9 A

REF 9 6 R 1 0 9 A

VALUE $ 1 5 8 1 1

Canada

GOVERNMENT OF THE PROVINCE OF ALBERTA

VL 1 4 20 8 5 SW

2 PLAN BLK LOT PT

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5)
IN TOWNSHIP EIGHT (8)
RANGE TWENTY (20)
WEST OF THE FOURTH MERIDIAN CONSISTING OF A THIRTY TWO (32) FOOT
STRIP IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN
AND SOUTH WESTERN LIMITS OF THE CANAL RIGHT OF WAY ON PLAN
IRR. 46 CONTAINING .761 HECTARES (1.88 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ENTERED 20/1/82

CANCELLED 29 DECEMBER 1981
BY CO. 811071319
AND 811071319A
811235440A & B
INST. A.D. 81

CANCELLED

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 1981

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

SOUTH ALBERTA LAND REGISTRATION DISTRICT LAND TITLES

Registrar
South Alberta Land Registration District

A.G. 1818 V 1232
Rev. 9 73

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tfr – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
C C – Covenants and Conditions
ENCUM – Encumbrance

Certificate of Title

Show Other Abbreviations Here

NAME ROBERT D. WILSON

LAND 4 - 20 - 8 - 5 - SW PTN

TITLE NO 8 1 1 2 3 9 4 3 9 A

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY MO YR	Signature of Registrar

RENEWAL
6441 G.X.

Certificate of Title

Canada

NO 96 K 109 A
REF 65 Z 209
VALUE $ NOT ESTAB

	AERO	TWP	SEC	Q	PT
1	420	8	5	5	

	PLAN	BLK	LOT	PT
2				

South Alberta Land Registration District

THIS IS TO CERTIFY that HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF ALBERTA AS REPRESENTED BY THE MANAGER OF THE ST. MARY AND MILK RIVERS DEVELOPMENT

IS now the owner of an estate in fee simple

of and in THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN CONSISTING OF A THIRTY TWO (32) FOOT STRIP IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN AND SOUTH WESTERN LIMITS OF THE CANAL RIGHT OF WAY ON PLAN IRR. 46 CONTAINING ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS AND THE RIGHT TO WORK THE SAME

THE [illegible] IN FULL

[illegible]

ROBERT D. WILSON

AND A [illegible] 8 1 1 2 3 9 4 3 9

ISSUED THIS 29 DECEMBER 81.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 9 day of MARCH A.D. 19 54

Post Office Address LETHBRIDGE, ALBERTA.

Registrar

South Alberta Land Registration District

ABBREVIATIONS

E – Easement	URW – Utility Right of Way
C – Caveat	BL – Builders Lien
Tr – Transmission	TN – Tax Notification
Tfr – Transfer	WE – Writ of Execution
Mtgn – Mortgage	CC – Condominium Condition
	UNCUM – Encumbrance

Certificate of Title

NAME THE MANAGER OF THE ST. MARY AND MILK RIVERS DEVELOPMENT

LAND 4 20 8 5 SW PTN.

Show Other Abbreviations Here

TITLE 9 6 R 1 0 9 A

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration D M Y	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration D M Y	Signature of Registrar

652209.

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—
(a) Any subsisting reservations or exceptions contained in the original grant of the land from the Crown;
(b) All unpaid taxes, including irrigation and drainage district rates;
(c) Any public highway or right-of-way or other public easement, howsoever created upon, over or in respect of the land;
(d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(e) Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
(f) Any right of expropriation which may by statute be vested in any person, body corporate, or His Majesty;
(g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

GOVERNMENT OF THE PROVINCE OF ALBERTA

209

Issued on instrument registered at 3 07 o'clock p.m. on the 3 day of May A.D. 1946
Number 5477 Book EX Folio 144
Registrar S.A.L.R.D.

Certificate of Title

Assoc. Fund Value _____ Refer Cert. No. 45N.232
Unearned Inc. Value _____

South Alberta Land Registration District.

This is to Certify that His Majesty The King in the right of the Province of Alberta

is now the owner of an estate in fee simple

of and in Firstly that portion of the South East quarter of Section Six (6) in Township Eight (8) Range Twenty (20) West of the Fourth Meridian in the Province of Alberta which lies to the North of the Northerly limit of the Canal Right-of-Way shown on a plan filed in the Land Titles Office for the South Alberta Land Registration District as Ser 46. and South of a line drawn parallel with and Thirty two (32) feet perpendicularly distant Northerly from said Northerly limit of said Right-of-way containing One and Ninety two hundredths (1.92) acres more or less and Secondly, that portion of the South West quarter of Section Five (5) in said Township consisting of a strip of land Thirty two (32) feet in perpendicular width adjacent to the Northern, Western and South-western limits of said Canal Right-of-way shown on said plan Ser 46 containing One and Eighty-eight hundredths (1.88) acres more or less. Excepting thereout all mines and minerals and the right to work the same and

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this Third day of May A.D. 1946

_____ Registrar
South Alberta Land Registration District

P.O. Address _____

OVER

This Certificate is cancelled.....

and a new Certificate 96 R 109 issued to.....

St. Mary and Milk River Development

under Transfer to ..... (by O.C.) ..... from the

above named registered owner. Dated 21 July 1953

and Registered at 10 41 o'clock A.M, this 9 day of

March A.D., 1954 as No. 6441 G.X.

[signature] KD

Registrar

LAND TITLES ACT, Sec. 21.—The land mentioned in any certificate of title issued under this Act shall be held by implication and without any special mention therein, unless the contrary be expressly declared, to be subject to—

(a) Any unpatured reservations or exceptions contained in the original grant of the land from the Crown;
(b) All mines and minerals, including coal, gold, silver, iron, copper, etc.;
(c) Any public highway or any irrigation or drainage district canal;
(d) Any crossing, bridge or right-of-way or other public easement, licensed under Ordinances, where it is actual occupation of the land under the same;
(e) Any subsisting lease, over or in respect of the land, for a period not exceeding three years, where there is actual occupation of the land under the same;
(f) Any right of expropriation which may by statute or ordinance be vested in the owner of the land which have been registered and maintained in force against the owner;
(g) Any rights-of-way or other easements created or acquired under the provisions of any Act or law in force in the Province.

15 N 232

CANADA

232

Based on instrument registered at 10:47 o'clock A.M. on the 26 day of APRIL A.D. 19 32.
Number 8137
Registrar S.A.L.R.D.

Certificate of Title

Assce. Fund Value $100.00
Unearned Inc. Value $100.00

CANCELLED

Refer Certificate No. 14 J.224

South Alberta Land Registration District.

This is to Certify that ALBERTA RAILWAY AND IRRIGATION COMPANY

is now the owner of an estate in fee simple

of and in FIRSTLY :- THAT PORTION OF THE SOUTH EAST QUARTER OF SECTION SIX (6) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA WHICH LIES NORTH OF THE NORTHERN LIMIT OF THE IRRIGATION RIGHT OF WAY AS THE SAID RIGHT OF WAY IS SHOWN ON A PLAN FILED IN THE LAND TITLES OFFICE FOR THE SOUTH ALBERTA LAND REGISTRATION DISTRICT AS IRR. 46 AND SOUTH OF A LINE RUNNING PARALLEL WITH THE SAID NORTHERN LIMIT AND DISTANT THIRTY TWO (32) FEET PERPENDICULARLY NORTHERLY THEREFROM, CONTAINING ONE AND NINETY TWO ONE HUNDREDTHS (1.92) ACRES MORE OR LESS, AND

SECONDLY :- THAT PORTION OF THE SOUTH WEST QUARTER OF SECTION FIVE (5) IN THE SAID TOWNSHIP CONSISTING OF A STRIP OF LAND THIRTY TWO (32) FEET IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN AND SOUTH WESTERN LIMITS OF SAID IRRIGATION RIGHT OF WAY AS SHOWN ON SAID PLAN IRR. 46, CONTAINING ONE AND EIGHTY EIGHT ONE HUNDREDTHS (1.88) ACRES MORE OR LESS.

RESERVING OUT OF ALL THE ABOVE LAND UNTO HIS MAJESTY ALL COAL AND UNTO THE ALBERTA RAILWAY AND IRRIGATION COMPANY ALL OTHER MINERALS, AND

NO ENDORSEMENTS ON BACK OF TITLE

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SIXTH day of APRIL A.D. 1932.

P.O. Address

S.H. Gardiner
Registrar
South Alberta Land Registration District.

CANCELLED

This Certificate is cancelled and a new Certificate 45720 issued to Crown Prov. of Alberta under Transfer to from the above named registered owner and Registered at 3.07 p.m. on the 3 day of May A.D. 1946 5477 EX.

J. Gleadle
Registrar

14. J. 234.

Certificate of Title.

CANADA

Issued on instrument registered at 2.45 o'clock p. m. on the 5 day of February A.D. 1917 Number 1448 Book 15 Folio 15
R. S. Marvin
Registrar L.R.D.

Assess. Fund Value $10,000.00
Unearned Inc. Value $6700.00

Land Registration District
Refer Cert. No. 14 J. 37

CANCELLED

This is to Certify that Walter Porter
of the City of Lethbridge, in the Province of Alberta
Farmer
is now the owner of an estate in fee simple

of and in Two portions of land situate in Township Eight (8) Range Twenty (20) West of the Fourth Meridian in the Province of Alberta and being Firstly:- Those portions of the South West quarter of Section Four (4) and of the South East quarter of Section Five (5) which lie to the West of a line drawn parallel with and Fifty (50) feet perpendicularly distant West from the centre line of the Railway Right-of-Way of the Alberta Railway and Irrigation Company as shown on a plan of said Right-of-Way, filed in the said South Land Titles Office, for the South Alberta Land Registration District as No. 23, containing in the said South West quarter Four and Three tenths (4.3) acres more or less and in the said South East quarter One hundred and nineteen (119) acres, more or less Secondly:- The North half and the East half of the South East quarter of Legal Subdivision Three (3) and the whole of Legal Subdivision Six (6) of said Section Five (5) containing together Sixty five (65) acres more or less. Thirdly:- Those portions of Legal Subdivision Five (5) and of the North half of Legal Subdivision Four (4) of said Section Five (5) which lie to the East of the Canal Right-of-Way of the Alberta Railway and Irrigation Company, as shown on a plan of said Right-of-Way filed in said Land Titles Office, as "Ill 46", containing together Thirty seven and five tenths (37.5) acres, more or less Fourthly:- Those portions of said Legal Subdivision Four (4) and Five (5) which lie to the West of said Canal Right-of-Way, containing together Nineteen (19) acres more or less and Fifthly:- Those portions of Legal Subdivisions One (1) and Two (2) of Section Six (6) which lie to the North of said Canal Right-of-Way, The whole of Legal Subdivision Eight (8) of said Section Six (6), which lie to the West of said Canal Right-of-Way containing together One hundred and Forty one (141) acres more or less, all as shown on said plan "Ill 46". The lands hereon comprised containing together Three hundred and eighty five, and eight tenths (385.8) acres, more or less. Subject to the right (to be exercised within Ten (10) years, from 25th August 1906) of expropriation of certain portions thereof, and to such other rights and conditions, as are reserved and contained in Transfer registered as 3432 L and Reserving unto His Majesty all coal and unto the Alberta Railway and Irrigation Company all other minerals, and

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this Fifth day of February A.D. 1917

R. S. Marvin Registrar, Land Registration District.

P.O. Address Lethbridge Alberta

E 24 acres of S 30 acres of S½ Sec 5. Mechanics Lien $1250.00 (see over)

The title of Heabove owner is subject to a mortgage made by him to Harvey F. Fisk to secure $8000.00 bearing interest at 5% per annum, payable as therein mentioned, dated 1 Janu 1917 and Registered at 2.29 p.m. 10 Apr 1917 as 2379 R.S. S H Gamham Acting Registrar

Mortgage 2379 R.S. Assigned to Stirling from Harvey F. Fisk to Stirling dated the 7 day of January 1918 Registered at 10.22 a.m. the 23 day of January 1918 as 537 C.A. S H Gamham Registrar

1 4 Lien 1 & 2 for S. John Henry Sosnowski L. Mining Agrt $450.00 Dat. 7% 31 Mar 1919 Regd 10.27 a.m. 5 June 1919 as 1067 C.Y.

E 24 rods of S. 20 rods of SE¼ Sec 5 Mechanics Lien $1250.00 - The Stacey Lumber Co Ltd. 02 Dec 1919. 11.00 a.m. 23 Dec 1919. 789 C.M.

Withdrawal of S.A. Lien 1067 C.Y. 15 Oct 1920. 2.30 p.m. 22 Oct 1920 - 1020 C.Z.

5 SE¼ Exp. of 8 20 rods (3 ac) Wilson Sch Dist 3736, 25 K 189. 24 Nov 1920 2.30 p.m. 3 Mch 1921 - 6737 C.M.

Mortgage. Owner to Credit Foncier Franco Canadien $3000.00 870. 20 Oct 1930. 10.00 a.m. 24 Oct 1930. 3213 E.G.

6 - S.E¼ - 1.92 ac. 5 - S.W¼ - 1.88 ac. } as described in Instrument } Discharge of mortgage 3213 E.G. 12 April 1932 - 10.45 a.m. 26 April 1932 - 8155 E.G.

6 - S.E¼ - 1.92 acres 5 - S.W¼ - 1.88 acres } as described in Instrument } Alberta Railway & Irr. Co. 45 N 232 - 10.47 a.m. 26 April 1932 — 8157 E.G.

5 SW¼ Caveat: The Alberta Railway & Irrigation Co. 5 Oct 1934 - 10.33 AM - 24 Oct 1934 3903 E.M.
6 SE¼.

NOTIFICATION (Tax Recovery Act 1929)
by Dept Mun. Affs.
Dated 30/3/35 Reg'd 10.31 a.m.
1 Apl 1935 as No. 8361 D.P.

Tax Notification No. 8361 D.P. Dated
Registered at 10.15 A.m. 22 June 1935 as No. 8465 D.P.

SW¼-4.
4.8 acres as described in Inst } Discharge of Mortgage 3213 E.G. - 2 Oct 1936 - 3.0 pm - 22 Jan 1937 - 7001 E.G.

SW¼-4.
4.9 acres as described in Inst } John S. Henderson 51 J 205 - 19 Sept 1936 - 3.03 pm - 22 Jan 1937 - 7002 E.G.

6 - SE. portion fully described } Eva Mabel Porter 52 T 186. 27 April 1938. 10.25 am. 29 April 1938 - 5285 E.R.G.

Certificate is cancelled and a new certificate 57165 issued to Eva M. Porter under transfer to her from the above named registered owner dated 28 Aug/25 and Registered at 2.7 o'clock p.m., this 14 day of May A.D., 1926 as No. 5267 F.B. Registrar

Certificate of Title

THIS CERT. IS CANCELLED IN FULL
Cancel ON SEPARATION
ABOVE OWNER
ISSUED THIS 29 DECEMBER 81

GOVERNMENT OF THE PROVINCE OF ALBERTA

NO 8 1 1 0 7 1 3 1 9 A
REF 8 1 1 0 1 2 4 3 4
VALUE $ 3 0 1 5 3 0 0 0

LM 1 MRD TWP SEC Q PT 420 8 55

2 PLAN BLK LOT PT

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON, OF THE CITY OF LETHBRIDGE, IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN AND BEING.....

FIRST...THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE SOUTH WESTERLY LIMIT OF THE RAILWAY RIGHT OF WAY OF THE ALBERTA RAILWAY AND IRRIGATION COMPANY AS SAID RIGHT OF WAY IS SHOWN ON PLAN R.Y. 23 CONTAINING 48.2 HECTARES (119 ACRES) MORE OR LESS, EXCEPTING THEREOUT "A" 1.21 HECTARES (3 ACRES) MORE OR LESS, BEING THE SOUTHERLY TWENTY (20) RODS OF THE EASTERLY TWENTY FOUR (24) RODS OF SAID QUARTER SECTION....

"B" PLAN.....	NO.....	HECTARES		ACRES
CANAL RIGHT OF WAY	IRR. 1442	.918	MORE OR LESS	2.27

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SECONDLY... THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND THE WHOLE OF LEGAL SUBDIVISION SIX (6) CONTAINING TOGETHER 26.3 HECTARES (65 ACRES) MORE OR LESS, EXCEPTING THEREOUT.....

PLAN...	NO.....	HECTARES		ACRES
CANAL RIGHT OF WAY	IRR 1442	1.319	MORE OR LESS	3.27

THIRDLY.... THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY SHOWN ON PLAN IRR 46 CONTAINING 15.02 HECTARES (37.5 ACRES) MORE OR LESS, EXCEPTING THEREOUT.....

PLAN...	NO...	HECTARES		ACRES
CANAL RIGHT OF WAY	IRR 1442	3.487	MORE OR LESS	8.61

EXCEPTING THEREOUT ALL MINES AND MINERALS.

FOURTHLY... THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF SAID CANAL RIGHT OF WAY CONTAINING 7.69 HECTARES (19 ACRES) MORE OR LESS EXCEPTING THEREOUT.. .761 OF A HECTARES (1.88 ACRES) MORE OR LESS BEING A STRIP OF LAND THIRTY TWO (32) FEET IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN AND SOUTHWESTERN LIMITS OF IRRIGATION RIGHT OF WAY AS SHOWN ON PLAN IRR 46

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 23 day of APRIL A.D. 19 81

Post Office Address 1615 - 21 STREET S.

LETHBRIDGE, ALBERTA

Registrar

South Alberta Land Registration District

ABBREVIATIONS

URW - Utility Right of Way
BL - Builders Lien
TN - Tax Notification
WE - Writ of Execution
C C - Covenants and Conditions
ENCUM - Encumbrance

Certificate of Title

NAME RALPH P. KUIPERS ET UX

LAND 4-20-8-5-S½ PTN

Show Other Abbreviations Here

8 8 1 0 1 2 4 5 5

CHARGES, LIENS AND INTERESTS.

Registration Number	Date of Registration DY	MO	YR	Amount	Particulars	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
1435 K.X.					THIS PROPERTY IS INCLUDED IN THE ST. M. RIVER IRRIGATION DISTRICT						
5432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
5903 EM	24	10	34		THE ALBERTA RAILWAY AND IRRIGATION COMPANY (SW¼)						
1494 LB	29	6	71		7 KUIPERS HOLDING LTD.						
3373 KX	5	9	72		(AS TO SW¼-CONT. 3.72 ACS) THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT						
7410-5236	14	5	74		16.5 FT. STRIP IN N½ AND SE¼ OF 5 TO ALBERTA GOVERNMENT TELEPHONES						

Certificate of Title

Canada

THIS CERT IS CANCELLED
IN FULL.
IN ACCORDANCE WITH THE TRANSFER TO
ROBERT D. WILSON
AND A NEW CERT OF TITLE No. 8110713TF
ISSUED THIS 23 APRIL 1981
AD. REG.

GOVERNMENT OF THE PROVINCE OF ALBERTA

NO. 3 1 1 0 1 2 4 3 4
1 0 6 R 1 5 4
REF 3 0 Q 1 1 3B
VALUE $ 1 9 2 0 0 0 0 0

DW

MERIDIAN | RANGE | TOWNSHIP | SECTION | QUARTER | LOT
1 | 20 | 18 | 5

PLAN | BLK | LOT
2

South Alberta Land Registration District

THIS IS TO CERTIFY that RALPH P. KUIPERS OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER) AND SUSAN DEE KUIPERS OF THE SAME PLACE (HIS WIFE)

ARE the owner(s) of an estate in fee simple AS JOINT TENANTS

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN AND BEING...

FIRST: THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE SOUTH WESTERLY LIMIT OF THE RAILWAY RIGHT OF WAY OF THE ALBERTA RAILWAY AND IRRIGATION COMPANY AS SAID RIGHT OF WAY IS SHOWN ON PLAN R.Y. 23 CONTAINING 48.2 HECTARES (119 ACRES) MORE OR LESS,
EXCEPTING THEREOUT "A": 1.21 HECTARES (3 ACRES) MORE OR LESS, BEING THE SOUTHERLY TWENTY (20) RODS OF THE EASTERLY TWENTY FOUR (24) RODS OF SAID QUARTER SECTION:

"B" PLAN	NO.	HECTARES MORE OR LESS	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR. 1442	.918	2.27

EXCEPTING THEREOUT ALL MINES AND MINERALS

SECONDLY: THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND THE WHOLE OF LEGAL SUBDIVISION SIX (6) CONTAINING TOGETHER 26.3 HECTARES (65 ACRES) MORE OR LESS,
EXCEPTING THEREOUT:

PLAN	NO.	HECTARES MORE OR LESS	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR 1442	1.319	3.27

THIRDLY: THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY SHOWN ON PLAN IRR 5 CONTAINING 15.02 HECTARES (37.5 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

PLAN	NO.	HECTARES MORE OR LESS	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR 1442	3.487	8.61

EXCEPTING THEREOUT ALL MINES AND MINERALS

FOURTHLY: THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF SAID CANAL RIGHT OF WAY CONTAINING 7.69 HECTARES (19 ACRES) MORE OR LESS
EXCEPTING THEREOUT: .761 OF A HECTARE (1.88 ACRES) MORE OR LESS BEING A STRIP OF LAND THIRTY TWO (32) FEET IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN AND SOUTHWESTERN LIMITS OF IRRIGATION RIGHT OF WAY AS SHOWN ON PLAN IRR 46

EXCEPTING THEREOUT ALL MINES AND MINERALS

CANCELLED

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR AND TO THOSE HEREAFTER MADE IN THE REGISTER

IN WITNESS WHEREOF I HAVE HEREUNTO SUBSCRIBED MY NAME AND AFFIXED MY SEAL OFFICE

CORRECTED 22 JANUARY 1980

DATED 22 JANUARY A.D. 19 80

PURSUANT TO SECTION S.S. 1-3-11

LETHBRIDGE, ALBERTA

Registrar

South Alberta Land Registration District

ABBREVIATIONS

E Easement
C Caveat
Tr Transmission
Tfr Transfer
Mtge Mortgage
URW Utility Right of Way
BL Builders Lien
TN Tax Notification
WE Writ of Execution
C.C. Covenants and Conditions
ENCUM Encumbrance

Certificate of Title

NAME RALPH P. KUIPERS ET UX

LAND 4-20-8-5-SE PTN

Show Other Abbreviations Here

TITLE NO 8 1 1 0 1 2 4 5 5

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1435 K.A.					THIS PROPERTY IS INCLUDED IN THE ST. M RIVER IRRIGATION DISTRICT						
C	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C	3903 EM	24	10	34		THE ALBERTA RAILWAY AND IRRIGATION COMPANY (SWE)						
C	1496 LB	29	6	71		7 KUIPERS HOLDING LTD.						
C	3373 AA	5	9	72		(AS TO SWE-CONT. 3.72 ACS) THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT						
URW	7410452 35	14	5	76		16.5 FT. STRIP IN N½ AND SE¼ OF 5 TO ALBERTA GOVERNMENT TELEPHONES						

RENEWAL

53 L.F.

Certificate of Title

NO 1 6 6 N 1 3 4

REF 1 6 4 P 7 5

VALUE $ 1 2 8 4 5 0 0

Canada

THIS CERT IS CANCELLED IN FULL

IN ACCORDANCE WITH THE TRANSFER TO RALPH P. KUIPERS ET UX

AND A NEW CERT OF TITLE NO 2 1 1 0 1 2 4 3

ISSUED THIS 22 DAY JAN 1981

AD. REG.

GOVERNMENT OF THE PROVINCE OF ALBERTA

CANCEL

MERID TWP RGE O PT

KD 1 4 2 8 1 8 5 1 H

H PLAN BLK LOT PT

2

South Alberta Land Registration District

THIS IS TO CERTIFY THAT ANN PORTER (WIDOW) OF LAFAYETTE IN THE STATE OF OREGON AND DONALD D. PORTER OF LONGVIEW IN THE STATE OF WASHINGTON BOTH OF THE UNITED STATES OF AMERICA THE SAID ANN PORTER AS TO AN UNDIVIDED FOURTENTHS (4/10) INTEREST, AND ARE now the owners of an estate in fee simple THE SAID DONALD D. PORTER AS TO AN UNDIVIDED ONE TENTH (1/10) INTEREST

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN, AND BEING . . .

FIRST: THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE RAILWAY ON PLAN R.Y. 23, CONTAINING ONE HUNDRED AND NINETEEN (119) ACRES MORE OR LESS,

SECONDLY: THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND ALL OF LEGAL SUBDIVISION SIX (6) IN THE SOUTH WEST QUARTER CONTAINING TOGETHER SIXTY FIVE (65) ACRES MORE OR LESS,

THIRDLY: THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY ON PLAN IRR.46, CONTAINING THIRTY SEVEN AND FIVE TENTHS (37.5) ACRES MORE OR LESS,

FOURTHLY: THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF THE SAID CANAL RIGHT OF WAY, CONTAINING NINETEEN (19) ACRES MORE OR LESS,
EXCEPTING:
(A) OUT OF THE FIRSTLY DESCRIBED PORTION THE SOUTHERLY THREE HUNDRED AND THIRTY (330) FEET OF THE EASTERLY THREE HUNDRED AND NINETY SIX (396) FEET OF THE SAID QUARTER SECTION CONTAINING THREE (3.) ACRES MORE OR LESS,
(B) OUT OF THE FOURTHLY DESCRIBED PORTION, A STRIP OF LAND THIRTY TWO (32) FEET WIDE LYING TO THE WEST AND ADJACENT TO THE WESTERN LIMIT OF THE SAID CANAL RIGHT OF WAY ON PLAN IRR.45, CONTAINING ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS,
(C) OUT OF THE FIRSTLY, SECONDLY, AND THIRDLY DESCRIBED, THE CANAL RIGHT OF WAY ON PLAN IRR. 1442, CONTAINING IN:

QUARTER SECTION	ACRES MORE OR LESS
SE¼	2.27
SW¼	11.88

EXCEPTING OUT OF ALL THE ABOVE LAND ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 14 day of JULY A.D. 19 71

Post Office Address HWY. 99W. LAFAYETTE, OREGON U.S.A.
1704 SUSAN AVENUE
LONGVIEW, WASHINGTON U.S.A.
(RESPECTIVELY)

Registrar

South Alberta Land Registration District

A.G. 1818 (1/72)
Rev. 5-73

Certificate of Title

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tf – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
C.C. – Covenants and Conditions
ENCUM – Encumbrance

Show Other Abbreviations Here

NAME ANN PORTER ET AL (PART INTEREST)

LAND 4 20 8 5 (PTN)

TITLE NO. 1 6 6 N 1 1 8 4

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	Particulars	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
C.C.	3432 U.					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C.	3903 E.M.	24	10	34		SWL THE ALBERTA RAILWAY AND IRRIGATION COMPANY						
C.	5995 K.V.	8	4	71		RALPH PETER KUIPERS AND SUSANDEE KUIPERS		811012433	22	1	81	
C.	1494 L.B.	29	6	71		J KUIPERS HOLDING LTD.						
C.	3373 K.X.	5	9	72		THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT/SWL 3.72 ACRES						
URW	741045236	14	5	74		16.5 FT. STRIP IN N½ AND SEL OF 5 TO ALBERTA GOVERNMENT TELEPHONES						
	1485 K.X.					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						

CANCELLED

164 P 75

LAND TITLES ACT, Sec. 64 — The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—
(a) Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
(b) All unpaid taxes, including irrigation and drainage district rates;
(c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
(d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(e) Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
(f) Any right of expropriation which may by statute be vested in any person, body corporate, or Her Majesty;
(g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

GOVERNMENT OF THE PROVINCE OF ALBERTA

OEA

Issued on instrument registered at 2.18 o'clock P. m. on the 2 day of MARCH A.D. 19 71
Number 8161 Book K.T. 237 Folio
H. E. MC COMBS
Registrar, S.A.L.R.D.

Certificate of Title

Assoc. Fund Value $2,845.00

Refer Cert. No. 80 Q 138

South Alberta Land Registration District

This is to Certify that FREDERICK MILTON PRITCHARD OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (BARRISTER) ADMINISTRATOR OF THE ESTATE OF LAURANCE FISK PORTER (DECEASED)

is now the owner of an estate in fee simple IN AN UNDIVIDED ONE HALF (1/2) INTEREST

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA AND BEING.....

FIRST, THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE RAILWAY ON PLAN R.Y. 23, CONTAINING ONE HUNDRED AND NINETEEN (119) ACRES MORE OR LESS,

SECONDLY, THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND ALL OF LEGAL SUBDIVISION SIX (6) IN THE SOUTH WEST QUARTER CONTAINING TOGETHER SIXTY FIVE (65) ACRES MORE OR LESS,

THIRDLY, THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT-OF-WAY ON PLAN IRR. 46 CONTAINING THIRTY SEVEN AND FIVE TENTHS (37.5) ACRES MORE OR LESS,

FOURTHLY, THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF THE SAID CANAL RIGHT-OF-WAY CONTAINING NINETEEN (19) ACRES MORE OR LESS,

EXCEPTING THEREOUT.....

(A) OUT OF THE FIRSTLY DESCRIBED PORTION, THE SOUTHERLY THREE HUNDRED AND THIRTY (330) FEET OF THE EASTERLY THREE HUNDRED AND NINETY SIX (396) FEET OF THE SAID QUARTER SECTION CONTAINING THREE (3) ACRES MORE OR LESS,

(B) OUT OF THE FOURTHLY DESCRIBED PORTION, A STRIP OF LAND THIRTY TWO (32) FEET WIDE LYING TO THE WEST AND ADJACENT TO THE WESTERN LIMIT OF THE SAID CANAL RIGHT-OF-WAY ON PLAN IRR. 46 CONTAINING ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS,

(C) OUT OF THE FIRSTLY, SECONDLY AND THIRDLY DESCRIBED, THE CANAL RIGHT-OF-WAY ON PLAN IRR 1442 CONTAINING IN THE

QUARTER SECTION	ACRES MORE OR LESS
SE	2.27
SW	11.88

CANCELLED

EXCEPTING OUT OF ALL THE ABOVE LAND ALL MINES AND MINERALS.

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SECOND day of MARCH A.D. 19 71

B. Jones A.R. Registrar
South Alberta Land Registration District

202 PROFESSIONAL BUILDING,
740-4TH AVENUE SOUTH,
P.O. Address LETHBRIDGE, ALBERTA.

SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER.....3432 U.
B. Jones AO REG.

OVER

SW¼

CAVEAT--THE ALBERTA RAILWAY AND IRRIGATION COMPANY, 5 OCT. 1934, 10.33 AM., 24 OCT. 1934....3903 E.M. B. Jones AD REG.

THIS PROPERTY FORMS PART OF THE ST. MARY AND MILK RIVERS DEVELOPMENT....4950 G.U. B. Jones AD REG.

CAVEAT--THE MANAGER OF THE ST. MARY & MILK RIVERS DEVELOPMENT, 23 OCT. 1967, 4.02 PM., 2 NOV. 1967.....3712 J.X. B. Jones AD REG.

Caveat - Ralph Peter Kuipers & Susan Dee Kuipers - 7 April 1971 11 45 Am - 8 April 1971 — 5995 K.V. E Haddon

Caveat - 7 Kuipers Holding Ltd. - 22 June 1971 - 11 14 Am - 29 June 1971 - 1494 L.B. E Haddon

THIS CERT. OF TITLE IS CANCELLED in full

in accordance with the transfer, subject to any exceptions and/or reservations therein and a new Certificate of Title No. 166 N 184 issued this 14 day of July 19 71 to Ann Porter et al

D.B. 53 L.F. [signature] A.D. Reg

RENEWAL.
1481 G.C.

Certificate of Title

No. 801 01 11318
Ref. 79 01 11511
M 5 3 4 8 5 0

THIS CERT. IS CANCELLED IN FULL
... WHICH ... TO
RALPH P. KUIPERS ET UX
AND A NEW CERT. OF TITLE No. 8 1 1 0 1 2
ISSUED THIS 22 DAY JAN. 19 84
AD. REG.

CS 1 420 18 5 5

PLAN		BLK	LOT	PT
2				

South Alberta Land Registration District

THIS IS TO CERTIFY THAT ... PORTER OF SALEM (CLERK) IN THE STATE OF OREGON ONE OF THE UNITED STATES OF AMERICA

CANCELLED

IS now the owner of an estate in fee simple IN AN UNDIVIDED ONE HALF (1/2) SHARE

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN AND BEING........

FIRST...THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE SOUTH WESTERLY LIMIT OF THE RAILWAY RIGHT OF WAY OF THE ALBERTA RAILWAY AND IRRIGATION COMPANY AS SAID RIGHT OF WAY IS SHOWN ON PLAN R.Y. 23 CONTAINING ONE HUNDRED AND NINETEEN (119) ACRES MORE OR LESS EXCEPTING THEREOUT "A": THREE (3) ACRES MORE OR LESS BEING THE SOUTHERLY TWENTY (20) RODS OF THE EASTERLY TWENTY FOUR (24) RODS OF SAID QUARTER SECTION
"B":

PLAN	NO.	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR 1442	2.27

EXCEPTING THEREOUT ALL MINES AND MINERALS

SECONDLY...THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND THE WHOLE OF LEGAL SUBDIVISION SIX (6) CONTAINING TOGETHER SIXTY FIVE (65) ACRES MORE OR LESS
EXCEPTING THEREOUT:

PLAN	NO.	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR 1442	3.27

EXCEPTING THEREOUT ALL MINES AND MINERALS

THIRDLY...THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY SHOWN ON PLAN IRR 46 CONTAINING THIRTY SEVEN AND FIVE TENTHS (37.5) ACRES MORE OR LESS
EXCEPTING THEREOUT:

PLAN	NO.	ACRES MORE OR LESS
CANAL RIGHT OF WAY	IRR 1442	8.61

EXCEPTING THEREOUT ALL MINES AND MINERALS

FOURTHLY...THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF SAID CANAL RIGHT OF WAY CONTAINING NINETEEN (19) ACRES MORE OR LESS
EXCEPTING THEREOUT: ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS BEING A STRIP OF LAND THIRTY TWO (32) FEET IN PERPENDICULAR WIDTH ADJACENT TO THE NORTHERN, WESTERN AND SOUTHWESTERN LIMITS OF IRRIGATION RIGHT OF WAY AS SHOWN ON PLAN IRR 46
EXCEPTING THEREOUT ALL MINES AND MINERALS

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 24 day of AUGUST A.D. 1949

Post Office Address

Registrar
South Alberta Land Registration District

Certificate of Title

Show Other Abbreviations Here

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tr – Transfer
Mtg – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
CC – Caveat and Condition
ENCUM – Encumbrance

NAME DAVID WALTER PORTER (PART INT.)

LAND 4-20-8-5-5½ PTN

TITLE NO 8 0 Q 1 3 8

CHARGES, LIENS AND INTERESTS.

	Nature of Instrument	Registration Number	Date of Registration Dy	Mo	Yr	Amount	Particulars	Signature of Registrar	Discharges and Transferred Registration Number	Date of Registration Dy	Mo	Yr	Signature of Registrar
(1)		1485 K.X.					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
(2)	C	3903 E.M.	24	10	34		(SW¼) THE ALBERTA RAILWAY AND IRRIGATION COMPANY						
(4)	C	5995 K.V.	6	4	71		RALPH PETER KUIPERS & SUSAN DEE KUIPERS		811012433	22	1	81	
(3)	C	1494 L.B.	29	6	71		7 KUIPERS HOLDING LTD.						
(6)	C	3373 K.X.	5	9	72		(AS TO THE SW¼ CONT. 3.72 ACS) THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT						
	CC	3432 U.					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						

79 U 151.

151

LAND TITLES ACT, Sec. 84.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—
(a) Any subsisting reservations or exceptions contained in the original grant of the land from the Crown;
(b) All unpaid taxes, including irrigation and drainage district rates;
(c) Any public highway or right-of-way or other public easement, howsoever created upon, over or in respect of the land;
(d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(e) Any decrees, orders or execution against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
(f) Any right of expropriation which may by statute be vested in any person, body corporate, or His Majesty;
(g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

GOVERNMENT OF THE PROVINCE OF ALBERTA

EH

Issued on instrument registered at 2.17 o'clock P.M. on the 13 day of JULY A.D. 1949
Number 597 Book G.C. Folio 17
W. FORBES
Registrar S.A.L.R.D.

Certificate of Title

Assoc. Fund Value $7900.00
Unearned Inc. Value $4150.00

Refer Cert. No. 57.I.65

South Alberta Land Registration District

This is to Certify that DAVID WALTER PORTER OF SALEM IN THE STATE OF OREGON ONE OF THE UNITED STATES OF AMERICA (CLERK) AND JOHN A. LIVINGSTONE OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (BARRISTER AT LAW) EXECUTORS OF THE WILL OF EVA MABEL PORTER (DECEASED)

ARE ~~XXXX~~ now the owners of an estate in fee simple AS SUCH EXECUTORS

of and in ALL THOSE PORTIONS OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA AND BEING .....

FIRSTLY, THAT PORTION OF THE SOUTH EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE SOUTH WESTERLY LIMIT OF THE RAILWAY RIGHT OF WAY OF THE ALBERTA RAILWAY AND IRRIGATION COMPANY AS SAID RIGHT OF WAY IS SHOWN ON A PLAN FILED IN THE LAND TITLES OFFICE FOR THE SOUTH ALBERTA LAND REGISTRATION DISTRICT AS R.Y. 23 CONTAINING ONE HUNDRED AND NINETEEN (119) ACRES MORE OR LESS.

EXCEPTING THEREOUT THREE (3) ACRES MORE OR LESS BEING THE SOUTHERLY TWENTY (20) RODS OF THE EASTERLY TWENTY FOUR (24) RODS OF SAID QUARTER SECTION.

SECONDLY, THE NORTH HALF AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND THE WHOLE OF LEGAL SUBDIVISION SIX (6) CONTAINING TOGETHER SIXTY FIVE (65) ACRES MORE OR LESS.

THIRDLY, THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY SHOWN ON A PLAN FILED IN THE SAID LAND TITLES OFFICE AS IRR. 46 CONTAINING THIRTY SEVEN AND FIVE TENTHS (37.5) ACRES MORE OR LESS, AND

FOURTHLY, THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF SAID CANAL RIGHT OF WAY CONTAINING NINETEEN (19) ACRES MORE OR LESS.

EXCEPTING THEREOUT ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS AS DESCRIBED IN TRANSFER REGISTERED AS 8137 E.J.

SUBJECT TO (AS TO ALL THE ABOVE LAND) THE RIGHT OF EXPROPRIATION OF CERTAIN PORTIONS THEREOF AND TO SUCH OTHER RIGHTS AND CONDITIONS AS ARE SET FORTH IN TRANSFER REGISTERED AS 3432 U. AND

RESERVING UNTO HIS MAJESTY ALL COAL AND UNTO THE ALBERTA RAILWAY AND IRRIGATION COMPANY ALL OTHER MINERALS, AND

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this THIRTEENTH day of JULY A.D. 19 49

Registrar
South Alberta Land Registration District

P.O. Address

SW 1/4 CAVEAT, THE ALBERTA RAILWAY AND IRRIGATION COMPANY 5 OCT. 1934, 10.33 AM., 24 OCT. 1934.....3903 E.M.

This Certificate is cancelled 138 ~~136~~ 83

and a new Certificate 80 Q

David Walter Porter et al

under Transfer [illegible] from the

above named [illegible] 10 Aug 1949

and Registered at 10 31 [illegible] A [illegible] 24 day of

Aug A.D. 1949 [illegible] No. 1481 G.C.

Registrar

57 I 65

65

LAND TITLES ACT, Sec. 57.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—
(a) Any subsisting reservations or exceptions contained in the original grant of the land from the Crown;
(b) All unpaid taxes, including irrigation or drainage district rates;
(c) Any public highway or right-of-way or other public easement, howsoever created upon, over or in respect of the land;
(d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(e) Any decrees, orders or exceptions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
(f) Any right of expropriation which may by statute or ordinance be vested in any person, body corporate, or His Majesty;
(g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

GOVERNMENT OF THE PROVINCE OF ALBERTA

SSM

Issued in instrument registered at 2.17 o'clock P.M. on the 14 day of MAY A.D. 19 41
Number 5217 Book F.B. Folio 149
W. FORBES
Registrar, S.A.L.R.D.

Certificate of Title.

Assce Fund Value $6200.00 Refer Cert. No. 14 J 234

Unearned Inc Value $4150.00

South Alberta Land [illegible]istration District.

This is to [illegible] [illegible]VA MABEL PORTER OF THE CITY OF LETHBRIDGE [illegible] [illegible]OMAN)

Ref Parked previously

is now the owner of [illegible]

of and in ALL TH[illegible] [illegible]OWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF [illegible] [illegible]INCE OF ALBERTA AND BEING FIRSTLY, [illegible] [illegible] EAST QUARTER WHICH LIES TO THE SOUTH AND WEST OF THE SOUTH [illegible] [illegible] THE RAILWAY RIGHT OF WAY OF THE ALBERTA RAILWAY AND IRRIGATION COM[illegible] [illegible]AID RIGHT OF WAY IS SHOWN ON A PLAN FILED IN THE LAND TITLES OFFICE FOR THE SOUTH ALBERTA LAND REGISTRATION DISTRICT AS R.Y.23 CONTAINING ONE HUNDRED AND NINETEEN (119) ACRES MORE OR LESS.
EXCEPTING THEREOUT THREE (3) ACRES MORE OR LESS BEING THE SOUTHERLY TWENTY (20) RODS OF THE EASTERLY TWENTY FOUR (24) RODS OF SAID QUARTER SECTION.
SECONDLY, THE NORTH HALF, AND THE EAST HALF OF THE SOUTH EAST QUARTER OF LEGAL SUBDIVISION THREE (3) AND THE WHOLE OF LEGAL SUBDIVISION SIX (6) CONTAINING TOGETHER SIXTY FIVE (65) ACRES MORE OR LESS,
THIRDLY, THOSE PORTIONS OF LEGAL SUBDIVISION FIVE (5) AND OF THE NORTH HALF OF LEGAL SUBDIVISION FOUR (4) WHICH LIE TO THE EAST OF THE CANAL RIGHT OF WAY SHOWN ON A PLAN FILED IN THE SAID LAND TITLES OFFICE AS IRR.46 CONTAINING THIRTY SEVEN AND FIVE TENTHS (37.5) ACRES MORE OR LESS, AND
FOURTHLY, THOSE PORTIONS OF SAID LEGAL SUBDIVISIONS FOUR (4) AND FIVE (5) WHICH LIE TO THE WEST OF SAID CANAL RIGHT OF WAY CONTAINING NINETEEN (19) ACRES MORE OR LESS.
EXCEPTING THEREOUT ONE AND EIGHTY EIGHT HUNDREDTHS (1.88) ACRES MORE OR LESS AS DESCRIBED IN TRANSFER REGISTERED AS 8137 E.J.
SUBJECT AS TO ALL THE ABOVE LANDS TO THE RIGHT OF EXPROPRIATION OF CERTAIN PORTIONS THEREOF AND TO SUCH OTHER RIGHTS AND CONDITIONS AS ARE SET FORTH IN TRANSFER REGISTERED AS 3432 U. AND
RESERVING UNTO HIS MAJESTY ALL COAL AND UNTO THE ALBERTA RAILWAY AND IRRIGATION COMPANY ALL OTHER MINERALS, AND

CANCELLED

CANCELLED

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this FOURTEENTH day of MAY A.D. 19 41

[signature] Registrar

South Alberta Land Registration District.

P.O. Address LETHBRIDGE, ALBERTA

MORTGAGE. WALTER PORTER TO CREDIT FONCIER FRANCO CANADIEN $3000.00 INT 8 PC. 20 OCT.1930, 10.53 AM. 24 OCT.1930.. 3213 E.G.

SW 1/4. CAVEAT. THE ALBERTA RAILWAY AND IRRIGATION COMPANY, 5 OCT.1934, 10.33 AM., 24 OCT.1934..3903 E.M.

Discharge of mortgage 3213 E.G. - 2 Mch 1942 - 2 58 pm - 10 Mch 1942 - 3738 F.C.

This Certificate is cancelled _____

and a new certificate 29415 issued to David W. Porter et al (as executors)

under Transfer to By Transmission from the

above named registered owner dated 12 July 1949.

and registered at 2 17 o'clock PM, this 13 day of

July A.D., 1949 as No. 597 G.C.

[illegible] Registrar

Certificate of Title

RENEWAL: 4/6/82

Canada

REFERENCES:

811239439
811239439A
811239439B

NO 8 1 1 2 3 9 4 4 0 A
8 1 1 0 7 1 3 1 9
REF 8 1 1 0 7 1 3 1 9 A
VALUE $ 1 9 6 7 5 0 0

MD

	MRG	TWP	RGE	Q	PT
1	9	0	1	8	5

	PLAN	BLK	LOT	PT
2				

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

is now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH HALF OF LEGAL SUBDIVISION THREE (3) AND THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) IN THE SOUTH HALF OF SECTION FIVE (5) IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN WHICH LIES TO THE WEST OF THE 6.5 METRE CANAL RIGHT OF WAY ON PLAN 8210212 CONTAINING 15.3 HECTARES (37.7 ACRES) MORE OR LESS EXCEPTING OUT OF LEGAL SUBDIVISION FOUR (4) THE 30 METRE CANAL RIGHT OF WAY ON PLAN 8210212 CONTAINING 0.723 HECTARES (1.79 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS

THIS CERT IS CANCELLED IN FULL ON SEPARATION
IN ACCORDANCE WITH THE TRANSFER TO ABOVE OWNER
AND A NEW CERT OF TITLE NO 821136817
ISSUED THIS 6 DAY AUGUST 19 82
AD. REG.

CANCELLED

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 19 81

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

Registrar

South Alberta Land Registration District

ABBREVIATIONS

E Easement	URW Utility Right of Way
C Caveat	ML Builders Lien
Tr Transmission	TN Tax Notification
Tr Transfer	WE Writ of Execution
Mtge Mortgage	C C Covenants and Conditions
	ENCUM Encumbrance

TITLE NO. B 1 1 2 3 9 4 4 0 A

Certificate of Title

NAME ROBERT D. WILSON

LAND 4 - 20 - 3 - 5 - PTN SW

Show Other Abbreviations Here

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Satisfactions: Registration Number	Date of Registration DY MO YR	Signature of Registrar
	[illegible]			THIS PROPE[illegible] RIVER IRRIGATION DISTRICT	[illegible]			
	3432 U			SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER	[illegible]			
C	3903 EM	24 10 34		SWL TO ALBERTA RAILWAY AND IRRIGATION COMPANY	[illegible]			
IRRIGABLE UNIT	811163564	29 9 81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST. MARY RIVER IRRIGATION DISTRICT)				

CANCELLED

RENEWAL

15/1/82
ENTERED 20/1/82
REF. 811239439
Canada 811239439A
811239439B

Certificate of Title

NO 8 1 1 2 3 9 4 4 0 A
8 1 1 0 7 1 3 1 9
REF 8 1 1 0 7 1 3 1 9 A
VALUE $ 9 6 7 5 0 0 0

VL 1 4 2 0 8 5 9 3

PLAN BLK LOT PT
2

GOVERNMENT OF THE PROVINCE OF ALBERTA

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH HALF OF LEGAL SUBDIVSION THREE (3) AND THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4) IN THE SOUTH HALF OF SECTION FIVE (5), IN TOWNSHIP EIGHT (8), RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN WHICH LIES TO THE WEST OF THE WESTERLY LIMIT OF THE CANAL RIGHT OF WAY AS SHOWN ON PLAN IRR. 1442 CONTAINING 15.2 HECTARES (38 ACRES) MORE OR LESS

CANCELLED

EXCEPTING THEREOUT ALL MINES AND MINERALS

THIS CERT. IS CANCELLED AS TO PORTIONS OF CANAL RIGHT OF WAY ON PLAN 8210212
IN ACCORDANCE WITH THE TRANSFER TO THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT
AND A NEW CERT. OF TITLE No 821099172
ISSUED THIS 4 DAY JUNE 19 82
H Watson AD. REG.

THIS CERT. IS CANCELLED IN FULL ON RENEWAL
IN ACCORDANCE WITH THE TRANSFER TO ABOVE OWNER
AND A NEW CERT. OF TITLE No 811239440 A
ISSUED THIS 4 DAY JUNE 19 82
H Watson AD. REG.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 1981

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

SOUTH ALBERTA LAND REGISTRATION DISTRICT LAND TITLES OFFICE

Registrar

South Alberta Land Registration District

A G 1818 V 1232
Rev 3 73

Certificate of Title

ABBREVIATIONS

E – Easement
C – Caveat
Tr – Transmission
Tfr – Transfer
Mtge – Mortgage
URW – Utility Right of Way
BL – Builders Lien
TN – Tax Notification
WE – Writ of Execution
C C – Covenants and Conditions
ENCUM – Encumbrance

Show Other Abbreviations Here

NAME ROBERT D. WILSON
4 - 20 - 8 - 5 - 53 PTN

LAND

TITLE NO 811123914 0 A

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT						
	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER						
C	3903 EM	24	10	34		SW¼ THE ALBERTA RAILWAY AND IRRIGATION COMPANY						
C	3373 KX	5	9	72		PTN DESCRIBED IN INSTRUMENT THE BOARD OF DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT		821099171	4	6	82	
URW	741045238	14	5	74		(16.5 FT. STRIP) TO ALBERTA GOVERNMENT TELEPHONES						
IRRIGABLE UNIT	811183564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST. MARY RIVER IRRIGATION DISTRICT)						

CANCELLED

Certificate of Title

Canada

NO 8 1 1 2 3 9 4 4 0 A
8 1 1 0 7 1 3 1 9
REF 8 1 1 0 7 1 3 1 9 A
VALUE $ 9 6 7 5 0 0 0

VL 1 4 2 0 8 5 5 4 7

PLAN BLK LOT PT
2

South Alberta Land Registration District

THIS IS TO CERTIFY that ROBERT D. WILSON OF THE CITY OF LETHBRIDGE IN THE PROVINCE OF ALBERTA (FARMER)

IS now the owner of an estate in fee simple

of and in

THAT PORTION OF THE SOUTH HALF OF LEGAL SUBDIVISION THREE (3) AND THE SOUTH HALF OF LEGAL SUBDIVISION FOUR (4)* ~~LYING~~ TO THE WEST OF THE WESTERLY LIMIT OF THE CANAL RIGHT OF WAY AS SHOWN ON PLAN IRR 1442 CONTAINING 15.3 HECTARES (38 ACRES) MORE OR LESS

CORRECTED 15/1/81

*IN THE SOUTH HALF OF SECTION FIVE (5), IN TOWNSHIP EIGHT (8) RANGE TWENTY (20) WEST OF THE FOURTH MERIDIAN WHICH LIES EXCEPTING THEREOUT ALL MINES AND MINERALS

THIS CERT IS CANCELLED IN FULL
ON RENEWAL
ABOVE OWNER
8 1 1 2 3 9 4 4 0
15 JANUARY 82

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 29 day of DECEMBER A.D. 19 81

Post Office Address 1615 - 21 STREET SOUTH
LETHBRIDGE, ALBERTA

Registrar
South Alberta Land Registration District

ABBREVIATIONS

E Easement
C Caveat
Tr Transmission
Tfr Transfer
Mtge Mortgage
URW Utility Right of Way
BL Builders Lien
TN Tax Notification
WE Writ of Execution
CC Community Condition
ENCUM Encumbrance

Certificate of Title

Show Other Abbreviations Here

NAME ROBERT D. WILSON

LAND 4 - 29 - 8 - 5 - SE PTN

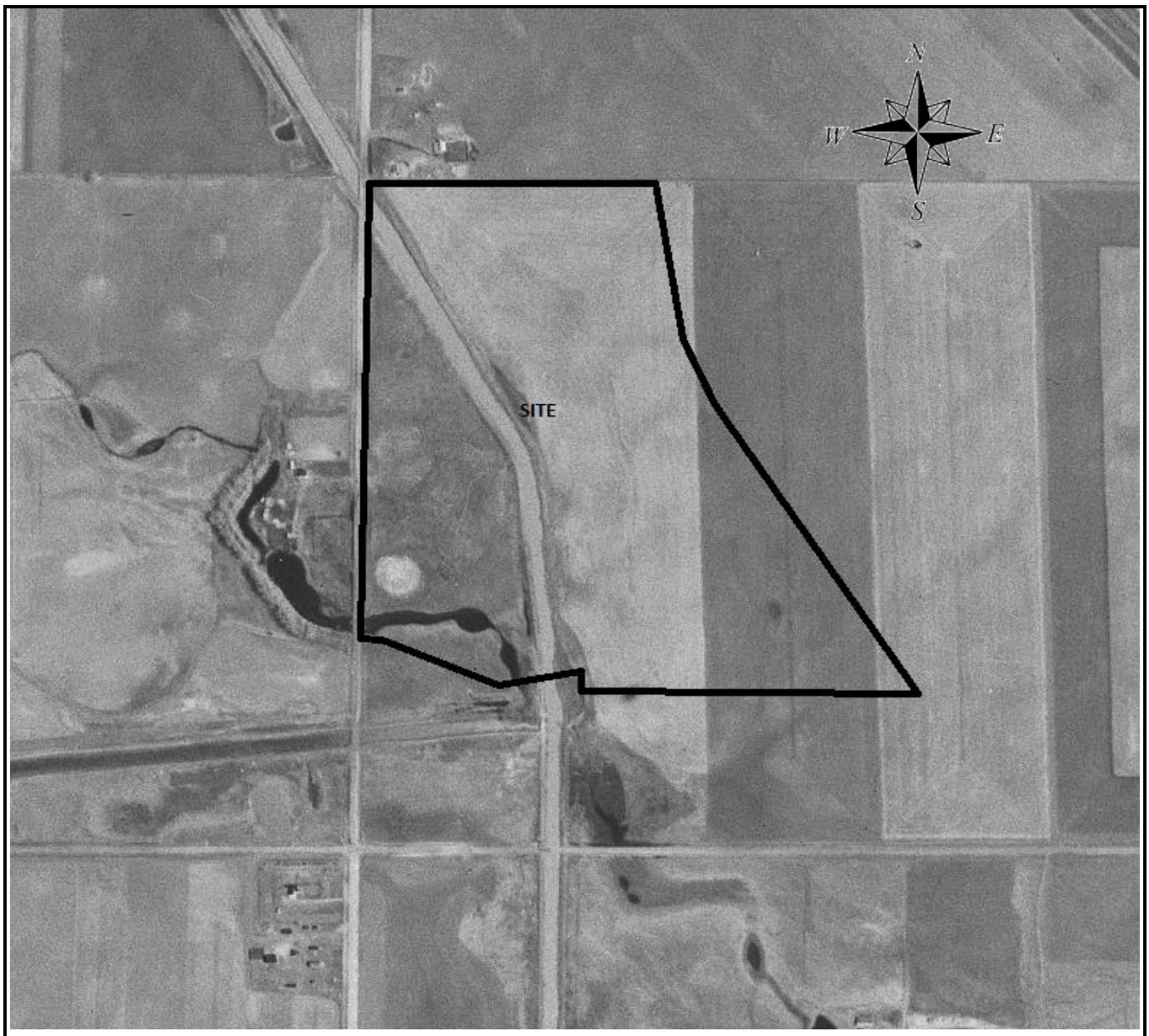
TITLE NO 811239440A

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY	MO	YR	Amount	PARTICULARS	Signature of Registrar	Discharges and Withdrawals: Registration Number	Date of Registration DY	MO	YR	Signature of Registrar
	1485 KX					THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT	—					
	3432 U					SUBJECT TO THE RIGHTS AND RESERVATIONS CONTAINED IN TRANSFER	—					
C	3903 EM	24	10	34		SWL THE ALBERTA RAILWAY AND IRRIGATION COMPANY	—					
C	3373 KX	5	9	72		(AS TO PORTIONS DESCRIBED IN THE INSTRUMENT) THE BOARD DIRECTORS OF THE ST. MARY RIVER IRRIGATION DISTRICT	—					
URW	741045238	14	5	74		(16.5 FT. STRIP TO ALBERTA GOVERNMENT TELEPHONES	—					
IRRIGABLE UNIT	811183564	29	9	81		IRRIGABLE UNIT UNDER SECTION 58 OF THE IRRIGABLE ACT (ST.MARY RIVER IRRIGATION DISTRICT)	[illegible]					

Appendix B

Aerial Photographs



amec foster wheeler

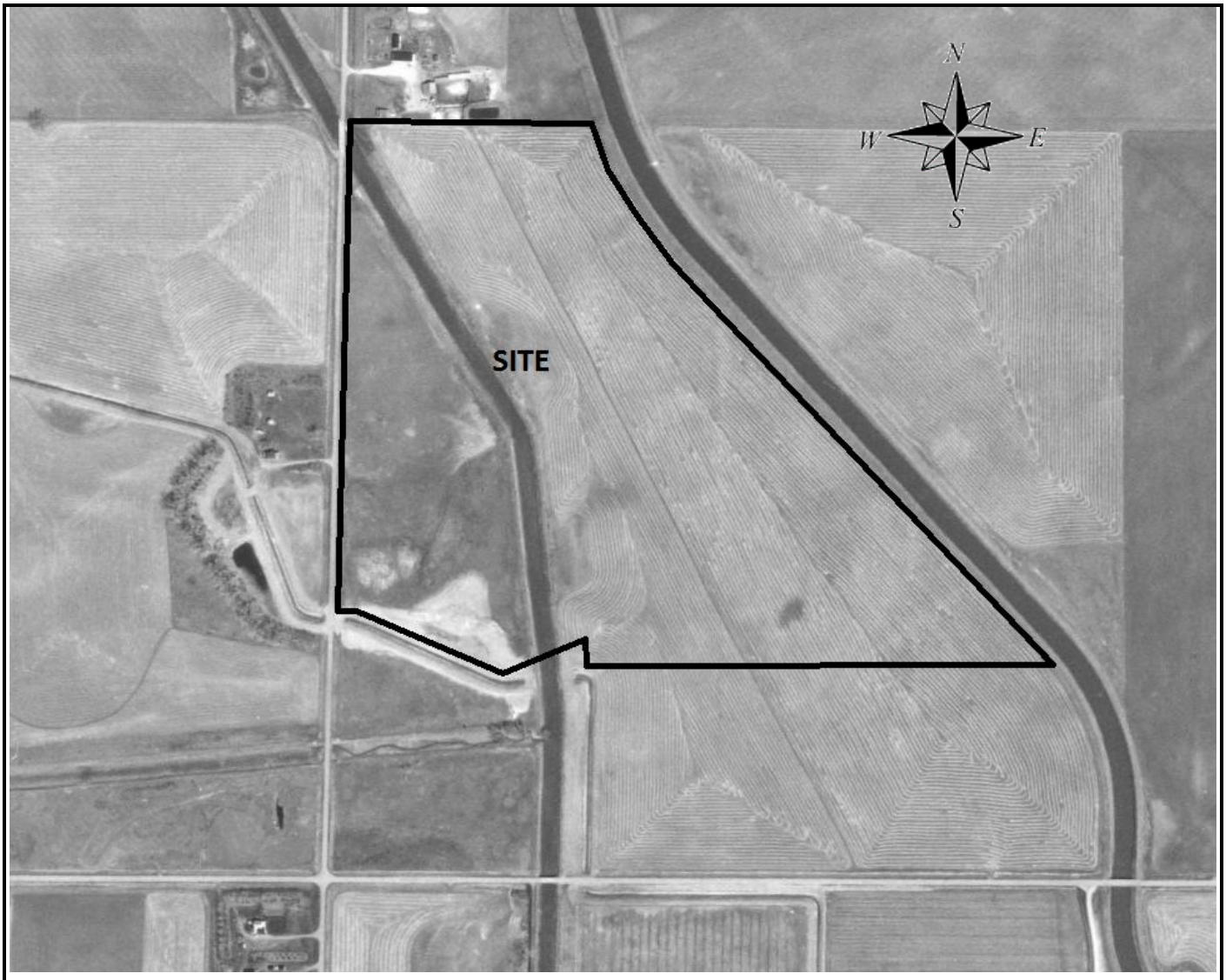
Project:

Phase I ESA
Nakamura Residential Subdivision
SW 05-008-20 W4M, near Lethbridge, Alberta

Air Photo 1950

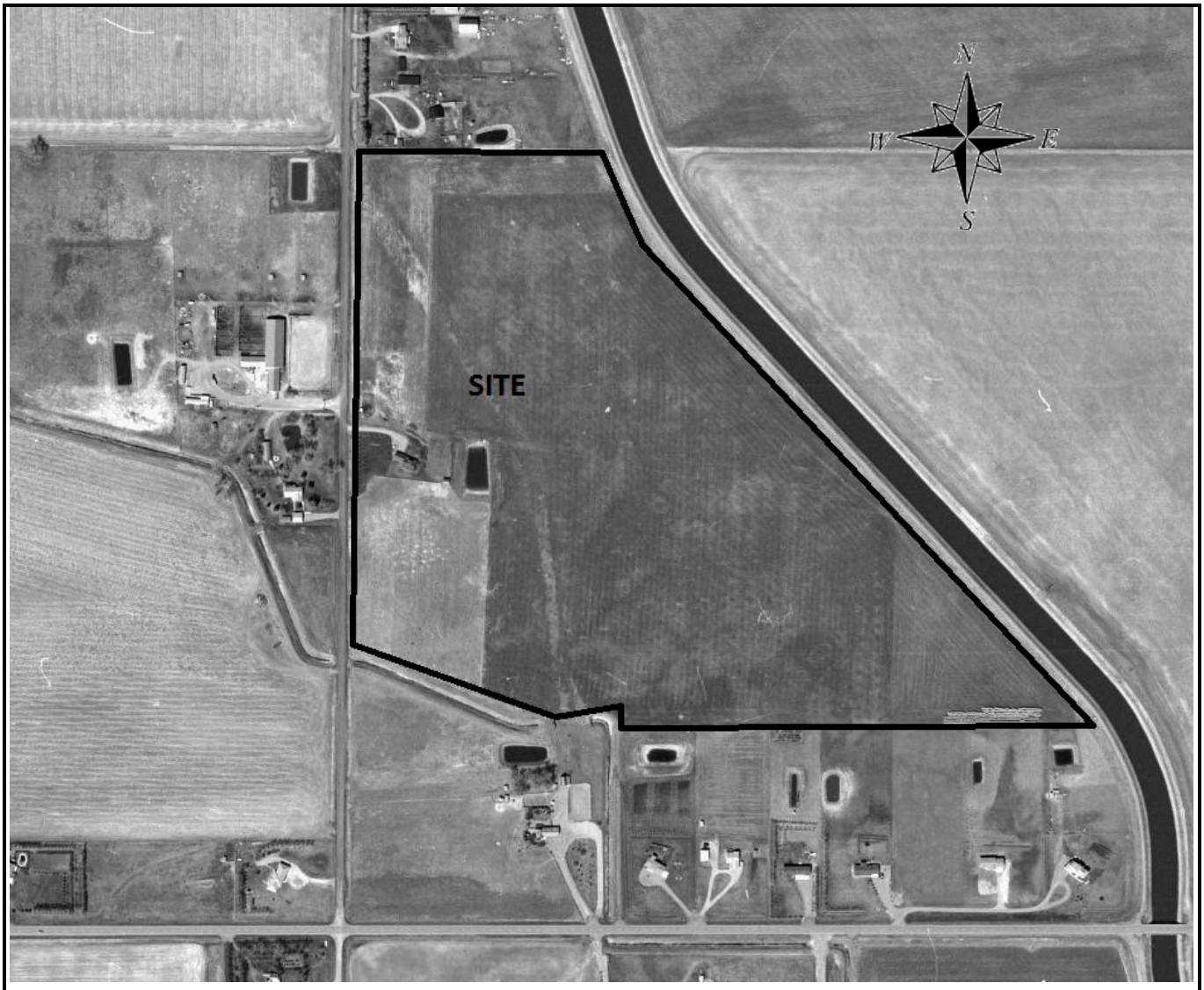
CLIENT:	DATE:	JOB No.:	SCALE:	APPENDIX	REV.
Martin Geomatic Consultants Ltd.	April 2018	BX20137	N.T.S	B-1	1

amec foster wheeler	Project: **Phase I ESA** **Nakamura Residential Subdivision** **SW 05-008-20 W4M, near Lethbridge, Alberta**				
	Air Photo 1961				
CLIENT: **Martin Geomatic Consultants Ltd.**	DATE: April 2018	JOB No.: BX20137	SCALE: N.T.S	APPENDIX B-2	REV. 1



amec foster wheeler	Project: **Phase I ESA** **Nakamura Residential Subdivision** **SW 05-008-20 W4M, near Lethbridge, Alberta**				
	Air Photo 1970				
CLIENT: **Martin Geomatic Consultants Ltd.**	DATE: April 2018	JOB No.: BX20137	SCALE: N.T.S	APPENDIX B-3	REV. 1

amec foster wheeler	Project: **Phase I ESA** **Nakamura Residential Subdivision** **SW 05-008-20 W4M, near Lethbridge, Alberta**				
	Air Photo 1983				
CLIENT: **Martin Geomatic Consultants Ltd.**	DATE: April 2018	JOB No.: BX20137	SCALE: N.T.S	APPENDIX B-4	REV. 1



amec foster wheeler

Project:

Phase I ESA
Nakamura Residential Subdivision
SW 05-008-20 W4M, near Lethbridge, Alberta

Air Photo 1999

CLIENT:	DATE:	JOB No.:	SCALE:	APPENDIX	REV.
Martin Geomatic Consultants Ltd.	April 2018	BX20137	N.T.S	B-5	1

amec foster wheeler	Project: **Phase I ESA** **Nakamura Residential Subdivision** **SW 05-008-20 W4M, near Lethbridge, Alberta**				
	Air Photo 2009				
CLIENT: **Martin Geomatic Consultants Ltd.**	DATE: April 2018	JOB No.: BX20137	SCALE: N.T.S	APPENDIX B-6	REV. 1

Appendix C

Documentation

Petroleum Tank Management
Association of Alberta
Suite 980, 10303 Jasper Avenue
Edmonton, Alberta T5J 3N6
PH: (780)425-8265 or 1-866-222-8265
FAX: (780)425-4722

April 5, 2018

Scott Roughead
AMEC Foster Wheeler
469 - 40 Street South
Lethbridge, AB
T1J 4M1

Dear Scott Roughead:

As per your request, the PTMAA has checked the registration of active tank sites and inventory of abandoned tank sites and there are no records for the property with the legal land description:

SW 5-8-20-W4, Lethbridge

Please note that both databases are not complete. The main limitation of these databases is that they only include information reported through registration or a survey of abandoned sites completed in 1992 and should not be considered as a comprehensive inventory of all past or present storage tank sites. The PTMAA **cannot** guarantee that tanks do not or have not existed at this location. Information in the databases is based on information supplied by the owner and the PTMAA cannot guarantee its accuracy. Information on storage tanks or on past or present contaminant investigations may be filed with the local Fire Department or Alberta Environment.

Yours truly,

Connie Jacobsen
PTMAA

LETHBRIDGE COUNTY

#100, 905 - 4th Avenue South, Lethbridge, Alberta T1J 4E4

Amec Foster Wheeler Environment and Infrastructure
Attn: Scott Roughead
469 – 40 Street South
Lethbridge, AB T1J 4M1

March 28, 2018

Re: Environmental information regarding SW-05-08-20-W4M, 80025 Range Road 20-5, Lethbridge County

The following information is the County's response to your inquiry regarding the above mentioned property.

1. Environmental concerns and property information.
    a. A letter in the property file refers to there being an abandoned well on the site. It states the well was abandoned in 1956 with all equipment being removed from the property in May and June of 1956.
    b. The property is classified as Rural Agriculture (R.A.) pursuant to the Lethbridge County Land Use By-Law 1404.
    c. A Development Permit (94-89) was issued for a residence on the property in 1994. A copy of this permit has been included with this letter.

If you have any other questions regarding this please contact Sarah Mitchell, Development Officer at 403-328-5525.

Regards,

Sarah Mitchell
Development Officer

Tel: (403) 328-5525 E-Mail: mailbox@lethcounty.ca Fax: (403) 328-5602

COUNTY OF LETHBRIDGE NO. 26
DEVELOPMENT PERMIT

SCHEDULE 4 **LAND USE BY-LAW NO.** 806

FORM B **DEVELOPMENT APPLICATION NO.** 94-89

DEVELOPMENT PERMIT NO. 94-89

This development permit is hereby issued to:

NAME: Harriet Douwes & Bourke Reaney

ADDRESS: Box 3000 Main, Lethbridge, Alberta T1J 4B1

In respect of works consisting of: new residence.

On land located at: S.W. 5-8-20-W4 (65 acres)

and as described on plans submitted by the applicant.

This permit refers only to works outlined in Development Application No. 94-89

and is subject to the conditions contained herein:

1) The residence is to be located a minimum distance of 125' from the centerline of the County road.

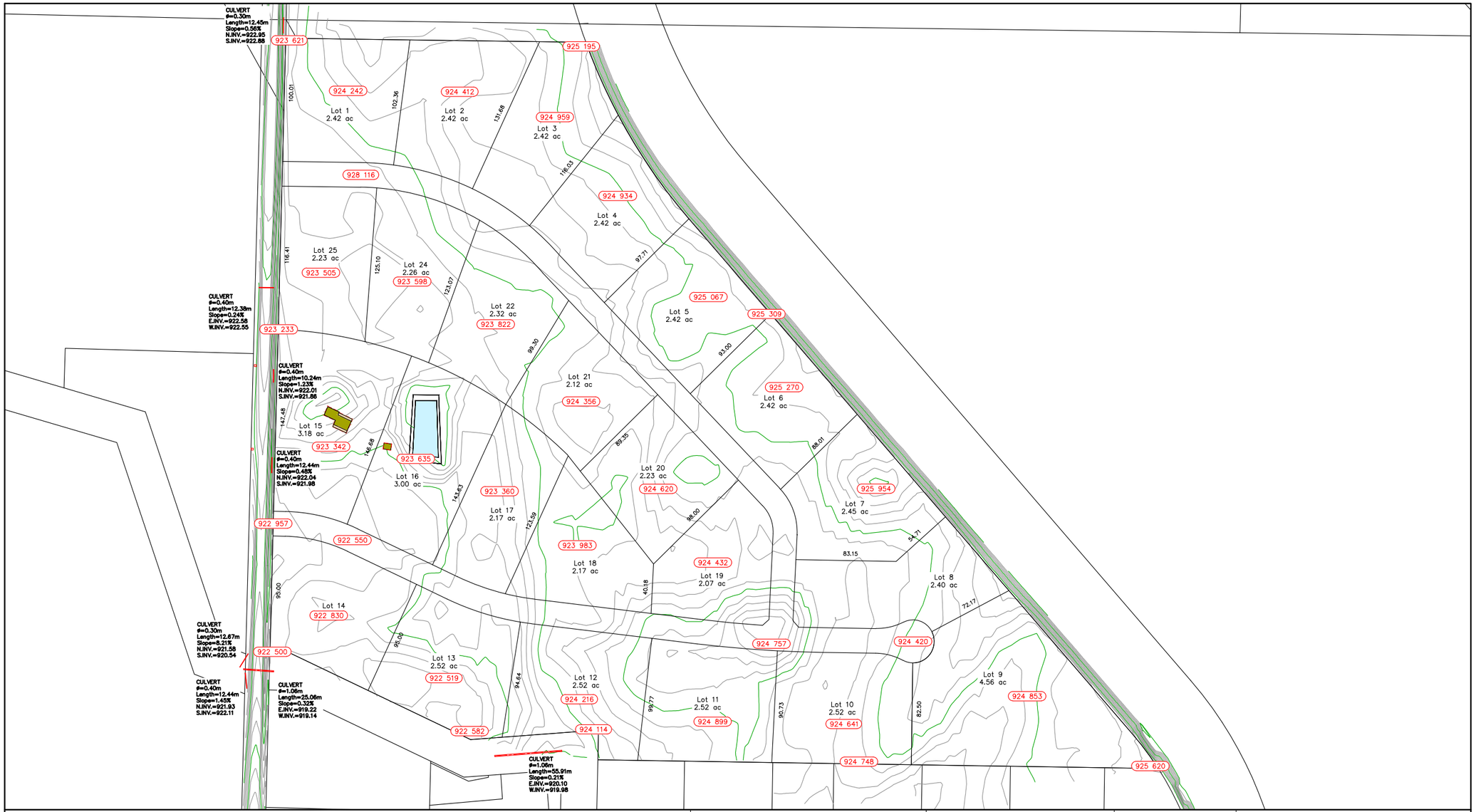
2) All construction is to comply with the Alberta Building Code. The applicant is to contact Alberta Labour, Client Services Division @ 381-5423.

This permit becomes effective the 6th day of September, 1994 unless an appeal pursuant to Section 83 of The Planning Act is lodged within fourteen (14) days of the following date.

DATE: August 23, 1994 SIGNED: _____
Development Officer

THIS IS NOT A BUILDING PERMIT

IMPORTANT: See over.



PROJECTION:	3TM
MERIDIAN:	114
ZONE:	-
SCALE FACTOR:	0.999000
DATUM:	NAD83

REVISIONS	BY	Y	M	D

PERMIT

PERMIT TO PRACTICE
Martin Geomatic Consultants Ltd.
PERMIT NUMBER: P 5852
The Association of Professional Engineers and Geoscientists of Alberta

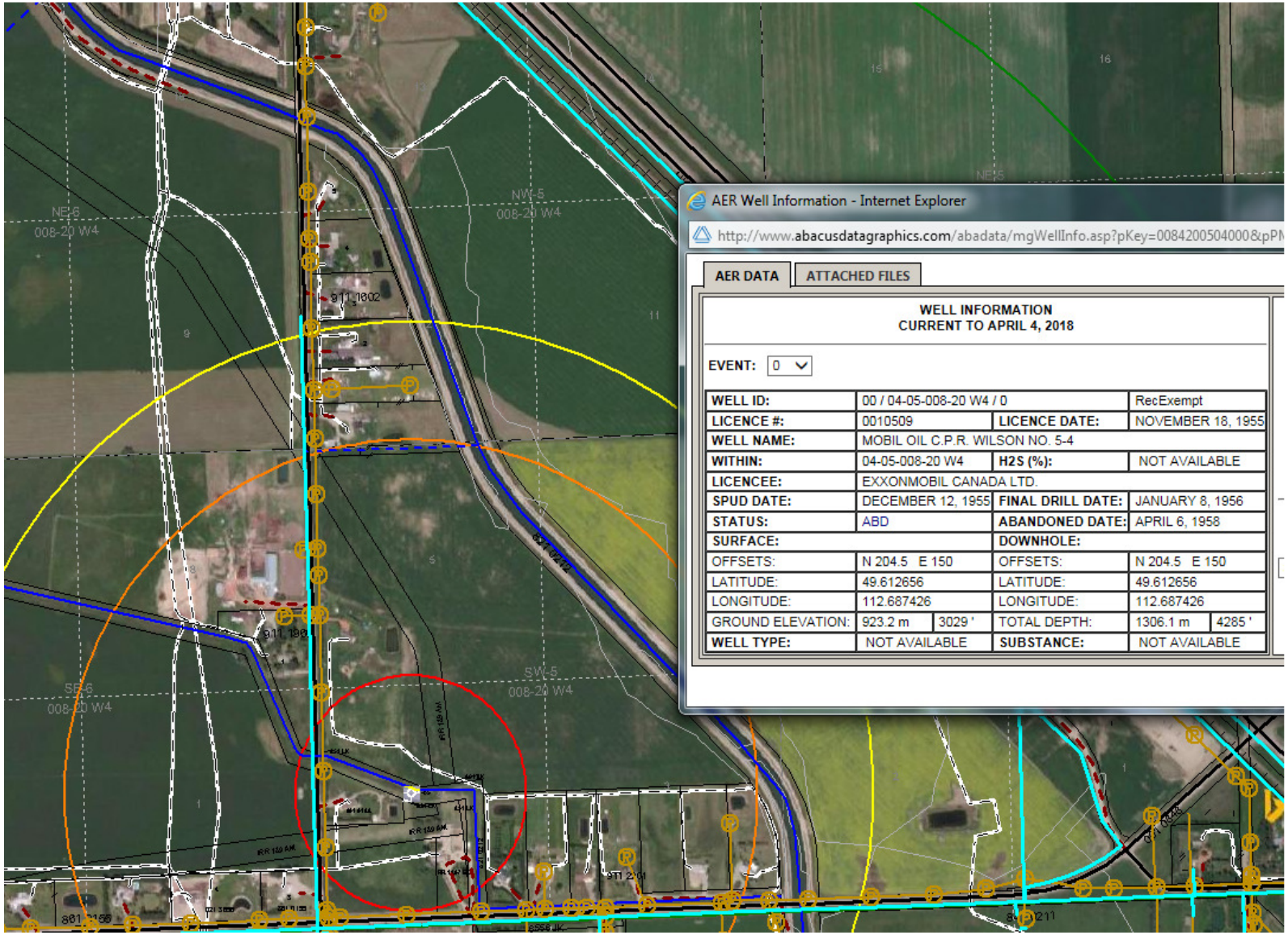
MARTIN GEOMATIC CONSULTANTS LTD
Consulting Engineers, Planners, and Land Surveyors
255-31st Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail: geomart@mgcl.net Fax: (403) 329-8594

SEAL

PROJECT	RESIDENTIAL SUBDIVISION
TITLE	PROPOSED LOT LAYOUT
OWNER	JODY NAKAMURA
SCALE	
DRAWN: DV	APPROVED: --
DESIGN: --	DATE: 03/02/2017
PROJECT NUMBER	082154CE
DRAWING NUMBER	C4.7

Saved Date: Monday, January 25, 2016 3:26:07 PM – By: [Derek]

z:\active projects\082154 nakamura\cadd\design\working\082154ce – base 1.dwg


AER Well Information - Internet Explorer
http://www.abacusdatagraphics.com/abadata/mgWellInfo.asp?pKey=0084200504000&pP
AER DATA
ATTACHED FILES
WELL INFORMATION
CURRENT TO APRIL 4, 2018
EVENT: 0
WELL ID: 00 / 04-05-008-20 W4 / 0 RecExempt
LICENCE #: 0010509 LICENCE DATE: NOVEMBER 18, 1955
WELL NAME: MOBIL OIL C.P.R. WILSON NO. 5-4
WITHIN: 04-05-008-20 W4 H2S (%): NOT AVAILABLE
LICENCEE: EXXONMOBIL CANADA LTD.
SPUD DATE: DECEMBER 12, 1955 FINAL DRILL DATE: JANUARY 8, 1956
STATUS: ABD ABANDONED DATE: APRIL 6, 1958
SURFACE: DOWNHOLE:
OFFSETS: N 204.5 E 150 OFFSETS: N 204.5 E 150
LATITUDE: 49.612656 LATITUDE: 49.612656
LONGITUDE: 112.687426 LONGITUDE: 112.687426
GROUND ELEVATION: 923.2 m 3029 ' TOTAL DEPTH: 1306.1 m 4285 '
WELL TYPE: NOT AVAILABLE SUBSTANCE: NOT AVAILABLE
NE-6
008-20 W4
NW-5
008-20 W4
SE-6
008-20 W4
SW-5
008-20 W4

MOBIL OIL OF CANADA, LTD.

MOBIL OIL BUILDING

Calgary, Alberta

COMPTROLLER'S DEPARTMENT
B.E. TAYLOR, COMPTROLLER
~~W.P. ROLLICH, ASSISTANT COMPTROLLER~~
H.W. SKIRTEN, CHIEF ACCOUNTANT

August 1, 1957

Secretary Treasurer,
M. D. of Lethbridge #25,
Barons, Alberta.

Dear Sir:

We refer to your 1957 Tax Notice based on an assessment of $5,440.00 covering personal property on LSD. 4-5-8-20-W4M. We wish to draw to your attention that this well was abandoned in 1956 and all the equipment was removed during May and June, 1956.

The only 1957 Assessment Slip we have on file is for the personal property on our well situated on LSD. 12-32-7-20-W4M in the amount of $2,000.00. Incidentally, this well went off production during April, 1957, and all the equipment was moved from the well-site approximately two months ago. As we did not receive an Assessment Slip for personal property on LSD. 4-5-8-20-W4M, it was assumed that your Assessor was aware of the abandonment of this well during 1956.

Please advise if an error has been made on this Tax Notice which should have been calculated on an assessment of $2,000.00 instead of $5,440.00.

Very truly yours,

B E Taylor DEP

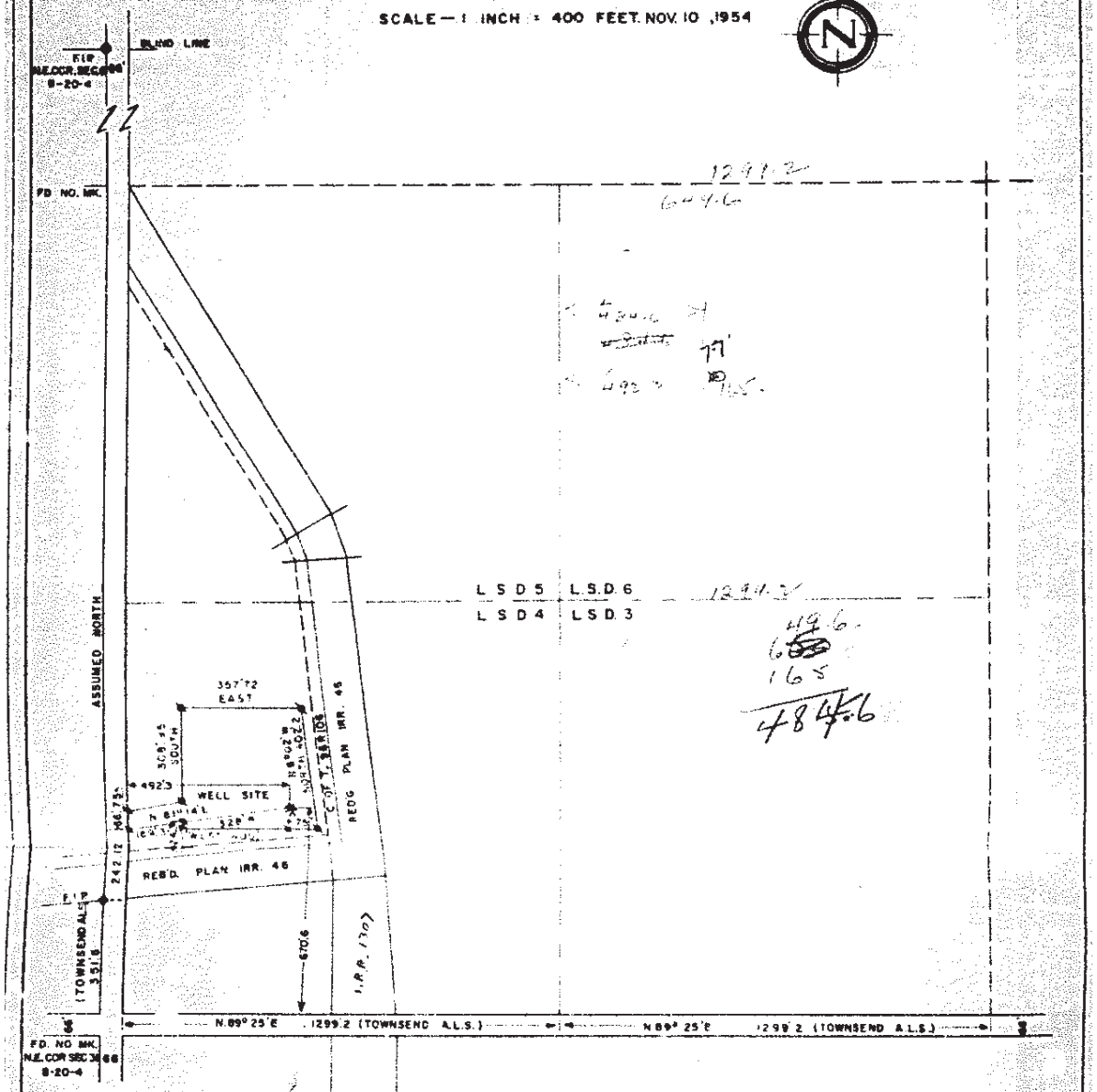
B. E. Taylor

AEEhnis:bam

PLAN OF
MOBIL OIL C.P.R. WILSON 5-4
MOBIL OIL OF CANADA, LTD

L.S.D. 4, SEC. 5, TP. 8 R. 20, W.4 M.

SCALE — 1 INCH = 400 FEET. NOV. 10, 1954



ELEVATION AT WELL SITE 3029.3 TAKEN FROM TOP OF CAPS AT N.W. COR. OF BRIDGES 3 AND 4 OF S.M.R.D. ASSUMING 3034.38 AND 3032.46 RESPECTIVELY (GEODETIC DATUM)

MINERAL RIGHTS SURFACE RIGHTS				
CO-ORDINATES	ELEVATION		AREA	
N. 670.6 E. 492.3	GROUND	K.B.	TRACT	ROAD
	3029.3		3.49	0.26
TOTAL ACREAGE			3.74	
FLOWLINE ACREAGE				

- 2"x2" WOODEN STAKE
- LATH
- COMBINATION OF ABOVE
- 1½" DIAM. ROUND PIPE & 2' LATHS
- RAIL
- STANDARD IRON POST FOUND

MOBIL OIL OF CANADA, LTD

I HEREBY CERTIFY THIS TO BE A TRUE AND CORRECT SURVEY

R.P.E. — SURVEYOR

WITNESS — WITNESS

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 118269
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	4	5	8	20	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.612674 Longitude -112.686998
How Location Obtained
Field

Elevation 3039.00 ft
How Elevation Obtained
Estimated

Drilling Information

Method of Drilling
Drilled

Proposed Well Use
Industrial

Type of Work
Structure Test Hole

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
4284.00 ft			1956/01/08

Borehole

Diameter (in)	From (ft)	To (ft)
0.00	0.00	4284.00

Surface Casing (if applicable)

Size OD : 0.00 in
Wall Thickness : 0.000 in
Bottom at : 0.00 ft

Well Casing/Liner

Size OD : 0.00 in
Wall Thickness : 0.000 in
Top at : 0.00 ft
Bottom at : 0.00 ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)

Perforated by

Annular Seal

Placed from 0.00 ft to 0.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type

Size OD : 0.00 in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings
Bottom Fittings

Pack

Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
UNKNOWN DRILLER

Copy of Well report provided to owner
Date approval holder signed

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 118269
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	4	5	8	20	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.612674 Longitude -112.686998
How Location Obtained
Field

Elevation 3039.00 ft
How Elevation Obtained
Estimated

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate igpm
Recommended Pump Intake Depth (From TOC) ft
Pump Installed
Type
Depth ft
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion
Geophysical Log Taken Electric
Submitted to ESRD Electric
Sample Collected for Potability
Submitted to ESRD
Additional Comments on Well

Yield Test

Taken From Ground Level | Measurement in Imperial

Test Date	Start Time	Static Water Level
		ft

Method of Water Removal
Type
Removal Rate igpm
Depth Withdrawn From ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER
Certification No
1
Company Name
UNKNOWN DRILLER
Copy of Well report provided to owner
Date approval holder signed

Water Well Drilling Report

View in Metric **Export to Excel**

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

GIC Well ID 118268
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1983/12/15

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
STOKELL, LIONEL	WILSON				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	4	5	8	20	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.612674 Longitude -112.686998
How Location Obtained
Map

Elevation ft
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Rotary

Proposed Well Use
Domestic

Type of Work
New Well

Formation Log

Measurement in Imperial

Depth from ground level (ft)	Water Bearing	Lithology Description
24.00		Glacial Till
28.00		Sand & Gravel
48.00		Glacial Till
58.00		Clay & Coal
75.00		Gray Clay
100.00		Gray Sticky Clay
120.00		Coal
180.00		Sandy Clay
240.00		Clay & Gravel
260.00		Sand
265.00		Hard Clay

Yield Test Summary

Measurement in Imperial

Recommended Pump Rate 0.00 igpm

Test Date	Water Removal Rate (igpm)	Static Water Level (ft)
1983/03/11	7.50	140.00

Well Completion

Measurement in Imperial

Total Depth Drilled	Finished Well Depth	Start Date	End Date
265.00 ft		1983/03/07	1983/03/11

Borehole

Diameter (in)	From (ft)	To (ft)
0.00	0.00	265.00

Surface Casing (if applicable)
Steel
Size OD : 6.00 in
Wall Thickness : 0.225 in
Bottom at : 200.00 ft

Well Casing/Liner
Steel
Size OD : 4.50 in
Wall Thickness : 0.000 in
Top at : 0.00 ft
Bottom at : 265.00 ft

Perforations

From (ft)	To (ft)	Diameter or Slot Width(in)	Slot Length (in)	Hole or Slot Interval(in)
200.00	265.00	2.000		0.13

Perforated by Machine

Annular Seal Cement/Grout
Placed from 0.00 ft to 100.00 ft
Amount

Other Seals

Type	At (ft)

Screen Type
Size OD : 0.00 in

From (ft)	To (ft)	Slot Size (in)

Attachment
Top Fittings Bottom Fittings

Pack
Type Unknown Grain Size .375
Amount 1.00 Yards

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
SOUTH COUNTRY DRILLING LTD.

Copy of Well report provided to owner Date approval holder signed

Water Well Drilling Report

View in Metric | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 118268
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1983/12/15

GOWN ID

Well Identification and Location

Measurement in Imperial

Owner Name	Address	Town	Province	Country	Postal Code
STOKELL, LIONEL	WILSON				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	4	5	8	20	4				

Measured from Boundary of
ft from
ft from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.612674 Longitude -112.686998
How Location Obtained
Map

Elevation ft
How Elevation Obtained
Not Obtained

Additional Information

Measurement in Imperial

Distance From Top of Casing to Ground Level in
Is Artesian Flow
Rate igpm
Is Flow Control Installed
Describe

Recommended Pump Rate 0.00 igpm
Recommended Pump Intake Depth (From TOC) 0.00 ft
Pump Installed
Depth ft
Type
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth ft
Gas
Depth ft
Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD
Sample Collected for Potability
Submitted to ESRD Yes

Additional Comments on Well
DRILLER REPORTS SOFT WATER

Yield Test

Taken From Ground Level
Measurement in Imperial

Test Date	Start Time	Static Water Level
1983/03/11	12:00 AM	140.00 ft

Depth to water level

Drawdown (ft)	Elapsed Time Minutes:Sec	Recovery (ft)

Method of Water Removal
Type Pump
Removal Rate 7.50 igpm
Depth Withdrawn From 200.00 ft

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	ig	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER
Certification No
1
Company Name
SOUTH COUNTRY DRILLING LTD.
Copy of Well report provided to owner
Date approval holder signed

CULVERT
ϕ=0.30m
Length=12.45m
Slope=0.56%
N.INV.=922.95
S.INV.=922.88
CULVERT
ϕ=0.40m
Length=12.38m
Slope=0.24%
E.INV.=922.58
W.INV.=922.55
CULVERT
ϕ=0.40m
Length=10.24m
Slope=1.23%
N.INV.=922.01
S.INV.=921.86
CULVERT
ϕ=0.40m
Length=12.44m
Slope=0.48%
N.INV.=922.04
S.INV.=921.98
CULVERT
ϕ=0.30m
Length=12.67m
Slope=8.21%
N.INV.=921.58
S.INV.=920.54
CULVERT
ϕ=0.40m
Length=12.44m
Slope=1.45%
N.INV.=921.93
S.INV.=922.11
CULVERT
ϕ=1.06m
Length=25.06m
Slope=0.32%
E.INV.=919.22
W.INV.=919.14
CULVERT
ϕ=1.06m
Length=55.91m
Slope=0.21%
E.INV.=920.10
W.INV.=919.98
Well Location

Appendix D

Site Photographs

Photo 1:
Viewing southeast at residence.

Direction:
Southeast.

Photo 2.
Viewing east at drive way to residence ~~with~~ located at 80025 Rge. Rd 20-05.

Direction:
East.

Photo 3:
Rural water line running parallel to west property line along Range Road 20-5.

Direction:
East.

Photo 4:
Viewing East at approximate location of Mobil Oil C.P.R. Wilson No. 5-4 located south of fence adjacent to south property line, near the irrigation canal.

Direction:
East.

Photo 5:

Pasture located south of the residence and north of the former Mobil Oil well.

Direction:
East.

Photo 6:
Agricultural land located over the east half of the Site.

Direction:
East.

Photo 7:
Natural gas line located in south half of Site with residence visible in center of photo.

Direction:
Northwest.

Photo 8:
Farm located north of the Site.

Direction:
West.

Photo 9:
The Site is bordered to the east by Saint Marry River Irrigation District (SMRID) Canal located on left edge of photo. Canal berm and access road visible in center of photo, with Site adjacent right.

Direction:
East.

Photo 10:
Country residential property and dugout located south of the Site. Small irrigation canal located in ditch behind dugout.

Direction:
South.

Photo 11:
Rural agricultural residential property and small irrigation canal located south of Site.

Direction:
East.

Photo 12:
Rural agricultural residential property located west of the Site adjacent to Rge Road 20-5.

Direction:
East.

Appendix E

Statement of Qualifications

Scott Roughead, C.E.T.

Senior Environmental Technologist

Core Skills

- Technical Field Background for all aspects of Environmental Site Assessments
- Project Management and Reporting for contaminated site assessment and remediation
- Reliable Client liaison

Professional summary

Mr. Scott Roughead has been working as a senior environmental technologist with Amec Foster Wheeler Environment and Infrastructure for over fourteen years. Mr. Roughead has had a diverse range of duties, working on a wide arrangement of Environmental Assessment and Remediation projects. His current duties include management on Environmental projects including Phase I Environmental Site Assessments (ESAs), Phase II Environmental Site Assessments, open water and groundwater monitoring and sampling programs and supervision and management on Phase III remediation projects as well as risk management. Geotechnical duties include project management, geotechnical drilling, soil classification, and borehole log data entry. Mr Roughead's Project Management responsibilities include being a reliable and accountable liaison to clients from all identified disciplinary backgrounds.

Employment history

Amec Foster Wheeler, Environmental Technologist, Lethbridge, AB, 2005 to present.
Amec Foster Wheeler, Environmental Technologist, Calgary, AB, 2003 field season.

Certifications and Training

- Ongoing Standard First Aid, 2005 to present.
- Ground Disturbance Level II, 2010 to present.
- ENFORM H_2S Alive, 2005 to present.
- Alberta Construction Safety Association Safety Training System, 2011.
- Sprouse Fire and Safety Training, 2003.
- Transportation of Dangerous Goods Course, 2014.
- Introduction to Contaminated Hydrogeology Workshop, 2010
- Project Management Training (in-house), 2007
- Tier 1 and Tier 2 Remediation Guideline Workshop, Alberta Environment, 2008.

Years with Amec Foster Wheeler: 14

Years' Experience: 14

Education

Environmental Science, Diploma, Renewable Resource Management, Lethbridge College, AB, Canada, 2003

Certificate of Specialization, Environmental Science, Fish and Wildlife Technology, Lethbridge College, Lethbridge, AB, Canada, 2004

Professional qualifications

Certified Engineering Technologist with the Association of Science and Engineering Technology Professionals of Alberta (ASET), Area of Practice Environmental Science.

ASET Member: 98653

Languages

English

Appendix F

Limitations

LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
   a. The Standard Terms and Conditions which form a part of our Professional Services Contract;
   b. The Scope of Services;
   c. Time and Budgetary limitations as described in our Contract; and
   d. The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Site and attendant structures. Our conclusions cannot and are not extended to include those portions of the Site or structures, which are not reasonably available, in Amec Foster Wheeler's opinion, for direct observation.
4. The environmental conditions at the Site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the Site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.
5. The Site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on-site and may be revealed by different or other testing not provided for in our contract.
7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Amec Foster Wheeler must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
8. The utilization of Amec Foster Wheeler's services during the implementation of any remedial measures will allow Amec Foster Wheeler to observe compliance with the conclusions and recommendations contained in the report. Amec Foster Wheeler's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report is the sole responsibility of such third party. Amec Foster Wheeler accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Amec Foster Wheeler.
11. Provided that the report is still reliable, and less than 12 months old, Amec Foster Wheeler will issue a third-party reliance letter to parties that the client identifies in writing, upon payment of the then current fee for such letters. All third parties relying on Amec Foster Wheeler's report, by such reliance agree to be bound by our proposal and Amec Foster Wheeler's standard reliance letter. Amec Foster Wheeler's standard reliance letter indicates that in no event shall Amec Foster Wheeler be liable for any damages, howsoever arising, relating to third-party reliance on Amec Foster Wheeler's report. No reliance by any party is permitted without such agreement.

APPENDIX 4

CORRESPONDENCE

a. Letter To Adjacent Landowner
b. Neighborhood Comments
c. Receipt From Water Coop For 27 Water Units
d. Telus Map
e. SMRID Maps
f. Triple W Gas Co-Op Map

Letter To Adjacent Landowner

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

December 13th, 2021 File: 082154CE

Dear Neighbor:

Re: Country Crossroads Estate
Proposed Area Structure Plan
Lethbridge County, Alberta
SW 5-8-20-W4M (Jody Nakamura)

We are pleased to provide this 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 the twenty-five lot subdivision located at the Nakamura property along Range Road 205. The development would follow the Lethbridge County Land Use Bylaw for Group Country Residential zoning. The attached concept drawings are provided for your reference.

A brief description of the planned development follows:

The 25 lot country residential subdivision is located along Range Road 20-5, approximately 300 meters north of Highway 508. Existing rural residential properties border the development area to the south and north, and the SMRID canal borders the property to the east. Each of the 25 lots would be a minimum of 2 acres in area. There would be a paved public roadway looping through the property with two connections to RR-205. In order to manage runoff, a stormwater pond would be built adjacent to the RR-205 at the south end of the site. Surrounding the pond would be a landscaped area to function as a public green space. Potable water servicing is anticipated to be provided by the County of Lethbridge Rural Water Association or a private well 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 would allow for construction of approximately 6-10 lots in the initial phase. The demands of the housing market would influence the timing and size of each future phase.

If you have any comments about the proposed development, please contact the owner or MGCL as follows:

Owner:

Jody Nakamura
RR 8-10-8, Lethbridge, Alberta, T1J 4P4
(403) 795-2341
jnakamura@hotmail.com

Consultant:

Martin Geomatic Consultants Ltd. (MGCL)
Attention: Matt Redgrave, P.Eng.
255 – 31st Street North, Lethbridge, Alberta, T1H 3Z4
(403) 329-0050
Mattr@mgcl.ca

Please provide any comments or questions by January 10th, 2022, and we will work to address any comments received.

If you do not have any concerns with the proposed development, please read and sign the box below:

I, _____(print names),

of _____(address),

have received the letter and concept drawings from MGCL, dated December 13th, 2021 outlining the planned 25 lot rural residential development (Jody Nakamura) in SW-5-8-20 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)

Thank you.

Neighborhood Comments

February 20, 2022

Martin Geomatic Consultants Ltd. (MGCL)
Attention: Matt Redgrave, P.Eng.
255 – 31 Street North
Lethbridge, AB T1H 3Z4

RECEIVED
FEB 28 2022

Dear Sirs:

We have received the letter and concept drawings from MGCL, dated December 13, 2021 outlining the planned 25 lot rural residential development (Jody Nakamura) in SW-5-8-20 W4th, Lethbridge County. We have reviewed the letter and concept plans and we DO have concerns with the proposed development, based on the information received.

We are opposed to the proposal at the present time for the following reasons:

1. The property is in excess of 60 acres (66 acres).
2. While the property may be small for agriculture purposes, it has produced an alfalfa crop annually – sometimes two cuts. Although a pivot is not possible, the owners have irrigation rights with SMRID and wheel-move equipment is on site.
3. A previous proposal was made in 2010 for 27 lots and has since been amended to 25 lots, which is still too many. With 25 houses there would be 50 to 75 residents and likely 50 vehicles, all accessing Range Road 20-5, not to mention access for service vehicles. Traffic is an issue.
4. Who will maintain the road – the County?
5. Is the County Rural Water Association able to accommodate 25 more residences? Maybe not, neither do 25 private wells make any sense.
6. Wastewater management (25 septic fields) is a sewage drainage issue. The stormwater pond would not and should not contain wastewater drainage.
7. Natural drainage for excess rainwater flows south and impacts the acreages already established along Highway 508 and has been known to overflow ditches along Range Road 20-5. Yes, we have had excessive run-off in rainy years.
8. The landscaped pond sounds nice but will it then drain into 6 Mile Coulee?
9. Community irrigation water from SMRID is currently sporadic for the existing acreages. Would they approve of this? Are they even aware of it?

There are just too many unanswered questions.
A copy of this letter is being sent to Lethbridge County and the property owner.

Yours truly,

John & Laura Prins 204062 HWY 508
Lethbridge County AB T1K 8G8

Receipt From Water Coop For 27 Water Units

COUNTY OF LETHBRIDGE
RURAL WATER ASSOCIATION LTD.
Box 15
Lethbridge, AB
T1J 3Y3

Jody Nakamura
RR 8, Site 10, Comp. 8
Lethbridge, Alberta
T1J 4P4

This is your receipt for a down payment on twenty-seven (27) water units @ $250.00 each for a total of $6,750.00.

Sincerely

Kirk Williamson

County of Lethbridge Rural Water Association Ltd.
Box 15 Lethbridge, Alberta T1J 3Y3

INVOICE # 0686

DATE: MAR. 5/10

Received from: JODY NAKAMURA

		Price	Amount
Payment for:	DOWN PAYMENT FOR (27)		
	WATER UNITS @ 250.00 EA X 27 =	6,750.00	
PAID	BY MONEY ORDER #52657082		
	GST # 866702798 GST	$	
	Total	6,750.00	

Telus Map

TELUS
the future is friendly®

OneCall Ticket no: 20192703220

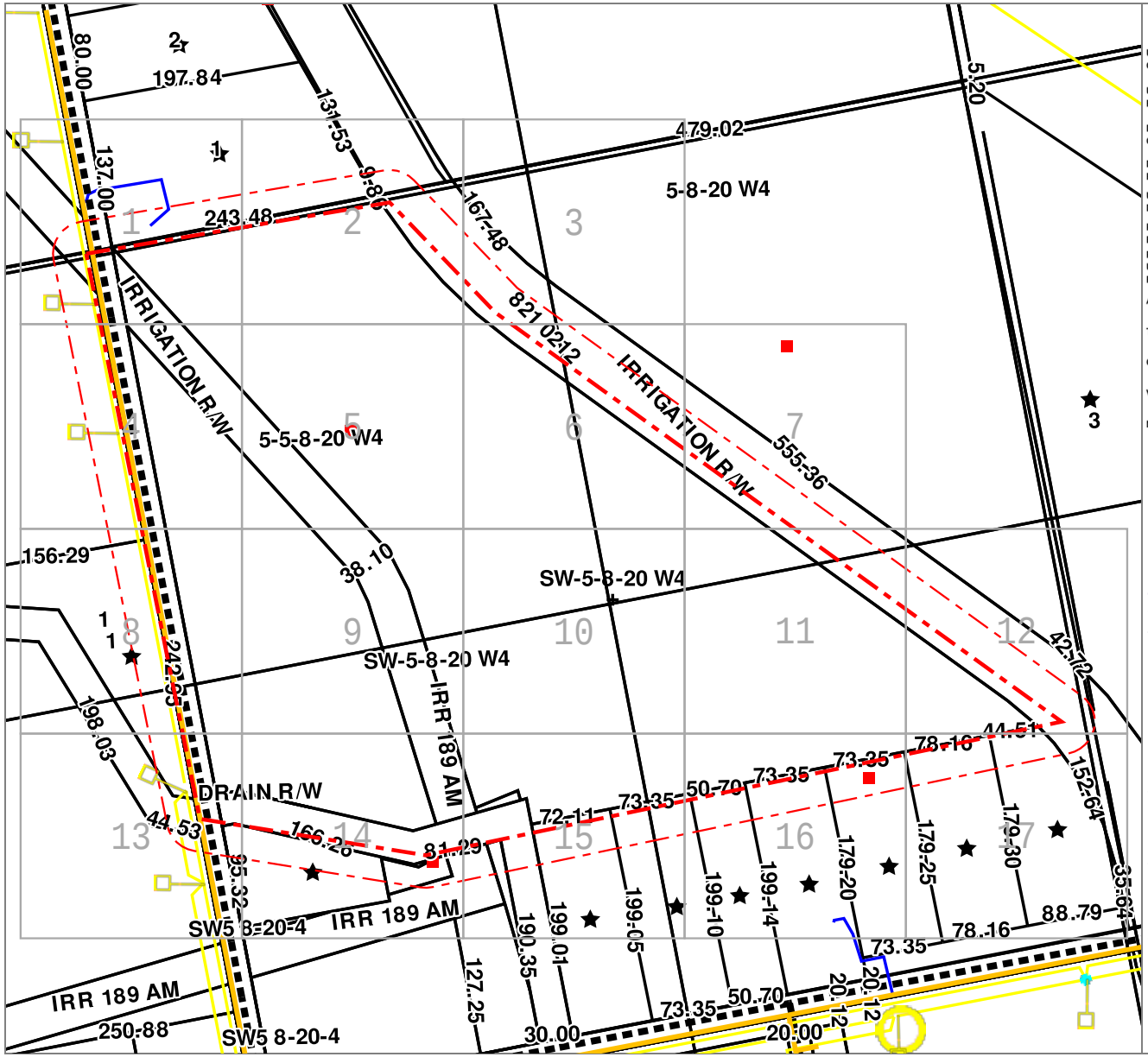
Ticket Location: Range road 205, Lethbridge County, AB

Overview

One Call Center – Dig Area

TELUS Buffer

CAUTION



LEGEND

Scale: 1:5125

- Underground COPPER
- Underground FIBRE
- Direct Buried COPPER
- Direct Buried FIBRE
- Underground DUCT / TRENCH
- Proposed Direct Buried COPPER
- Proposed Underground FIBRE
- Abandoned
- Temporary
- Critical Cable — Soft Red Glow
- Vault
- Manhole
- Copper Load Coil
- Copper Repeater
- FIBRE Distribution Hub
- Pedestal
- Copper Cross Connect
- MUX Cabinet
- FIBRE Cabinet
- Underground Facility Color
- Direct Buried Facility Color
- Premises Facility Color
- Purposed Facility Color
- Road
- Property Line
- FIBRE Splice

N

These plans must be read in conjunction with the other documents attached to this email

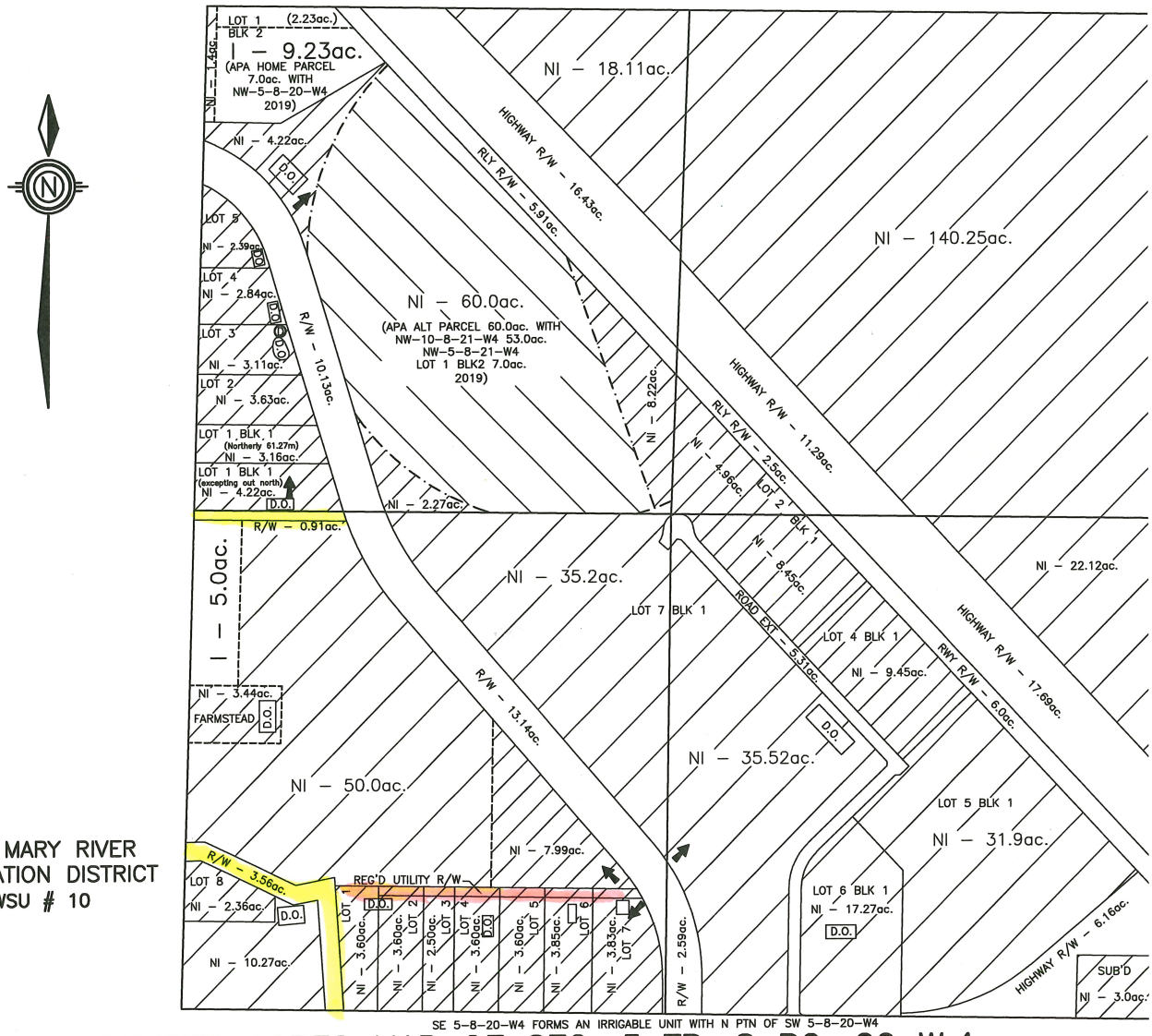
TELUS FACILITY MAPS: The maps supplied by TELUS show a general location of the buried TELUS facilities. These are NOT 'as-built' plans and only represent an approximate alignment. The depth of buried facilities is NOT provided.

If you have any questions or concerns regarding this response, please contact the Cable Locate Support Centre on **locatesupport@telus.com**

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither TELUS or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

This document has been prepared for reference purposes and may contain commercially sensitive information and is to be treated accordingly. No such information is to be shared with or passed onto other parties without written consent from TELUS Communications Inc.

SMRID Maps



ST. MARY RIVER IRRIGATION DISTRICT
WSU # 10

SE 5–8–20–W4 FORMS AN IRRIGABLE UNIT WITH N PTN OF SW 5–8–20–W4

IRRIGATED ACRES MAP OF SEC. 5 TP. 8 RG. 20 W.4

LEGEND

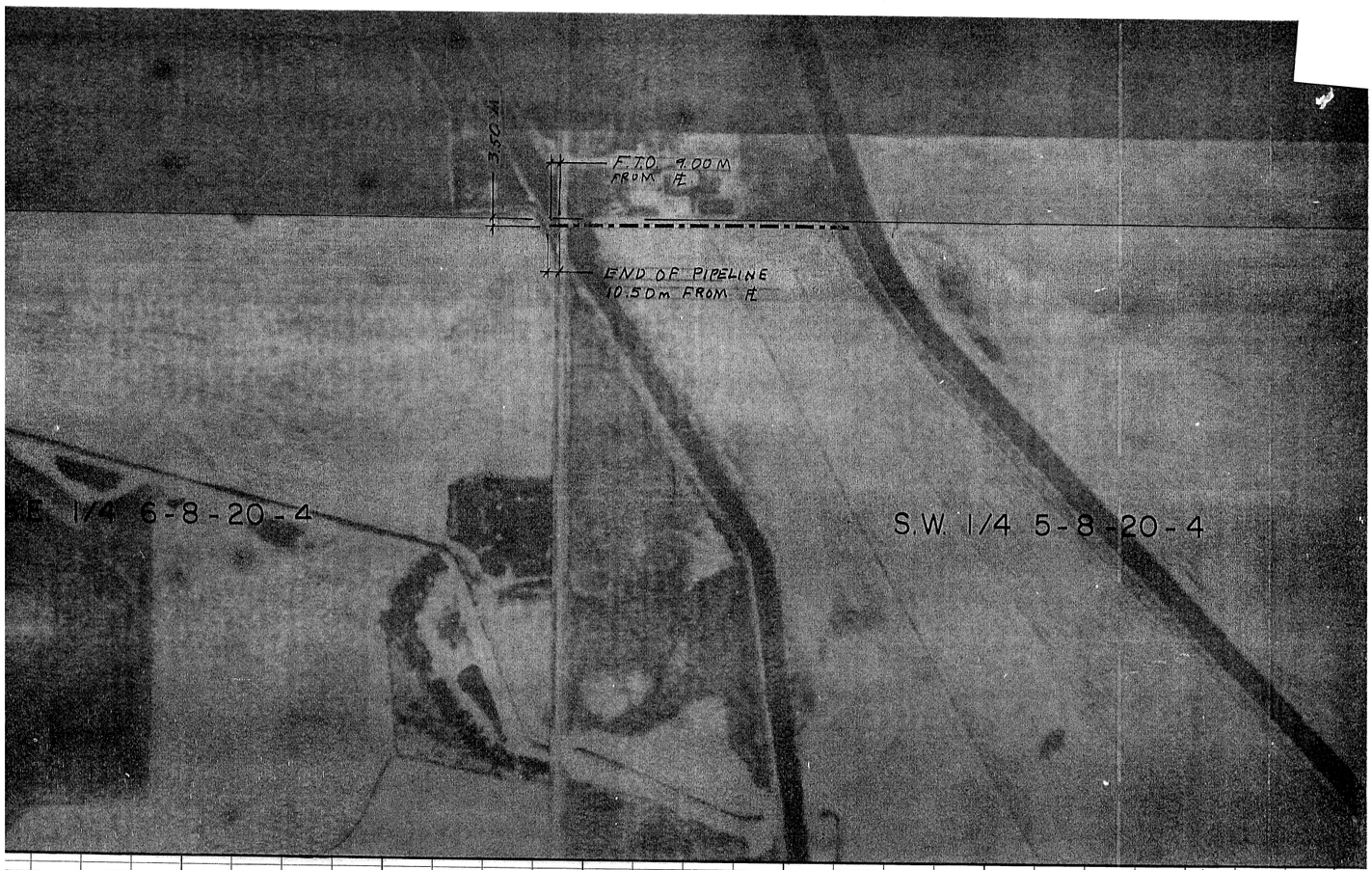
- 0.0ac. — IRRIG. AREAS (CLEAR)
- 0.0ac. — NOT IRRIGATED
- APA — ALTERNATE PARCEL AGREEMENT
- POINT OF DELIVERY
- DOMESTIC TURNOUT
- PUMP SITE
- FARM IRRIGATION DITCH
- F.S. — FARMSTEAD
- D.O. — DUGOUT
- DRAINAGE CHANNEL
- FIELD BOUNDARY
- BURIED PIPE
- BP EAS — BURIED PIPELINE EAS
- BOUNDARY OF SPRINKLED AREA

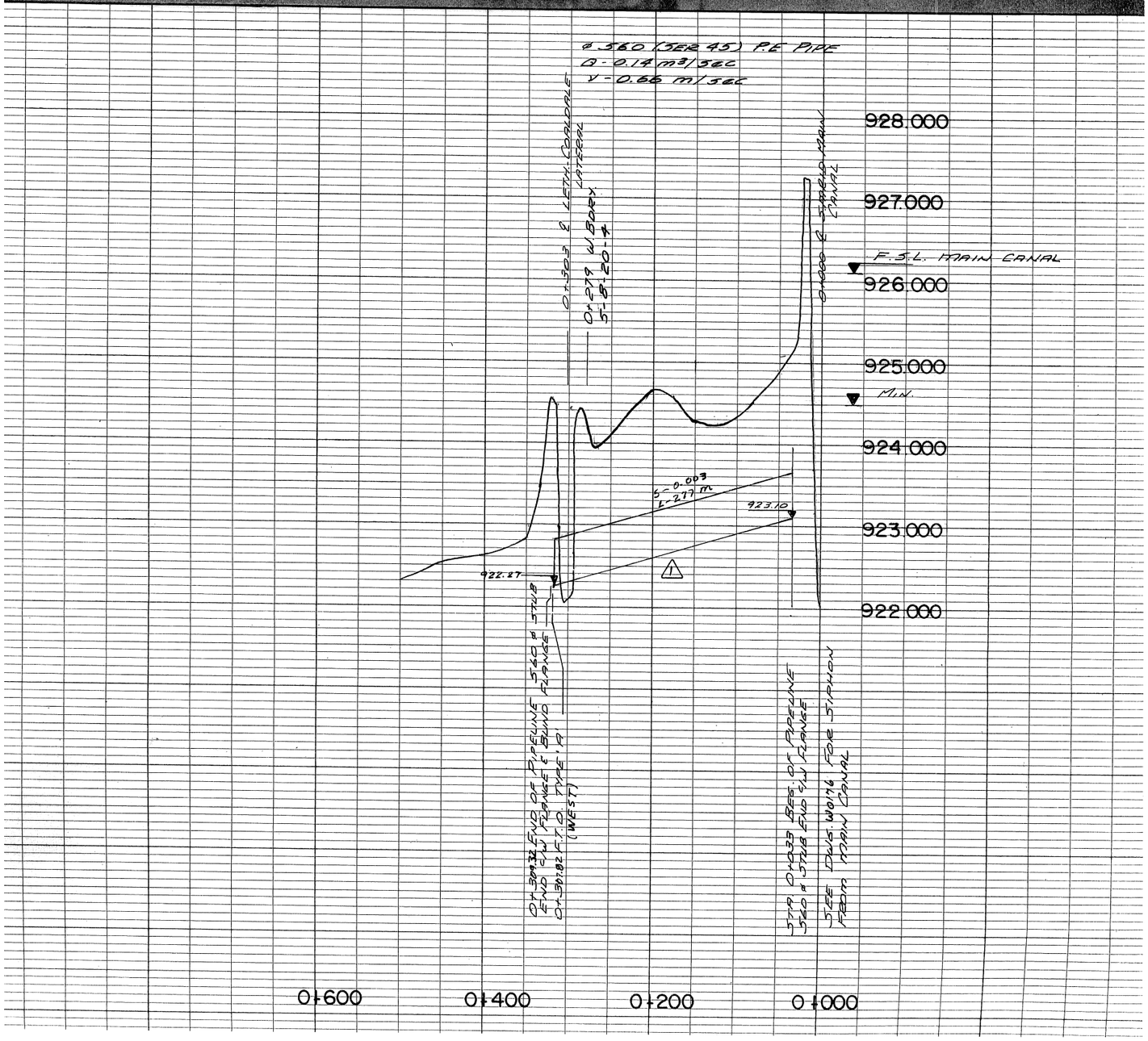
	S.E. SOUTH OF RLY	S.W.	N. 1/2 SOUTH OF RAILWAY
IRR.		5.0	9.23
N.I.	105.44	133.92	94.06
R/W	2.59	17.61	10.13
HWY	6.16		
TOTAL	114.19	156.53	113.42

REPLACING IRRIGATED ACRES MAP DATED MAR, 2019.

APRIL 1, 2019.
DATE

S.3.5-8-204


3.50 M
F.T.O. 9.00 M FROM ℄
END OF PIPELINE 10.50 m FROM ℄
E. 1/4 6-8-20-4
S.W. 1/4 5-8-20-4


ø 560 (SER 45) P.E PIPE
Q - 0.14 m³/sec
V - 0.66 m/sec
0+303 ℄ LETH. COALDALE LATERAL
0+279 W. BDRY. 5-8-20-4
0+000 ℄ SMALD MAIN CANAL
F.S.L. MAIN CANAL
MIN.
S - 0.003
L - 277 m
923.10
922.27
928.000
927.000
926.000
925.000
924.000
923.000
922.000
0+309.32 END OF PIPELINE 560 ø STUB END c/w FLANGE & BLIND FLANGE
0+307.82 F.T.O. TYPE 'A' (WEST)
STA. 0+033 BEG. OF PIPELINE 560 ø STUB END c/w FLANGE
SEE DWG. W0176 FOR SIPHON FROM MAIN CANAL
0+600
0+400
0+200
0+000

Triple W Gas Co-op Map

TRIPLE W NATURAL GAS CO-OP LTD
P.O. Box 69, Warner, AB T0K 2L0
Phone: 403-642-3991 Lethbridge: 403-328-6959
Fax: 403-642-3627 E-mail: triplew@telusplanet.net
After Hours Emergency: 403-642-3991

CUSTOMER SERVICE REQUEST FORM

No. 4946

Distributor: TRIPLE W NATURAL GAS CO-OP LTD. Date: July 2/19

Customer Name: Martin Geomatic

Address or Legal Description: SE 6-8-20 + SW 5-8-20

Customer's Request: planning + design subdivision

Time Office received call: 2:25 Call Taken by: e-mail

Time Operations received call: Time Responded:

Time Operations reached site: AB One Call #: 20192703220

TYPE OF REQUEST:

Leak on Meter Set	☐	Appliance Problem	☐	Line Location	☑
Leak in Premises	☐	Pilot Light Out	☐	CO Problem	☐
Leak on Reg Station	☐	Venting Problem	☐	Furnace Check	☐
Underground Leak	☐	House Reg Problem	☐	Meter Read	☐
Hit Gas Line	☐	Reg Station Problem	☐	Other	☐

Leak Detection Equipment Reading: Inside: Outside:

Operation's Remarks & Recommendations:

Sent map of area for planning + design

Completion Time: 5:15

Date: 07/04/19

Serviceman: JH

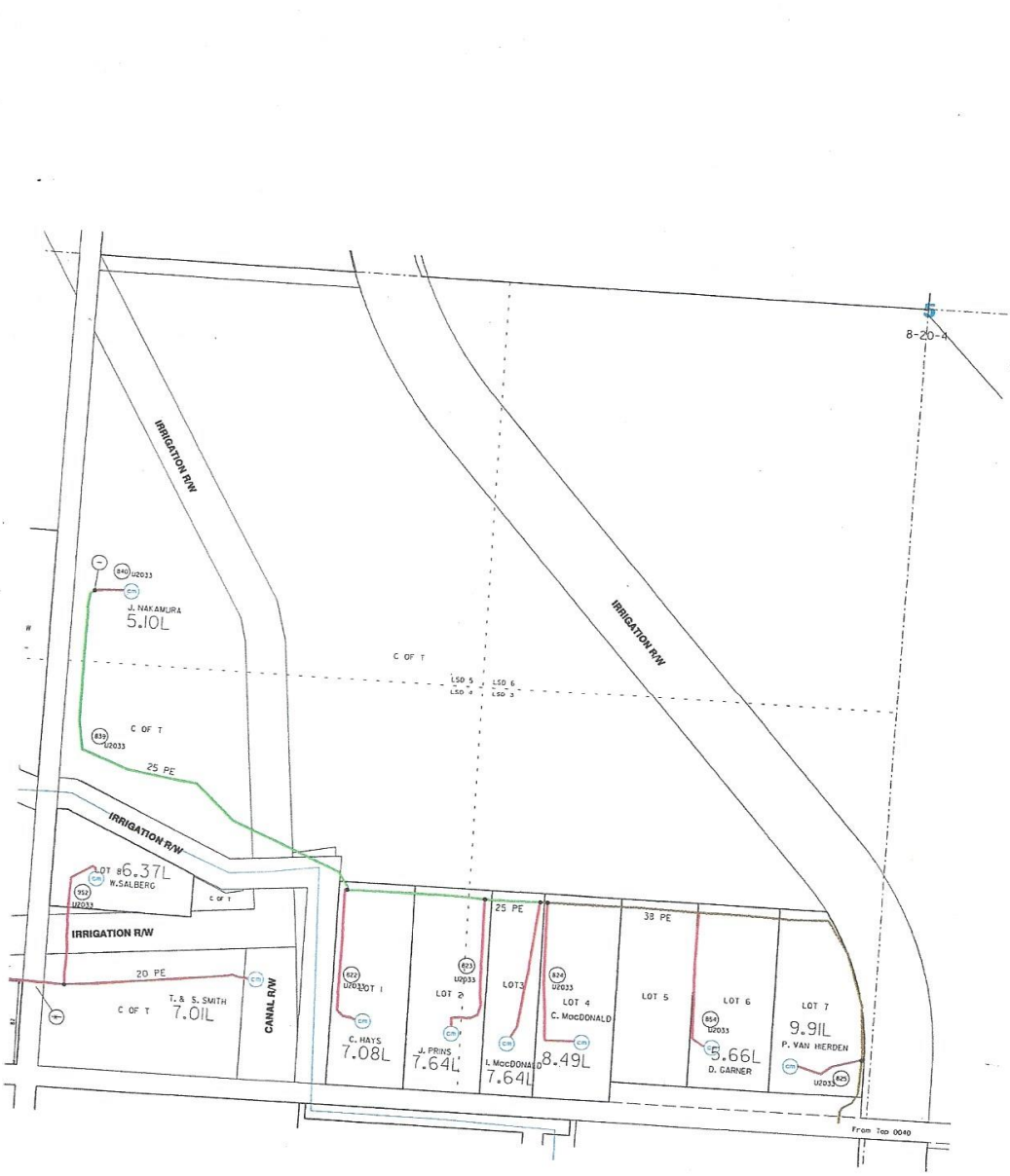
MAP

I have read and acknowledge receipt of the Foregoing:

Tenant ☐ Owner ☐ Acting Manager ☐

Customer's Signature:

Top Copy - Customer Second Copy - Operations and Maintenance Third Copy - Office



B-20, W4M

NO.	
10	2017
9	2015
8	2007
7	2003
6	2000
5	1995
4	ADDED
3	1994
2	1993
1	NEW S

1. All dime diamet
2. All singl

APPENDIX 5

STORMWATER MANAGEMENT PLAN

STORMWATER MANAGEMENT PLAN
COUNTRY CROSSROADS ESTATE SUBDIVISION
SW5-8-20-W4M
Lethbridge County, Alberta

Prepared for: **Ms. Jody Nakamura**

File Number: **082154CE**

Dated: **February 1, 2023**

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APPENDIX

Appendix A – Soil Information
Appendix B – SWMM Model Results

I. PROJECT BACKGROUND AND DRAINAGE FEATURES

The Country Crossroads Estate Subdivision is a proposed group country residential subdivision located approximately 300 meters north of Highway 508 along Range Road 20-5 in Lethbridge County. The legal property description is Southwest Quarter of Section 5, Township 8, Range 20 West of the 4th Meridian. The property is bound by a grouped country residential community to the north, a Saint Mary River Irrigation District (S.M.R.I.D.) canal to the east, a grouped country residential community and a drainage channel (S.M.R.I.D.) to the south, and Range Road 20-5 to the west. Refer to *Figure 1 – Location Plan* for an illustrative map. The purpose of this report is to provide stormwater management strategies to guide the future development of the Country Crossroads Estate Subdivision, in support of The Country Crossroads Estate Area Structure Plan (ASP) for consideration by the Lethbridge County. The ASP plan area is 70.50 acres (26.79 ha) and the proposed lot layout is shown on *Figure 2* – Layout.

A. Existing Features

The subject parcel is presently used as farmland with a single dwelling and a dugout. The property is supplied with irrigation water from a S.M.R.I.D. lateral pipeline turnout. The land generally drains to the southwest at an average grade of 0.5% and drains in to a S.M.R.I.D. drainage channel (Tiffin drain). The site is characterized by three sub-catchment areas. The East catchment (6.15ha) drains to the west along the southern property boundary. The West catchment (16.25ha) drains to a localized depression to the south and spills in to the Tiffin drain. The RR-205A catchment (6.13ha) drains into the east ditch of RR 20-5, which flows into the Tiffin drain. The Tiffin drain(R/W plan 821 0212) flows west and north through farmland and discharges to Sixmile Coulee and the Oldman River in the City of Lethbridge. A topographical site survey has been completed[a] and an existing surface terrain model has been created to define drainage boundaries, storage depressions and flow conveyance routes as shown in *Figure 3* – .

B. Proposed Development

The proposed development will subdivide the parcel into 25 legal lots with each lot being approximately 2 to 4.29 acres, as well as road allowances for access and traffic circulation, and a public park with a stormwater pond. Drainage conditions will be affected as a result of this development, as the runoff flow rates and volumes will change due to the increase in the impervious areas within the plan area with the addition of hard surfaces including paved roads, building roofs and driveways. To mitigate the effect of runoff from the development, a stormwater storage pond is proposed on site with a controlled release which is designed to not exceed the allowable release rate. The proposed stormwater retention pond (storage pond) is located in the southwest corner of the site at a natural low area, to collect runoff from the development and store the water on-site. The paved roadways and grass swales will provide overland drainage routes throughout the development to convey runoff to the storage pond. The pond will drain the active storage volume in to the existing Tiffin drain, bordering the property to the south. The Tiffin drain ultimately drains to the Oldman River via Six Mile Coulee in the City of Lethbridge. *Figure 4 –Stormwater* shows the location of the proposed retention pond. The storage pond will include a permanent pool of water to promote the settlement of runoff pollutants.

[a] GPS topographical survey, MGCL, June 01, 2016.

C. Soil Conditions

Existing soil descriptions for the area include Orthic Dark Brown Chernozem on medium textured loam, silt loam sediments deposited by wind on medium textured loam, silty clay loam, clay loam, clay, clay till and clay fill[b]. Ten boreholes have been completed for the geotechnical investigations[c]. The boreholes were drilled to a depth of 6.1m and generally found 100mm to 150mm topsoil above clay and clay till, with groundwater depths ranging from 2.2m to 3.4m. Soil reports are included in Appendix A – Soil Information.

II. METHODOLOGY

Drainage analysis of the existing site and proposed development (pre-development and post-development scenarios) has been completed to simulate the site drainage during a 100 year storm event. The stormwater will be managed on-site such that the post-development release rate will be equal to or less than 1.28 L/s/ha, per the Tiffin Drain – Master Drainage Plan[d]. The increased runoff resulting from the construction of impervious areas will be mitigated by capturing and controlling the runoff in a retention pond and discharging at the allowable release rate.

A. Hydraulic Model

The existing pre-development and future post-development site models[e] have been developed to simulate the site drainage during a 100 year storm event. The following table presents sub catchment parameters assumed in the post-development model:

1. Synthetic Design Storm – Chicago Method: 24-hour duration, 100-year return period, (IDF Parameters A = 1019.20, B = 0, C = 0.731)[f]
2. Rainfall time step = 5 minutes
3. Simulation duration = 240 hrs
4. Routing Method: Dynamic Wave
5. No effect of Evaporation and Groundwater
6. Catchment area = 26.83 ha
7. Infiltration Method: Green Ampt
8. Manning's N Impervious = 0.015
9. Manning's N Pervious = 0.15
10. Depression Storage Pervious = 5 mm
11. Depression Storage Impervious = 1 mm

B. Sub-Catchments

An existing site (pre-development) model and a proposed site model (post-development) have been developed to simulate drainage patterns in response to a 100 year synthetic design storm. The following tables present the sub-catchment parameters used in the pre-development and post-development scenarios:

---

[b] Alberta Soil Information Viewer, Alberta Agriculture and Forestry, http://www4.agric.gov.ab.ca/agrasidviewer
[c] Geotechnical Investigation, Proposed Rural Residential Subdivision, SW-5-20-W4, County of Lethbridge report prepared by Wood, May 31, 2018.
[d] Lethbridge County, DRAFT Tiffin Drain – Master Drainage Plan, MPE Engineering Ltd., March 2021.
[e] EPA Storm Water Management Model – Version 5.0 (Build 5.0.22).
[f] Design Standards, City of Lethbridge, 2016.

Table 1 – Pre Development Sub-Catchment Parameters								
Name	Area (ha)	Flow Length (m)	Slope (%)	Texture	Imperv. (%)	Suction Head (mm)	Conduct -ivity (mm/hr)	Initial Deficit (frac.)
East	6.15	350	1.05	SiC	0	292.2	0.5	0.25
West	16.25	463	1.11	SiC	0	292.2	0.5	0.25
RR_20-5	6.13	521	0.45	SiC	0	292.2	0.5	0.25

Table 2 – Post Development Sub-Catchment Parameters								
Name	Area (ha)	Flow Length (m)	Slope (%)	Texture	Imperv. (%)	Suction Head (mm)	Conduct -ivity (mm/hr)	Initial Deficit (frac.)
S1	26.83	508	1.0	SiC	10	292.2	0.5	0.25

The source information for the above tables includes:

Area (ha) & Flow Path (m): measured.

Slope (%): Estimated from field survey and design plans.

Texture: Alberta Soil Viewer[g] & boreholes[h].

Impervious (%): Estimated from field survey and design plans.

Hydraulic Conductivity (mm/hr) & Suction Head (mm): Typical soil characteristics[i].

Initial Moisture Deficit: Typical soil characteristics[j].

III. RESULTS

The pre and post development 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

The pre-development runoff, storage and release rates are shown in the following tables resulting from a 100 year / 24 hour storm.

[g] Alberta Soil Information Viewer, Alberta Agriculture and Forestry, http://www4.agric.gov.ab.ca/agrasidviewer
[h] Geotechnical Investigation, Proposed Rural Residential Subdivision, SW-5-8-20-W4.
[i] Rawls, W.J. et al., (1983). J. Hyd. Engr., 109:1316
[j] XP SWMM Solutions, http://help.xpsolutions.com/display/xps2015/Infiltration

Table 3 – Pre-Development Runoff

Name	Area (ha)	Precipitation (mm)	Infiltration (mm)	Runoff Depth (mm)	Runoff Volume (ML)	Peak Runoff (m^3/s)
East	6.15	120.15	52.96	67.31	4.14	0.47
West	16.24	120.15	53.66	66.58	10.82	1.04
RR_20-5	6.12	120.15	56.01	64.19	3.93	0.25

Table 4 – Pre-Development Storage

Name	Invert Elev. (m)	Rim Elev. (m)	Max. Depth (m)	Max. HGL (m)	Total inflow (ML)	Max. Volume (1,000 m^3)
ponding	922.20	924.20	0.57	922.77	10.82	1.96

Table 5 – Pre-Development Discharge

Name	Max. Flow (m^3/s)	Total Flow (ML)
S.M.R.I.D._Channel	1.38	17.93

B. Post-Development

The prost-development runoff, storage and release rates are shown in the following tables resulting from a 100 year storm.

Table 6 – Post-Development Runoff

Name	Area (ha)	Precipitation (mm)	Infiltration (mm)	Runoff Depth (mm)	Runoff Volume (ML)	Peak Runoff (m^3/s)
S1	26.83	120.15	49.37	70.87	19.02	1.84

Table 7 – Post-Development Storage

Name	Invert Elev. (m)	Rim Elev. (m)	Max. Depth (m)	Max. HGL (m)	Total inflow (ML)	Max. Volume (1,000 m³)
wet_pond	918.90	923.00	3.54	922.44	33.17	30.37

Table 8 – Stage Storage Chart – Wet Pond

Description	Elevation (m)	Depth (m)	Area (m^2)	Increment Volume (m³)	Total Volume (m³)
Bottom	918.90	0.00	5,700	0	0
-	919.90	1.00	6,900	6,300	6,300
NWL	920.90	2.00	8,800	7,900	14,100
-	921.90	3.00	10,900	9,900	23,900
HWL	922.40	3.50	12,400	5,900	29,800
TOB	923.00	4.10	13,900	7,900	37,600

The definitions pertaining to the above table include:

NWL = Normal Water Level

HWL = High Water Level (100 yr / 24 hr storm)

TOB = Top of Bank

Table 9 – Wet Pond Characteristics

Type	Stormwater Wet Pond	Catchment	26.83 ha
Land Use	Rural Residential	% Impervious	10 %
Permanent Pool Volume	14,100 m³	Permanent Pool Depth	2.0 m
Active Storage Volume	15,700 m³	Active Storage Depth	1.5 m
Volume at Spill Elevation	37,600 m³	Freeboard	0.6 m
Unit Release Rate	1.28 L/s/ha	Peak Release Rate	34 L/s

Table 10 – Post-Development Discharge		
Name	Max. Flow (L/s)	Total Flow (ML)
Tiffin Drain	34.3	18.89

C. Allowable and Post Development Release Rates

The allowable and post development discharge rates to be released from the development during the 100 year / 24 hour storm event are shown below.

Table 11 – Release Rates			
Outlet Description	Allowable Release Rate* (L/s)	Post –Development Peak Release Rate (L/s)	Net Change (L/s)
Tiffin Drain	34	34	0

*Allowable Release Rate[k] = 1.28 L/s/ha x 26.8 ha = 34.3 L/s

The stormwater analysis for the Country Crossroads Estate development indicates that the proposed outfall in to Tiffin drain located at the southwest development boundary will receive a post-development peak flow rate not exceeding the continuous allowable release rate of 1.28 L/s/ha. The construction of a wet pond will retain runoff on site and discharge to the downstream environment with a controlled release. Preliminary stormwater modeling indicates that a gravity drain pipe with a 1.0 m elevation drop from the Wet Pond to Tiffin Drain would require a circular orifice outlet, 0.14 m in diameter.

IV. RECOMMENDATIONS

It is recommended that the detailed design of the Country Crossroads Estate Development provides a stormwater wet pond with an active storage volume 15,700 m^3 on-site, to retain the runoff from a 1 in 100 year 24 hour storm, and discharge at or below the allowable release rates as outlined in this report. The retention pond shall be designed and constructed to Lethbridge County and Alberta Environment and Parks standards and guidelines. A forebay berm is intended in the wet pond to trap sediments, and a make-up water supply should be provided to maintain the permanent pool water level, accounting for evaporation. The wet pond may serve as a water source for a community irrigation system which would provide water to irrigate lawns and gardens. The establishment of vegetative zones around the wet pond is recommended to enhance the pond's capability of pollutant removal. For future houses adjacent to the pond, basement footings should be below the pond's high water level. Approval drawings

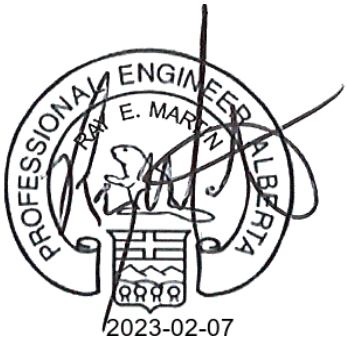
[k] Lethbridge County, DRAFT Tiffin Drain – Master Drainage Plan, MPE Engineering Ltd., March 2021.

including the detailed designs of retention ponds, outlets, swales and grading plans are recommended prior to construction, and it is intended that such detailed designs would generally follow the stormwater concepts outlined in this report.

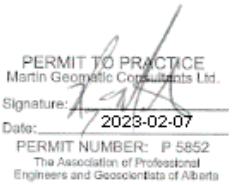
V. CLOSING

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

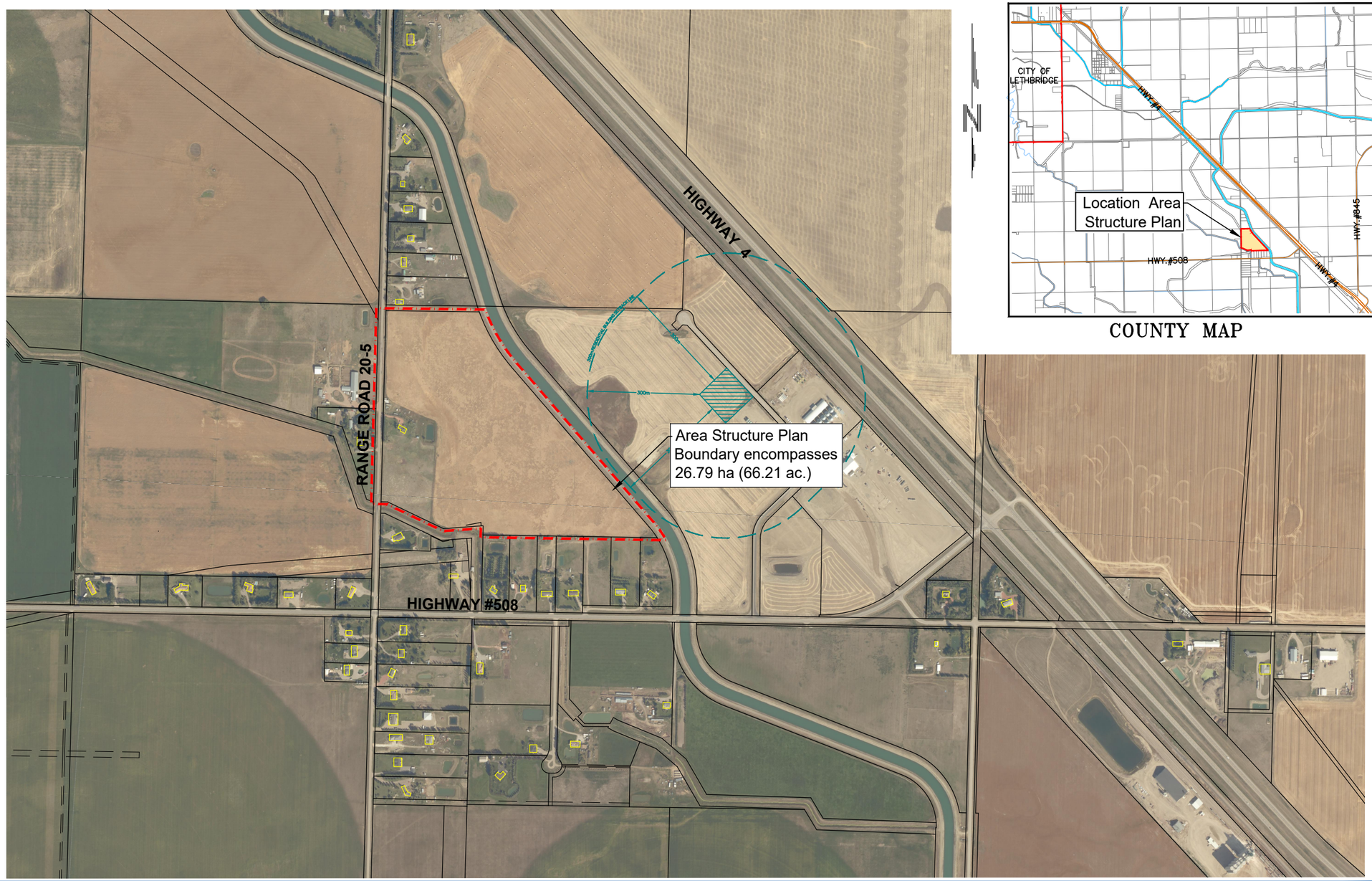
Prepared by:



Raymond Martin, P.Eng.
Civil Engineer, Project Manager



MARTIN GEOMATIC CONSULTANTS LTD.
Association of Professional Engineers and Geoscientists of Alberta Permit to Practice P05852



COUNTY MAP

Country Crossroads Estate

STORMWATER MANAGEMENT PLAN

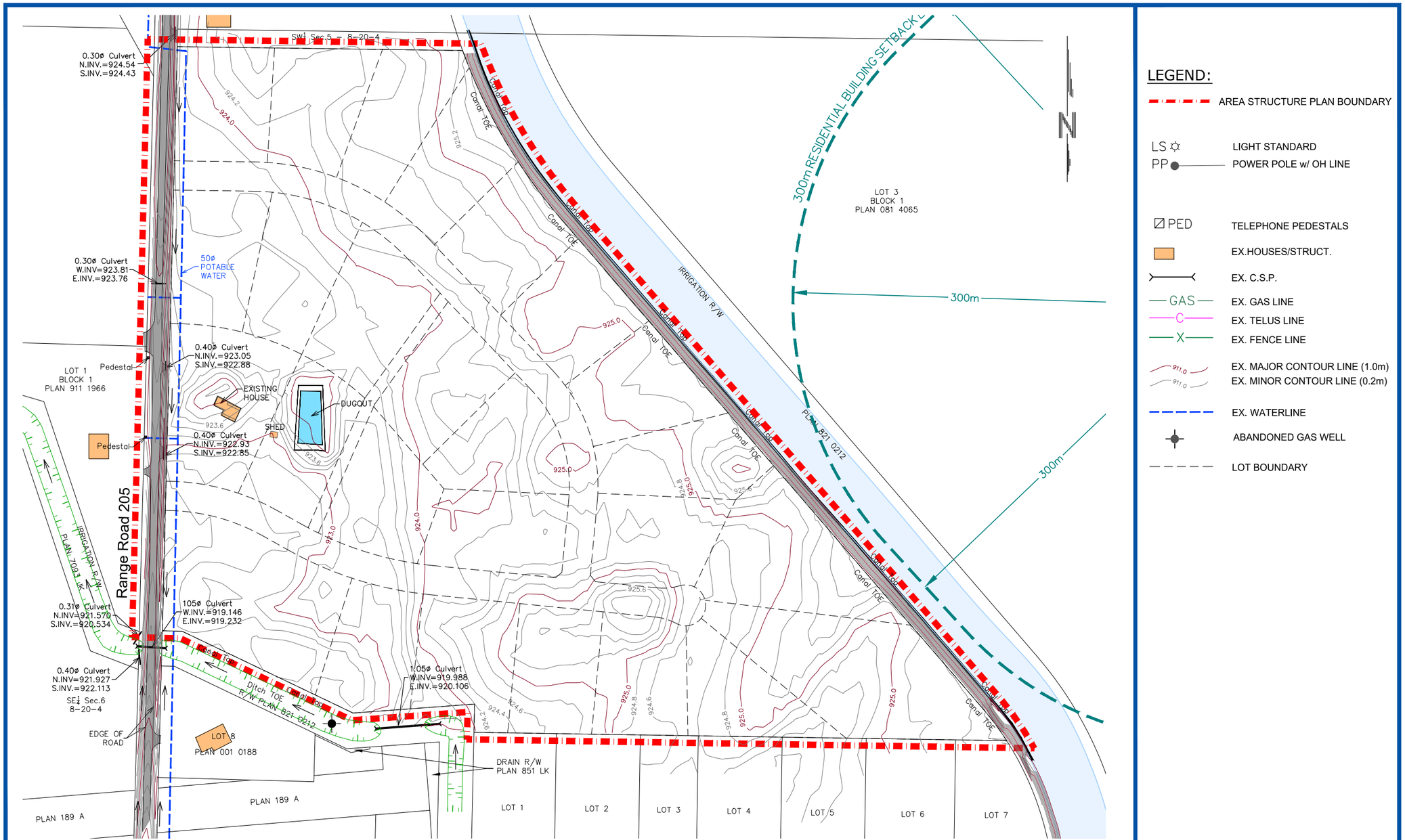
Feb 06, 2023

LOCATION PLAN

FIGURE 1.0

082154CE

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



LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- LS — LIGHT STANDARD
- PP — POWER POLE w/ OH LINE
- PED — TELEPHONE PEDESTALS
- EX.HOUSES/STRUCT.
- EX. C.S.P.
- GAS — EX. GAS LINE
- C — EX. TELUS LINE
- X — EX. FENCE LINE
- 911.0 — EX. MAJOR CONTOUR LINE (1.0m)
- 911.0 — EX. MINOR CONTOUR LINE (0.2m)
- EX. WATERLINE
- ABANDONED GAS WELL
- LOT BOUNDARY

Country Crossroads Estate

STORMWATER MANAGEMENT PLAN

Feb 06, 2023

EXISTING SITE
FIGURE 2.0

082154CE

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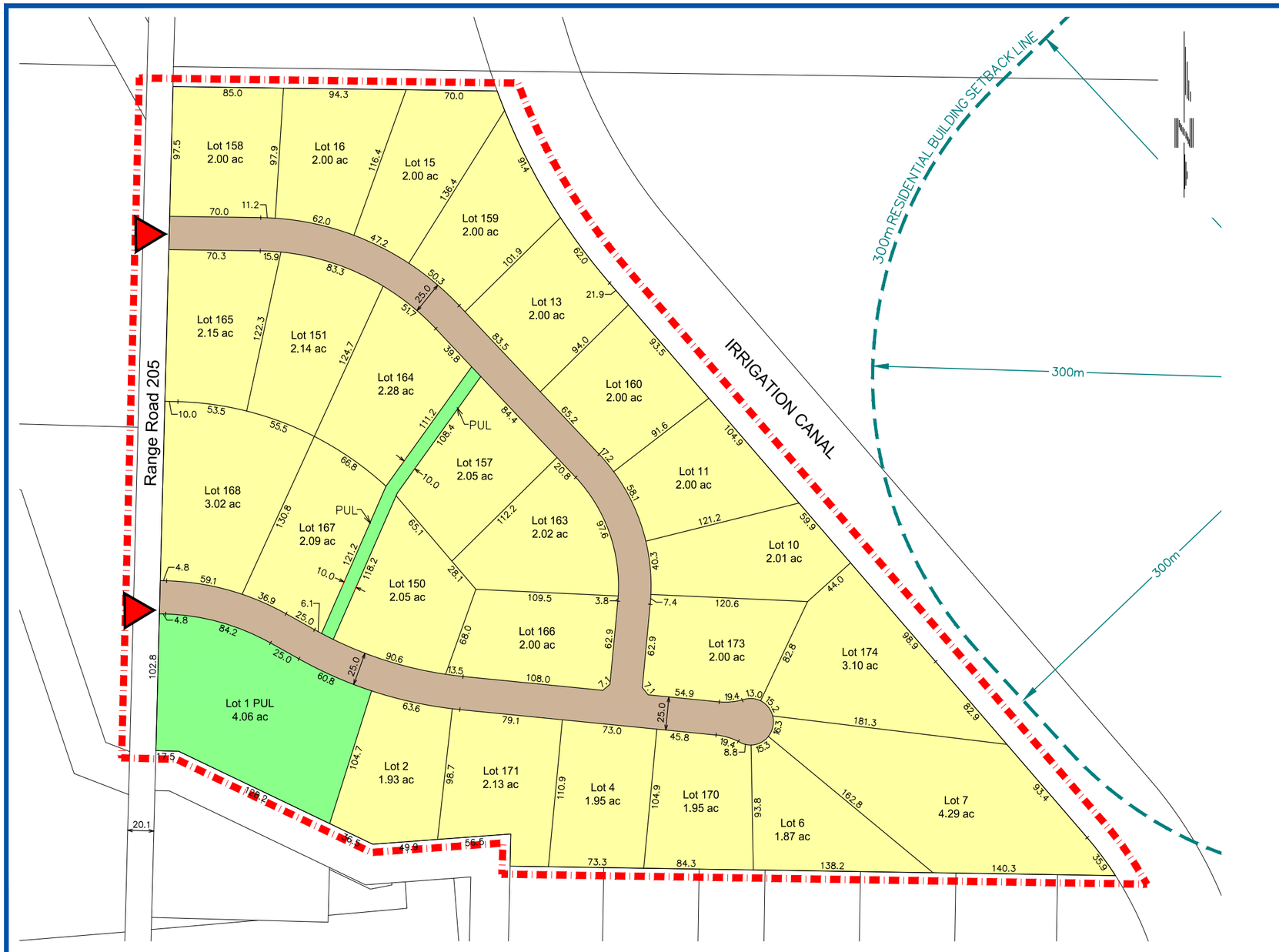
255-31st Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail: geomart@mgcl.ca Fax: (403) 329-6594



LEGEND:

AREA STRUCTURE PLAN BOUNDARY

SUBDIVISION ENTRANCE

NOTE:

LOT LINE ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL LOT LAYOUT WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

STORMWATER MANAGEMENT PLAN

Feb 06, 2023

PROPOSED LOT LAYOUT

FIGURE 3.0

SCALE: 1:3000

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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

LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- SUBDIVISION ENTRANCE
- DRAINAGE DITCH FLOW
- LOT DRAINAGE ARROWS
- LOT DRAIN DITCH (SEE DETAIL 'B')
- PROPOSED CULVERT
- 25.39 BOD + BOTTOM OF DITCH ELEVATION
- 25.39+ CENTERLINE OF ROAD ELEVATION
- HP HIGH POINT
- LP LOW POINT
- OUTFALL

NOTE:
DRAINAGE & ELEVATIONS ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY AND WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

STORMWATER MANAGEMENT PLAN
Feb 06, 2023

STORMWATER MANAGEMENT
FIGURE 4.0

082154CE

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

APPENDIX ‘A’ – SOILS

STORMWATER MANAGEMENT PLAN
COUNTRY CROSSROADS ESTATE SUBDIVISION
SW5-8-20-W4M
Lethbridge County, Alberta

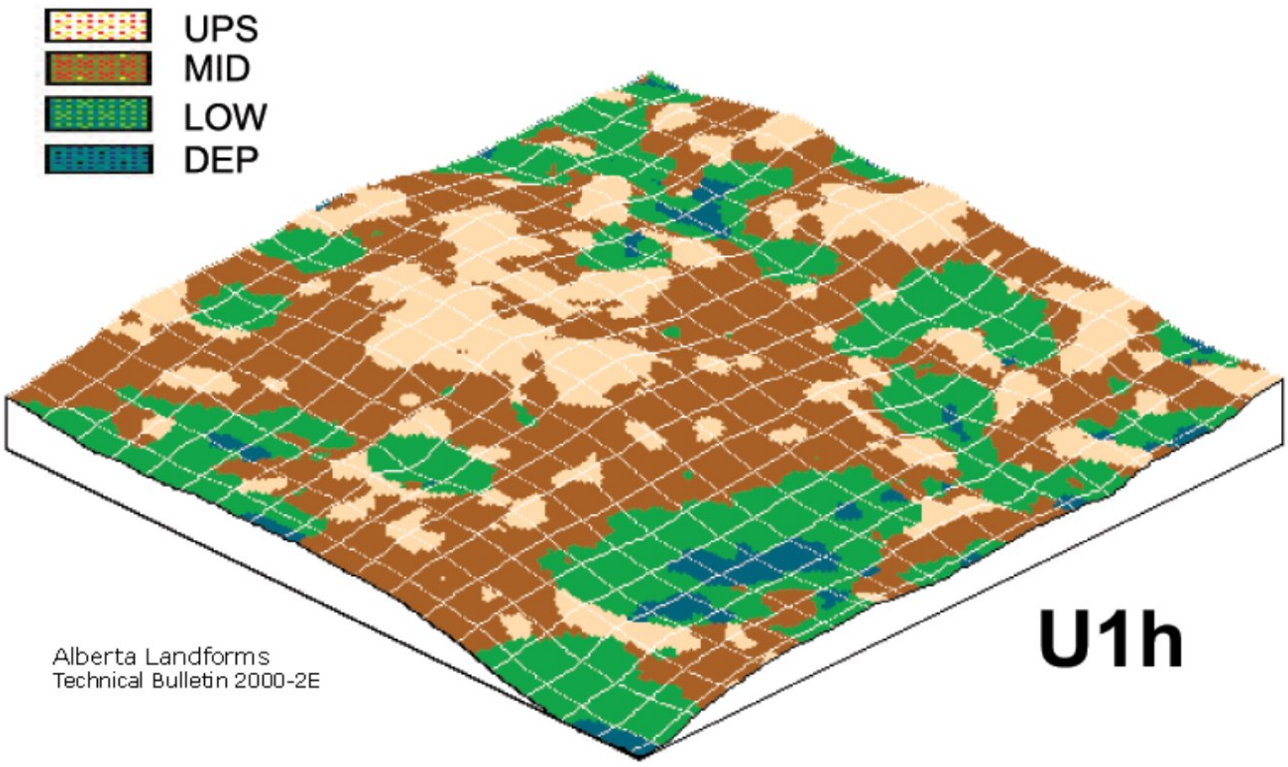
Report on Soil Polygon: 5815

Variable	Value
POLY_ID	5815
Map Unit Name	LEWN1/U1h
Landform	U1h - undulating - high relief
LSRS Rating (Spring Grains)	4M(10)

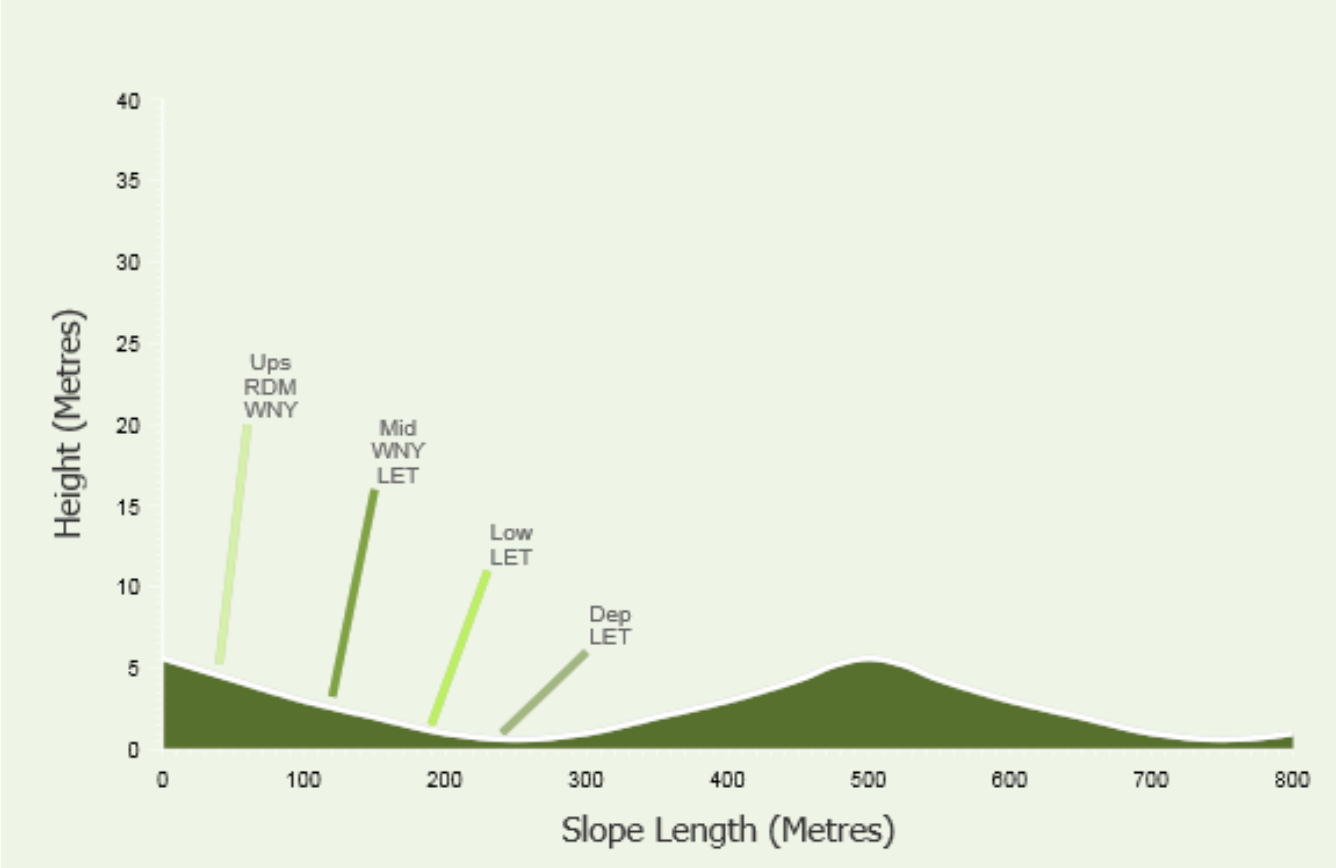
Landscape Model Descriptions:
Orthic Dark Brown Chernozem on medium textured (L, SiL) sediments deposited by wind and water (LET).
Orthic Dark Brown Chernozem on medium textured (L, SiCL, CL) materials over medium (L, CL) or fine (C) textured till (WNY).
The polygon may include soils that are not strongly contrasting from the dominant or co-dominant soils (1).
Undulating, high relief landform with a limiting slope of 4% (U1h).

Image:

Landform Model:



Landform Profile:



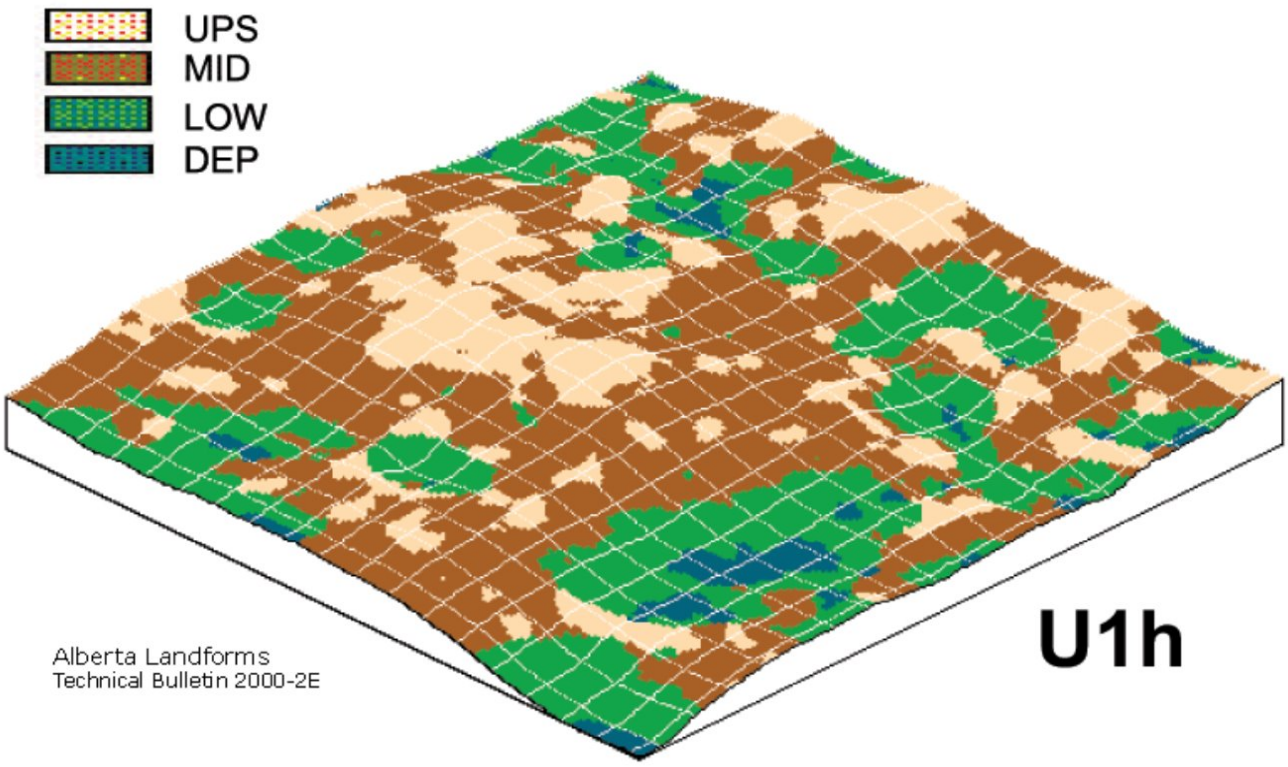
Report on Soil Polygon: 5839

Variable	Value
POLY_ID	5839
Map Unit Name	RDWN1/U1h
Landform	U1h - undulating - high relief
LSRS Rating (Spring Grains)	3MT(10)

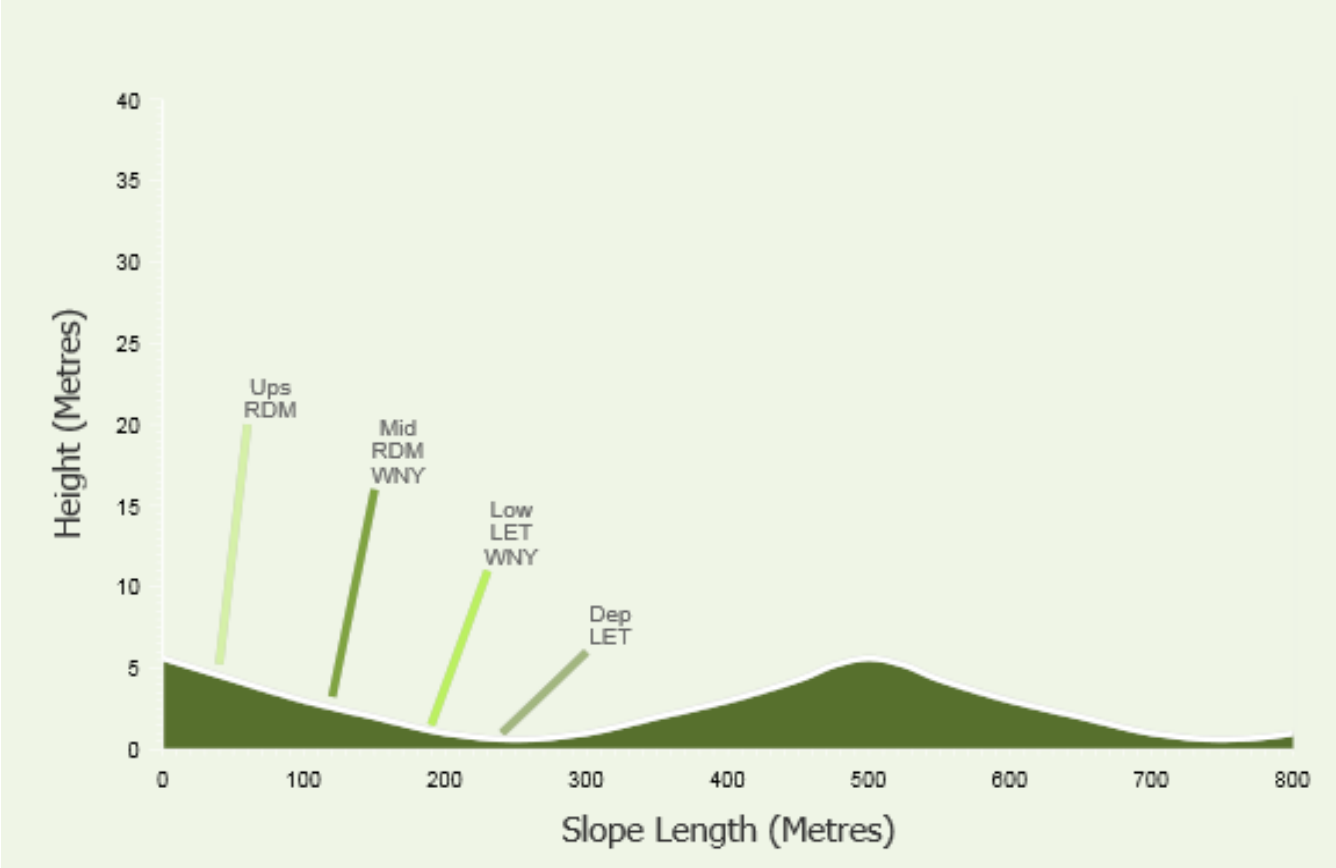
Landscape Model Descriptions:
Orthic Dark Brown Chernozem on medium textured (L, CL) till (RDM).
Orthic Dark Brown Chernozem on medium textured (L, SiCL, CL) materials over medium (L, CL) or fine (C) textured till (WNY).
The polygon may include soils that are not strongly contrasting from the dominant or co-dominant soils (1).
Undulating, high relief landform with a limiting slope of 4% (U1h).

Image:

Landform Model:



Landform Profile:



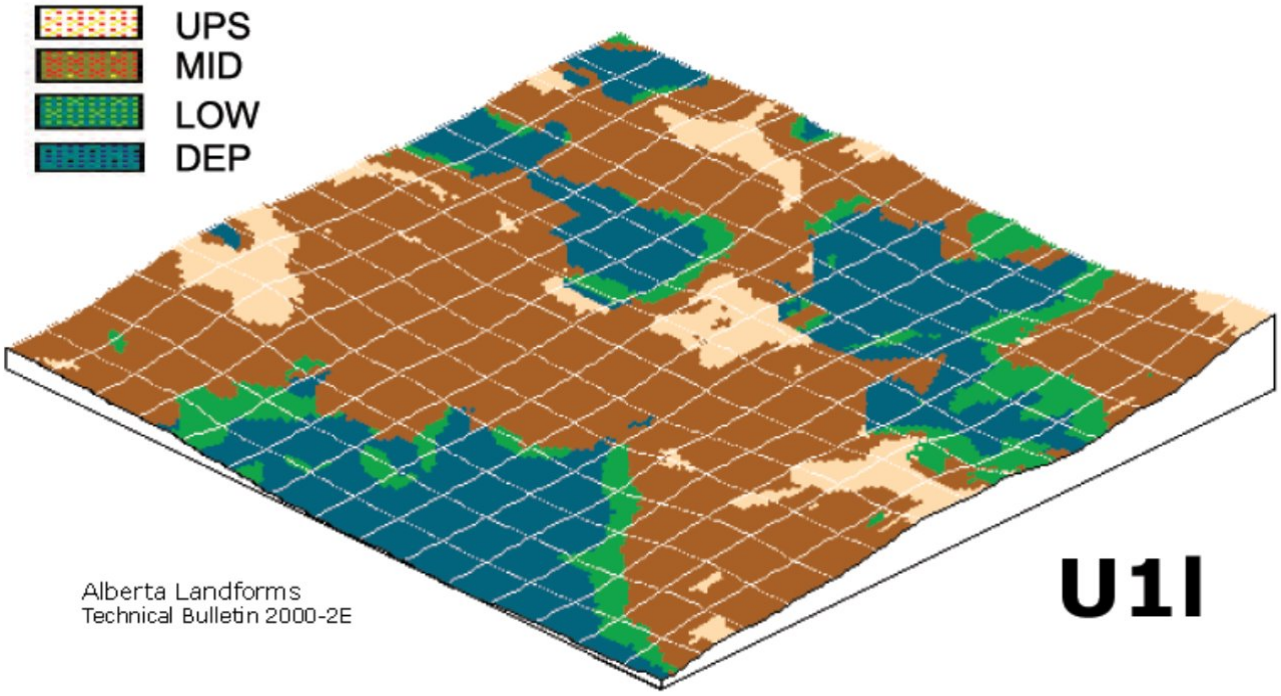
Report on Soil Polygon: 5863

Variable	Value
POLY_ID	5863
Map Unit Name	LET5/U1l
Landform	U1l - undulating - low relief
LSRS Rating (Spring Grains)	3M(10)

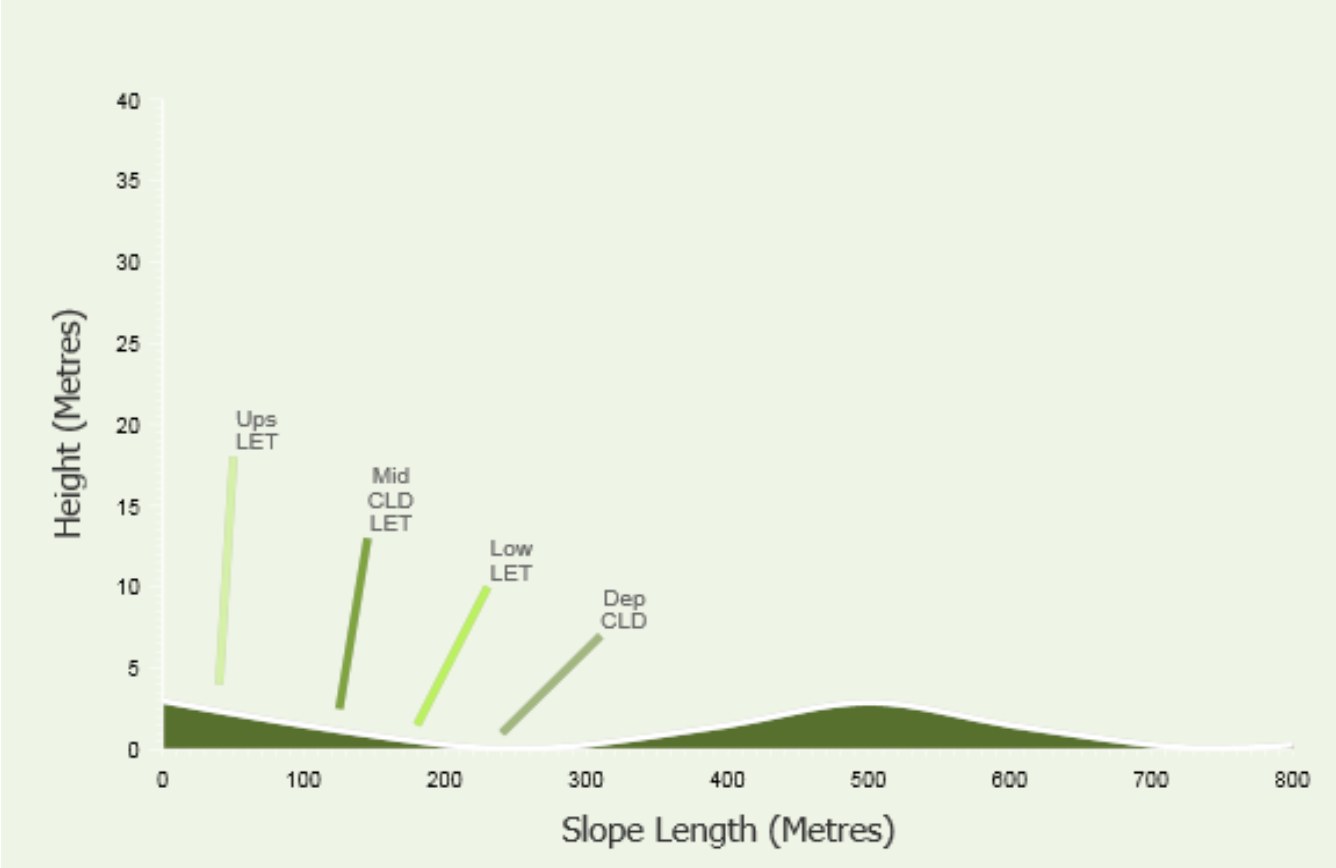
Landscape Model Descriptions:
Orthic Dark Brown Chernozem on medium textured (L, SiL) sediments deposited by wind and water (LET).
The polygon includes soils that are finer textured than the dominant or co-dominant soils (5).
Undulating, low relief landform with a limiting slope of 2% (U1l).

Image:

Landform Model:

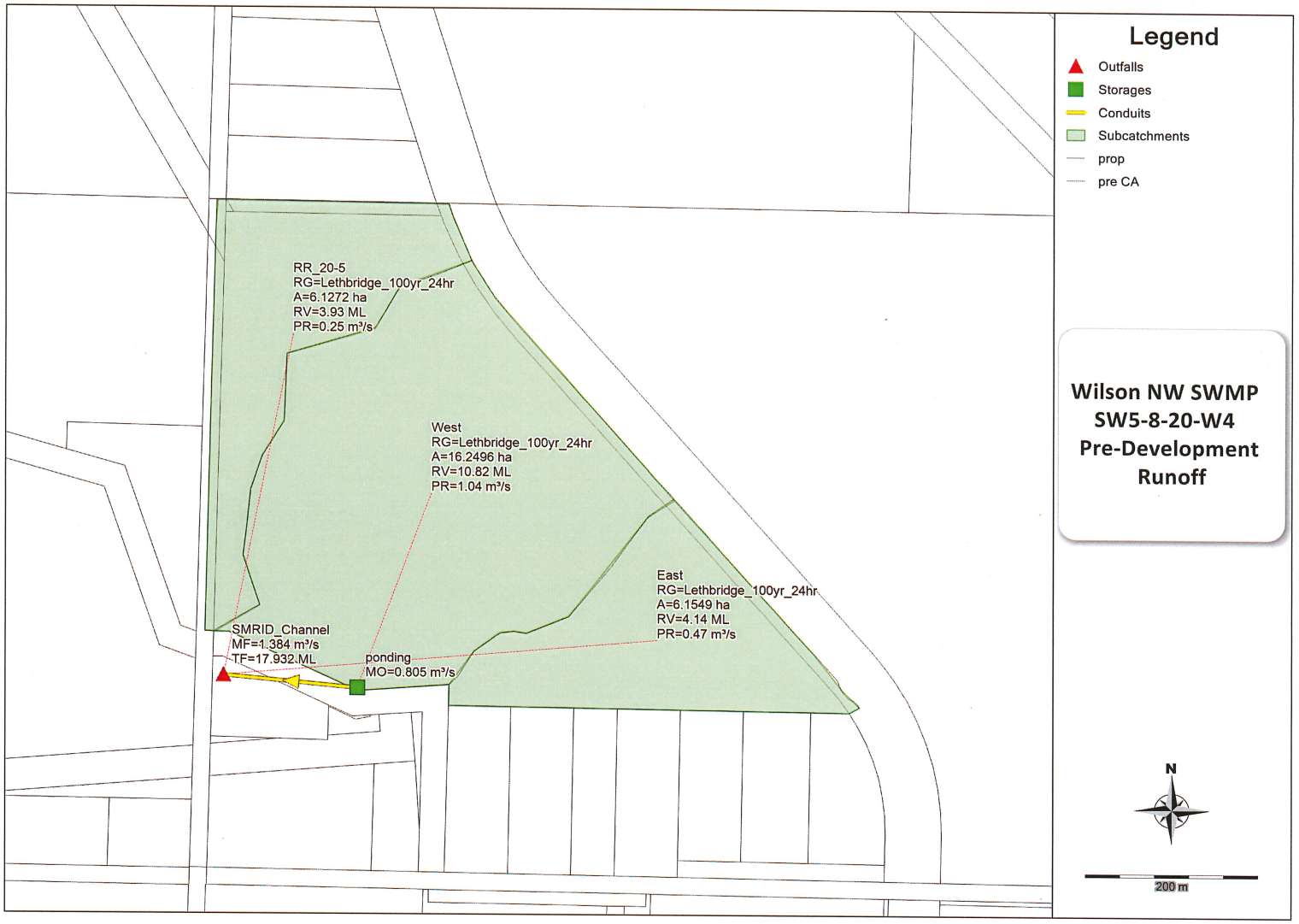


Landform Profile:



APPENDIX ‘B’ – SWMM

STORMWATER MANAGEMENT PLAN
COUNTRY CROSSROADS ESTATE SUBDIVISION
SW5-8-20-W4M
Lethbridge County, Alberta


Legend
Outfalls
Storages
Conduits
Subcatchments
prop
pre CA
Wilson NW SWMP
SW5-8-20-W4
Pre-Development
Runoff
RR_20-5
RG=Lethbridge_100yr_24hr
A=6.1272 ha
RV=3.93 ML
PR=0.25 m³/s
West
RG=Lethbridge_100yr_24hr
A=16.2496 ha
RV=10.82 ML
PR=1.04 m³/s
East
RG=Lethbridge_100yr_24hr
A=6.1549 ha
RV=4.14 ML
PR=0.47 m³/s
SMRID_Channel
MF=1.384 m³/s
TF=17.932 ML
ponding
MO=0.805 m³/s
N
200 m

```
[TITLE]
Wilson NW
Pre Development
24hr_100yr


[OPTIONS]
;;Options            Value
;;------------------ ------------
FLOW_UNITS           CMS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         DYNWAVE
START_DATE           05/27/2015
START_TIME           00:00:00
REPORT_START_DATE    05/27/2015
REPORT_START_TIME    00:00:00
END_DATE             06/10/2015
END_TIME             00:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          0:01:00
WET_STEP             0:05:00
DRY_STEP             0:05:00
ROUTING_STEP         5
ALLOW_PONDING        NO
INERTIAL_DAMPING     PARTIAL
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         0
NORMAL_FLOW_LIMITED  BOTH
SKIP_STEADY_STATE    NO
FORCE_MAIN_EQUATION  H-W
LINK_OFFSETS         DEPTH
MIN_SLOPE            0

[EVAPORATION]
;;Type          Parameters
;;------------- ----------
CONSTANT     0.0
DRY_ONLY     NO

[RAINGAGES]
;;                    Rain      Time   Snow   Data
;;Name                Type      Intrvl Catch  Source
;;------------------- --------- ------ ------ ----------
Lethbridge_100yr_24hr INTENSITY 0:05   1.0    TIMESERIES Chicago_24hr

[SUBCATCHMENTS]
;;                                                Total    Pcnt.             Pcnt.    Curb     Snow
;;Name           Raingage         Outlet           Area     Imperv   Width    Slope    Length   Pack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- --------
East             Lethbridge_100yr_24hr SMRID_Channel 6.1549 0        175.854  1.05     0
```

```
RR_20-5          Lethbridge_100yr_24hr SMRID_Channel 6.1272 0        117.605  0.45     0
West             Lethbridge_100yr_24hr ponding     16.2496  0        350.963  1.11     0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
East             0.015      0.15       1          5          0          PERVIOUS   100
RR_20-5          0.015      0.15       1          5          0          PERVIOUS   100
West             0.015      0.15       1          5          0          PERVIOUS   100

[INFILTRATION]
;;Subcatchment   Suction    HydCon     IMDmax
;;-------------- ---------- ---------- ----------
East             292.2      0.5        0.25
RR_20-5          292.2      0.5        0.25
West             292.2      0.5        0.25

[OUTFALLS]
;;               Invert     Outfall      Stage/Table      Tide
;;Name           Elev.      Type         Time Series      Gate
;;-------------- ---------- ------------ ---------------- ----
SMRID_Channel    919.4      FREE                          NO

[STORAGE]
;;               Invert   Max.     Init.    Storage    Curve                      Ponded   Evap.
;;Name           Elev.    Depth    Depth    Curve      Params                     Area     Frac.    Infiltration parameters
;;-------------- -------- -------- -------- ---------- -------- -------- -------- -------- -------- -----------------------
ponding          922.2    2        0        TABULAR    Curve1                      0        0        292      0.5      0.26

[CONDUITS]
;;               Inlet            Outlet                      Manning    Inlet      Outlet     Init.      Max.
;;Name           Node             Node             Length     N          Offset     Offset     Flow       Flow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
C1               ponding          SMRID_Channel    10         0.15       0.4        2          0          0

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels
;;-------------- ------------ ---------------- ---------- ---------- ---------- ----------
C1               TRAPEZOIDAL  1                10         5          5          1

[LOSSES]
;;Link           Inlet      Outlet     Average    Flap Gate
;;-------------- ---------- ---------- ---------- ----------

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
Curve1           Storage    0          600
Curve1                      0.2        1500
Curve1                      .4         5242
Curve1                      .6         8000

[TIMESERIES]
```

```
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
;Chicago design storm, a = 1019.2, b = 0, c = 0.731, Duration = 1440 minutes, r = 0.35, rain units = mm/hr.
Chicago_24hr                0:00       1.352
Chicago_24hr                0:05       1.361
Chicago_24hr                0:10       1.372
Chicago_24hr                0:15       1.382
Chicago_24hr                0:20       1.392
Chicago_24hr                0:25       1.403
Chicago_24hr                0:30       1.414
Chicago_24hr                0:35       1.425
Chicago_24hr                0:40       1.436
Chicago_24hr                0:45       1.448
Chicago_24hr                0:50       1.459
Chicago_24hr                0:55       1.471
Chicago_24hr                1:00       1.483
Chicago_24hr                1:05       1.496
Chicago_24hr                1:10       1.509
Chicago_24hr                1:15       1.521
Chicago_24hr                1:20       1.535
Chicago_24hr                1:25       1.548
Chicago_24hr                1:30       1.562
Chicago_24hr                1:35       1.576
Chicago_24hr                1:40       1.59
Chicago_24hr                1:45       1.605
Chicago_24hr                1:50       1.62
Chicago_24hr                1:55       1.635
Chicago_24hr                2:00       1.651
Chicago_24hr                2:05       1.667
Chicago_24hr                2:10       1.683
Chicago_24hr                2:15       1.7
Chicago_24hr                2:20       1.717
Chicago_24hr                2:25       1.735
Chicago_24hr                2:30       1.753
Chicago_24hr                2:35       1.771
Chicago_24hr                2:40       1.79
Chicago_24hr                2:45       1.809
Chicago_24hr                2:50       1.829
Chicago_24hr                2:55       1.85
Chicago_24hr                3:00       1.871
Chicago_24hr                3:05       1.892
Chicago_24hr                3:10       1.914
Chicago_24hr                3:15       1.937
Chicago_24hr                3:20       1.961
Chicago_24hr                3:25       1.985
Chicago_24hr                3:30       2.009
Chicago_24hr                3:35       2.035
Chicago_24hr                3:40       2.061
Chicago_24hr                3:45       2.089
Chicago_24hr                3:50       2.117
Chicago_24hr                3:55       2.146
Chicago_24hr                4:00       2.176
Chicago_24hr                4:05       2.206
```

Chicago_24hr	4:10	2.238
Chicago_24hr	4:15	2.272
Chicago_24hr	4:20	2.306
Chicago_24hr	4:25	2.341
Chicago_24hr	4:30	2.378
Chicago_24hr	4:35	2.416
Chicago_24hr	4:40	2.456
Chicago_24hr	4:45	2.498
Chicago_24hr	4:50	2.541
Chicago_24hr	4:55	2.585
Chicago_24hr	5:00	2.632
Chicago_24hr	5:05	2.681
Chicago_24hr	5:10	2.732
Chicago_24hr	5:15	2.785
Chicago_24hr	5:20	2.841
Chicago_24hr	5:25	2.9
Chicago_24hr	5:30	2.961
Chicago_24hr	5:35	3.026
Chicago_24hr	5:40	3.094
Chicago_24hr	5:45	3.166
Chicago_24hr	5:50	3.242
Chicago_24hr	5:55	3.323
Chicago_24hr	6:00	3.408
Chicago_24hr	6:05	3.499
Chicago_24hr	6:10	3.596
Chicago_24hr	6:15	3.699
Chicago_24hr	6:20	3.81
Chicago_24hr	6:25	3.929
Chicago_24hr	6:30	4.057
Chicago_24hr	6:35	4.195
Chicago_24hr	6:40	4.346
Chicago_24hr	6:45	4.509
Chicago_24hr	6:50	4.688
Chicago_24hr	6:55	4.885
Chicago_24hr	7:00	5.102
Chicago_24hr	7:05	5.344
Chicago_24hr	7:10	5.615
Chicago_24hr	7:15	5.921
Chicago_24hr	7:20	6.269
Chicago_24hr	7:25	6.67
Chicago_24hr	7:30	7.139
Chicago_24hr	7:35	7.693
Chicago_24hr	7:40	8.361
Chicago_24hr	7:45	9.186
Chicago_24hr	7:50	10.234
Chicago_24hr	7:55	11.619
Chicago_24hr	8:00	13.551
Chicago_24hr	8:05	16.477
Chicago_24hr	8:10	21.566
Chicago_24hr	8:15	33.491
Chicago_24hr	8:20	286.165
Chicago_24hr	8:25	92.134
Chicago_24hr	8:30	42.664

Chicago_24hr	8:35	30.072
Chicago_24hr	8:40	23.803
Chicago_24hr	8:45	19.955
Chicago_24hr	8:50	17.317
Chicago_24hr	8:55	15.38
Chicago_24hr	9:00	13.889
Chicago_24hr	9:05	12.7
Chicago_24hr	9:10	11.728
Chicago_24hr	9:15	10.915
Chicago_24hr	9:20	10.224
Chicago_24hr	9:25	9.629
Chicago_24hr	9:30	9.109
Chicago_24hr	9:35	8.652
Chicago_24hr	9:40	8.245
Chicago_24hr	9:45	7.881
Chicago_24hr	9:50	7.553
Chicago_24hr	9:55	7.255
Chicago_24hr	10:00	6.984
Chicago_24hr	10:05	6.736
Chicago_24hr	10:10	6.507
Chicago_24hr	10:15	6.296
Chicago_24hr	10:20	6.101
Chicago_24hr	10:25	5.919
Chicago_24hr	10:30	5.75
Chicago_24hr	10:35	5.592
Chicago_24hr	10:40	5.444
Chicago_24hr	10:45	5.304
Chicago_24hr	10:50	5.173
Chicago_24hr	10:55	5.049
Chicago_24hr	11:00	4.932
Chicago_24hr	11:05	4.822
Chicago_24hr	11:10	4.717
Chicago_24hr	11:15	4.617
Chicago_24hr	11:20	4.522
Chicago_24hr	11:25	4.431
Chicago_24hr	11:30	4.345
Chicago_24hr	11:35	4.263
Chicago_24hr	11:40	4.184
Chicago_24hr	11:45	4.109
Chicago_24hr	11:50	4.036
Chicago_24hr	11:55	3.967
Chicago_24hr	12:00	3.901
Chicago_24hr	12:05	3.837
Chicago_24hr	12:10	3.775
Chicago_24hr	12:15	3.716
Chicago_24hr	12:20	3.659
Chicago_24hr	12:25	3.604
Chicago_24hr	12:30	3.55
Chicago_24hr	12:35	3.499
Chicago_24hr	12:40	3.449
Chicago_24hr	12:45	3.401
Chicago_24hr	12:50	3.355
Chicago_24hr	12:55	3.31

Chicago_24hr	13:00	3.267
Chicago_24hr	13:05	3.224
Chicago_24hr	13:10	3.183
Chicago_24hr	13:15	3.144
Chicago_24hr	13:20	3.105
Chicago_24hr	13:25	3.068
Chicago_24hr	13:30	3.031
Chicago_24hr	13:35	2.996
Chicago_24hr	13:40	2.961
Chicago_24hr	13:45	2.928
Chicago_24hr	13:50	2.895
Chicago_24hr	13:55	2.863
Chicago_24hr	14:00	2.832
Chicago_24hr	14:05	2.802
Chicago_24hr	14:10	2.773
Chicago_24hr	14:15	2.744
Chicago_24hr	14:20	2.716
Chicago_24hr	14:25	2.689
Chicago_24hr	14:30	2.662
Chicago_24hr	14:35	2.636
Chicago_24hr	14:40	2.61
Chicago_24hr	14:45	2.585
Chicago_24hr	14:50	2.561
Chicago_24hr	14:55	2.537
Chicago_24hr	15:00	2.514
Chicago_24hr	15:05	2.491
Chicago_24hr	15:10	2.469
Chicago_24hr	15:15	2.447
Chicago_24hr	15:20	2.425
Chicago_24hr	15:25	2.404
Chicago_24hr	15:30	2.384
Chicago_24hr	15:35	2.364
Chicago_24hr	15:40	2.344
Chicago_24hr	15:45	2.325
Chicago_24hr	15:50	2.306
Chicago_24hr	15:55	2.287
Chicago_24hr	16:00	2.269
Chicago_24hr	16:05	2.251
Chicago_24hr	16:10	2.233
Chicago_24hr	16:15	2.216
Chicago_24hr	16:20	2.199
Chicago_24hr	16:25	2.183
Chicago_24hr	16:30	2.166
Chicago_24hr	16:35	2.15
Chicago_24hr	16:40	2.134
Chicago_24hr	16:45	2.119
Chicago_24hr	16:50	2.104
Chicago_24hr	16:55	2.089
Chicago_24hr	17:00	2.074
Chicago_24hr	17:05	2.059
Chicago_24hr	17:10	2.045
Chicago_24hr	17:15	2.031
Chicago_24hr	17:20	2.017

Chicago_24hr	17:25	2.004
Chicago_24hr	17:30	1.99
Chicago_24hr	17:35	1.977
Chicago_24hr	17:40	1.964
Chicago_24hr	17:45	1.951
Chicago_24hr	17:50	1.939
Chicago_24hr	17:55	1.926
Chicago_24hr	18:00	1.914
Chicago_24hr	18:05	1.902
Chicago_24hr	18:10	1.89
Chicago_24hr	18:15	1.879
Chicago_24hr	18:20	1.867
Chicago_24hr	18:25	1.856
Chicago_24hr	18:30	1.845
Chicago_24hr	18:35	1.834
Chicago_24hr	18:40	1.823
Chicago_24hr	18:45	1.812
Chicago_24hr	18:50	1.802
Chicago_24hr	18:55	1.791
Chicago_24hr	19:00	1.781
Chicago_24hr	19:05	1.771
Chicago_24hr	19:10	1.761
Chicago_24hr	19:15	1.751
Chicago_24hr	19:20	1.741
Chicago_24hr	19:25	1.732
Chicago_24hr	19:30	1.722
Chicago_24hr	19:35	1.713
Chicago_24hr	19:40	1.704
Chicago_24hr	19:45	1.695
Chicago_24hr	19:50	1.686
Chicago_24hr	19:55	1.677
Chicago_24hr	20:00	1.668
Chicago_24hr	20:05	1.659
Chicago_24hr	20:10	1.651
Chicago_24hr	20:15	1.642
Chicago_24hr	20:20	1.634
Chicago_24hr	20:25	1.626
Chicago_24hr	20:30	1.617
Chicago_24hr	20:35	1.609
Chicago_24hr	20:40	1.601
Chicago_24hr	20:45	1.593
Chicago_24hr	20:50	1.586
Chicago_24hr	20:55	1.578
Chicago_24hr	21:00	1.57
Chicago_24hr	21:05	1.563
Chicago_24hr	21:10	1.555
Chicago_24hr	21:15	1.548
Chicago_24hr	21:20	1.541
Chicago_24hr	21:25	1.534
Chicago_24hr	21:30	1.526
Chicago_24hr	21:35	1.519
Chicago_24hr	21:40	1.512
Chicago_24hr	21:45	1.506

```
Chicago_24hr                21:50      1.499
Chicago_24hr                21:55      1.492
Chicago_24hr                22:00      1.485
Chicago_24hr                22:05      1.479
Chicago_24hr                22:10      1.472
Chicago_24hr                22:15      1.466
Chicago_24hr                22:20      1.459
Chicago_24hr                22:25      1.453
Chicago_24hr                22:30      1.447
Chicago_24hr                22:35      1.441
Chicago_24hr                22:40      1.434
Chicago_24hr                22:45      1.428
Chicago_24hr                22:50      1.422
Chicago_24hr                22:55      1.416
Chicago_24hr                23:00      1.411
Chicago_24hr                23:05      1.405
Chicago_24hr                23:10      1.399
Chicago_24hr                23:15      1.393
Chicago_24hr                23:20      1.387
Chicago_24hr                23:25      1.382
Chicago_24hr                23:30      1.376
Chicago_24hr                23:35      1.371
Chicago_24hr                23:40      1.365
Chicago_24hr                23:45      1.36
Chicago_24hr                23:50      1.355
Chicago_24hr                23:55      1.349
Chicago_24hr                24:00      0

[REPORT]
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS       377904.216833746 5496889.70168789 378739.664103158 5497557.43227258
UNITS            Meters

[COORDINATES]
;;Node           X-Coord          Y-Coord
;;-------------- ---------------- ----------------
SMRID_Channel    377963.916       5496961.816
ponding          378118.806       5496947.119

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

[POLYGONS]
;;Subcatchment   X-Coord          Y-Coord
```

```
;;-------------- ---------------- ----------------
East             378647.629       5496990.979
East             378680.915       5496947.538
East             378701.689       5496926.631
East             378690.051       5496920.053
East             378224.399       5496926.503
East             378225.097       5496951.351
East             378253.272       5496991.199
East             378283.862       5497013.739
East             378300.364       5497015.349
East             378314.452       5497013.336
East             378363.959       5497033.461
East             378455.327       5497151.796
East             378486.776       5497171.774
East             378647.629       5496990.979
RR_20-5          377953.069       5497013.256
RR_20-5          377942.192       5497015.069
RR_20-5          377954.256       5497496.649
RR_20-5          377956.131       5497527.081
RR_20-5          378223.649       5497523.406
RR_20-5          378228.794       5497509.442
RR_20-5          378250.393       5497457.066
RR_20-5          378166.998       5497425.158
RR_20-5          378138.716       5497375.121
RR_20-5          378036.828       5497344.663
RR_20-5          378033.202       5497264.168
RR_20-5          378007.821       5497222.833
RR_20-5          377994.405       5497182.223
RR_20-5          377989.203       5497129.584
RR_20-5          377986.065       5497104.266
RR_20-5          378005.645       5497045.164
RR_20-5          377953.069       5497013.256
West             378145.362       5497387.565
West             378166.998       5497425.158
West             378250.393       5497457.066
West             378277.588       5497412.105
West             378486.776       5497171.774
West             378455.327       5497151.796
West             378363.959       5497033.461
West             378314.452       5497013.336
West             378300.364       5497015.349
West             378283.862       5497013.739
West             378253.272       5496991.199
West             378225.097       5496951.351
West             378118.773       5496944.001
West             377970.111       5497013.256
West             377953.069       5497013.256
West             378005.645       5497045.164
West             377986.065       5497104.266
West             377994.405       5497182.223
West             378007.821       5497222.833
West             378033.202       5497264.168
West             378036.828       5497344.663
```

```
West              378138.716       5497375.121
West              378145.362       5497387.565

[SYMBOLS]
;;Gage            X-Coord          Y-Coord
;;--------------- ---------------- ----------------
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------

Wilson NW
Pre Development
24hr_100yr

*******************************************************
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
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Starting Date ............ MAY-27-2015 00:00:00
Ending Date .............. JUN-10-2015 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


*************
Element Count
*************
Number of rain gages ...... 1
Number of subcatchments ... 3
Number of nodes ........... 2
Number of links ........... 1
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                          Data        Recording
Name                Data Source           Type        Interval
-------------------------------------------------------------
```

Lethbridge_100yr_24hrChicago_24hr INTENSITY 5 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
East	6.15	175.85	0.00	1.0500	Lethbridge_100yr_24hr	SMRID_Channel
RR_20-5	6.13	117.61	0.00	0.4500	Lethbridge_100yr_24hr	SMRID_Channel
West	16.25	350.96	0.00	1.1100	Lethbridge_100yr_24hr	ponding

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
SMRID_Channel	OUTFALL	919.40	3.00	0.0	
ponding	STORAGE	922.20	2.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	ponding	SMRID_Channel	CONDUIT	10.0	12.0873	0.1500

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	TRAPEZOIDAL	1.00	15.00	0.74	20.00	1	28.52

********** Runoff Quantity Continuity **********	Volume hectare-m	Depth mm
Total Precipitation	3.428	120.145
Evaporation Loss	0.000	0.000
Infiltration Loss	1.541	54.016
Surface Runoff	1.889	66.224
Final Surface Storage	0.000	0.000
Continuity Error (%)	-0.079	

********** Volume Volume

Flow Routing Continuity	hectare-m	10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.889	18.895
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.793	17.932
Internal Outflow	0.000	0.000
Storage Losses	0.066	0.656
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.031	0.307
Continuity Error (%)	0.001	

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

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

****
Routing Time Step Summary
****

Minimum Time Step	:	5.00 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

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
East	120.15	0.00	0.00	52.96	67.31	4.14	0.47	0.560
RR_20-5	120.15	0.00	0.00	56.01	64.19	3.93	0.25	0.534
West	120.15	0.00	0.00	53.66	66.58	10.82	1.04	0.554

****
Node Depth Summary

****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min
SMRID_Channel	OUTFALL	0.00	0.00	919.40	0 00:00
ponding	STORAGE	0.33	0.57	922.77	0 09:20

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr
SMRID_Channel	OUTFALL	0.720	1.384	0 09:13	8.076	17.932
ponding	STORAGE	1.039	1.039	0 08:40	10.819	10.819

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m3	Avg Pcnt Full	E&I Pcnt Loss	Maximum Volume 1000 m3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
ponding	0.590	2	6	1.961	7	0 09:20	0.805

****
Outfall Loading Summary

****

Outfall Node	Flow Freq. Pcnt.	Avg. Flow CMS	Max. Flow CMS	Total Volume 10^6 ltr
SMRID_Channel	7.81	0.190	1.384	17.932
System	7.81	0.190	1.384	17.932

****
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	0.805	0 09:20	0.60	0.03	0.13

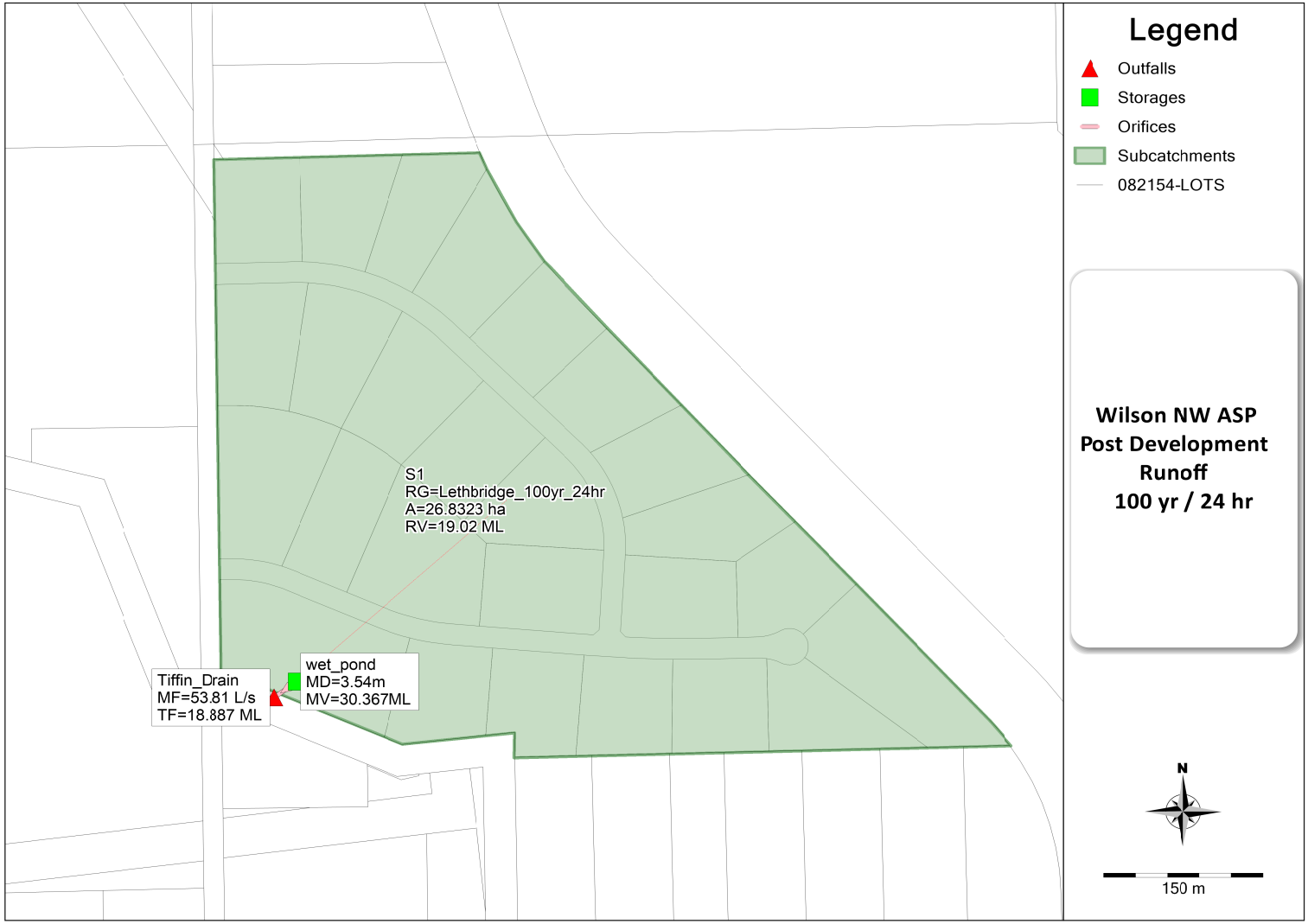
****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	--- Fraction of Time in Flow Class ---- Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change
C1	1.00	0.92	0.00	0.00	0.00	0.00	0.00	0.08	0.03	0.0000

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Tue Apr 16 11:34:37 2019
Analysis ended on: Tue Apr 16 11:34:38 2019
Total elapsed time: 00:00:01


Legend
Outfalls
Storages
Orifices
Subcatchments
082154-LOTS
Wilson NW ASP
Post Development
Runoff
100 yr / 24 hr
S1
RG=Lethbridge_100yr_24hr
A=26.8323 ha
RV=19.02 ML
wet_pond
MD=3.54m
MV=30.367ML
Tiffin_Drain
MF=53.81 L/s
TF=18.887 ML
N
150 m

```
[TITLE]
Wilson NW
Post Development
24hr_100yr

[OPTIONS]
;;Options            Value
;;------------------ ------------
FLOW_UNITS           LPS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         DYNWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           06/01/2020
START_TIME           00:00:00
REPORT_START_DATE    06/01/2020
REPORT_START_TIME    00:00:00
END_DATE             06/12/2020
END_TIME             06:00:00
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

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         0

[EVAPORATION]
;;Type          Parameters
;;------------- ----------
CONSTANT         0.0
```

```
DRY_ONLY         NO

[RAINGAGES]
;;                    Rain      Time     Snow     Data
;;Name                Type      Intrvl   Catch    Source
;;------------------- --------- -------- -------- ----------
Lethbridge_100yr_24hr INTENSITY 0:05     1.0      TIMESERIES Chicago_24hr

[SUBCATCHMENTS]
;;                                                Total    Pcnt.             Pcnt.    Curb     Snow
;;Name           Raingage         Outlet           Area     Imperv   Width    Slope    Length   Pack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- --------
S1               Lethbridge_100yr_24hr wet_pond    26.8323  10       528.29   1        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
S1               0.015      0.15       1          5          0          PERVIOUS   100

[INFILTRATION]
;;Subcatchment   Suction    HydCon     IMDmax
;;-------------- ---------- ---------- ----------
S1               292.2      0.5        0.25

[OUTFALLS]
;;               Invert     Outfall    Stage/Table      Tide
;;Name           Elev.      Type       Time Series      Gate
;;-------------- ---------- ---------- ---------------- --------
Tiffin_Drain     919.4      FREE                        NO

[STORAGE]
;;               Invert   Max.       Init.      Storage    Curve                                Evap.
;;Name           Elev.    Depth      Depth      Curve      Params                               Frac.
Infiltration parameters
;;-------------- -------- ---------- ---------- ---------- --------- --------- -------- -------- -------- ---------
--------------
wet_pond         918.9    4.1        2          TABULAR    wet_pond                   0        0

[ORIFICES]
;;               Inlet            Outlet           Orifice      Crest      Disch.     Flap Open/Close
;;Name           Node             Node             Type         Height     Coeff.     Gate Time
;;-------------- ---------------- ---------------- ------------ ---------- ---------- ---- ----------
```

```
C1               wet_pond         Tiffin_Drain     SIDE         2          0.65       NO       0

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels
;;-------------- ------------ ---------------- ---------- ---------- ---------- ----------
C1               CIRCULAR     0.14             0          0          0

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
Curve1           Storage    0          600
Curve1                      0.2        1500
Curve1                      0.4        5242
Curve1                      0.6        8000

wet_pond         Storage    0          5700
wet_pond                    1          6900
wet_pond                    2          8800
wet_pond                    3          10900
wet_pond                    3.5        12400
wet_pond                    4.1        13900

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
;Chicago design storm, a = 1019.2, b = 0, c = 0.731, Duration = 1440 minutes, r = 0.35, rain units = mm/hr.
Chicago_24hr                0:00       1.352
Chicago_24hr                0:05       1.361
Chicago_24hr                0:10       1.372
Chicago_24hr                0:15       1.382
Chicago_24hr                0:20       1.392
Chicago_24hr                0:25       1.403
Chicago_24hr                0:30       1.414
Chicago_24hr                0:35       1.425
Chicago_24hr                0:40       1.436
Chicago_24hr                0:45       1.448
Chicago_24hr                0:50       1.459
Chicago_24hr                0:55       1.471
Chicago_24hr                1:00       1.483
Chicago_24hr                1:05       1.496
Chicago_24hr                1:10       1.509
```

Chicago_24hr	1:15	1.521
Chicago_24hr	1:20	1.535
Chicago_24hr	1:25	1.548
Chicago_24hr	1:30	1.562
Chicago_24hr	1:35	1.576
Chicago_24hr	1:40	1.59
Chicago_24hr	1:45	1.605
Chicago_24hr	1:50	1.62
Chicago_24hr	1:55	1.635
Chicago_24hr	2:00	1.651
Chicago_24hr	2:05	1.667
Chicago_24hr	2:10	1.683
Chicago_24hr	2:15	1.7
Chicago_24hr	2:20	1.717
Chicago_24hr	2:25	1.735
Chicago_24hr	2:30	1.753
Chicago_24hr	2:35	1.771
Chicago_24hr	2:40	1.79
Chicago_24hr	2:45	1.809
Chicago_24hr	2:50	1.829
Chicago_24hr	2:55	1.85
Chicago_24hr	3:00	1.871
Chicago_24hr	3:05	1.892
Chicago_24hr	3:10	1.914
Chicago_24hr	3:15	1.937
Chicago_24hr	3:20	1.961
Chicago_24hr	3:25	1.985
Chicago_24hr	3:30	2.009
Chicago_24hr	3:35	2.035
Chicago_24hr	3:40	2.061
Chicago_24hr	3:45	2.089
Chicago_24hr	3:50	2.117
Chicago_24hr	3:55	2.146
Chicago_24hr	4:00	2.176
Chicago_24hr	4:05	2.206
Chicago_24hr	4:10	2.238
Chicago_24hr	4:15	2.272
Chicago_24hr	4:20	2.306
Chicago_24hr	4:25	2.341
Chicago_24hr	4:30	2.378
Chicago_24hr	4:35	2.416

Chicago_24hr	4:40	2.456
Chicago_24hr	4:45	2.498
Chicago_24hr	4:50	2.541
Chicago_24hr	4:55	2.585
Chicago_24hr	5:00	2.632
Chicago_24hr	5:05	2.681
Chicago_24hr	5:10	2.732
Chicago_24hr	5:15	2.785
Chicago_24hr	5:20	2.841
Chicago_24hr	5:25	2.9
Chicago_24hr	5:30	2.961
Chicago_24hr	5:35	3.026
Chicago_24hr	5:40	3.094
Chicago_24hr	5:45	3.166
Chicago_24hr	5:50	3.242
Chicago_24hr	5:55	3.323
Chicago_24hr	6:00	3.408
Chicago_24hr	6:05	3.499
Chicago_24hr	6:10	3.596
Chicago_24hr	6:15	3.699
Chicago_24hr	6:20	3.81
Chicago_24hr	6:25	3.929
Chicago_24hr	6:30	4.057
Chicago_24hr	6:35	4.195
Chicago_24hr	6:40	4.346
Chicago_24hr	6:45	4.509
Chicago_24hr	6:50	4.688
Chicago_24hr	6:55	4.885
Chicago_24hr	7:00	5.102
Chicago_24hr	7:05	5.344
Chicago_24hr	7:10	5.615
Chicago_24hr	7:15	5.921
Chicago_24hr	7:20	6.269
Chicago_24hr	7:25	6.67
Chicago_24hr	7:30	7.139
Chicago_24hr	7:35	7.693
Chicago_24hr	7:40	8.361
Chicago_24hr	7:45	9.186
Chicago_24hr	7:50	10.234
Chicago_24hr	7:55	11.619
Chicago_24hr	8:00	13.551

Chicago_24hr	8:05	16.477
Chicago_24hr	8:10	21.566
Chicago_24hr	8:15	33.491
Chicago_24hr	8:20	286.165
Chicago_24hr	8:25	92.134
Chicago_24hr	8:30	42.664
Chicago_24hr	8:35	30.072
Chicago_24hr	8:40	23.803
Chicago_24hr	8:45	19.955
Chicago_24hr	8:50	17.317
Chicago_24hr	8:55	15.38
Chicago_24hr	9:00	13.889
Chicago_24hr	9:05	12.7
Chicago_24hr	9:10	11.728
Chicago_24hr	9:15	10.915
Chicago_24hr	9:20	10.224
Chicago_24hr	9:25	9.629
Chicago_24hr	9:30	9.109
Chicago_24hr	9:35	8.652
Chicago_24hr	9:40	8.245
Chicago_24hr	9:45	7.881
Chicago_24hr	9:50	7.553
Chicago_24hr	9:55	7.255
Chicago_24hr	10:00	6.984
Chicago_24hr	10:05	6.736
Chicago_24hr	10:10	6.507
Chicago_24hr	10:15	6.296
Chicago_24hr	10:20	6.101
Chicago_24hr	10:25	5.919
Chicago_24hr	10:30	5.75
Chicago_24hr	10:35	5.592
Chicago_24hr	10:40	5.444
Chicago_24hr	10:45	5.304
Chicago_24hr	10:50	5.173
Chicago_24hr	10:55	5.049
Chicago_24hr	11:00	4.932
Chicago_24hr	11:05	4.822
Chicago_24hr	11:10	4.717
Chicago_24hr	11:15	4.617
Chicago_24hr	11:20	4.522
Chicago_24hr	11:25	4.431

Chicago_24hr	11:30	4.345
Chicago_24hr	11:35	4.263
Chicago_24hr	11:40	4.184
Chicago_24hr	11:45	4.109
Chicago_24hr	11:50	4.036
Chicago_24hr	11:55	3.967
Chicago_24hr	12:00	3.901
Chicago_24hr	12:05	3.837
Chicago_24hr	12:10	3.775
Chicago_24hr	12:15	3.716
Chicago_24hr	12:20	3.659
Chicago_24hr	12:25	3.604
Chicago_24hr	12:30	3.55
Chicago_24hr	12:35	3.499
Chicago_24hr	12:40	3.449
Chicago_24hr	12:45	3.401
Chicago_24hr	12:50	3.355
Chicago_24hr	12:55	3.31
Chicago_24hr	13:00	3.267
Chicago_24hr	13:05	3.224
Chicago_24hr	13:10	3.183
Chicago_24hr	13:15	3.144
Chicago_24hr	13:20	3.105
Chicago_24hr	13:25	3.068
Chicago_24hr	13:30	3.031
Chicago_24hr	13:35	2.996
Chicago_24hr	13:40	2.961
Chicago_24hr	13:45	2.928
Chicago_24hr	13:50	2.895
Chicago_24hr	13:55	2.863
Chicago_24hr	14:00	2.832
Chicago_24hr	14:05	2.802
Chicago_24hr	14:10	2.773
Chicago_24hr	14:15	2.744
Chicago_24hr	14:20	2.716
Chicago_24hr	14:25	2.689
Chicago_24hr	14:30	2.662
Chicago_24hr	14:35	2.636
Chicago_24hr	14:40	2.61
Chicago_24hr	14:45	2.585
Chicago_24hr	14:50	2.561

Chicago_24hr	14:55	2.537
Chicago_24hr	15:00	2.514
Chicago_24hr	15:05	2.491
Chicago_24hr	15:10	2.469
Chicago_24hr	15:15	2.447
Chicago_24hr	15:20	2.425
Chicago_24hr	15:25	2.404
Chicago_24hr	15:30	2.384
Chicago_24hr	15:35	2.364
Chicago_24hr	15:40	2.344
Chicago_24hr	15:45	2.325
Chicago_24hr	15:50	2.306
Chicago_24hr	15:55	2.287
Chicago_24hr	16:00	2.269
Chicago_24hr	16:05	2.251
Chicago_24hr	16:10	2.233
Chicago_24hr	16:15	2.216
Chicago_24hr	16:20	2.199
Chicago_24hr	16:25	2.183
Chicago_24hr	16:30	2.166
Chicago_24hr	16:35	2.15
Chicago_24hr	16:40	2.134
Chicago_24hr	16:45	2.119
Chicago_24hr	16:50	2.104
Chicago_24hr	16:55	2.089
Chicago_24hr	17:00	2.074
Chicago_24hr	17:05	2.059
Chicago_24hr	17:10	2.045
Chicago_24hr	17:15	2.031
Chicago_24hr	17:20	2.017
Chicago_24hr	17:25	2.004
Chicago_24hr	17:30	1.99
Chicago_24hr	17:35	1.977
Chicago_24hr	17:40	1.964
Chicago_24hr	17:45	1.951
Chicago_24hr	17:50	1.939
Chicago_24hr	17:55	1.926
Chicago_24hr	18:00	1.914
Chicago_24hr	18:05	1.902
Chicago_24hr	18:10	1.89
Chicago_24hr	18:15	1.879

Chicago_24hr	18:20	1.867
Chicago_24hr	18:25	1.856
Chicago_24hr	18:30	1.845
Chicago_24hr	18:35	1.834
Chicago_24hr	18:40	1.823
Chicago_24hr	18:45	1.812
Chicago_24hr	18:50	1.802
Chicago_24hr	18:55	1.791
Chicago_24hr	19:00	1.781
Chicago_24hr	19:05	1.771
Chicago_24hr	19:10	1.761
Chicago_24hr	19:15	1.751
Chicago_24hr	19:20	1.741
Chicago_24hr	19:25	1.732
Chicago_24hr	19:30	1.722
Chicago_24hr	19:35	1.713
Chicago_24hr	19:40	1.704
Chicago_24hr	19:45	1.695
Chicago_24hr	19:50	1.686
Chicago_24hr	19:55	1.677
Chicago_24hr	20:00	1.668
Chicago_24hr	20:05	1.659
Chicago_24hr	20:10	1.651
Chicago_24hr	20:15	1.642
Chicago_24hr	20:20	1.634
Chicago_24hr	20:25	1.626
Chicago_24hr	20:30	1.617
Chicago_24hr	20:35	1.609
Chicago_24hr	20:40	1.601
Chicago_24hr	20:45	1.593
Chicago_24hr	20:50	1.586
Chicago_24hr	20:55	1.578
Chicago_24hr	21:00	1.57
Chicago_24hr	21:05	1.563
Chicago_24hr	21:10	1.555
Chicago_24hr	21:15	1.548
Chicago_24hr	21:20	1.541
Chicago_24hr	21:25	1.534
Chicago_24hr	21:30	1.526
Chicago_24hr	21:35	1.519
Chicago_24hr	21:40	1.512

```
Chicago_24hr                21:45      1.506
Chicago_24hr                21:50      1.499
Chicago_24hr                21:55      1.492
Chicago_24hr                22:00      1.485
Chicago_24hr                22:05      1.479
Chicago_24hr                22:10      1.472
Chicago_24hr                22:15      1.466
Chicago_24hr                22:20      1.459
Chicago_24hr                22:25      1.453
Chicago_24hr                22:30      1.447
Chicago_24hr                22:35      1.441
Chicago_24hr                22:40      1.434
Chicago_24hr                22:45      1.428
Chicago_24hr                22:50      1.422
Chicago_24hr                22:55      1.416
Chicago_24hr                23:00      1.411
Chicago_24hr                23:05      1.405
Chicago_24hr                23:10      1.399
Chicago_24hr                23:15      1.393
Chicago_24hr                23:20      1.387
Chicago_24hr                23:25      1.382
Chicago_24hr                23:30      1.376
Chicago_24hr                23:35      1.371
Chicago_24hr                23:40      1.365
Chicago_24hr                23:45      1.36
Chicago_24hr                23:50      1.355
Chicago_24hr                23:55      1.349
Chicago_24hr                24:00      0

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

[TAGS]

[MAP]
DIMENSIONS       94653.76445      5497995.49985    95477.67655      5498635.57115
```

```
UNITS            Meters

[COORDINATES]
;;Node           X-Coord          Y-Coord
;;-------------- ---------------- ----------------
Tiffin_Drain     94747.273        5498082.681
wet_pond         94768.7          5498097.743

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

[POLYGONS]
;;Subcatchment   X-Coord          Y-Coord
;;-------------- ---------------- ----------------
S1               94716.833        5498100.957
S1               94698.022        5498100.957
S1               94691.215        5498599.823
S1               94940.465        5498606.477
S1               94947.42         5498590.709
S1               94974.97         5498540.016
S1               95001.229        5498501.997
S1               95007.726        5498495.258
S1               95060.195        5498438.194
S1               95193.199        5498296.564
S1               95294.91         5498191.079
S1               95420.202        5498059.493
S1               95440.226        5498036.037
S1               94972.811        5498024.594
S1               94973.384        5498048.623
S1               94868.115        5498037.753
S1               94716.833        5498100.957

[SYMBOLS]
;;Gage           X-Coord          Y-Coord
;;-------------- ---------------- ----------------
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------

Wilson NW
Post Development
24hr_100yr

*******************************************************
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 ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Starting Date ............ JUN-01-2020 00:00:00
Ending Date .............. JUN-12-2020 06:00:00
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


*************
Element Count
*************
Number of rain gages ...... 1
Number of subcatchments ... 1
```

```
Number of nodes ........... 2
Number of links ........... 1
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                        Data        Recording
Name                Data Source         Type        Interval
----------------------------------------------------------
Lethbridge_100yr_24hrChicago_24hr        INTENSITY     5 min.


********************
Subcatchment Summary
********************
Name                       Area     Width   %Imperv    %Slope    Rain Gage            Outlet
-----------------------------------------------------------------------------------------------------------
S1                        26.83    528.29     10.00    1.0000    Lethbridge_100yr_24hr wet_pond


************
Node Summary
************
                                        Invert      Max.    Ponded    External
Name                Type                 Elev.     Depth      Area    Inflow
-----------------------------------------------------------------------------
Tiffin_Drain        OUTFALL             919.40      2.14       0.0
wet_pond            STORAGE             918.90      4.10       0.0


************
Link Summary
************
Name            From Node       To Node         Type            Length    %Slope Roughness
-----------------------------------------------------------------------------------------
C1              wet_pond        Tiffin_Drain    ORIFICE
```

```
*********************
Cross Section Summary
*********************
                                      Full     Full     Hyd.     Max.   No. of     Full
Conduit          Shape               Depth     Area     Rad.    Width  Barrels     Flow
-------------------------------------------------------------------------------------------


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         3.224       120.145
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         1.325        49.373
Surface Runoff ...........         1.902        70.870
Final Surface Storage ....         0.003         0.100
Continuity Error (%) .....        -0.165


*************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         1.902        19.016
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         1.889        18.887
Internal Outflow .........         0.000         0.000
Storage Losses ...........         0.000         0.000
Initial Stored Volume ....         1.415        14.149
Final Stored Volume ......         1.428        14.278
Continuity Error (%) .....         0.000


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

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


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     5.00 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


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

-----------------------------------------------------------------------------------------------------------
                         Total      Total      Total      Total      Total       Total     Peak  Runoff
                        Precip      Runon       Evap      Infil     Runoff      Runoff   Runoff   Coeff
Subcatchment                mm         mm         mm         mm         mm    10^6 ltr      LPS
-----------------------------------------------------------------------------------------------------------
S1                      120.15       0.00       0.00      49.37      70.87       19.02  1841.08   0.590


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

-------------------------------------------------------------------
                              Average  Maximum  Maximum  Time of Max
                                Depth    Depth      HGL   Occurrence
Node                 Type      Meters   Meters   Meters  days hr:min
-------------------------------------------------------------------
Tiffin_Drain         OUTFALL     0.00     0.00   919.40     0  00:00
wet_pond             STORAGE     2.43     3.54   922.44     0  21:25
```

```
*******************
Node Inflow Summary
*******************

--------------------------------------------------------------------------------
                                Maximum  Maximum                  Lateral       Total
                                Lateral    Total  Time of Max      Inflow      Inflow
                                 Inflow   Inflow   Occurrence      Volume      Volume
Node                 Type           LPS      LPS  days hr:min    10^6 ltr    10^6 ltr
--------------------------------------------------------------------------------
Tiffin_Drain         OUTFALL       0.00    53.81     0  21:25       0.000      18.887
wet_pond             STORAGE    1841.06  1841.06     0  08:40      19.016      33.165


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

Surcharging occurs when water rises above the top of the highest conduit.
--------------------------------------------------------------------
                                            Max. Height   Min. Depth
                                 Hours      Above Crown    Below Rim
Node                 Type      Surcharged         Meters       Meters
--------------------------------------------------------------------
wet_pond             STORAGE       138.33          1.404        0.556


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

No nodes were flooded.


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

-----------------------------------------------------------------------------------------
                       Average     Avg   E&I       Maximum     Max    Time of Max    Maximum
```

Storage Unit	Volume 1000 m3	Pcnt Full	Pcnt Loss	Volume 1000 m3	Pcnt Full	Occurrence days hr:min	Outflow LPS
wet_pond	18.409	49	0	30.367	81	0 21:25	53.81

****
Outfall Loading Summary
****

Outfall Node	Flow Freq. Pcnt.	Avg. Flow LPS	Max. Flow LPS	Total Volume 10^6 ltr
Tiffin_Drain	96.96	20.04	53.81	18.887
System	96.96	20.04	53.81	18.887

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	ORIFICE	53.81	0 21:25			1.00

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	--- Fraction of Time in Flow Class ---- Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change

```
*************************
Conduit Surcharge Summary
*************************

No conduits were surcharged.


Analysis begun on:  Tue Sep 14 13:24:12 2021
Analysis ended on:  Tue Sep 14 13:24:12 2021
Total elapsed time: < 1 sec
```

LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

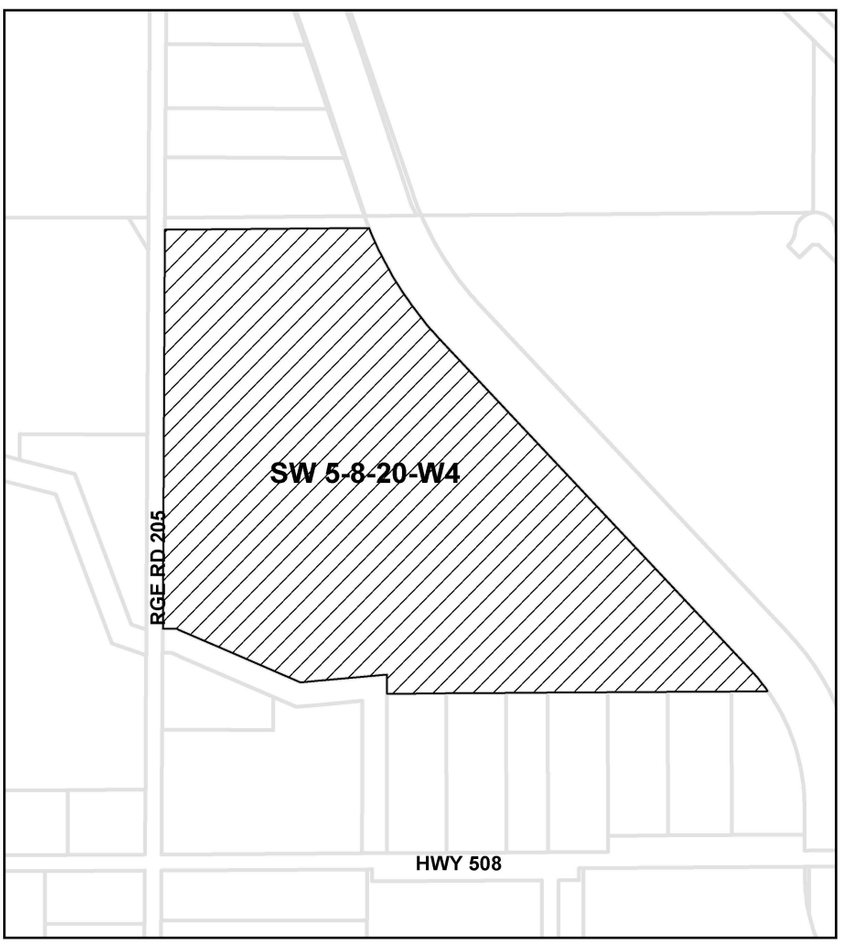
BYLAW NO. 23-003

Bylaw 23-003 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 23-003 is to re-designate lands within the 5-8-20-W4 being that portion of the southwest quarter lying to the west of the 65 metre canal right-of-way and lying north of the south halves of legal subdivisions 3 and 4, and lying to the north of the 30 metre canal right-of-way on Plan 8210212 from Rural Agriculture (RA) 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 23-003: Rural Agriculture (RA) to Grouped Country Residential (GCR)
Parcels: Portion of SW 5-8-20-W4 (66 Acres)
Located in Lethbridge County, AB

Rural Agriculture (RA) to Grouped Country Residential (GCR)

X:\Executive Files\115 Bylaws\2023 Bylaws\Bylaw 23-003 –Amendment to LUB.doc

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 16th day of March 2023.

_____
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

1st Reading	March 16, 2023
2nd Reading	
Public Hearing	
3rd Reading	

Land Use Redesignation
Bylaw 23-003: Rural Agriculture (RA) to Grouped Country Residential (GCR)
Parcels: Portion of SW 5-8-20-W4 (66 Acres)
Located in Lethbridge County, AB

Rural Agriculture (RA) to Grouped Country Residential (GCR)

Lethbridge County 2023
The information contained in this document is for information and illustrative purposes only. Lethbridge County will not be held liable for any errors or omissions and is intended for reference only. This document may not be copied or redistributed in any form without prior consent from Lethbridge County.

Form C

LETHBRIDGE COUNTY
APPLICATION FOR A LAND USE BYLAW AMENDMENT
Pursuant to Bylaw No. 1404

OFFICE USE		
Date of Application: November 24, 2022	Assigned Bylaw	No.
Date Deemed Complete: December 7, 2022	Application & Processing Fee:	$ 1500.00
Redesignation ☑ Text Amendment ☐	Certificate of Title Submitted:	☑ Yes ☐ No

A refusal is **not** appealable and a subsequent application for amendment involving the same lot and/or the same or similar use may not be made for at least 18 months after the date of refusal. (Refer to sections 53(1)

IMPORTANT NOTE: Although the Development Officer is in a position to advise on the principle or details of any proposals, such advice must not be taken in any way as official consent.

APPLICANT INFORMATION

Name of Applicant: Martin Geomatic Consultants Ltd.

Mailing Address: 255 – 31 Street North
Lethbridge, AB
Attention: Ed Martin

Phone: (403) 330-5303
Phone (alternate): (403) 329-0050
Email: edm@mgcl.ca

Postal Code: T1H 3Z4

Is the applicant the owner of the property? ☐ Yes ✓ No

IF "NO" please complete box below

Name of Owner: Jody Nakamura
Mailing Address: RR 8-10-8
Lethbridge, AB
Postal Code: T1J 4P4

Phone: (403) 795-2341

Applicant's interest in the property:
- ☐ Agent
- ☐ Contractor
- ☐ Tenant
- ✓ Other Project Engineer

PROPERTY INFORMATION

Municipal Address: N/A

Legal Description: Lot(s) _____ Block _____ Plan _____

OR Quarter Ptn. SW Section 5 Township 8 Range 20 W4

(see attached copy of C of T)

AMENDMENT INFORMATION

What is the proposed amendment? ❑ Text Amendment ✓ Land Use Redesignation

IF TEXT AMENDMENT:

For text amendments, attach a description including:

- The section to be amended;
- The change(s) to the text; and
- Reasons for the change(s).

IF LAND USE REDESIGNATION:

Current Land Use Designation (zoning): **Rural Agriculture (RA)**

Proposed Land Use Designation (zoning) (if applicable): **Grouped Country Residential (GRC)**

SITE DESCRIPTION:

Describe the **lot/parcel dimensions** _____ and **lot area/parcel acreage** **66.21 acres (26.8ha)**
Indicate the information on a scaled PLOT or SITE PLAN: (0-4 acres at 1" = 20'; 5-9 acres at 1"= 100'; 10 acres or more at 1"=200')

✓ **Site or Plot Plan Attached**

❑ **Conceptual Design Scheme or Area Structure Plan Attached**

OTHER INFORMATION:

Section 52 of the Land Use Bylaw regulates the information required to accompany an application for redesignation. Please **attach a descriptive narrative** detailing:

- The existing and proposed future land use(s) (i.e. details of the proposed development);
- If and how the proposed redesignation is consistent with applicable statutory plans;
- The compatibility of the proposal with surrounding uses and zoning;
- The development suitability or potential of the site, including identification of any constraints and/or hazard areas (e.g. easements, soil conditions, topography, drainage, etc.);
- Availability of facilities and services (sewage disposal, domestic water, gas, electricity, fire protection, schools, etc.) to serve the subject property while maintaining adequate levels of service to existing development; and
- Access and egress from the parcel and any potential impacts on public roads.

In addition to the descriptive narrative, an Area Structure Plan or Conceptual Design Scheme may be required in conjunction with this application where:

- redesignating land to another district;
- multiple parcels of land are involved;
- four or more lots could be created;
- several pieces of fragmented land are adjacent to the proposal;
- new internal public roads would be required;
- municipal services would need to be extended; or
- required by Council, or the Subdivision or Development Authority if applicable.

The applicant may also be required to provide other professional reports, such as a:

- geotechnical report; and/or
- soils analysis; and/or
- evaluation of surface drainage or a detailed storm water management plan;
- and any other information described in section 52(2) or as deemed necessary to make an informed evaluation of the suitability of the site in relation to the proposed use;.

if deemed necessary.

SITE PLAN

Plans and drawings, in sufficient detail to enable adequate consideration of the application, must be submitted in **duplicate** with this application, together with a plan sufficient to identify the land. It is desirable that the plans and drawings should be on a scale appropriate to the development. However, unless otherwise stipulated, it is not necessary for plans and drawings to be professionally prepared. Council may request additional information.

DECLARATION OF APPLICANT/AGENT

The information given on this form is full and complete and is, to the best of my knowledge, a true statement of the facts in relation to the application. I also consent to an authorized person designated by the municipality to enter upon the subject land and buildings for the purpose of an inspection during the processing of this application. I/We have read and understand the terms noted below and hereby certify that the registered owner of the land is aware of, and in agreement with this application.

APPLICANT: Ed Martin, P.Eng

REGISTERED OWNER
(if not the same as applicant)

DATE: November 23, 2022

FOIP STATEMENT: Personal information on this form is collected under the authority of section 33(c) of the Freedom of Information and Protection of Privacy (FOIP) Act. The information collected here will be used to by Lethbridge County for the purposes of reviewing this application. This form is a public record that is available to anyone. All information contained on this form (including personal information) is disclosed by Lethbridge County to anyone requesting a copy in according with Lethbridge County Policy No. 173 (Freedom of Information and Protection of Privacy (FOIP)). For further information about the collection and use of this information please contact the Lethbridge County FOIP Coordinator at foip@lethcounty.ca or call (403) 328-5525 or come into the office #100, 905-4th Avenue South, Lethbridge Alberta, T1J 4E4.

TERMS

1. Subject to the provisions of the Land Use Bylaw No. 1404 of Lethbridge County, the term "development" includes any change in the use, or intensity of use, of buildings or land.
2. Pursuant to the municipal development plan, an area structure plan or conceptual design scheme may be required by Council before a decision is made.
3. A refusal is not appealable and a subsequent application for redesignation (reclassification) involving the same or similar lot and/or for the same or similar use may not be made for at least 18 months after the date of a refusal.
4. An approved redesignation (reclassification) shall be finalized by amending the land use bylaw map in accordance with section 692 of the Municipal Government Act, Revised Statutes of Alberta 2000, Chapter M-26.

Note: Information provided or generated in this application may be considered at a public meeting.

Country Crossroad Land Use Amendment– Narrative – November 23, 2022

The proposed amendment is to change the land use designation from Rural Agriculture (RA) to Grouped Country Residential (GCR). This change in land use will permit the development of about 25 residential lots with a minimum area of 2 acres (0.81ha) each. This results in a density of 0.38 lots per acre (0.94 lots per ha).

The Area Structure Plan for Country Crossroads Estates which has been submitted for approval, details the proposed layout. The GCR land use is compatible with the requirements of Lethbridge County Municipal Development Plan, and the County Land Use Bylaw.

The site comprises one land owner and encompasses a total of 66.21 acres (26.8 ha). The site is situated on a fragmented parcel and is bounded on the east by the SMRID main canal and on the west by a paved County road. The proposed land use is compatible with existing country residential sites on the south and north boundaries and some lots to the west. In total, there are about 45 residential sites within 800 metres of the proposed Country Crossroads development.

The close proximity of the site to the City of Lethbridge provides for a wide variety of educational, commercial recreational; and community services.

Geotechnical studies for the site indicates the soil is acceptable for septic field sewage treatment systems. The grading of the sites has been designed to direct the 1 in 100 year storm water into three storm water detention ponds which ultimately will drain into Highway 843 road ditch when there is capacity to accommodate the storm water. There are several alternatives to provide potable water to the site. The preferred option is water from the County of Lethbridge Rural Water Association. Other alternatives are the use of treated ground water, treated irrigation water or limited hauling of water. These alternatives, which must be approved by the County, will be addressed depending on the availability of water from the Water Co-op. Paved roads, gas, electrical, telephone and irrigation water will be available to all lots.

LAND TITLE CERTIFICATE

S

LINC	SHORT LEGAL	TITLE NUMBER
0020 144 473	4;20;8;5;SW	051 470 968

LEGAL DESCRIPTION

MERIDIAN 4 RANGE 20 TOWNSHIP 8
SECTION 5
THAT PORTION OF THE SOUTH WEST QUARTER LYING TO THE
WEST OF THE 65 METRE CANAL RIGHT OF WAY AND LYING
NORTH OF THE SOUTH HALVES OF LEGAL SUBDIVISIONS 3
AND 4, AND LYING TO THE NORTH OF THE 30 METRE CANAL
RIGHT OF WAY ON PLAN 8210212
CONTAINING 27 HECTARES (66.8 ACRES) MORE OR LESS
EXCEPTING THEREOUT:
THE NORTH 15 METRES CONTAINING 0.37 OF A HECTARE MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: COUNTY OF LETHBRIDGE

REFERENCE NUMBER: 941 226 700

REGISTERED OWNER(S)

REGISTRATION	DATE(DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
051 470 968	10/12/2005	TRANSFER OF LAND	$414,000	$414,000

OWNERS

JODY F NAKAMURA
OF 4611-50 AVE
TABER
ALBERTA T1G 1G3

(CONTINUED)

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
1485KX .	21/06/1971	IRRIGATION ORDER/NOTICE THIS PROPERTY IS INCLUDED IN THE ST. MARY RIVER IRRIGATION DISTRICT
3432U .		RESTRICTIVE COVENANT
3903EM .	24/10/1934	CAVEAT CAVEATOR - ALBERTA RAILWAY AND IRRIGATION CO..
941 261 421	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
941 261 422	07/10/1994	UTILITY RIGHT OF WAY GRANTEE - TRIPLE W NATURAL GAS CO-OP LIMITED. SEE INSTRUMENT FOR INTEREST
051 470 969	10/12/2005	MORTGAGE MORTGAGEE - THE TORONTO DOMINION BANK. 300,10004 JASPER AVE EDMONTON ALBERTA T5J1R3 ORIGINAL PRINCIPAL AMOUNT: $250,000

TOTAL INSTRUMENTS: 006

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 14 DAY OF MAY, 2010 AT 09:51 A.M.

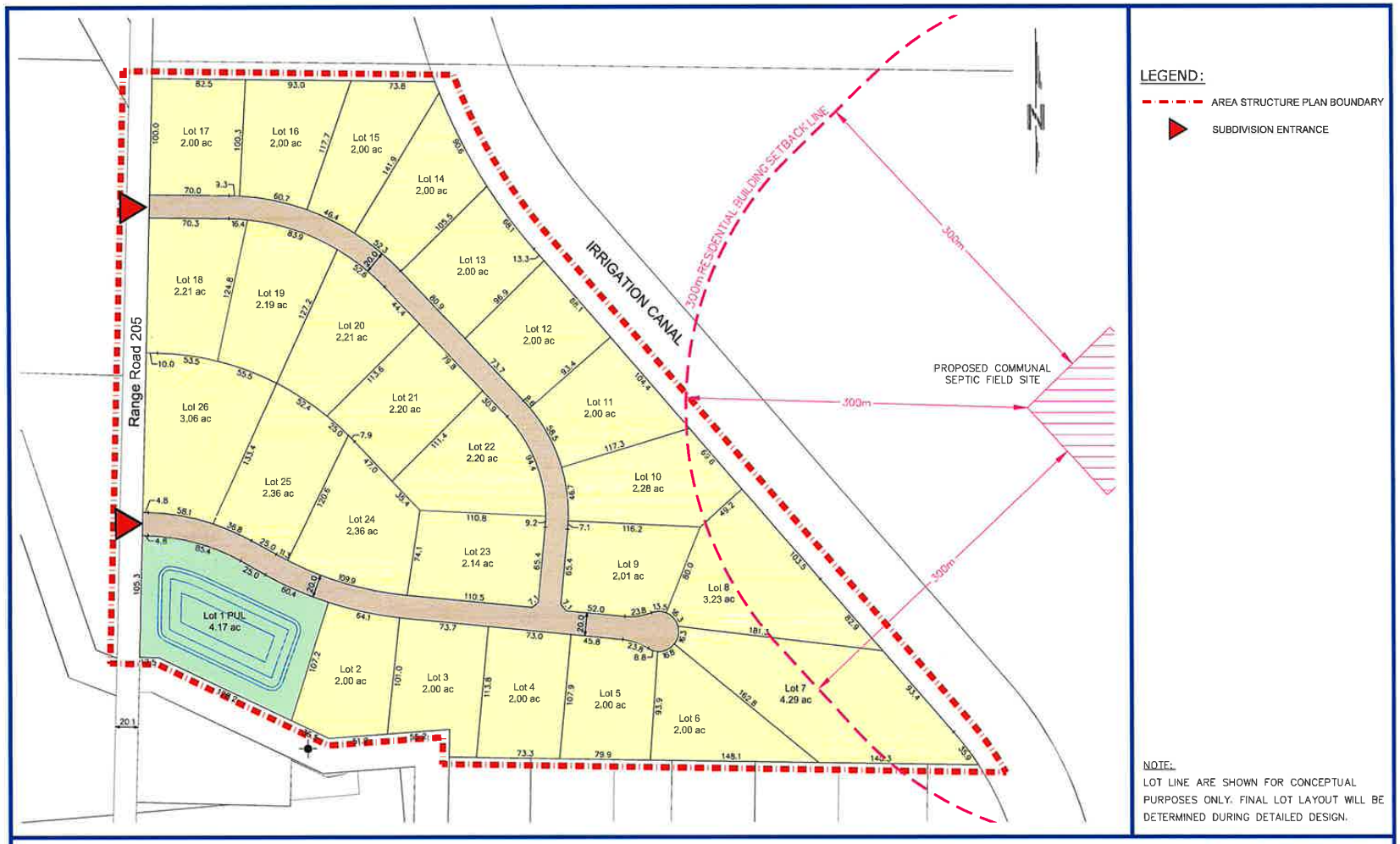
ORDER NUMBER:16529001

CUSTOMER FILE NUMBER: 082154

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.

(CONTINUED)



LEGEND:

- AREA STRUCTURE PLAN BOUNDARY
- SUBDIVISION ENTRANCE

NOTE:

LOT LINE ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL LOT LAYOUT WILL BE DETERMINED DURING DETAILED DESIGN.

Country Crossroads Estate

AREA STRUCTURE PLAN

Dec 01, 2022

PROPOSED LOT LAYOUT

FIGURE 5.0

082154CE

MARTIN GEOMATIC CONSULTANTS
Consulting Engineers, Planners, and Land Surveyors
255-3rd Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail geomat@mgcl.ca Fax: (403) 329-8594

AGENDA ITEM REPORT

Title:	2023 Bursary and Bursary Ad-Hoc Selection Committee
Meeting:	Council Meeting - 16 Mar 2023
Department:	Corporate Services
Report Author:	Jennifer Place

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 06 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☐

EXECUTIVE SUMMARY:

Through the 2022 Bursary review and 2023 Budget Deliberations, there was some discussion amongst council regarding the number of qualified applications received last year and that County Council may want to consider either increasing the bursary amount of $1,000 for each of the two recipients or increasing the number of recipients eligible to receive a bursary.

Bursary Policy #182, states that the bursary amount and number of bursaries available will be determined annually by Council through the annual budget process. The 2023 budget has allotted for two recipients at $1,000 each.

The closing date for applications is June 1st with the bursaries being awarded by August 31st annually. The policy states that Lethbridge County Council will have full authority in the selection of the recipients. Therefore an ad-hoc selection committee of Council is required to review applications and select the bursary winners.

RECOMMENDATION:

That County Council increase the annual Bursary amount to $xxxx each of the two bursary award recipients, with the additional funding to come from the Council Discretionary Reserve.

OR

That County Council increase number of bursary award recipients to three, receiving $xxxx each, with the additional funding to come from the Council Discretionary Reserve.

AND THAT an Ad Hoc Bursary Selection Committee of three council members be established to review the 2023 bursary applications and that the committee members are (*as determined by council*)

REASON(S) FOR RECOMMENDATION(S):

The recommendations presented are for council's discussion and deliberation.

Council will need to name three members to sit on the 2023 selection committee, this follows Policy #182 parameters and aligns with Resolution #133-2022.

PREVIOUS COUNCIL DIRECTION / POLICY:

Bursary Policy #182

D.3.1. *2022 Bursary Ad-Hoc Selection Committee*

133-2022	Councillor Kuerbis	MOVED that an ad hoc Bursary Selection Committee of three council members be established to review the 2022 bursary applications and that the committee members are Mark Sayers, John Kuerbis and Lorne Hickey.
		CARRIED

BACKGROUND INFORMATION:

This will be the fourth consecutive year that the Lethbridge County bursary will be issued per Policy #182 guidelines. The policy does state that a selection committee of Council will have full authority in the selection of the recipients. Although a specific number of members is not identified for the selection committee, historically it has been made up of three members of Council who review, score and determine the recipient winners. The committee then brings their recommendations back to County Council for final approval/award.

ALTERNATIVES / PROS / CONS:

Bursary amount and number

Increase the bursary amount and/or number of winners.
PRO - would be beneficial to the recipients as post secondary costs continue to rise and may increase number and quality of applications.
CON - additional funding will need to be withdrawn from a reserve but can be built into future budgets.

Do not apply any increase to the bursary amount and/or number of winners.
PRO - would have not financial impact to the County
CON - could discourage number or quality of applications.

Selection Committee

To not have a selection committee.
PRO- Council would not have to develop an Ad-Hoc Selection Committee.
CON - The policy specifically references a selection committee of Council, therefore not having a committee would contradict the policy.

To direct Administration to select the bursary applicant winners.
PRO - Council would not have to develop an Ad-Hoc Selection Committee.
CON - The policy specifically references a selection committee of Council, therefore not having a committee would contradict the policy.

FINANCIAL IMPACT:

Lethbridge County Council has approved a total of $2,000 within the 2023 budget for two $1,000 bursaries for Lethbridge County students in an effort to provide some financial support towards their post-secondary educations. Any additional monies required could be funded from the Council Discretionary Reserve (balance as of Dec. 31,2022 $151,918). If Council decides to increase the bursary amount or number of recipients this can be amended in future budgets.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

182 Bursary Policy with Schedule A

Lethbridge County Policy Handbook

EFFECTIVE: **February 20, 2020** **SECTION: 100 NO. 182 Page 1 of 2**

APPROVED BY: **County Council** **SUBJECT: Bursary Policy**

REVISED DATE:

PURPOSE:

To provide Lethbridge County Students an opportunity to receive a bursary for post-secondary education.

OBJECTIVE:

To provide some financial assistance to Lethbridge County citizens who are pursuing a post-secondary education.

PARAMETERS:

1. Bursary Amount: The amount of and number of bursaries available will be determined annually by Council through the annual budget process.

2. Selection Committee: Lethbridge County Council will have full authority in the selection of the recipients.

CRITERIA:

1. Primary Considerations:

   Open to any student or adult as qualified by the undernoted conditions:

   a) Shall be a resident of Lethbridge County who is attending school within Lethbridge County's Municipal boundaries.

   OR

   b) Shall have at one time attended school within Lethbridge County's Municipal boundaries.

2. Secondary Considerations:

   Based on an academic standing sufficient to achieve stated goals. Based on good citizenship demonstrated through community and social participation, volunteer work, etc.

3. Other Considerations:

- Financial need will be considered.
- Applicant need not be a High School student but must provide proof of enrolment in a post-secondary education institute.
- Is a resident of Lethbridge County and must provide proof of such.
- Only students going into first year of studies are eligible to apply.
- Has not received the Lethbridge County bursary in the past.

APPLICATION PROCEDURES AND DATES

- The Lethbridge County Bursary Application, as per Schedule "A" will be made available at the Lethbridge County Administrative Office or on the Lethbridge County Website.
- Applications can be received by hand delivering to the Lethbridge County Administrative Office or by email, in .pdf format to mailbox@lethcounty.ca
- Applications postmarked after June 1st will not be accepted.
- Transcripts of marks must accompany application.
- Awards to be disbursed by Lethbridge County to the recipient by August 31, annually.
- The availability of the bursary shall be advertised annually in March of each year.

LETHBRIDGE COUNTY BURSARY APPLICATION
Schedule "A"

Lethbridge County Council is proud to administer Bursary opportunities to County students as per the Lethbridge County Bursary Policy #182. A representative of County Council will award two County students a $1,000 bursary each at the first County Council Meeting held in August of each year.

The student must plan to attend a post-secondary or trade school within 18 months of winning the bursary and provide proof of enrollment prior to the disbursement of funds. Lethbridge County Council will review the applications and choose the student best suited for this award. (A 2nd and 3rd place recipient will be chosen in case the 1st place recipient does not proceed with post-secondary plans). The decision of Council is final.

To be considered, please submit an application via email to mailbox@lethcounty.ca in a .pdf format preferably. **Application deadline is June 1st, without exception.**

PERSONAL INFORMATION

Name:_____

Mailing Address: _____

Town:_____ Postal Code: _____

Telephone Number: _____ Alternate Number: _____

Email Address: _____

Post-Secondary School to be Attended: _____

Certification / Credentials Sought (Diploma, Degree, etc.): _____

Plans after Completing Post-Secondary Education: _____

Reason Applying for Bursary: _____

SEE PAGE 2 FOR ITEMS TO BE ATTACHED WITH APPLICATION.

DECLARATION OF APPLICANT

- All information is true and complete.
- I agree to allow my name and study plans to be released publicly if I receive this bursary.
- I authorize the release and exchange of my personal information by and between Lethbridge County and any federal and provincial government departments, boards or institutions to verify the information I have provided.

_____ _____

Signature of Applicant Date

LETHBRIDGE COUNTY BURSARY APPLICATION
Schedule "A"

The following information must accompany your application:

EDUCATIONAL BACKGROUND
Your most recent complete transcript of marks, including all high school courses completed to date, or a copy of your high school report cards to date, must accompany this application.

WRITE A SUMMARY DESCRIBING THE FOLLOWING:

- Yourself
- Interests
- Goals and objectives
- Past accomplishments
- School related activities (i.e. Student Council, Sports, Drama etc.)
- Community related activities (i.e. Clubs, Church, Cultural etc.)
- Other information you wish to provide (i.e. volunteering, academic accomplishments, awards or recognition received, favourite school memory etc.)

Deadline date for submission of applications – June 1st.

APPLICATIONS WILL NOT BE ACCEPTED IF POSTMARKED OR SENT BY E-MAIL AFTER JUNE 1st.

Deadline date for submission of most recent marks (high school or post-secondary) – JUNE 1st.

LATE SUBMISSION OF TRANSCRIPTS WILL RESULT IN DISQUALIFICATION.

Completed applications can be hand delivered or mailed to:
Lethbridge County Bursary
#100, 905 4th Avenue South
Lethbridge, Alberta T1J 4E4

OR may be e-mailed to: mailbox@lethcounty.ca (.pdf format preferred)

All applicants will be notified of the status of their application after marks become available to the committee.

*Please **do not** include proof of enrolment with your application. You will be asked for proof of enrolment if you are chosen to receive an award.*

AGENDA ITEM REPORT

Title:	2022 Year End Surplus/Deficit Report
Meeting:	Council Meeting - 16 Mar 2023
Department:	Corporate Services
Report Author:	Jennifer Place

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 08 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☐

EXECUTIVE SUMMARY:

As part of the year-end process and in preparation for the annual audit, entries are required to ensure funding for capital and operating projects are completed as identified in the budget or by Council resolution.

Upon completion of these entries, the 2022 budget has resulted in an overall unaudited operating deficit of $395,000. A summary of the surpluses and deficits by department has been included in the attached report.

RECOMMENDATION:

Move that the reallocation of funds from Restricted Surplus (Reserves) to Unrestricted Surplus be transferred from the Tax Equalization Reserve in the amount of $395,000 to offset the 2022 deficit.

REASON(S) FOR RECOMMENDATION(S):

To cover the 2022 deficit as presented from the Tax Equalization reserve that has grown due to previous years' surpluses.

PREVIOUS COUNCIL DIRECTION / POLICY:

Reserve Policy #169
2022 Operating and Capital budget as approved by Council.

BACKGROUND INFORMATION:

The budget is approved annually and is the guideline used for providing services, procurement of materials and supplies and issuance of taxation and invoices for revenue purposes. When the budget is prepared it contains estimates based on known revenues and expenses, as well as historical data. While these budgets are prepared with due diligence and much consideration and all departments

take care in adhering to their budgets, there are often unforeseen circumstances that generate variances creating either a surplus or deficit within a department.

As in previous years, administration has provided a summary outlining the variances and a transfer recommendation. 2022 was a unique year as inflation grew to a 40-year historical high, fuel costs rose significantly and interest rates were down for a portion of the year, all of which contributed to the deficit as the County worked to maintain all level of service requirements and needs throughout the year.

The Audited Financial Statements will be reviewed by the Audit Committee and presented to Council by KPMG in April, for County Council approval.

ALTERNATIVES / PROS / CONS:

To not transfer from Reserves
PRO - Reserve balance will not be impacted
CON - The County would be reporting a deficit in the 2022 Financial Statements submitted to the Province.

FINANCIAL IMPACT:

The reserve transfers can be reallocated to any department or in any amount as Council directs.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

2022 Year End Surplus-Deficit Report

2022 YEAR END SURPLUS/DEFICIT REPORT

DEPARTMENT	TAX SUPORT BUDGET	TAX SUPPORT ACTUAL	SURPLUS/DEFICIT
Council	665,050	673,507	-8,457
Executive Office	683,450	746,286	-62,836
Agriculutral Services	1,023,495	1,019,404	4,091
Fleet Services	0	0	0
Public Works	8,422,120	8,832,497	-410,377
Utilities	327,925	327,925	0
Infrastruture Services	581,995	568,448	13,547
Assessment	199,865	198,425	1,440
Finance & Administration/General	1,092,880	1,112,916	-20,036
Information Technology	0	0	0
Community Services	946,345	923,738	22,607
Planning & Development	258,060	176,338	81,722
Fire Services / CPO	1,861,385	1,878,086	-16,701
TAX SUPPORT	**16,062,570**	**16,457,570**	**-395,000**

SUMMARY

As the 2022 financial year end processes come to a close, Lethbridge County is looking at a deficit for the 2022 year. While there are some significant department deficits, due to operations changes, inflation, fuel and supply cost increases (further detailed within the report) there are some annual budgeted and year end transaction entries that have contributed to the bottom line deficit of $395,000. While this amount is significant, it is approximately 2.5% over the approved budget, which is well below the 2022 inflation rate.

Fleet Services, Utilities and the IT Department all had surpluses totaling $396,554 that were transferred to reserves per the budget but would offset the above deficit.

***COUNCIL* – DEFICIT -$8,457**

This deficit is due to primarily to additional contract costs to finalize the strategic and corporate plan as well as some increased costs for registration and membership fees.

Executive Office **– DEFICIT -$62,836**

The Executive Office deficit was due to contract changes and professional development fees that were incurred.

PUBLIC OPERATIONS

Agricultural Services (ASB) – SURPLUS $4,091

As can be determined by the overall ASB surplus amount, this department is well within its budget. While there were some savings realized in the areas of materials and supplies, the services to other departments (fleet) was over budget due to the increased costs for operating, maintenance and capital replacement of ASB equipment.

Fleet - $0

While no surplus or deficit is reflected within the Fleet Department as it operates as a fully funded department as per the budget. There was an overall **surplus realized in the amount of $227,200** which was transferred to the Fleet Equipment Capital Reserve. As with ASB, the rates charged on vehicles, machinery and equipment to offset the costs of fuel, parts, supplies, labour and future capital replacement. The fuel budget was 284,297 over budget, tires were $19,000 over budget and parts were $146,800 over for machine parts, offset by rates.

Public Works – DEFICIT -$410,377

When the last quarterly report had projected a deficit of $200,000, prior to the completion of the year end transfers, the Public Works department has a larger than anticipated deficit. This deficit is due primarily to road activities and maintenance, specifically gravelling, base stabilization maintenance, dust control and snow plowing and sanding. As mentioned above with ASB, increases to fleet rates were required and charged to manage the increased costs of fuel, materials and supplies.

Utilities – $0

No surplus or deficit is reflected within the Utility Department as it operates at an operational cost recovery, with the exception of $327,925 that is collected through taxation to fund a debenture as indicated within the budget. The department did realize **a surplus in the amount of $167,700,** which was transferred to the Utility Capital Reserve. The surplus is due to increased water sales and salary and wages unutilized while a replacement Utility Manager position was determined.

INFRASTRUTURE SERVICES **– SURPLUS $13,547**

The Infrastructure Services department has a small surplus mainly due to contact and general services funds that were unused.

CORPORATE SERVICES

Assessment & Taxation – SURPLUS $1,440

The Assessment Department surplus is minor and is mainly due to budget rounding and some savings in assessment fees and supplies.

Finance & Administration/ General Revenues – DEFICIT -$20,036

The Finance & Administration/General Revenues Department is reporting an overall deficit. In the last quarterly report, a surplus was projected however as part of the year end entries an entry is made to record uncollectible taxes. The 2022 amount for uncollectible taxes was $346,569 which is primarily made up of oil and gas properties and is increasing annually. A portion of this uncollectible amount is offset by tax penalty revenues and a portion of the investment interest that was not transferred to the capital reserves.

The investment interest recorded for 2022 is $811,635 with $718,217 transferred to capital reserves transferred and distributed to the capital reserves as per the reserve policy.

Information Technology (IT) – $0

No surplus or deficit is reflected in the IT Department as it operates as a fully funded department. However, the department did have a small surplus of $1,664 which was transferred to the IT Capital Reserve.

COMMUNITY SERVICES

Community Services Administration - SURPLUS $22,607
The Community Services Department surplus is due to a combination of items but primarily because of the Library Board 2022 requisition being decreased as well as the department restructuring that took place.

Planning & Development – SURPLUS $81,722
The Planning & Development Departments surplus can be attributed to additional revenues earned through Development and Building Permit and Planning fees. The revenue earned was $64,538 above the budgeted revenues. The balance of the savings is in reduced professional development and membership costs incurred.

Emergency Services/CPO – DEFICIT $16,701
While fire revenues collected were $462,790 over the anticipated budgeted revenue, emergency expenses and fire inspections were also up and over budget by $341,136. There were also some cases of lost revenue throughout 2022 due to invoicing adjustments brough to Council. Additional department set up costs were also incurred for required supplies as well as additional fleet rates charged for the Fire Services Truck.

The CPO Department had an increase in fine revenues as well and collected just under $43,000 in additional revenue and overall CPO expenses were in line with the budget.

AGENDA ITEM REPORT

Title:	2023 Business Tax Bylaw No. 23-010
Meeting:	Council Meeting - 16 Mar 2023
Department:	Corporate Services
Report Author:	Jennifer Place

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 08 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☐

EXECUTIVE SUMMARY:

As per the *Municipal Government Act (MGA)*, a Business Tax Bylaw must be passed annually before May 1st of the year in which it is to be implemented and following approval of the municipal budget and prior to passing a Business Tax Rate Bylaw. The attached Bylaw 23-010 has been prepared for 2023 with no changes in content from the 2022 Bylaw with the exception of the bylaw numbering and dates and is being submitted to Council for consideration of all three readings.

RECOMMENDATION:

That Bylaw No. 23-010 being the 2023 Business Tax Bylaw, receive first, second and third reading.

REASON(S) FOR RECOMMENDATION(S):

Council has approved the 2023 Budget which includes provisions and projections for business tax revenues and project expenses.

PREVIOUS COUNCIL DIRECTION / POLICY:

The County's first Business Tax Bylaw (No. 1500) was passed in 2017 and has been passed on an annual basis since that time. Business tax revenues have been projected in the 2023 budget at $1.5 million; Council approved the 2023 Capital and Operating Budgets on December 15, 2022.

BACKGROUND INFORMATION:

The *Municipal Government Act (MGA)* gives municipalities the option to levy a business tax.

A Business Tax Bylaw must be passed annually prior to May 1st and prior to passing a Business Tax Rate Bylaw. The following MGA sections apply:

- Section 247 – adopt the annual operating and capital budgets prior to adopting the annual business tax bylaw - *2023 Capital and Operating Budgets were approved on December 15, 2022;*

- Section 371 – pass a business tax bylaw prior to May 1st – *on March 16th agenda;*
- *Section 377(1) - Each Council that has passed a Business Tax Bylaw must pass a Business Tax Rate bylaw annually - included on March 16th agenda*

The 2023 Capital Budget includes business tax as a municipal revenue source and established the revenue requirement from business tax. The Business Tax Bylaw provides the authority for business taxes to be collected from specific businesses operating within Lethbridge County as identified within the bylaw. The Business Tax Bylaw has been implemented to generate municipal revenues for Lethbridge County to assist with the maintenance and improvements of its paved roads, bridges and for debt repayment.

The proposed 2023 Business Tax Bylaw (No. 23-010) mirrors the 2022 Business Tax Bylaw (No. 22-004) with the exception of the bylaw number and dates, which have been updated.

ALTERNATIVES / PROS / CONS:

Council can choose not to approve the attached bylaw:
PRO - A 2023 business tax levy would not be issued to applicable agricultural operations.
CON - Amendments to the 2023 Budget would be required to determine new funding sources and/or cancel anticipated projects. As well a funding source for the 2023 Market Access Network debenture payments would be required.

FINANCIAL IMPACT:

Business tax revenues are a source of funding for current and future capital fiscal plans and are specifically allocated to the maintenance and improvement of the County's paved roads and bridges.

The 2023 Capital and Operating Budgets for the Market Access Network program has been passed by council in the amount of $2.15 million, with $1.5 million of those revenues being generated from the 2023 Business Tax.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

Bylaw 23-010 - 2023 Business Tax Bylaw

BYLAW NO. 23-010

Deleted: 22-004

OF LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

2023 BUSINESS TAX BYLAW

Deleted: 2

BEING A BYLAW PROVIDING FOR THE ASSESSMENT AND TAXATION OF BUSINESSES OPERATED WITHIN LETHBRIDGE COUNTY.

WHEREAS the *Municipal Government Act* (R.S.A. 2000, c. M-26) provides that the council of a municipality may pass a business tax bylaw;

AND WHEREAS the *Municipal Government Act* further provides that a business tax bylaw can specify classes of businesses that are exempt from taxation;

NOW, THEREFORE THE COUNCIL OF LETHBRIDGE COUNTY IN THE PROVINCE OF ALBERTA ENACTS AS FOLLOWS:

Short Title

1. This Bylaw shall be known and may be cited as the "2023 Business Tax Bylaw".

Deleted: 2

Purposes

2. The purposes of the Bylaw are as follows:

   a) to authorize the assessment and taxation of businesses operating in Lethbridge County; and

   b) to provide for the exemption from taxation of certain classes of businesses operating in Lethbridge County.

Interpretation

3. In this Bylaw, unless the context otherwise requires:

   a) "Animal Units" means the number obtained by multiplying the number of animals permitted to be stored on a premises by the number of animals equivalent to one animal unit for that species of animal, as set out in Schedule "B" attached hereto;

   b) "Business" includes those businesses in Lethbridge County as defined in Section 1(1)(a) of the *Municipal Government Act*;

   c) "Business Tax" means the amount of business tax as set in this Bylaw, which shall be arrived at in accordance with Section 378 of the *Municipal Government Act*;

   d) "Business Tax Assessment" means the assessment arrived at pursuant to this Bylaw, which has been entered on the business tax assessment role;

   e) "Business Tax Assessment Roll" means the assessment roll for all businesses as defined in this Bylaw which are not exempt hereunder, as determined on an annual basis by the municipal assessor;

   f) "Business Tax Rate Bylaw" means that Bylaw which shall be passed in every year by the municipality, setting out the business tax rate for businesses as defined in this Bylaw;

   g) "Business Tax Year" means the period commencing January 1st and ending on December 31st in the same year;

h) "Condominium Grain Storage Operation" means a grain storage facility consisting of condominium units located on the premises for the purposes of storing grain;

i) "Confined Feeding Operation" means a confined feeding operation as defined by the current Lethbridge County Land Use Bylaw;

j) "Floor Space" means the floor space of all the floors in a building and the area outside the building that is occupied for the purposes of that business;

k) "Municipal Assessor" means the person appointed to the designated officer position of municipal assessor pursuant to section 284.2 of the *Municipal Government Act* and Bylaw 1439.

l) "Municipality" means Lethbridge County, a municipal corporation of the Province of Alberta and, where the context so requires, means the area contained within the municipal boundaries of Lethbridge County;

m) "Person" means and includes one or more persons, a partnership, or cooperative, or joint venture, or a body corporate, or one or more bodies corporate, or an association of such persons or bodies corporate, who are carrying on a business on premises in the municipality;

n) "Premises" means the parcel of land, or contiguous parcels of land, buildings, barns, corrals, yards, shelters, pens or any space, indoors or outdoors, occupied or used by a person for the conduct of business. Notwithstanding the above, in the event a person is conducting the same business on two contiguous parcels under two different development permits, such parcels shall not be considered to be the same premises;

o) "Property Tax Assessment" means an assessment done by the municipal assessor under Part 9 of the *Municipal Government Act*; and

p) "Ranch Operation" means a business where cows, bison, llamas, horses, sheep, alpacas, ostriches, or similar animals are kept primarily for breeding purposes, and where the offspring from such animals are sold or kept for breeding.

Persons Subject to a Business Tax

4.1 Any person who operates a business which is not exempt, as set out in Schedule "A" attached hereto, on premises located within the municipality, shall be required to pay the municipality a business tax in an amount arrived at by multiplying the business tax rate by the business tax assessment for such premises, which appears on the business tax assessment roll for that year.

4.2 Notwithstanding Section 4.1, no business tax shall be assessed on any business carried on, or operated by the municipality or at a location operated by an official or employee of the municipality acting on behalf of the municipality in his or her capacity as such official or employee.

4.3 When a person carries on two or more businesses, at the same premises, the business tax assessments of each business shall be combined to determine the total business tax assessment for such person.

4.4 Notwithstanding that an exempt business is being operated on part of the premises, a person shall be required to pay business taxes for the non-exempt business or businesses.

4.5 No tax will be imposed in respect of a business that is exempt under Section 351, 375 or 376 of the *Municipal Government Act*.

Business Tax Assessment Roll

5. The municipal assessor shall prepare a business tax assessment roll annually for all businesses in the municipality which are not exempt under Schedule "A". The business tax assessment roll shall be separate and distinct from the property tax assessment roll.

Assessment and Taxation of Confined Feeding Operations and Ranch Operations

6.1 The storage capacity for each confined feeding operation shall be determined by using the animal storage capacity as set out in either the Development Permit or as approved by the National Resources Conservation Board (NRCB) for such premises. In the event there is no existing Development Permit, registration from the NCRB or an approval from the NRCB for such premises, then the municipal assessor shall determine the animal storage capacity in accordance with generally accepted Alberta Agriculture Source Materials and Practices.

6.2 The number of animal units for each confined feeding operation shall be determined by multiplying the relevant ratio as set out in Schedule "B" by the animal storage capacity as set out in either the Development Permit or the NRCB approval or as determined by the municipal assessor in accordance with generally accepted Alberta Agriculture Source Materials and Practices.

6.3 The animal units for each ranch operation shall be determined by multiplying the relevant ratio as set out in Schedule "B" by the number of breeding animals on the premises in the previous taxation year.

6.4 The business tax assessment for each confined feeding operation and ranch operation shall be arrived at by multiplying the number of animal units of storage capacity for the premises by the dollar value per animal unit of storage capacity as set out in the Business Tax Rate Bylaw.

6.5 In the event that there are two or more confined feeding operations, having different species of animals on the same premises, the total of the animal units for each confined feeding operation shall be used to determine the assessment for each premise.

6.6 For the purpose of the business tax assessment under this Bylaw, the dollar value per animal unit shall be set out in the Business Tax Rate bylaw.

6.7 The number of animals approved in a Development Permit or by the NRCB shall be deemed to be the storage capacity of the business on the premises.

Assessment and Taxation of Condominium Grain Storage Operations

7. The business tax assessment for condominium grain storage operations shall be arrived at by multiplying the tonnage capacity of the bin by the dollar rate per unit as set out in the Business Tax Rate Bylaw.

Assessment and Taxation of Dog Kennels and Mushroom Barns

8. The business tax assessment for dog kennels and mushroom barns shall be arrived at by multiplying the floor space by the dollar rate per unit of floor space as set out in the Business Tax Rate Bylaw.

Assessment and Taxation of Aqua Culture Operations

9. The business tax assessment for aqua culture operations shall be arrived at by multiplying the size of the pond by the dollar rate per acre of pond size as set out in the Business Tax Rate Bylaw.

Assessment and Taxation of Apiaries

10. The business tax assessment for apiaries shall be arrived at by multiplying the number of hives by the dollar rate per hive as set out in the Business Tax Rate Bylaw.

General Assessment Procedures

11.1 Every person who carries on a business subject to the business tax shall submit to and assist in any inspection required by the municipal assessor with respect to the business taxed or to be taxed and shall furnish to the municipal assessor all information required.

11.2 The business tax assessment roll shall contain the name of every person occupying, renting, or subleasing premises for the purpose of carrying on a business as defined herein and not exempted herein, and the municipal assessor shall assess such person by entering on the said roll, the assessment for the premises so occupied, rented or subleased, and the place where the business is carried on.

11.3 When the municipal assessor is satisfied that any person who has paid the business tax in any year, has given up, sold, or disposed of such business permanently, then the municipal assessor shall reimburse to such person the business taxes for the balance of the year on a monthly pro-rated basis.

11.4 Where the landowner or tenant liable to assessment in respect of any premises owned or leased by him leases or sub-lets the whole or a portion thereof, the municipal assessor in his discretion may assess either the tenant or the sub-tenant in respect of the premises or the portion of the premises leased or sub-let.

11.5 The occupant of any premises liable to taxation under this Bylaw shall be liable for the business tax aforesaid though he may also be the owner of the premises and as such owner be liable to taxation on the lands, buildings and improvements.

11.6 The municipality shall mail or cause to be delivered to each person taxable under this Bylaw, a written or printed notice showing the assessed amount pursuant to the business tax assessment roll, as well as the business tax levied against such business.

11.7 The business tax shall be due and payable by the deadline stated in the Lethbridge County Penalty Rate Bylaw. Balances that remain outstanding beyond the deadline shall be imposed a penalty in accordance with the Penalty Rate Bylaw. All penalties provided for by this, or the Lethbridge County Penalty Rate Bylaw, shall be added to and form part of the unpaid taxes.

11.8 The business tax shall be levied once during the calendar year beginning with January 1st and ending with December 31st.

11.9 The business tax issued under this Bylaw shall not be transferred except to a person who purchases the business or the shares in a corporation operated as a business in respect of which the business tax was issued.

Appeals

12.1 The person assessed for the purposes of the business tax has the right to appeal the assessment in accordance with the *Municipal Government Act*.

12.2 Any business tax owing that remains outstanding after the due process for appealing the assessment and the deadline for payment has passed shall be collected through the process outlined in accordance with Part 10 Division 9 of the *Municipal Government Act* (recovery of taxes not related to land).

Offences

13.1 A person who contravenes this Bylaw is guilty of an offence.

13.2 A person who is guilty of an offence is liable to a fine in an amount not less than that established in this Section, and not exceeding $10,000, and to imprisonment for not more than 6 months for non-payment of a fine.

Coming Into Force

14. This Bylaw shall come into force and effect on the date it is passed.

GIVEN first reading this _____ day of _____, 2023.

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Reeve

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Chief Administrative Officer

GIVEN second reading this _____ day of _____, 2023.

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Chief Administrative Officer

GIVEN third reading this _____ day of _____, 2023.

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Chief Administrative Officer

SCHEDULE "A"
Lethbridge County
Business Tax Bylaw 23-010
Businesses Exempt from Additional Tax through the Business Tax

Deleted: 22-004

All businesses whose primary business is the following:

a) All recreational businesses, including golf courses, and riding stables.

b) Grain and seed storage facilities, brokerages, and elevators, except for condominium grain storage operations.

c) Grain and oil seed producers.

d) Hay and forage grass producers.

e) Vegetable growers.

f) Potato, sugar beet, and root crop growers.

g) Market gardens.

h) Seed growers.

i) Ranch operations having fewer than 100 animal units.

j) Hay processing facilities.

k) Manufacturing businesses.

l) Research facilities.

m) Personal service businesses.

n) Professional and business services.

o) Trucking and transportation businesses.

p) Food processing businesses.

q) Sand and gravel operations and landfill operations.

r) Feed mills.

s) Machine dealerships.

t) Auto wreckers.

u) Wholesale warehouses.

v) Retail businesses.

w) Summer pasture livestock operations.

x) Auction markets.

y) Confined feeding operations having fewer animals than the number of animals as per Schedule A-1.

z) Dog kennels having fewer than 10,000 square feet of floor space.

aa) Greenhouses.

bb) Aquaculture operations having fewer than 10 acres of storage ponds.

cc) Mushroom barns having fewer than 30,000 square feet of floor space.

dd) Apiaries having fewer than the 500 hives.

SCHEDULE "A-1"
Lethbridge County
Business Tax Bylaw 23-010 Exemption Thresholds

Deleted: 22-004

Category of Livestock	Type of Livestock	Number of Animals
Beef	Cows/Finishers (900+ lbs)	150
	Feeders (450 – 900 lbs)	200
	Feeder Calves (< 550 lbs)	360
Dairy (*count lactating cows only)	Lactating cows* (Lactating cows only – associated Dries, Heifers, and Calves are not counted)	50
Swine (*count sows only)	Farrow to finish*	30
	Farrow to wean*	50
	Farrow only*	60
	Feeders/Boars	500
	Roasters	500
	Weaners	500
Poultry	Chicken – Breeders	1,000
	Chicken – Layer (includes associated pullets)	5,000
	Chicken – Pullets/Broilers	2,000
	Turkeys – Toms/Breeders	1,000
	Turkey – Hens (light)	1,000
	Turkey – Broiler	1,000
	Ducks	1,000
	Geese	1,000
Horses	PMU	100
	Feeders > 750 lbs	100
	Foals < 750 lbs	350
	Mules	100
	Donkeys	150
Sheep	Ewes/rams	300
	Ewes with Lambs	200
	Lambs	1,000
	Feeders	500
Goats	Meat/Milk	200
	Nannies/Billies	400
	Feeders	500
Bison	Bison	150
Cervid	Elk	150
	Deer	200
Wild Boar	Feeders	100
	Sow (farrowing)	50

- When Dairy Replacement Heifers are housed away from the dairy treat as Beef – Feeders
- When Dairy calves are housed away from the dairy treat as Beef – Feeder Calves

SCHEDULE "B"
Lethbridge County
Business Tax Bylaw 23-010 Animal Equivalent Units for Confined Feeding Operations and Ranch Operations

Deleted: 22-004

Species of Animal	Type of Operation	No. of Animals Equivalent to 1 Animal Unit
Swine *(count sows only to calculate animal units)	Farrow to finish*	0.56
	Farrow to wean*	1.5
	Farrow only*	1.9
	Feeder/Boars	5
	Growers/Roasters	8.5
	Weaners	18.2
Beef	Cows/Finishers (900+ lbs)	1.1
	Feeders (450 – 900 lbs)	2
	Feeder Calves (<550 lbs)	3.6
Poultry	Chicken - Breeders	100
	Chicken – Layer-Liquid (includes associated pullets)	125
	Chickens – Layers (Belt Cage)	150
	Chickens – Layers (Deep Pit)	150
	Chicken – Pullet/Broilers	500
	Turkeys – Toms/Breeders	50
	Turkey – Hens (light)	75
	Turkey - Broilers	100
	Ducks	100
	Geese	50
Horses	PMU	1
	Feeders >750 lbs	1
	Foals < 750 lbs	3.3
	Mules	1
	Donkeys	1.5
Sheep	Ewes/rams	5
	Ewes with Lambs	4
	Lambs	21
	Feeders	10
Goats	Meat/Milk (per Ewe)	6
	Nannies/Billies	10
	Feeders	13
Bison	Bison	1
Cervid	Elk	1.7
	Deer	5
Wild Boar	Feeders	6
	Sow (farrowing)	1.25
Dairy *(count lactating cows only to calculate animal units)	Free Stall – Lactating Cows with all associated dries, heifers, and calves	0.5
	Free Stall – Lactating with Dry Cows only*	.6
	Free Stall – Lactating cows only	.7
	Tie Stall – Lactating cows only	.7
	Loose Housing – Lactating cows only	.7
	Dry Cow	1
	Replacement – Bred Heifers (breeding to calving)	1.15
	Replacements – Growing Heifers (350 lbs to breeding)	1.9
	Calves (<350 lbs)	5

AGENDA ITEM REPORT

Title:	2023 Business Tax Rate Bylaw #23-011
Meeting:	Council Meeting - 16 Mar 2023
Department:	Corporate Services
Report Author:	Jennifer Place

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 08 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☐

EXECUTIVE SUMMARY:

As per the *Municipal Government Act (MGA)*, a Business Tax Rate Bylaw must be passed annually following approval of the budget and the passing of a Business Tax Bylaw, which identifies the purpose and details of the business tax and the authority to levy the tax. The Business Tax Rate Bylaw has been prepared for 2023 with no changes in content from 2022, with the exception of the year and applicable date. Administration is submitting the bylaw to Council for consideration of all three readings.

RECOMMENDATION:

That Bylaw #23-011, being the 2023 Business Tax Rate Bylaw, receive first, second and third reading.

REASON(S) FOR RECOMMENDATION(S):

Council has approved the 2023 Budget which includes provisions and projections for the business tax and falls inline with the passing of the 2023 Business Tax Bylaw establishing the authority to collect a business tax.

PREVIOUS COUNCIL DIRECTION / POLICY:

The County's first Business Tax and Business Tax Rate Bylaws were passed in 2017 and have been passed on an annual basis since. The 2023 Business Tax revenues are projected to be $1.5 million as per the 2023 budget which was approved on December 15, 2022.

BACKGROUND INFORMATION:

The *Municipal Government Act (MGA)* gives municipalities the option to levy a business tax.

The following MGA sections apply:

- Section 247 – adopt the annual operating and capital budgets prior to adopting the annual business tax bylaw - *2023 Operating and Capital Budget has been passed.*
- Section 371 – pass a business tax bylaw prior to May 1st– request *to be passed at the March 16, 2023 Council Meeting;*
- *Section 377(1) - Each Council that has passed a Business Tax Bylaw must pass a Business Tax Rate bylaw annually.*
- *Section 377(2) - The Business Tax Rate Bylaw must set the business tax rate - request to be passed at the March 16, 2023 Council Meeting;*

The 2023 Capital Budget includes business tax as a municipal revenue source and established the revenue requirement from business tax. The Business Tax Bylaw provides the authority for business taxes to be collected from businesses operating within Lethbridge County. The Business Tax Rate Bylaw establishes the rate at which the business tax will be levied.

The proposed 2023 Business Tax Rate Bylaw# 23-011 mirrors the 2022 Business Tax Rate Bylaw #22-005 and has been updated for the current year. If the 2023 Business Tax Rate Bylaw is approved, the 2023 Business Tax notices will be prepared and mailed out no later than June 1, 2023.

ALTERNATIVES / PROS / CONS:

Council can choose to reduce the business tax rate amount from $2.50 per animal unit to any denomination they are comfortable with.
PRO - Applicable businesses could receive a reduced business tax levy for 2023.
CON - This could set a precedent for the business tax rate moving forward. As well Amendments to the 2023 Budget would be required to determine new funding sources and/or cancel anticipated projects. As well a funding source for the 2023 Market Access Network debenture payments would be required.
Council can choose to not approve the attached bylaw:
PRO - There would be not business tax levy issued to applicable businesses.
CON - Amendments to the 2023 Budget would be required to determine new funding sources and/or cancel anticipated projects. As well a funding source for the 2023 Market Access Network debenture payments would be required.

FINANCIAL IMPACT:

Business tax revenues are a source of funding for current and future capital fiscal plans and are specifically allocated to the maintenance and improvement of the County's paved roads and bridges.

Funds have been approved in the 2023 Capital and Operating Budgets for the Market Access Network in the amount of $2.15 million. The 2023 business tax budgeted revenue has been allocated at $1.5 million.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

Bylaw 23-011 - 2023 Business Tax Rate Bylaw

BYLAW NO. 23-011

OF LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

2023 BUSINESS TAX RATE BYLAW

BEING A BYLAW OF LETHBRIDGE COUNTY
FOR A 2023 BUSINESS TAX RATE.

THE COUNCIL OF LETHBRIDGE COUNTY ENACTS AS FOLLOWS:

Short Title

1. This Bylaw may be cited as the "2023 Business Tax Rate Bylaw".

Purpose

2. The purpose of the Bylaw is to provide a business tax rate for each class of business for 2023.

Business Tax Rate

3. The business tax rate for 2023 shall be as follows:

Class of Business	Dollar Rate per Unit of Storage Capacity or Floor Space
Confined feeding operations on each premises	$2.50 per animal unit
Condominium grain storage operations	$0.15 per ton
Ranch operations	$2.50 per animal unit
Dog kennels	$0.10 per square feet of floor space
Aqua Culture Operations	$100.00 per acre of ponds
Mushroom Barns	$0.10 per square feet of floor space
Apiaries	$0.10 per hive

Coming Into Force

4. This Bylaw shall come into force and effect on the date it is passed.

GIVEN first reading this ____ day of _____, 2023.

_____
Reeve

_____
Chief Administrative Officer

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GIVEN second reading this _____ day of _____, 2023.

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Chief Administrative Officer

GIVEN third reading this _____ day of _____, 2023.

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Reeve

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Chief Administrative Officer

AGENDA ITEM REPORT

Title:	Road Ban Information
Meeting:	Council Meeting - 16 Mar 2023
Department:	Municipal Services
Report Author:	Jeremy Wickson

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 07 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
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EXECUTIVE SUMMARY:

Public Operations had previously updated the Road Ban bylaw 2020-025 and policy #355 in December 2020, which involved a review of past practices regarding road bans, permitting, and enforcement.

The Bylaw provides the delegated authority to impose a road ban or set weight restrictions on a highway or a bridge under the direction, control and management of Lethbridge County to the Chief Administrative Officer or their designate.

Annual road bans have been established by the Director of Public Operations and published through the County website. A Road Ban Order is issued for any changes to current road ban conditions which is sent to Alberta Transportation. Signage changes are conducted by operations staff as required. Attached is a list of all County roadways and their corresponding spring road ban weights and the allowable weights when restrictions are removed for the remainder of the year.

RECOMMENDATION:

Current bylaw and policy can be accepted for information.

REASON(S) FOR RECOMMENDATION(S):

The County requires a policy in place to protect its road infrastructure as Alberta has seasonal changes that create the risk of road failure from overloaded vehicles on County road infrastructure.

The bylaw and policy amendments strengthen the enforcement of road bans.

PREVIOUS COUNCIL DIRECTION / POLICY:

Council requested information as to Road Bans at the March 2, 2023 council meeting. Spring road bans are typically put in place in March or April depending on weather conditions.

BACKGROUND INFORMATION:

In reviewing policies this was identified for review in 2019 and was brought forward for Council review and approval in 2020. Municipalities typically have a developed road ban policy for enforcement purposes that is in conjunction with provincial standards.

Previously the County ended our contract services with RoaData which was a third-party commercial vehicle permit oversight. That has been assumed as an internal service in conjunction with the provincial permitting branch TRAVIS (Transportation Routing and Vehicle Information System). Bylaw 18-005 establishes the County's participation in TRAVIS and an established fee for permitting that the County receives revenue for.

ALTERNATIVES / PROS / CONS:

Administration had previously brought this item forward in 2020 to be updated and could conduct further reviews.

The County continues with the existing bylaw as is or council recommends amendments accordingly.

The TRAVIS permitting fee was established at $20 per permit in 2018 and has not been indexed or increased since that time.

FINANCIAL IMPACT:

Policy updating is an internal process conducted by administration.

The fee for commercial vehicle permits through TRAVIS is currently set at $20 within the Schedule of Fees Bylaw. This amount is comparable to other neighbouring municipalities. Total permit fees collected through TRAVIS would be revenue that is variable from year to year.
Revenue from permits in 2021 - $12,542
Revenue from permits in 2022 - $11,791

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

355 Road Ban Policy
Bylaw 20-025 - Road Ban Bylaw
Bylaw 18-005 -Overweight and Overdimensional Commercial Vehicles on Lethbridge County Highwayspdf
March 2023 Road Ban List
May 2023 Road Ban List

Lethbridge County Policy Handbook

EFFECTIVE: **November 19, 2020** **SECTION: 300 NO. 355 Page 1 of 2**

APPROVED BY: **Council** **SUBJECT: Road Bans**

REVISED DATE:

PURPOSE

Lethbridge County is committed to preserving infrastructure investment and its overall condition for the safe use and enjoyment of the public. Seasonal road bans are used to mitigate the impact that loaded commercial vehicles have on County roadways and are advertised through road ban signage and electronic postings.

Frost levels and ambient temperatures cause swelling and softening of roadways during the spring, and road bans are instituted on roadways to protect the integrity of the roadways. In addition, due to potential weather conditions, the County may have need throughout the course of the year to place road bans accordingly at any point in time.

All Municipal policies and practices will comply with Alberta Transportation regulations and other applicable legislation including the Traffic Safety Act and Regulations and Municipal Government Act as they relate to the management of roadways.

This policy is designed to meet requirements found within *Commercial Vehicle Dimension and Weight Regulation AR 315/2002, Traffic Safety Act and Commercial Vehicle Safety Regulation*:

POLICY

Lethbridge County is the designated road authority for all roadways under their jurisdiction within the municipal boundaries as per the Municipal Government Act Part 3 - Division 2 - Roads Section - 18 Control of roads.

Lethbridge County Council has authority to enact a bylaw restricting the weight of commercial vehicles and the goods being carried by vehicles as per the Traffic Safety Act Part 7 Division 3 Section 152.

The authority to impose a road ban or set the weight restrictions on highway or a bridge under the direction, control and management of Lethbridge County is delegated to the Chief Administrative Officer (CAO) or their designate.

Lethbridge County will activate road bans due to seasonal conditions or due to poor roadway conditions from, but not limited to, inclement weather and damaged or stressed infrastructure.

The Director of Public Operations, or their designate, is hereby authorized to enter into Road Use Agreements or issue Overweight Permits on behalf of Lethbridge County.

Review for Applicable Legislative Changes

Evaluation of the Road Ban Policy will be conducted every three (3) years or as required for necessary changes from a local, provincial or federal legislation change. Applicable legislation will be reviewed on an ongoing basis for changes that will be considered or incorporated accordingly.

GUIDELINES

The procedural guideline for activating road bans will be the following:

1) Public Works operations staff will review road and weather conditions to determine appropriate road ban placement for all road surface types.
2) Recommendation to impose a road ban or set the weight restriction on a roadway or a bridge via a Lethbridge County Road Ban Order, under the direction, control and management of the Lethbridge County is hereby delegated to the Director of Public Operations or their designate.
   i. All pavement surfaces (unless otherwise specified), @ 75%;
   ii. All oiled and chip sealed surfaces (unless otherwise specified), @ 75%;
   iii. All gravel roads (unless otherwise specified) @ 90%.

   This is intended to be a guideline for road bans and this may vary depending on road conditions at any given time.
3) Road ban information will be advertised to the public on the County website and other communication platforms adopted by the municipality.

Rules and Regulations:

1. Subject to section 62 of the Traffic Safety Act, no person shall operate a commercial vehicle on a highway that is subject to a road ban if the weight of the carrying axle or axle group of the vehicle exceeds the specified percentage axle weight imposed by the road ban.

2. In consistency within provincial regulations and pursuant to the *Commercial Vehicle Dimension and Weight Regulation AR 315/2002, Part 3 Special Conditions, Section 12 Road bans,* the following vehicles are exempt from Road Bans:
   i. a vehicle in respect of which the combined gross weight of all the axles does not exceed 5000 kilograms;
   ii. a school bus as defined in the *Use of Highway and Rules of the Road Regulation*;
   iii. a rubber-tired farm tractor if it is not pulling a trailer;
   iv. a vehicle crossing a highway;

v. a vehicle operated by or on behalf of the Government for the purpose of testing pavement strength;
vi. a vehicle transporting fresh milk and cream, or either of them, from the place where the milk or cream is produced;
vii. a vehicle transporting pregnant mare urine from the place where the urine is produced.

3. When a road ban is in effect the following commercial vehicles may carry on the axles on that roadway up to 90% of the maximum allowable weight permitted for that single axle or axle group:
   i. bread;
   ii. heating fuel;
   iii. fertilizer.

4. When a road ban is in effect, a commercial vehicle transporting domestic drinking water may carry on the axles on that roadway up to 80% of the maximum allowable weight permitted for that single axle or axle group.

5. When a roadway is banned, a temporary or permanent sign indicating the weight restriction shall be posted at the beginning and end of the road and at all major intersections. Should a vehicle travel on a banned road where a sign was posted, but has been removed, damaged, struck, or fallen to the ground, the current Road Ban Order shall remain valid and the vehicle's axle weights must still be in compliance with that order.

PERMIT AND APPLICATION PROCESS

Commercial Vehicle Permits

The municipality will operate under an ongoing permitting agreement with Alberta Transportation through TRAVIS MJ (Transportation Routing and Vehicle Information System Multi-Jurisdictional) for all commercial road permitting within the County boundaries. A fee per permit is applied which is posted in Lethbridge County Schedule of Fees Bylaw under Transportation services.

Agriculture Permits

Special permits will be issued to agricultural producers as per Road Use Policy #352 (or its successors) on an annual basis through application for the commodities listed below:

1) General requirements
   a) Policy applies only to farms located along a banned County highway including pavement, oiled road, and soil cement with chip seal structures.
   b) The route is limited to the portion of the highway from the nearest non-banned road to the access to the farm or location. If the farm or

location can be accessed via a non-banned road, then it does not qualify for a special permit.

c) The permit is limited to a single, specified commodity.
d) The Public Works department must authorize all permits.
e) The permit is valid for travel on banned County roadways only. The permit does not approve travel on provincial or other County banned roads.

2) Commodities

Commodity	Duration	Axle Weight
Processed feed (livestock feed that has been rolled, split, ground or is in pellets) delivered to a farm	Season	90%
Dead animals for rendering	Season	90%
Seed potatoes (for import or export)	Season	100%
Feed to feedlot (must be transported on B-trains or Tractor and semi-trailer units only)	Season	90%
Feed to farm (for emergency purposes to provide feed until the pasture is ready), or livestock to pasture.	2 days	90%
Seed grain for cleaning and farm use only	2 days	90%
Water well drilling equipment to alleviate a water shortage.	2 days	90%
Livestock or grain to market	7 days	90%

- The seasonal permits are for a carrier's fleet and would be in effect for the duration of the road ban season, expiring on June 30 each year.
- If vehicles from more than one carrier will be involved, each carrier must apply for a permit.

3) Application

- The application must include an "Lethbridge County Ban Exemption Permit Request Form";
- Completed permit applications can be emailed to the Lethbridge County Operations Office.

LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

BY-LAW NO. 20-025

A BYLAW OF LETHBRIDGE COUNTY IN THE PROVINCE OF ALBERTA FOR THE PURPOSES OF REGULATING WEIGHT RESTRICTIONS ON LETHBRIDGE COUNTY ROADWAYS AND MANAGED INFRASTRUCTURE OR PROPERTY.

WHEREAS pursuant to the Municipal Government Act, R.S.A 2000 c. M-26, as amended, (hereinafter referred to as "the Act") a Council of a Municipality may pass bylaws for municipal purposes respecting the safety, health and welfare of people and the protection of people and property;

AND WHEREAS pursuant to the Act, a Council may pass bylaws for municipal purposes respecting people, activities and things in, on or near public places or places that are open to the public;

AND WHEREAS pursuant to the Act, a Council may pass bylaws for municipal purposes respecting the enforcement of bylaws made under the Municipal Government Act or any other enactment including any or all of the matters listed therein;

AND WHEREAS pursuant to the Act, a municipality has the direction, control and management of all roads within the municipality;

WHEREAS the Alberta Traffic Safety Act, being Chapter T-6, Revised Statutes of Alberta, 2000 and amendments thereto, gives authority to a municipal council to pass a bylaw for the purpose of the physical preservation of highways and bridges under its direction, control, and management;

AND WHEREAS, such authority allows for restricting the weights of a commercial vehicle or a commercial vehicle and any goods being carried by the vehicle;

AND WHEREAS, the Alberta Traffic Safety Act provides that a council of a municipality may by bylaw delegate to an employee of the municipality the power to impose road bans;

NOW THEREFORE the Council of Lethbridge County pursuant to the authority conferred upon it by the laws of the Province of Alberta, enact as follows:

1. This bylaw may be cited as Lethbridge County "Road Ban Bylaw".

2. The purpose of this bylaw is to protect Lethbridge County infrastructure and to regulate the Road Bans and Restricted Bridges, to promote the safe, enjoyable and reasonable use of such roadways and bridges for the benefit of all citizens of the municipality.

3. Definitions for any term used in this bylaw are as defined in the Alberta Traffic Safety Act and or the Commercial Vehicle Dimension and Weight Regulation AR 315/2002.

4. Lethbridge County reserves the right to, with approval of the Province of Alberta, increase the allowable weight or enter into any special program approved by the County Council on any local road.

5. The Director of Public Operations, or their designate, is hereby authorized to enter into Road Use Agreements or issue Overweight Permits on behalf of Lethbridge County in accordance with Policy 352 – Road Use.

6. Any person entering into a Road Use Agreement, or Overweight Permit, issued under the authority of this Bylaw, shall at all times ensure that the

condition attached to any said Road Use Agreement or Overweight Permit are complied with. Failure to comply with this Bylaw, or any Orders made under the authority of this Bylaw will in turn make the issued permit null and void.

7. No person shall operate a vehicle to move upon a roadway under Lethbridge County direction, control and management when:
   a) The vehicle weights or dimension exceed those set out in the Traffic Safety Act or the Commercial Vehicle Dimension and Weight Regulation AR 315/2002 and amendments thereto;
   b) The gross weight of all axles of a vehicle or vehicle combination exceeds the posted maximum allowable weight for a bridge as set out in a Lethbridge County Road Ban Order;
   c) The gross weight of a carrying axle or axle group, of a vehicle or combination of vehicles that exceeds the maximum allowable weight on a roadway that is subject to a road ban as determined by the percentage axle weight set out in a Lethbridge County Road Ban Order.

8. Delegated Authority
   a) The authority to impose a road ban or set the weight restrictions on a highway or a bridge under the direction, control and management of Lethbridge County is hereby delegated to the Chief Administrative Officer or their designate;
   b) Any Peace Officer or Royal Canadian Mounted Police (RCMP) Officer is authorized to enforce this bylaw, Peace Officer is defined as per the Traffic Safety Act Section 1 and Peace Officer Act Part 1.

9. Signage
   a) The Chief Administrative Officer, or their designate, shall cause signs to be erected along the roadway or bridge as he considers necessary to notify person using commercial vehicles on the roadway or bridge of the prohibition, limitation, condition or restriction;
   b) All gravel roadways will be treated as equal unless otherwise posted.

10. Permitting
   a) All commercial vehicle permitting will be authorized through the Alberta Central Permit Office TRAVIS MJ;
   b) No person may operate a vehicle with the gross weight of a carrying axle or axle group, of a vehicle or combination of vehicles in excess of the maximum allowable weights established by the province of Alberta unless under the authority of a permit authorized by Lethbridge County Chief Administrative Officer or their designate;
   c) Special exemption permits will be authorized to agricultural producers on an annual basis by application through a Lethbridge County Road Ban Exemption Permit Request;
   d) A commercial vehicle carrier or agricultural producer, due to adverse conditions, shall be required to post a road ban bond to insure condition of roadway.

11. Prosecutions and Penalties
   a) The prosecution and specified penalty for any commercial vehicle weight or dimension violation, road ban violation, or restricted bridge violation on any roadway under Lethbridge County direction, control and management shall proceed provincially via the provision of the Traffic Safety Act and or the Commercial Vehicle Dimension and Weight Regulation AR 315/2002 and the Provincial Offences Procedures Act and Regulation;
   b) Any Peace Officer or RCMP Officer is authorized to enforce this bylaw, not withstanding any Sheriff, Commercial Vehicle Enforcement Officer or other authorized personnel has authority to enforce local, provincial or federal violations.

12. Severability
    a) Should any provision of this bylaw be declared invalid, void, illegal or otherwise not enforceable, it shall be considered separate and severable from the bylaw and the remainder shall remain in force and be binding as though such provision had not been invalid.

13. Rescind Previous Bylaws
    a) Lethbridge County Bylaw 652 is hereby rescinded.

14. Enactment
    a) This bylaw shall take effect on the day of the final reading.

GIVEN first reading this 3rd day of December 2020.

Reeve

Chief Administrative Officer

GIVEN second reading this 3rd day of December, 2020.

Reeve

Chief Administrative Officer

GIVEN third reading this 17th day of December, 2020.

Reeve

Chief Administrative Officer

LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA

BYLAW NO. 18-005

A BYLAW OF LETHBRIDGE COUNTY TO IMPOSE FEES FOR ISSUING PERMITS FOR OVERWEIGHT AND OVER-DIMENSIONAL COMMERCIAL VEHICLES ON HIGHWAYS UNDER THE DIRECTION, CONTROL AND MANAGEMENT OF LETHBRIDGE COUNTY.

WHEREAS, Lethbridge County has enacted a Bylaw for the purpose of restricting the weight and size of vehicles or of vehicles and the goods being carried by the vehicles operating on highways under the direction, control and management of Lethbridge County and such Bylaw provides for the issuance of permits; and

WHEREAS, TRAVIS-MJ has the ability to charge permit applicants a fee set by Lethbridge County for services provided the municipality, and

WHEREAS, the fee will be collected by the Province on behalf of the municipality will be distributed to the municipality to ensure that the municipality does not incur any cost in adopting TRAVIS-MJ.

NOW THEREFORE, the Council of Lethbridge County, in the Province of Alberta, duly assembled, enacts as follows:

1. In this Bylaw,
   a) 'Municipality' means the Lethbridge County;
   b) 'Council' means the Municipal Council of Lethbridge County.
2. That a fee be charged to the applicants for the issuing of permits for overweight and oversize vehicles or of vehicles and the goods being carried by the vehicles to operate on highways under the direction, control and management of the Municipality and such fee shall be in accordance with Schedule "A" attached hereto.
3. Schedule "A" of this Bylaw may be amended from time to time by resolution of Council.
4. The Municipality hereby delegates to the Province of Alberta, through TRAVIS-MJ, the ability to charge permit applicants a fee as set by the Municipality.
5. The invalidity of any section, clause, sentence, or provision of this bylaw shall not affect the validity of any other part of this bylaw, which can be given effect with such invalid part or parts.

This Bylaw shall come into full force upon third and final reading thereof

GIVEN first reading this 15th day of February, 2018.

Reeve

Interim Chief Administrative Officer

GIVEN second reading this 15th day of February, 2018.

Reeve

Interim Chief Administrative Officer

GIVEN third reading this 15th day of February, 2018.

Reeve

Interim Chief Administrative Officer

SCHEDULE "A" TO BYLAW 18-005
FEES

Item	Fee
1. Permit Application Fee (each)	$20.00

Order by Director of Public Operations - Lethbridge County

Effective: March ??, 2023 at 07:00 AM

Highway Order 01/23 - Defining Maximum Allowable Weights Permitted on Certain Municipal Roads. Pursuant to the authority granted by the Minister of Infrastructure under the Traffic Safety Act, the Director of Public Operations orders that effective immediately, the Percentage of maximum allowable weight permitted for single or axle groups are:

Road	Ban Description	% Axle Weight
Hamlets & Subdivisions		
Davy Subdivision	TWPR 10-0A from RR 22-0 East (0.23 km)	75%
Deer Run Estates	Total Subdivision Ban	75%
Diamond City	Total Hamlet Ban	75%
Fairview	Total Hamlet Ban	75%
Iron Springs	Total Hamlet Ban - Excluding Gravelled Roads	50%
McKechney Avenue - Diamond City	From Hwy 25 East across CPR Railway tracks to AgroPur (2.4 km)	90%
Monarch	Total Hamlet Ban	50%
Mountain Meadows	Total Subdivision Ban	75%
Outlook Acres	Total Subdivision Ban	75%
Park Lake Estates	Total Subdivision Ban	75%
Riverbrink Subdivision	Total Subdivision Ban	75%
Shaughnessy	Total Hamlet Ban - Excluding Gravelled Roads (Truck Route Only 100%)	75%
St. Marie Estates Road	TWPR 8-5 from RR 21-1 (Howe Road) East & South (0.8 km)	75%
Sunset Acres	Total Subdivision Ban	75%
Turin	Total Hamlet Ban	75%
Vista Meadows	Total Subdivision Ban	75%
Industrial Parks		
Broxburn Industrial Park	Total Industrial Park Ban	90%
Stewart Ave - Stewart Siding	From RR 21-1 to Schneider St	90%
Trackside Dr - Stewart Siding	From Stewart Ave North and West to end of Pavement	90%
Cox Drive - Stewart Siding	From Stewart Avenue South to Ponderosa Road / Trackside	90%
Ponderosa Road - Stewart Siding	From Cox Drive East to end of Pavement (Albert Street)	90%
Duncan Industrial Park	From Hwy 5 - South, then East into industrial park (1.2 km)	90%
Rave Industrial Park	From 43rd Street to the east, 9th Ave N, 4th St. N, 8th Ave N	90%
Local ACP Roads		
TWPR 9-2 (Coalhurst Cut-off)	From Hwy 25 to RR 22-3 (1.6km)	75%
RR 22-3 (Coalhurst Cut-off)	From TWPR 9-2 to Coalhurst Limits (0.8km)	75%
RR 21-2 (58th Street)	From Hwy 4 to TWPR 8-4 (Brown Road, 0.3km)	75%
TWPR 8-4 (Brown Road)	From RR 21-1 east to RR 20-4 (6.4 kms)	75%
RR 21-0 (Broxburn Road)	From Highway 3 North to TWPR 10-2 (11.3 kms)	90%
RR 21-1 (Howe Road)	From Highway 3 South to Highway 4 (6.4 kms)	75%
RR 21-4 (Kedon Landfill Road)	From TWPR 9-4 to RR 21-3A	100%
TWPR 9-4 (Kipp Road)	TWPR 9-4 from Hwy 3 to Hwy 25	90%
TWPR 9-4A (McCain's Road)	From Rge Rd 19-0 to end of road (0.5km)	100%
RR 22-3 (North Park Lake Road)	From Hwy 519 to TWPR 10-2 (6.4 kms)	75%
TWPR 9-2 (Old Coaldale Road)	From 43rd St. East to RR 21-0 (4.8 kms)	75%
RR 23-4 (Old Hwy 23)	From Westview Road North to Highway 519 (8 kms)	75%
RR 21-0 (Perlich Road)	From Hwy 3 to Hwy 512 (1.6 kms)	90%
RR 21-4 (Picture Butte Shop Road)	From Hwy 25 south to end of pavement (0.5 km)	90%
River Ridge Road	From TWPR 9-2 North West to RR 22-4 (2 km)	75%
RR 21-1 (Rec-Tec Road)	From Highway 3 North to TWPR 9-2 (2.0 kms)	75%
South Park Lake Road	RR 22-2 from Hwy 25 to TWPR 10-0, TWPR 10-0 from RR 22-2 to RR 22-3, and RR 22-3 from TWPR 10-0 to TWPR 10-2	75%

Order by Director of Public Operations - Lethbridge County

Effective: March ??, 2023 at 07:00 AM

RR 19-2 (Readymade Road)	From Hwy 512 to TWPR 8-2 (6.4 kms)	75%
RR 20-0 (Sundial Road)	From Highway 25 to TWPR 12-0 (0.5km)	75%
RR 21-2 (Sunnyside Road)	From Hwy 3 to TWPR 9-4 (5.6 kms)	75%
TWPR 8-4 (Sunset Acres Road)	From City of Lethbridge limits to RR 22-4 (0.8 km)	75%
TWPR 10-2 (West Monarch Road)	From RR 23-4 (Old Hwy 23) to RR 24-0 (3.2 kms)	75%
TWPR 10-0A (Westview Road, Old Hwy 3)	From Hwy 3 to RR 23-3 (Old Hwy 23, 5.3 kms)	75%

Road	Ban Description	% Axle Weight

Local Oiled Roads

TWPR 9-1A (Arnoldussen Road)	From Hwy 25 South then East to end of pavement (0.5 km)	75%
RR 22-5 (CPR Road)	From TWPR 9-4 (Kipp Road) North West to end of pavement (1.3 km)	75%
RR 22-5A (Dominion Road)	From TWPR 9-4 (Kipp Road) North West to end of pavement (1.3 km)	75%
RR 21-1 (McNally Road)	From Hwy 4 to Hwy 508 (4.8 kms)	75%
TWPR 9-0 (Mountain Meadows Road)	From City of Lethbridge Limits to 200m west of Mountain Meadows Road (1.8 km)	75%
RR 21-5 (Neher Haul Road)	From TWPR 10-2 to 10-1A	75%
RR 21-5 (Picture Butte Golf Course Road)	From Highway 25 south to end of pavement (1.6 kms)	75%
RR 21-2A (Research Station Road)	From Hwy 512 South to end of pavement (0.6 km)	75%
RR 20-5	From Hwy 4 to Hwy 508 (2.0 kms)	75%
RR 21-2A (Rudelich Road)	From Highway 519 South to end of road (0.8 km)	75%
RR 20-4 (South Iron Springs Road)	From TWPR 11-2 to Hwy 519 (6.4 kms)	75%
RR 20-0 & Rge Rd 19-5 (Sundial Road)	From TWPR 12-0 to 13-0 (10 kms)	50%
RR 22-3 (Vantland Road)	From TWPR 9-4 (Kipp Rd) to 9-3A (0.8 km)	50%
RR 20-5 (Vista Meadows Road)	From Hwy 512 to end of pavement (0.8 km)	75%
RR 21-2 (Weatherup Road)	From Hwy 3 to Hwy 512 (0.8 km)	75%
TWPR 9-4 (Wells Road)	From Hwy 25 East to RR 22-1 (1.6 kms)	50%

All gravel roads, including Haul Routes within Lethbridge County are at 100%

This order recinds Highway **Order No. 02/22** and shall remain in effect until further notice.

A copy of the Order is filed with the Province.

_____

Jeremy Wickson, Director of Public Operations

Lethbridge County

Order by Director of Public Operations - Lethbridge County

Effective: May ??, 2022 at 07:00 AM

Highway Order 02/22 - Defining Maximum Allowable Weights Permitted on Certain Municipal Roads. Pursuant to the authority granted by the Minister of Infrastructure under the Traffic Safety Act, the Director of Public Operations orders that effective immediately, the Percentage of maximum allowable weight permitted for single or axle groups are:

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Order by Director of Public Operations - Lethbridge County

Effective: May ??, 2022 at 07:00 AM

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This order recinds Highway **Order No. 01/22** and shall remain in effect until further notice.

A copy of the Order is filed with the Province.

_____

Jeremy Wickson, Director of Public Operations

Lethbridge County

AGENDA ITEM REPORT

Title:	Public Works - 2023 Level of Service
Meeting:	Council Meeting - 16 Mar 2023
Department:	Municipal Services
Report Author:	Jeremy Wickson

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 08 Mar 2023

STRATEGIC ALIGNMENT:

☒ **Governance** ☒ **Relationships** ☒ **Region** ☒ **Prosperity**

EXECUTIVE SUMMARY:

The LOS policy is intended to provide a baseline of the core services, not an exhaustive list of Public Works daily/weekly/monthly/yearly operations. The LOS baseline provides a targeted LOS that council approves to be provided to the service area. Within the policy, the public can have a tangible view of the maintenance operations goals and targets for maintenance on an annual basis. This will be a key communication device in establishing future priorities for maintenance requirements and be in essence a living document as annual requirements will vary with demands, growth, weather conditions, etc.

Every year the policy will be brought forward with revisions for Council approval. This will include increases or decreases to established LOS.

The proposed LOS attached will be for the 2023 operational year.

RECOMMENDATION:

Council consideration for adopting the 2023 Level of Service Policy for Public Works maintenance.

This will be the basis for the budget estimated for 2023 operations.

REASON(S) FOR RECOMMENDATION(S):

To ensure the stability and direction of services to the stakeholders of Lethbridge County it is important to stipulate a baseline LOS that will be formed from an approved budget. Due diligence of administration is working within the approved budget to deliver services based on Council priorities and field-level observations of maintenance needs.

LOS are living documents that require flexibility as weather conditions and road usage can often present challenges for maintenance. Hence why this will be brought forward every subsequent fall to provide direction for budgetary and LOS adjustments from Council.

PREVIOUS COUNCIL DIRECTION / POLICY:

Council approved the budget for 2023 operational services during budget deliberations in late 2022. The 2023 Public Works LOS formalizes the services to be provided for spring/summer/fall of 2023.

LOS History
Council approved the new Public Works Operational Level of Service in July 2021, after several workshops and strategic discussions. This was later approved in January 2022 for the corresponding operation year.

The LOS represents the calendar year and the LOS was to be brought back to Council for approval during budget deliberations every year.

BACKGROUND INFORMATION:

Establishing a LOS for the County is not a small undertaking as the demands of the stakeholders need to be considered and balanced against fiscal responsibility. Administration has conducted several LOS workshops in regard to Public Works service targets and the options within the budget context. Administration has prepared best-case scenarios within the given annual budget to formulate what are reasonable targets.

By implementing measurable and realistic goals the service level targets can be relatively set. Once these targets are set this provides a baseline of service and defined levels that can be relayed to the public. As the public can then be aware of the LOS by way of specific details, the County can then further analyze demands and adjustments necessary through further public engagement.

ALTERNATIVES / PROS / CONS:

The LOS is a living document, Council can direct changes to the LOS to administration to be brought forward for council resolution at a future meeting of Council.

In future years the LOS could be brought forward in the fall for all departments for budgetary planning purposes and set the LOS for administration to build upon or change accordingly.

FINANCIAL IMPACT:

Budget considerations for 2023 and beyond are contained within the policy, as well as prior year budget commitments providing a baseline for the estimated budget. As the LOS forms the budget requirements to provide service through the Public Works department this will be reviewed annually.

As Council approves a set budget for service provision, it is then developed and detailed by the administration to indicate what services can be provided within that budget.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform** ☐ **Consult** ☐ **Involve** ☐ **Collaborate** ☐ **Empower**

ATTACHMENTS:

2023 Public Works Level of Service
2023_BaseStabilization_Maintenance
2023_GravelProjections LOS

2023_SprayPatching
2023 Priority Gravel Road Maintenance

Public Works Operational Level of Service

Created: January 2020
Revision: March 2023

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Appendices

1. Grading and Gravelling LOS Targets 2023

2. Construction Guidelines 2023

3. Grader Divisions

4. Consequence Table – Gravel Roads

5. Risk Register – Gravel Roads

6. Roadway Classification Map
    - Lethbridge County Road Grading – Priority Classification
    - Grader Districts 1–7 – Priority Classification
    - Haul Route (HRN) – Priority Classification
    - Spray Patching – Hard Surface Locations

1. Purpose, Considerations, and Level of Service

Purpose

The purpose of this document is to advise Council of the current Level of Service (LOS) residents and businesses are being provided and to communicate this LOS of Public Works annual operations to the residents and businesses throughout Lethbridge County. Municipal roadways are divided into four classifications based on the frequency of maintenance occurrences. These classifications are as follows:

- Classification 1 Roadways
  - High traffic volume (>100 AADT (annual average daily traffic))
  - Important to economic and social activity
  - Thorough connectivity
- Classification 2 Roadways
  - Medium traffic volume (25<100 AADT)
  - Thorough connectivity
- Classification 3 Roadways
  - Low traffic volume (25< AADT)
  - Connectivity
- Classification 4 Roadway
  - Unmaintained or undeveloped road allowance

This classification of roadways will accommodate the majority of traffic. The goal of Lethbridge County is to provide gravel road maintenance as effectively and efficiently as possible to maintain a safe and sustainable transportation network maintenance program for the community. Expectations of gravel roadways are variable throughout the regions of the County and to expect roadways with limited to no wash boarding and rutting should not be expected at all times. The goal of Lethbridge County is to maintain road surfaces at safe driving conditions as often as reasonably possible while working within the limitations of the current LOS resources, budget constraints, economic activity, and weather conditions. The proper use of systematic processes, equipment, personnel, and adequate funding, allows that these goals are obtained. Patience and flexibility are required to adapt to a large variety of circumstances and conditions within the municipality. Maintenance activities provided within the LOS is a guideline of average maintenance, conditions may exist at any time that affects the timing and delivery of services.

Lethbridge County maintains approximately 1782 kilometres (1107 miles, regular – 969 miles, base stabilized 138 miles) of gravel roadways which are separated into 7 grader divisions, with 8 district graders for equipment and 8 operators. Each division ranges in size from 147 to 312 kilometres (92 to 195 miles) due to traffic volumes and intensity.

In addition, Lethbridge County provides maintenance on all hard surface roadways throughout the municipality including hamlets.

Plan Considerations

Lethbridge County considers multiple factors while developing levels of service for gravel roadway grading and gravelling. These factors include, but are not limited to the following:

- Public Safety
- Budgetary amounts for activities
- Industrial Site Activity
- Intensive Livestock Activity
- Intensive Irrigation Crop Activity
- Stable Economic Activity
- Competent personnel
- Ability to maintain emergency services
- Environmental impacts
- Historic weather conditions and temperatures
- Protection of property
- Effective resource allocation
- School bus routes

Service Statement

The grading and gravelling control objectives of the County are to:

- Provide safe travelling conditions for motorists
- Provide cost effective gravel road maintenance services
- Reduce economic losses to the municipality and businesses
- Assist emergency services transportation
- Provide safe, passable roads

Lethbridge County commits to providing effective and efficient gravel road maintenance to its citizens. However, it must be realized that circumstances may delay and/or prevent the completion of this plan 100% of the time. Some circumstances are:

- Unforeseen emergencies
- Services requested/required that are outside of the normal
- Parked or stalled vehicles that restrict operations
- Weather so severe as for crews cannot complete tasks
- Inadequate equipment
- Mechanical failures
- Illness
- Lack of competent personnel
- Lack of materials (gravel)

Scope of Responsibility

Lethbridge County is responsible for the maintenance of municipal roads within the municipal boundary. Provincial highways within Lethbridge County boundary are maintained by Alberta Transportation (AT) controlled contractors. Lethbridge County does not grade or gravel roadways that are private roadways.

Level of Service (LOS)

It is the expectation of our citizens that we keep all municipal roads sufficiently passable throughout the year. To accomplish this expectation, Lethbridge County will provide, to a reasonable extent, grading and gravelling services consistent with general accepted standard practices. Each year is unique and comes with its own challenges. Challenges that will heavily influence when and what services are delivered include:

- Air and road temperatures
- Precipitation type
- Precipitation amount
- Traffic activity
- Deviation from the defined program
- Availability of supplies
- Availability of personnel
- Availability of equipment

Grading and Gravelling Activity

Grading and gravelling maintenance activities are directed at achieving and maintaining relatively safe traffic movement on Lethbridge County roadways. Therefore, efforts are categorized into 3 roadway classifications for maintenance and a 4th for undeveloped road allowance, this is based on historic data and operator feedback.
The maximum LOS is reached when all gravel roadways are on schedule and receiving maintenance activities as outlined in Appendices. The service activities and frequency of each gravel roadway classification are outlined below:

Classification	Grading Frequency (weeks)	Gravelling Frequency (years)
1	2-3	1-3
2	3-8	3-6
3	8-18	6-10
4	0	0

As an enhanced service, targeted intersection areas that have historically required additional maintenance are stabilized using contract resources to apply MG30 to the roadway surface. This treatment significantly reduces the development of wash boarding in these acceleration and deceleration areas.

Gravel spread rates will vary depending on the existing road conditions, typical road gravelling will be 200-300 tonnes per mile. Spot gravelling for specific areas will be as required.

Roadway vegetation control on gravel roads will be through the ASB LOS through submission and approval by the Supervisor of ASB and PW accordingly. Coordination will be established between grading activity and chemical application, primarily focused on low volume roadways.

Gravel Pits (County Owned and Operated)

Lethbridge County owned gravel pits will be operated in accordance with Alberta Environment and Parks (AEP) guidelines for gravel pits. Reporting on activities will be through a field level survey or drone imagery.

Gravel pit maintenance, stripping and reclamation will be done by internal staff. Seeding of topsoil and subsoil piles will be completed by the Agricultural Service Board (ASB) on an as needed basis.

External contractors will be hired for gravel processing within County aggregate pits.

Haul Route Access Network (HRN)

The Haul Route Network (HRN) is comprised of 138 miles (2020) of 4 inches of stabilized gravel of varying widths from 7-9 metres on County gravel roadways. The HRN will be evaluated on an annual basis to determine mileage to be rehabilitated and recrowned. The number of miles to be repaired will be determined by the shape of the crown, potholing, surface ravelling and other surfacing considerations.

The HRN will be adjusted annually for required maintenance depending on the deterioration of the roadways through field evaluation. Attention in the spring will be on addressing the surface of the roadway to address roughness and rideability for the public. The HRN has been classified into 3 priority classes for annual maintenance activities based on traffic volumes:

- Priority 1 – 48 miles
- Priority 2 – 48 miles
- Priority 3 – 42 miles

HRN treatment with calcium stabilization products will be dependent on the cross sectional values of the roadway to be treated. As roads are naturally widened or pushed out (the ideal width is 8 to 8.5 metres wide) they become more difficult to maintain a proper crown, and hence existing gravel mat becomes cost prohibitive for stabilization.

Spring maintenance (April through June) will involve a water-grade-pack (WGP) practice to bring roadways into a proper shape and address ravelling and pothole areas.

Summer maintenance (June through September) activities will involve calcium injection into the gravel mat through grading or milling activities. The calcium litres applied per square metre will be based on the retention of calcium in gravel surface, typically will be estimated at 2 to 3 litres per square metre. As conditions allow additional WGP roadways will be targeted due to deterioration in addition to calcium treated roadways.

Fall maintenance (September through October) activities will involve WGP treatments of high traffic HRN roadways before winter.

As weather allows areas of the HRN that require grading maintenance will be addressed on a case-by-case basis as conditions allow.

Year to year evaluations and data collection of life cycle maintenance requirements will further address the maintenance tactics applied to different sections and whether calcium injection into gravel mat is required.

Road Construction and Rehabilitation

Road construction, rehabilitation and shoulder maintenance will be conducted as required on roadways with consideration for high traffic corridor improvements that address width, geometrics and road material considerations.

Roadways when constructed or rehabilitated will meet a standard road cross section that meets or exceeds the County's typical design for gravel roadways. (See attached Appendix 2 for cross section). Roadway design if required by a third-party engineer will be built to design specifications that consider traffic type and quantity on the roadway, sightlines, drainage and other associated road construction considerations.

Backslope agreements will be established for projects that require material and sloping outside of the road allowance. Preferably backslope agreements will be entered into with adjacent landowners deferring the purchase of a road allowance widening.

Road allowance widening will be considered for construction projects that require additional width for future roadway development or as required depending on field requirements for material borrow sourcing. Road allowance purchasing typically involves a 5-metre widening on either side of the roadway increasing the width from a 20-metre road allowance to a 30-metre. Road allowance purchases from the adjacent landowner will be based on the current assessed value with consideration for land market conditions.

Fencing that is removed for backsloping or construction purposes will be re-established to the property line if required at the sole cost of the County. Fencing that can be eliminated as part of the project will be treated on a case by case.

Crop damages will be paid for disturbed land outside of the road allowance as part of the backsloping required for the project. Crop price per acre will be established through a survey of the area of damage, depending on the extent this may be done pre and post construction if a discrepancy exists. In consultation with ASB, establishing a market cost for an agreed upon crop damages payment to the landowner will be assessed based on acres damaged. This will be paid the year of construction if extenuating circumstances or road construction projects that bridge adjoining years will be treated on a case-by-case basis. If a cover crop is to be seeded as a transition this will be in conjunction with the County ASB and the landowner

Seeding of road allowances disturbed by construction will commence upon completion of projects by the ASB (parameters within ASB LOS) in conjunction with the Public Works department. Areas seeded will be monitored for the re-establishment of vegetation. Topsoil preservation to allow future vegetation growth will be a focus of construction projects. Topsoil material will be stripped from construction sites before the construction or rehabilitation and then replaced and established on slopes within road allowance and seeded accordingly.

Culverts

Culverts are necessary to accommodate overland drainage water from storm events or spring snow melting. Culverts will be inspected for potential maintenance or replacement on a rotational basis as time allows. Within the County there are over 3,000 culverts combined of centerline (bisecting roadway), approaches (within borrow ditch) and bridge sized (1500mm diameter or larger).

Culverts will be repaired on a case-by-case basis through prioritization from the inspection program in conjunction with asset management, with priority being given to situations where there may be potential damage to private property, County roads and farmland.

Within the asset management plan, these will be planned for replacement on a life cycle rotation or as needed basis. As the soil types and culvert usage varies across the County so will the life span of infrastructure. A typical life cycle for a culvert would be 50 years, higher risk locations that accommodate storm flows or high-level crossing may require different applications. Bridge sized culverts will have inspections as per requirements from AT.

Culvert marking program implemented with the majority of culverts marked for visibility for operators and the travelling public.

Culvert types:

- Corrugated steel pipe (CSP)
- Plastic (HDPE) corrugated pipe
- Hardened steel liners

Approaches will be constructed in accordance with **Policy 310 – Approach Construction Guidelines.** Upon completion of the residential approach, re-established through construction or replacement through annual program determinations the culvert will be added to the asset management program for life cycle tracking and evaluation.

Typical approach size – 500mm (20”) diameter culvert

Typical centerline size – 600mm (24”) diameter culvert

Larger culverts will be sized as per County, Irrigation districts and/or engineering evaluation to determine flow rates and applicable size and type.

Signage

Regulatory signs will be erected and placed in accordance with accepted provincial and federal guidelines throughout the County.

All municipal signage will be installed as per the following order:

1. As per County bylaw;
2. As per provincial guideline;

3. As per the **Transportation Association of Canada – Manual of Uniform Traffic Control Devices.**

Speed limits will be in accordance with applicable bylaws, policy or provincial standards.

Residential addressing signage will be replaced as needed upon approval of the Director of Public Operations or designate.

Site Triangle Evaluation

When applicable the County will mitigate or put traffic control devices in place for site triangle concerns that are identified through ongoing evaluations

Hard Surface Maintenance and Repairs

Protective measures and services are applied to hard surfaces to mitigate current and future deterioration as part of the maintenance life cycle for these types of surfaces.

Pothole repairs will be done by internal staff or a contracted service, using a combination of hot mix asphalt and/or cold mix products depending on the field level evaluation of staff.

Spray patching and crack sealing of all hard surfaces will be done on a rotational basis from visual assessments conducted in the spring to prioritize the deterioration and mitigate potential damages.

Chip seals or oil sealants of roadways will be used as required as a wearing surface to offset or delay future overlays.

Dust Control

Dust control by application of calcium chloride or similar products determined by operations will be provided as a subsidized program with residents making annual applications for a specific distance to be applied on the roadway fronting the applicant's property. The deadline for applications will be April 1 of the application year and will be in accordance with **Policy 314 Dust Control.**

Dust control subsidy will be reviewed annually for cost evaluation and approval from Council.

Road Sweeping

Road sweeping will be done in the spring for local roads and hamlets. This will be conducted on an annual basis, which will be the primary target or as required if conditions require additional debris cleaning.

Local roads will have paved road shoulders and intersections cleaned from winter debris from sanding activities.

Hamlets and industrial parks will have a third-party contractor operating a street sweeper to clear debris from local streets. Lanes and alleys will not be swept.

Line Painting

Line painting will be in accordance with AT standards for paved road sections.

Line painting will be completed on all County paved roadways every 2 years. If a roadway is scheduled for an overlay as part of capital infrastructure improvements the roadway will be painted in the given year that improvement is done.

Haul Road Agreements and Land Lock Permits

Haul road agreements will be entered into for landowners restricted by hard surfaces that are banned seasonally or annually. Banned roads limit the movement of implements and supplies.

Land lock permits will be issued to operations that require access for their commodities into and out of their locations.

Road Bans

Road bans for seasonal or inclement weather may be put in place to protect infrastructure as per **Policy 355 – Road Bans**.

Regional road bans within County boundaries will be issued through Transportation Routing and Vehicle Information System (TRAVIS), the provincial road ban site for commercial vehicles.

Due to the large agriculture base and spring seeding the gravel road network will remain ban free unless extenuating circumstances come into effect.

Personnel Responsibility

This document is used by Lethbridge County and has been developed to establish communication channels through which the gravel road maintenance LOS can be converted into an effective and understood set of actions. The actions taken by maintenance crews and operators are the result of the directives, policies and procedures established by Council, and administration and approved by the Director of Public Operations.

Operators

The maintenance crews and operators are vital to the successful implementation of this existing LOS. Maintenance crews and operators are responsible for:

- Providing a timely, effective service for their designated district
- Maintaining equipment
- Documenting maintenance activities
- Maintaining a positive work environment

Supervisors/Foreman

Supervisors/Foreman are responsible for:

- Coordination of services to ensure timely and effective coverage as per the LOS
- Coordinate with fleet maintenance to ensure equipment maintenance is complete
- Collecting and totalling materials used (grader blades, gravel quantities hauled)
- Timely, courteous responses to complaints, requests, and inquiries
- Providing training opportunities for staff
- Maintaining a positive work environment

Management

Management is responsible for:

- Providing adequate resources for operations
- Creating training opportunities for supervisors and operators
- Maintaining material inventories
- Maintaining a positive work environment
- Timely, courteous responses to complaints, requests, and inquiries
- Promote and maintain public awareness and support for gravel road maintenance services

2. Equipment Preparation

All equipment utilized in gravel road maintenance operations is prepared and inspected for readiness and repairs prior to and during operations by fleet maintenance.

Primary Gravel Road Maintenance Equipment

Public Works operates the following equipment as required:

- 8 – Motor graders
- 1 – Additional Motor grader as required – designated for internal construction projects
- 3 – Highway Tractor with Pup Trailer
- 3 – Highway Tractor with Super B Trailer
- 1 – Water Truck
- 1 – Calcium Application Trucks
- Contract Services for Calcium Applications

Primary Base Stabilization Equipment

Public Works operates the following equipment as required:

- 2 – Construction graders
- 1 – Mill Razor Grader mounted
- 1 – Calcium Application Trucks

- 2 – Water Truck
- 1 – Water Tanker
- 2 – Self-propelled pneumatic rollers

Primary Road Construction and Rehabilitation Equipment

Public works operates the following equipment as required:

- 2 – Construction graders
- 2 – Motor scrapers
- 1 – Dozer
- 2 – Tractor w/ pull type padfoot, disc or pneumatic roller
- 1 – Water Truck
- 1 – Tandem

Primary Culvert Maintenance Equipment

Public works operates the following equipment as required:

- 1 – Track excavator
- 1 – Back hoe
- 1 – Tandem
- 1 – Highway tractor and equipment trailer
- 1 - Trench compactor

Primary Hard Surface Road Maintenance Equipment

Public works operates the following equipment as required:

- 1 – Truck mounted spray patcher, crack sealer
- 1 - Trailer for transport of oil products
- 1 – Truck equipped with front mount sweeper

Primary Sign Maintenance

Public works operates the following equipment as required:

- 1 – Truck mounted auger, sign truck

3. Travel Restrictions and Road Closures

Spring road bans will restrict the quantity of gravel to be hauled and will slow the delivery of services accordingly.

During certain weather events, it may become necessary to close roadways to traffic. This action will only be taken if extreme weather events deem an area of the County unfit for travel.

4. Service Level Costs

As service levels change, so do costs and associated risks. A consequence table and risk analysis can be found in Appendix 4.

Costs to deliver the current LOS include:

- Annual Operating budget Grading and Gravelling
- Amortization of equipment and facilities
- Shop maintenance
- Gravel purchase, processing, and reclamation costs
- Administration cost
- Fuel
- Wear items
- Oil sealants and patch repair material
- MG30 Stabilization
- Line painting
- Program adjustments

Annual Estimates (2023)

The overall Public Works budget is **$10,753,655 (2023).**

Rural Grading

Annually, the municipality grades approximately 7217 miles of gravel roadway from March to November as outlined in Section 1 – LOS and Appendix 1. With program adjustments required for numerous reasons an additional 300 miles of grading could be expected with optimal conditions then totalling 7500 graded miles annually. Winter grading is variable and additional miles that will be graded annually are not included within the core LOS. All items considered in the cost to grade one mile of roadway one time on average is $215 (based on 2022 averages). Total cost for service allotted to grading is **$1,800,000 (2023).**

Gravelling

Annually, the municipality gravels on average 231 miles per year at a rate of 200-300 tonnes per mile sourcing gravel from multiple gravel pits throughout the County. This total does not include any program adjustments required for spot gravelling or spring frost boils, in addition to poor weather conditions that may increase program level demands. The gravel resources will be a combination of County owned and processed gravel or contract purchasing through a third party provider. The average cost to gravel one mile of roadway one time is $5,000 (based on 2022 averages). The cost per tonne of gravel delivered on average is approximately $17. Total cost for service allotted to gravelling is **$1,200,000 (2023).**

Base Stabilization - Haul Route Network

Annually, the municipality maintains a haul route network of 137 miles. These roadways are treated annually in terms of stabilization, grading, gravelling and packing maintenance. This

total does not include any program adjustments required for spot gravelling or spring frost boils. Total cost for service allotted to base stabilization is **$1,350,000 (2023).**

Rural Road Construction, Culverts and Drainage
Annually, the municipality builds or rehabilitates gravel roadways that have been identified as projects for internal construction staff. The average cost to build a mile of roadway one time is $300-450,000. The average cost to rehabilitate a mile of roadway one time is $40-60,000. Total cost for service allotted to rural road construction is **$1,540,000 (2023).** In addition, the municipality replaces and/or repairs 30-50 culverts due to age or condition evaluations from field level assessments. Total cost for service allotted to culvert replacements is **$475,000 (2023).**

Signage
Annually, the municipality replaces and/or repairs 500-600 signs due to age or condition. Total cost for service allotted to sign replacements is **$200,000 (2023).**

Hard Surface Repairs
Annually, the municipality repairs hard surfaces that are asphalt or oiled surfaces throughout the municipality. This will involve spray patching and hot or cold mix patch repairs by both internal and external sources. Total cost for service allotted to hard surface repairs is **$350,000 (2023).**

5. Delay of Maintenance Operations

Maintenance of roadways is a very challenging task. The work can be rough on equipment and manpower. Delayed services may occur due to the following:

- Weather that is not suitable for maintenance operations
- Road bans
- Stuck vehicles on roadways
- Equipment breakdowns
- Manpower shortage due to sickness, injury, or lack of responsibility
- Manpower shortage due to working outside of “regular working hours and personnel require rest as per OHS regulations
- Operator breaks and vacation
- Obstructions across the road such as downed trees or power lines
- Other municipal emergencies
- Visibility

6. Conclusion

The core of service delivery is a balance between citizen expectations, ability to pay, risk and program delivery. As we as a County continue working toward a functional Asset Management system, the County may consider a citizen survey to further define the LOS required by the public. This will help to further analyze the public expectation of services, our ability to pay for the services, and an acceptable level of risk the municipality is willing to accept. With direction from Council and annual budget allotments the LOS provides a baseline for expected services to the public infrastructure.

APPENDIX 1: Grading and Gravelling LOS Targets 2023

TABLE 1: Grading LOS Targets 2023

PRIMARY GRADING SEASON - March to November (approx. 36 weeks)

		Grading Frequency	Average Frequency	Grading Frequency	TOTAL Mileage Grading	TOTAL Mileage Grading
Units of Measure	miles	weeks	weeks	Per Year	Year	Year
Local Road - Priority 1 (>100 AADT)	150	2-3	3	12	1800	25%
Local Road - Priority 2 (25<100 AADT)	740	3-8	5	7	5180	72%
Local Road - Priority 3 (25 < AADT)	79	8-18	12	3	237	3%
	969	TOTALS			7217	100%

TABLE 2: Gravelling LOS Targets 2023

		Gravelling Frequency	Average Frequency	Gravelling
Units of Measure	miles	years	years	years
Local Road - Priority 1 (>100 AADT)	150	2-3	2	75
Local Road - Priority 2 (25<100 AADT)	740	3-6	5	148
Local Road - Priority 3 (25 < AADT)	79	6-10	10	8
	969	TOTALS		231

TABLE 3: HRN Base Stabilization LOS Targets 2023

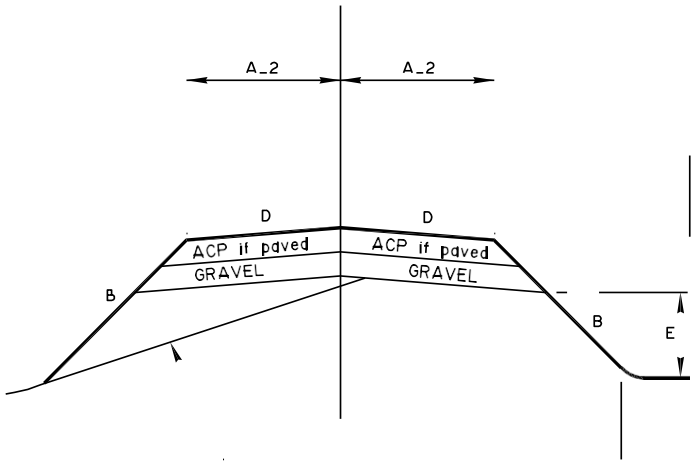
		Stabilization Frequency	WGP Frequency	Cost	TOTAL Cost for Service
Units of Measure	miles	years	years	mile	Program
Haul Routes Priority 1 (>100 AADT)	38	1	0	17000	646000
Reworked Priority 1 (>100 AADT)	10	0	1	2500	25000
Haul Routes Priority 2 (<100 AADT)	20	1	0	17000	340000
Haul Routes Priority 2 (<100 AADT)	38	0	3	1300	148200
Haul Routes Priority 3 (<100 AADT)	42	0	1	1300	54600
Haul Routes Variable P1,2, or 3 +15%	138	TBD	TBD	TBD	136200
		TOTALS			1350000

APPENDIX 2: Construction Guidelines 2023

TABLE 4: General Construction Guidelines – Gravel Roads

	Design Width	Design Speed	Grading Frequency	Gravelling Frequency	Rehab - Base Stabilization	Rehab Road ReConstruction
Units of Measure	meters	km/h	weeks	years	years	years
Paved Road (Greater than 400 AADT)	9	110/80	N/A	N/A	N/A	N/A
Haul Route Network Gravel Base Stabilization	8-8.5	N/A	N/A	N/A	1-3	As required
Local Road - Priority 1 (>100 AADT)	8-8.5	N/A	2-3	2-3	N/A	As required
Local Road - Priority 2 (25<100 AADT)	7-8	N/A	3-8	3-6	N/A	As required
Local Road - Priority 3 (25 < AADT)	7 <	N/A	8-18	6-10	N/A	As required
Undeveloped Road Allowance	N/A	N/A	N/A	N/A	N/A	N/A

Typical Cross Section of Roadway



APPENDIX 3: Grader Divisions

TABLE 5: Grader Division Summary (2023)

2023 Grader Division

	1	2	3	4	5	6	7	R 6&7	
P1	13	6	22	36	14	15	37	7	150
P2	104	114	79	84	142	72	80	65	740
P3	2	2	0	6	41	10	4	14	79
TOTAL	**119**	**122**	**101**	**126**	**197**	**97**	**121**	**86**	**969**

APPENDIX 4: Consequence Table

Consequence Table - GRAVEL ROADS						
Category	**1**	**2**	**3**	**4**	**Weight**	Notes
Operational Impacts	Requires semi annual monitoring or repair	Requires monthly monitoring or repair	Requires weekly monitoring or repair	Unable to maintain or operate OR repair requires greater than one week	0.6	Reactive operational effort above what is routine
Environment	Short term irritant (i.e. Dust)	Prolonged irritant (i.e. Dust) OR Aesthetic impact	Release of harmful substances to environment (i.e. Hydraulic fluid, diesel fuel, etc.)	Release of harmful substances to environment that result in a fine	0.8	AEP, Irrigation Districts Dust control Noise
Safety	Near miss	Minor injuries that do not require medical consultation	Injuries that require medical consultation	Many people with major injuries OR fatality	1	Consider all road users - pedestrians, bikes, vehicular. Roads, lights, signs, etc.
Travel Time	Travel time is increased for a period of < 48 hours	Travel time is increased for a period of 48 hours - one month	Travel time is increased for period of one month - four months	Travel time is increased for period of > four months	0.6	
Accessibility	Short term access interruption <10 mins (no alternate route) OR less than 10 households	Short term access interruption 10 min - 1 hour	Access interruption 1 - 24 hours	Service interruption to emergency services OR >24 hours	0.8	Access to residences, goods, services, emergency services, other civic services. High weight. Assumption - no

						alternate route (if there is an alternate route, this is captured under Travel Time)
Service Delivery - Comfort	Minor decrease in ride comfort and confidence	Moderate decrease in ride comfort and confidence. Obstructions visible but alteration in path and speed are not required.	Decreased speed required. Occasional alteration of path.	Frequently alter driving path. Vehicle damage. Major decrease in ride comfort and noise level	0.8	
Staffing	Sick, unable to work for 1 day	Sick, unable to work for 2-5 days	Sick, unable to work for 5-30 days	Sick > 30 days or deceased	0.4	
Reputation	One off localized negative publicity	Short term regionalized negative publicity	Prolonged regionalized negative publicity	Prolonged major reputation damage, prolonged reports in national news	0.4	
Financial	<$5k	>$5k-$100k	$100k-$1M	>$1M	0.8	Reactive costs

Likelihood Table

	1	2	3	4
	Improbable	**Possible**	**Likely**	**Almost Certain**
Likelihood	Could happen, but probably never will except under exceptional circumstances	The event might occur at some time as there is a history of this event occurring	There is strong possibility of this event occurring as there is a frequent history of occurrence	Very likely. Expected to occur in most circumstances.

Ranking Matrix

	Consequence			
	1	2	3	4
1	1	2	3	4
2	2	4	6	8
3	3	6	9	12
4	4	8	12	16

APPENDIX 5: Risk Register

Risk Register				
Number	***Undesirable Event***	***Why?***	***Why?***	***Why?***
1	Gravel Road Failure	Designed as a rural gravel road.	Heavy, frequent traffic at times	Poor weather conditions

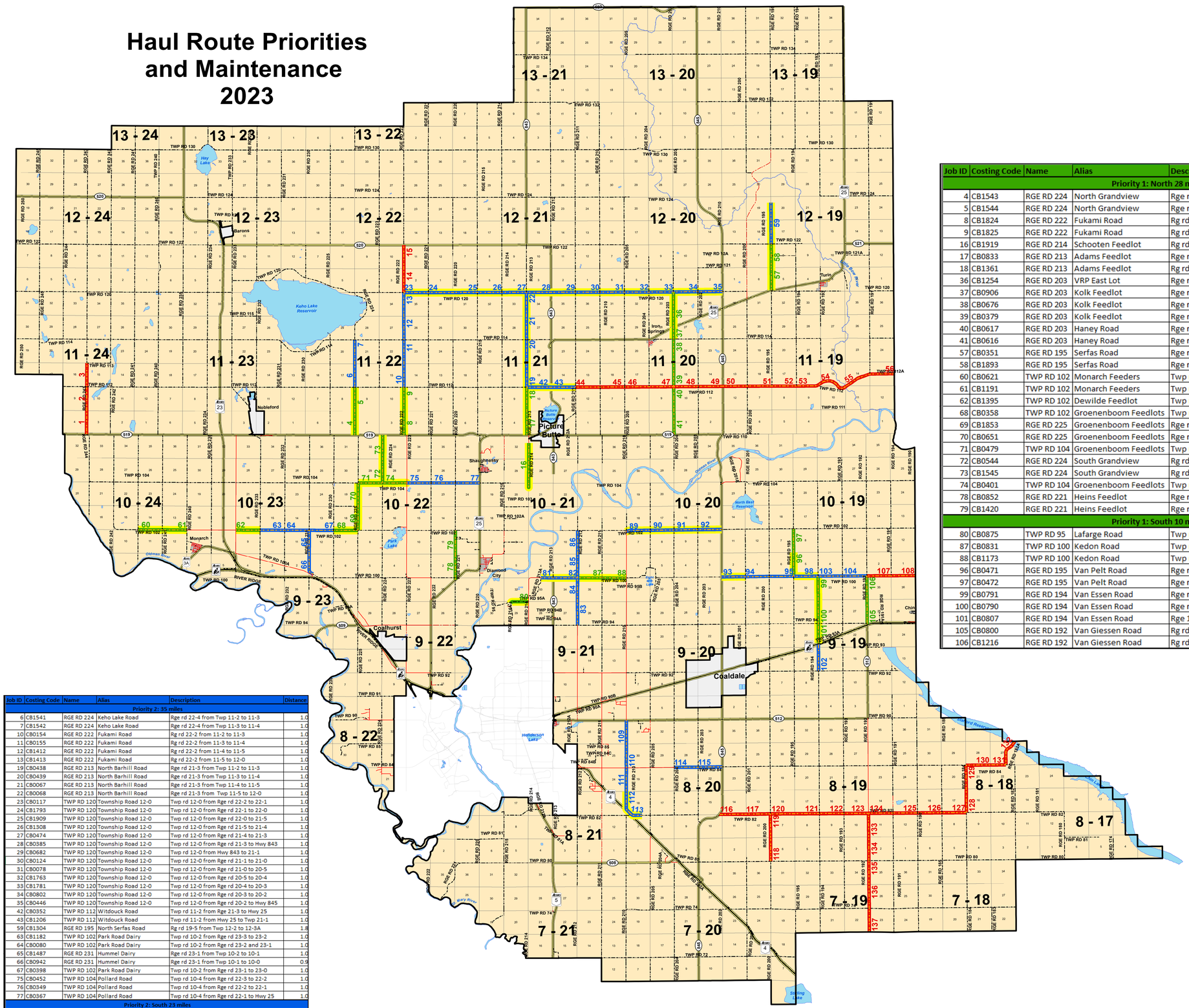
Consequence	***Likelihood***	
Weighted Consequence Score	***Score***	***Risk Score***
17.20	3	**51.60**
		10.00
		20.00
		30.00
		40.00
		50.00
		60.00
		70.00

Risk Treatment		
Current Mitigating Actions	***Possible Mitigating Actions***	***General Notes***
Regular grading and gravelling of roadway.	Increase quality of Infrastructure (surface/structure)	Road re-build and Shoulder pull to improve geometry

APPENDIX 6: Roadway Classification Maps

- Lethbridge County Road Grading – Priority Classification
- Grader Districts 1–7 – Priority Classification
- Haul Route (HRN) – Priority Classification
- Spray Patching – Hard Surface Locations

Haul Route Priorities and Maintenance 2023



Job ID	Costing Code	Name	Alias	Description	Distance
Priority 1: North 28 miles					
4	CB1543	RGE RD 224	North Grandview	Rge rd 22-4 from Hwy 519 to 11-1	1.0
5	CB1544	RGE RD 224	North Grandview	Rge rd 22-4 from 11-1 to 11-2	1.0
8	CB1824	RGE RD 222	Fukami Road	Rg rd 22-2 from Hwy 519 to 11-1	1.0
9	CB1825	RGE RD 222	Fukami Road	Rg rd 22-2 from 11-1 to 11-2	1.0
16	CB1919	RGE RD 214	Schooten Feedlot	Rg rd 21-3 from Hwy 25 south to Dead end	1.9
17	CB0833	RGE RD 213	Adams Feedlot	Rge rd 21-3 from Hwy 25 to 11-1	1.0
18	CB1361	RGE RD 213	Adams Feedlot	Rg rd 21-3 from 11-1 to 11-2	1.0
36	CB1254	RGE RD 203	VRP East Lot	Rge rd 20-3 from 12-0 to Hwy 25	1.5
37	CB0906	RGE RD 203	Kolk Feedlot	Rge rd 20-3 from Hwy 25 to 11-4	0.5
38	CB0676	RGE RD 203	Kolk Feedlot	Rge rd 20-3 from 11-4 to 11-3	1.0
39	CB0379	RGE RD 203	Kolk Feedlot	Rge rd 20-3 from 11-3 to 11-2	1.0
40	CB0617	RGE RD 203	Haney Road	Rge rd 20-3 from 11-2 to 11-1	1.0
41	CB0616	RGE RD 203	Haney Road	Rge rd 20-3 from 11-1 to Hwy 519	1.0
57	CB0351	RGE RD 195	Serfas Road	Rge rd 19-5 from Hwy 25 to 12-1	0.9
58	CB1893	RGE RD 195	Serfas Road	Rge rd 19-5 from 12-1 to 12-2	1.0
60	CB0621	TWP RD 102	Monarch Feeders	Twp rd 10-2 from 24-2 to 24-1	1.0
61	CB1191	TWP RD 102	Monarch Feeders	Twp rd 10-2 from 24-1 to 24-2	1.0
62	CB1395	TWP RD 102	Dewilde Feedlot	Twp rd 10-2 from 23-4 to 23-3	1.0
68	CB0358	TWP RD 102	Groenenboom Feedlots	Twp rd 10-2 from 23-0 to 22-5	1.0
69	CB1853	RGE RD 225	Groenenboom Feedlots	Rge rd 22-5 from 10-2 to 10-3	1.0
70	CB0651	RGE RD 225	Groenenboom Feedlots	Rge rd 22-5 from 10-3 to 10-4	1.0
71	CB0479	TWP RD 104	Groenenboom Feedlots	Twp rd 10-4 from 22-5 to 22-4	1.0
72	CB0544	RGE RD 224	South Grandview	Rg rd 22-4 from 10-4 to 10-5	1.0
73	CB1545	RGE RD 224	South Grandview	Rg rd 22-4 from 10-5 to Hwy 519	1.0
74	CB0401	TWP RD 104	Groenenboom Feedlots	Twp rd 10-4 from 22-4 to 22-3	1.0
78	CB0852	RGE RD 221	Heins Feedlot	Rge rd 22-1 from Hwy 25 to 10-1	1.1
79	CB1420	RGE RD 221	Heins Feedlot	Rge rd 22-1 from 10-1 to 10-2	1.0
Priority 1: South 10 miles					
80	CB0875	TWP RD 95	Lafarge Road	Twp rd 9-5 from Rge rd 21-4A to 21-4	0.8
87	CB0831	TWP RD 100	Kedon Road	Twp rd 10-0 from Rge rd 21-2 to 21-1	1.0
88	CB1173	TWP RD 100	Kedon Road	Twp rd 10-0 from Rge rd 21-1 to 21-0	1.0
96	CB0471	RGE RD 195	Van Pelt Road	Rge rd 19-5 from Twp 10-0 to 10-1	1.0
97	CB0472	RGE RD 195	Van Pelt Road	Rge rd 19-5 from Twp 10-1 to 10-2	1.0
99	CB0791	RGE RD 194	Van Essen Road	Rge rd 19-4 from Twp 10-0 to 9-5	1.0
100	CB0790	RGE RD 194	Van Essen Road	Rge rd 19-4 from Twp 9-5 to 9-4	1.0
101	CB0807	RGE RD 194	Van Essen Road	Rge 19-4 from Twp 9-4 to Hwy 3	0.8
105	CB0800	RGE RD 192	Van Giessen Road	Rg rd 19-2 from Hwy 3 to 9-5	1.1
106	CB1216	RGE RD 192	Van Giessen Road	Rg rd 19-2 from 9-5 to 10-0	1.0

Job ID	Costing Code	Name	Alias	Description	Distance
Priority 2: 35 miles					
6	CB1541	RGE RD 224	Keho Lake Road	Rge rd 22-4 from Twp 11-2 to 11-3	1.0
7	CB1542	RGE RD 224	Keho Lake Road	Rge rd 22-4 from Twp 11-3 to 11-4	1.0
10	CB0154	RGE RD 222	Fukami Road	Rg rd 22-2 from 11-2 to 11-3	1.0
11	CB0155	RGE RD 222	Fukami Road	Rg rd 22-2 from 11-3 to 11-4	1.0
12	CB1412	RGE RD 222	Fukami Road	Rg rd 22-2 from 11-4 to 11-5	1.0
13	CB1413	RGE RD 222	Fukami Road	Rg rd 22-2 from 11-5 to 12-0	1.0
19	CB0438	RGE RD 213	North Barhill Road	Rge rd 21-3 from Twp 11-2 to 11-3	1.0
20	CB0439	RGE RD 213	North Barhill Road	Rge rd 21-3 from Twp 11-3 to 11-4	1.0
21	CB0067	RGE RD 213	North Barhill Road	Rge rd 21-3 from Twp 11-4 to 11-5	1.0
22	CB0068	RGE RD 213	North Barhill Road	Rge rd 21-3 from Twp 11-5 to 12-0	1.0
23	CB0117	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 22-2 to 22-1	1.0
24	CB1793	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 22-1 to 22-0	1.0
25	CB1909	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 22-0 to 21-5	1.0
26	CB1308	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 21-5 to 21-4	1.0
27	CB0474	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 21-4 to 21-3	1.0
28	CB0385	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 21-3 to Hwy 843	1.0
29	CB0682	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Hwy 843 to 21-1	1.0
30	CB0124	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 21-1 to 21-0	1.0
31	CB0078	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 21-0 to 20-5	1.0
32	CB1763	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 20-5 to 20-4	1.0
33	CB1781	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 20-4 to 20-3	1.0
34	CB0802	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 20-3 to 20-2	1.0
35	CB0446	TWP RD 120	Township Road 12-0	Twp rd 12-0 from Rge rd 20-2 to Hwy 845	1.0
42	CB0352	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 21-3 to Hwy 25	1.0
43	CB1206	TWP RD 112	Witdouck Road	Twp rd 11-2 from Hwy 25 to Twp 21-1	1.0
59	CB1304	RGE RD 195	North Serfas Road	Rg rd 19-5 from Twp 12-2 to 12-3A	1.8
63	CB1182	TWP RD 102	Park Road Dairy	Twp rd 10-2 from Rge rd 23-3 to 23-2	1.0
64	CB0080	TWP RD 102	Park Road Dairy	Twp rd 10-2 from Rge rd 23-2 and 23-1	1.0
65	CB1487	RGE RD 231	Hummel Dairy	Rge rd 23-1 from Twp 10-2 to 10-1	1.0
66	CB0942	RGE RD 231	Hummel Dairy	Rge rd 23-1 from Twp 10-1 to 10-0	0.9
67	CB0398	TWP RD 102	Park Road Dairy	Twp rd 10-2 from Rge rd 23-1 to 23-0	1.0
75	CB0452	TWP RD 104	Pollard Road	Twp rd 10-4 from Rge rd 22-3 to 22-2	1.0
76	CB0349	TWP RD 104	Pollard Road	Twp rd 10-4 from Rge rd 22-2 to 22-1	1.0
77	CB0367	TWP RD 104	Pollard Road	Twp rd 10-4 from Rge rd 22-1 to Hwy 25	1.0
Priority 2: South 23 miles					
81	CB1262	TWP RD 100	Kedon Road	Twp rd 10-0 from Rge rd21-3A to Hwy 843	0.5
82	CB0090	TWP RD 100	Kedon Road	Twp rd 10-0 from Hwy 843 to Rge rd 21-2	1.0
83	CB1273	RGE RD 212	KCL Feedlot	Rge rd 21-2 from 9-4 to 9-5	1.0
84	CB1274	RGE RD 212	KCL Feedlot	Rg rd 21-2 from 9-5 to 10-0	1.0
85	CB0375	RGE RD 212	KCL Feedlot	Rge rd 21-2 from 10-0 to 10-1	1.0
86	CB0376	RGE RD 212	KCL Feedlot	Rge rd 21-2 from 10-1 to 10-2	1.0
89	CB0390	TWP RD 102	Powerline Road	Twp rd 10-2 from 21-0 to 20-5	1.0
90	CB1213	TWP RD 102	Powerline Road	Twp rd 10-2 from 20-5 to 20-4	1.0
91	CB0679	TWP RD 102	Powerline Road	Twp rd 10-2 from 20-4 to 20-3	1.0
92	CB1330	TWP RD 102	Powerline Road	Twp rd 10-2 from 20-3 to Hwy 845	1.0
93	CB1317	TWP RD 100	Huckleberry Road	Twp rd 10-0 from Hwy 845 to 20-1	1.0
94	CB1356	TWP RD 100	Huckleberry Road	Twp rd 10-0 from 20-1 to 20-0	1.0
95	CB1292	TWP RD 100	Huckleberry Road	Twp rd 10-0 from 20-0 to 19-5	1.0
98	CB0622	TWP RD 100	Huckleberry Road	Twp rd 10-0 from 19-5 to 19-4	1.0
102	CB0462	RGE RD 194	Tack Shop Road	Rge rd 19-4 from Hwy 3 to Twp 9-2	1.1
103	CB0145	TWP RD 100	Huckleberry Road	Twp rd 10-0 from 19-4 to 19-3	1.0
104	CB0131	TWP RD 100	Huckleberry Road	Twp rd 10-0 from 19-3 to 19-2	1.0
109	CB1316	RGE RD 210	Broxburn Road	Rge rd 21-0 from Hwy 512 to Twp 8-5	1.0
110	CB0590	RGE RD 210	Broxburn Road	Rge rd 21-0 from Twp 8-5 to 8-4	1.0
111	CB0591	RGE RD 210	Broxburn Road	Rge rd 21-0 from Twp 8-4 to 8-3	1.0
112	CB0578	RGE RD 210	Broxburn Road	Rge rd 21-0 from Twp 8-3 to 8-2	1.0
113	CB2051	TWP RD 82	Southern Excavating Road	Twp rd 8-2 from Rge 21-0 to bridge	0.5
114	CB0883	TWP RD 84	Brown Road	Twp rd 8-4 from Rge 20-4 to 20-3	1.0
115	CB0222	TWP RD 84	Brown Road	Twp rd 8-4 from Rge 20-3 to Hwy 845	1.0

Job ID	Costing Code	Name	Alias	Description	Distance
Priority 3: North 18.5 miles					
1	CB1923	RGE RD 243	White Lake Colony Road	Rge rd 24-3 from Hwy 519 to Twp 11-1	1.0
2	CB1924	RGE RD 243	White Lake Colony Road	Rge rd 24-3 from Twp 11-1 to 11-2	1.0
3	CB0543	RGE RD 243	White Lake Colony Road	Rge rd 24-3 from Twp 11-2 to 11-3	1.0
14	CB1410	RGE RD 222	West Lot Road	Rge rd 22-2 from Twp 12-0 to 12-1	1.0
15	CB1411	RGE RD 222	West Lot Road	Rge rd 22-2 from Twp 12-1 to Hwy 520	1.0
44	CB0380	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 21-1 to 21-0	1.0
45	CB0459	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 21-0 to 20-5	1.0
46	CB0320	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 20-5 to 20-4	1.0
47	CB1139	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 20-4 to 20-3	1.0
48	CB1193	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 20-3 to 20-2	1.0
49	CB0832	TWP RD 112	Witdouck Road	Twp rd 11-2 from Rge 20-2 to Hwy 845	1.0
50	CB1875	TWP RD 112	Cameron Road	Twp rd 11-2 from Hwy 845 to Rge 20-0	1.0
51	CB1156	TWP RD 112	Cameron Road	Twp rd 11-2 from Rge 20-0 to 19-5	1.0
52	CB1786	TWP RD 112	Cameron Road	Twp rd 11-2 from Rge 19-5 to 19-4	1.0
53	CB1352	TWP RD 112	Cameron Road	Twp rd 11-2 from Rge 19-4 to 19-3	1.0
54	CB1799	TWP RD 112	Cameron Road	Twp rd 11-2 from Rge 19-3 to 19-2	1.2
55	CB1351	TWP RD 112	Cameron Road	Twp rd 11-2 from Rge 19-2 to 19-1	1.1
56	CB0824	TWP RD 112A	Cameron Road	Twp rd 11-2A from Rge 19-1 to 19-0	1.0

Priority 3: South 24 miles					
107	CB1357	TWP RD 100	Doram Road	Twp rd 10-0 from Rge 19-2 to 19-1	1.0
108	CB1780	TWP RD 100	Doram Road	Twp rd 10-0 from Rge 19-1 to 19-0	1.0
116	CB0571	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Hwy 845 to Rge 20-1	1.1
117	CB0976	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 20-1 to 20-0	1.0
118	CB1605	RGE RD 200	Wilson Colony Road	Rge rd 20-0 from Twp 8-0 to 8-1	1.0
119	CB1604	RGE RD 200	Wilson Colony Road	Rge rd 20-0 from Twp 8-1 to 8-2	1.0
120	CB0977	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 20-0 to 19-5	1.0
121	CB1606	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-4 to 19-4	1.0
122	CB1607	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-4 to 19-3	1.0
123	CB0044	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-3 to 19-2	1.0
124	CB0788	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-2 to 19-1	1.0
125	CB1608	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-1 to 19-0	1.0
126	CB0573	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 19-0 to 18-5	1.0
127	CB0577	TWP RD 82	Indian Hills Road	Twp rd 8-2 from Rge 18-5 to 18-4	1.0
128	CB0576	RGE RD 184	Lakeside Colony Road	Rge rd 18-4 from Twp 8-2 to 8-3	1.0
129	CB1945	RGE RD 184	Lakeside Colony Road	Rge rd 18-4 from Twp 8-3 to 8-4	1.0
130	CB1619	TWP RD 84	Lakeside Colony Road	Twp rd 8-4 from Rge 18-4 to 18-3	1.0
131	CB0583	TWP RD 84	Lakeside Colony Road	Twp rd 8-4 from Rge 18-3 to 18-2A	0.6
132	CB0605	RGE RD 182A	Lakeside Colony Road	Rge rd 18-2A from Twp 8-4 to MD of Taber	1.1
133	CB0207	RGE RD 192	South Readymade Road	Rge rd 19-2 from Twp 8-2 to 8-1	1.0
134	CB0208	RGE RD 192	South Readymade Road	Rge rd 19-2 from Twp 8-1 to 8-0	1.0
135	CB0567	RGE RD 192	South Readymade Road	Rge rd 19-2 from Twp 8-0 to 7-5	1.0
136	CB0568	RGE RD 192	South Readymade Road	Rge rd 19-2 from Twp 7-5 to 7-4	1.0
137	CB0889	RGE RD 192	South Readymade Road	Rge rd 19-2 from Twp 7-4 to 7-3	1.0

2023 Haul Route Maintenance

Priority
- 1
- 2
- 3
- 2023 Calcium Treatment

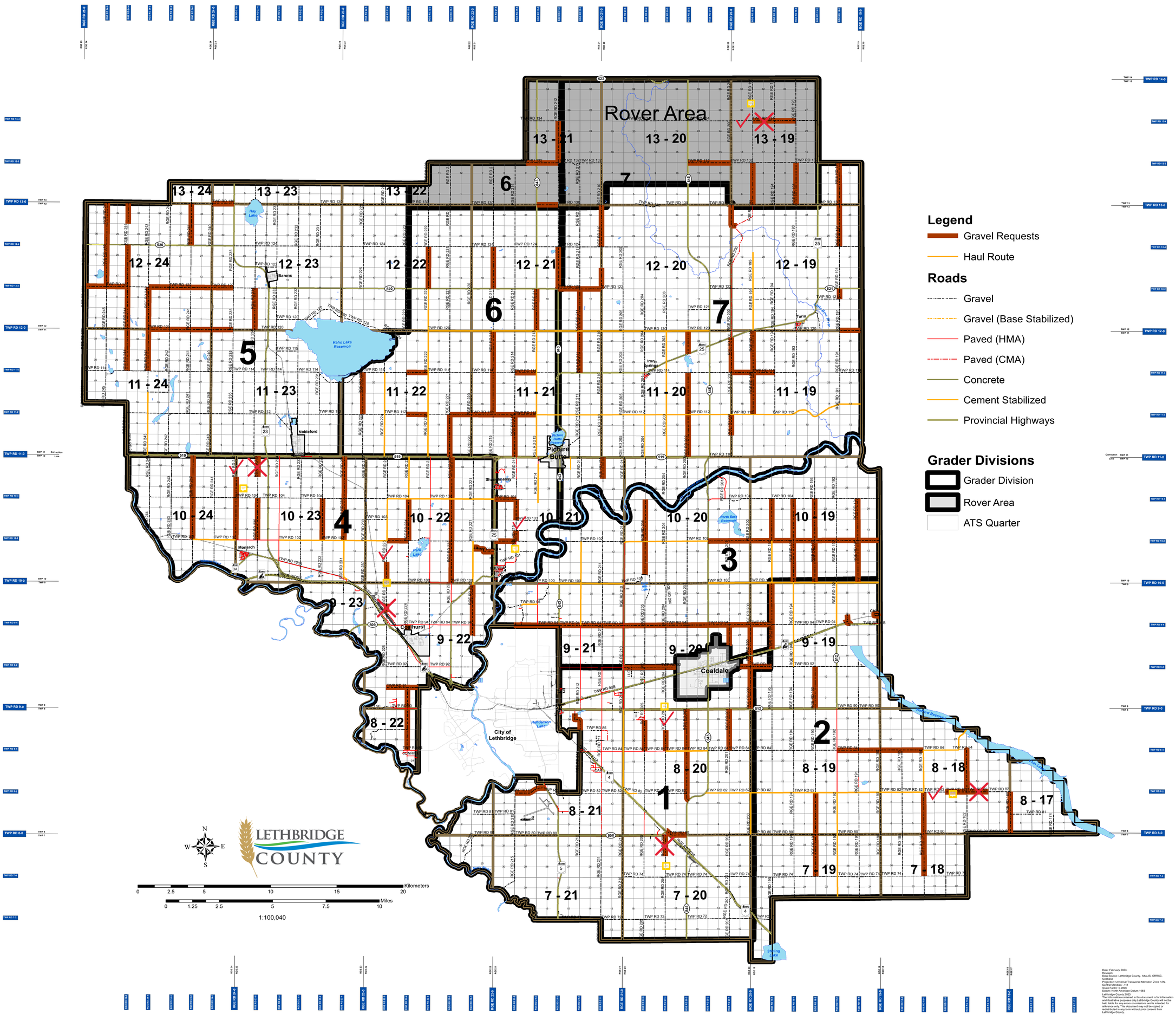
Roads
- Gravel
- Gravel (Base Stabilized)
- Paved (HMA)
- Paved (CMA)
- Provincial Highways

- Hamlet
- Town/Village
- ATS Section Boundary
- Waterbody

Date: January 2023
Revision:
Data Source: Lethbridge County, AltaLIS, ORRSC,
Geobase
Projection: Universal Transverse Mercator Zone 12N,
Central Meridian: -111
Scale Factor: 0.9996
Datum: North American Datum 1983

N E S W

Gravel Requests - 2023



Date: February 2023
Revision:
Data Source: Lethbridge County, AltaLIS, ORRSC, GeoBase
Projection: Universal Transverse Mercator Zone 12N, Central Meridian: -111
Scale Factor: 0.9996
Datum: North American Datum 1983
Lethbridge County 2023
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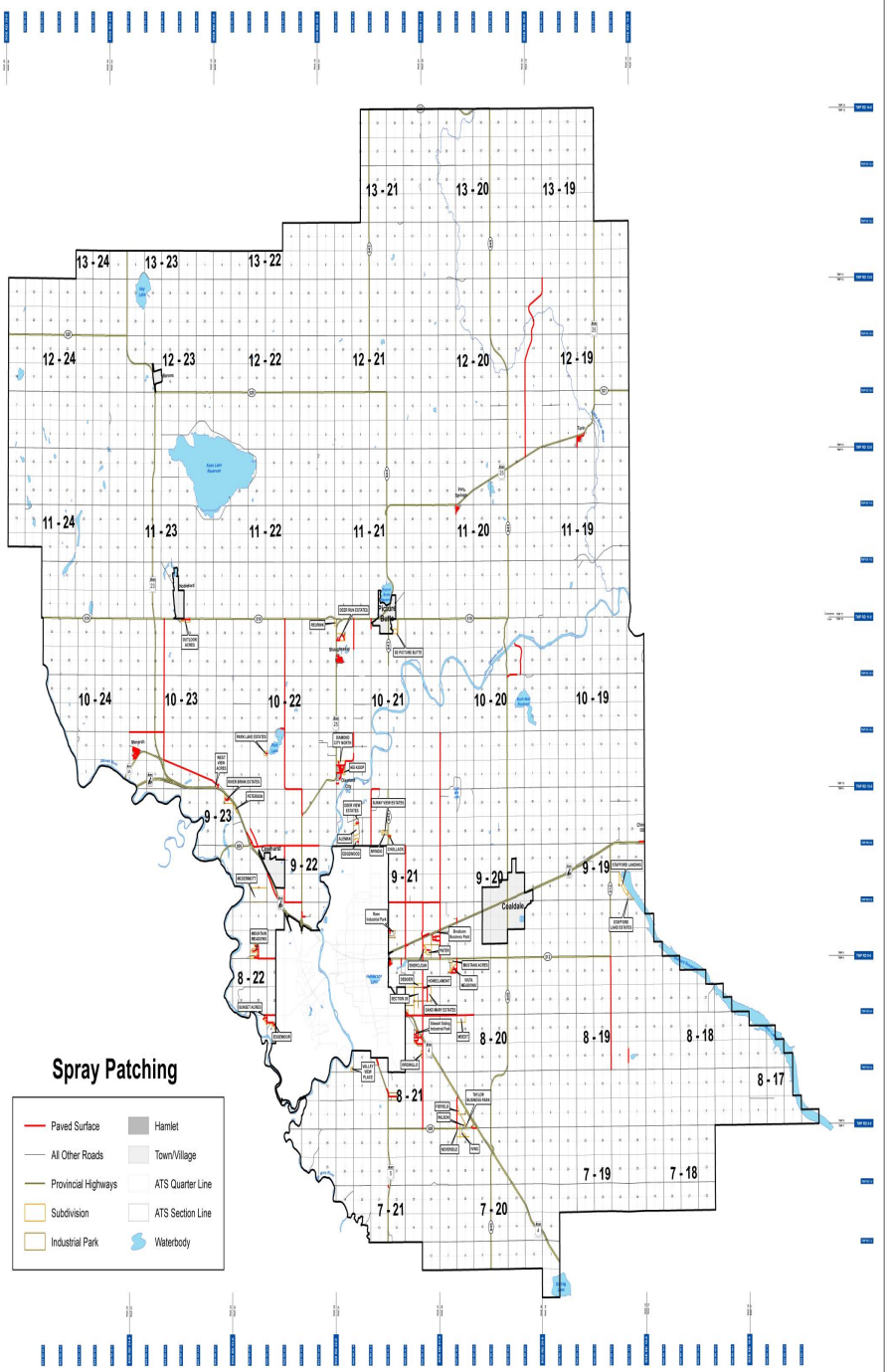
Roads	Alias	Code	Length (m)
TWP RD 8-0 - east of HWY 508	TWP RD 8-0	ST-1600-01	400
RGE RD 20-5 from HWY 508 to HWY 4	RGE RD 20-5	ST-1600-02	3629
RGE RD 22-1 from HWY 508 to HWY 4	McNally Road	ST-1600-03	4828
TWP RD 8-4 - from HWY 4 to RGE RD 20-5	Brown Road	ST-1600-04	6437
RGE RD 20-5 from HWY 508 south for 1100 meters	Vista Meadows Road	ST-1600-05	1100
RGE RD 20-5 from HWY 3 north for 200 meters	Railside Drive	ST-1600-06	200
RGE RD 23-0 from HWY 512 to RGE RD 9-2	Broxburn Road	ST-1600-07	3219
RGE RD 21-1 from HWY 512 to HWY 4	Howe Road	ST-1600-08	4023
TWP RD 8-5 east and south from RGE RD 21-1	St. Marie Road	ST-1600-09	1200
RGE RD 21-1 from HWY 508 to HWY 3	Hog Market Road	ST-1600-10	1150
RGE RD 21-1 from HWY 3 to TWP RD 9-2	Rec Tec Road	ST-1600-11	2000
RGE RD 21-2 from HWY 512 to TWP RD 9-2	Sunnyside Road	ST-1600-12	3219
TWP RD 9-0A east of RGE RD 21-2	Victory Church Road	ST-1600-13	200
Subdivisions	**Location**		
Stewart Siding	SE-23-8-21	ST-1600-14	
Duncan	SW-10-8-21	ST-1600-15	
Vista Meadows	NE-31-8-20	ST-1600-16	
Broxburn Park	NE-1-9-21	ST-1600-17	
Fairview	NW-24-8-21	ST-1600-18	
Rave	NW-3-9-21	ST-1600-19	
Potter	SW-1-9-21	ST-1600-20	

Roads	Alias	Code	Length (m)
RGE RD 19-1 between TWP RD 8-2 and TWP RD 8-4	Indian Hills Road	ST-1600-21	400
RGE RD 19-2 from HWY 512 to TWP RD 8-2	South Readymade Road	ST-1600-22	6437

Roads	Alias	Code	Length
RGE RD 20-1A from TWP RD 10-4 to riverbottom	Old Nolan Hill	ST-1600-23	2200
TWP RD 10-4 from HWY 845 east for 1000 meters	Langwell Road	ST-1600-24	500
RGE RD 21-0 from TWP RD 9-2 to TWP RD 10-4	Broxburn Road	ST-1600-25	9656
RGE RD 21-2 from TWP RD 9-2 to TWP RD 9-4	Sunnyside Road	ST-1600-26	3219
RGE RD 21-4 from TWP RD 9-4 to Kedon Dump	Kedon Road	ST-1600-27	4023
TWP RD 9-2 from Broxburn Road to Lethbridge 43rd	Vuicuinwich Road	ST-1600-39	4828
Subdivisions	**Location**	**Code**	
Chollack	SW-27-9-21	ST-1600-28	
Deerview	NW-29-9-21	ST-1600-29	
Edgewood	SW-29-9-21	ST-1600-30	

Roads	Alias	Code	Length (m)
TWP RD 9-3A east from HWY 25	Arnoldussen Road	ST-1600-31	500
TWP RD 8-4 frm City boundary to RGE RD 22-4	Sunset Acres Road	ST-1600-32	805
TWP RD 9-0 from City boundary to Mountain Meadows	Welsh Drive	ST-1600-33	805
River Ridge Road from RGE RD 22-4 going southeast	Headwaters Road	ST-1600-34	1609
TWP RD 10-2 going west of RGE RD 22-3	Park Lake Boat Dock Road	ST-1600-35	400
RGE RD 22-3 from TWP RD 9-4 south to Coalhurst.	Vantland Road	ST-1600-36	805
RGE RD 22-5 from TWP RD 9-4 north to CPR station	CPR Road	ST-1600-37	1200
TWP RD 9-4 from HWY 25 to HWY 3	Kipp Road	ST-1600-38	4828
TWP RD 10-0A from HWY 3 to RGE RD 23-4	Westview Road	ST-1600-39	5230
RGE RD 23-4 from TWP RD 10-0A to HWY 519	Old HWY 23	ST-1600-40	8847
TWP RD 10-2 from TWP RD 23-4 to RGE RD 24-0	West Monarch Road	ST-1600-41	3219
RG RD 22-2,TWP RD 10-0,RG RD 22-3 fr hwy 25 to hwy519	Park Lake Road	ST-1600-60	12875
Hamlets and Subdivisions	**Location**		
Sunset Acres	NW-21-8-22	ST-1600-42	
Mountain Meadows	SW-5-9-22	ST-1600-43	
Rivertrink	NE-36-9-23	ST-1600-44	
Park Lake Estates	SE-8-10-22	ST-1600-45	
Monarch	S-7-10-23	ST-1600-46	

Roads	Alias	Code	Length (m)
TWP RD 9-4 going west of HWY 25	Wells Road	ST-1600-47	1609
RGE RD 21-5 going south of TWP RD 10-2	Agnpour Cheese Factory Road	ST-1600-48	500
RGE RD 21-5 going south of HWY 25	P.B. Golf Course Road	ST-1600-49	1609
	Second visit		
RGE RD 21-4 going south of HWY 25	Country Shop Road	ST-1600-50	600
Hamlets and Subdivisions	**Location**	**Code**	
Diamond City	W-6-10-21	ST-1600-51	
Shaughnessy	NW-30-10-21	ST-1600-52	
Deer Run Estates	SW-31-10-21	ST-1600-53	



Roads	Alias	Code	Length (m)
RGE RD 22-3A going south of HWY 519	Rudolph Road	ST-1600-54	1000

Roads	Alias	Code	Length
RGE RD 20-4 from HWY 519 and TWP RD 11-2	Iron Springs Road	ST-1600-55	3219
RGE RD 20-0 from HWY 25 to TWP RD 13-0	Sundial Road	ST-1600-56	18532

Hamlets	Location	Code
Iron Springs	NW-32-11-20	ST-1600-57
Turin	SW-3-12-19	ST-1600-58

Date: June 2021
Revision:
Data Source: Lethbridge County, AMLIS; ORRSC
Geodesic
Projection: Universal Transverse Mercator Zone 12N.
Central Meridian: -111
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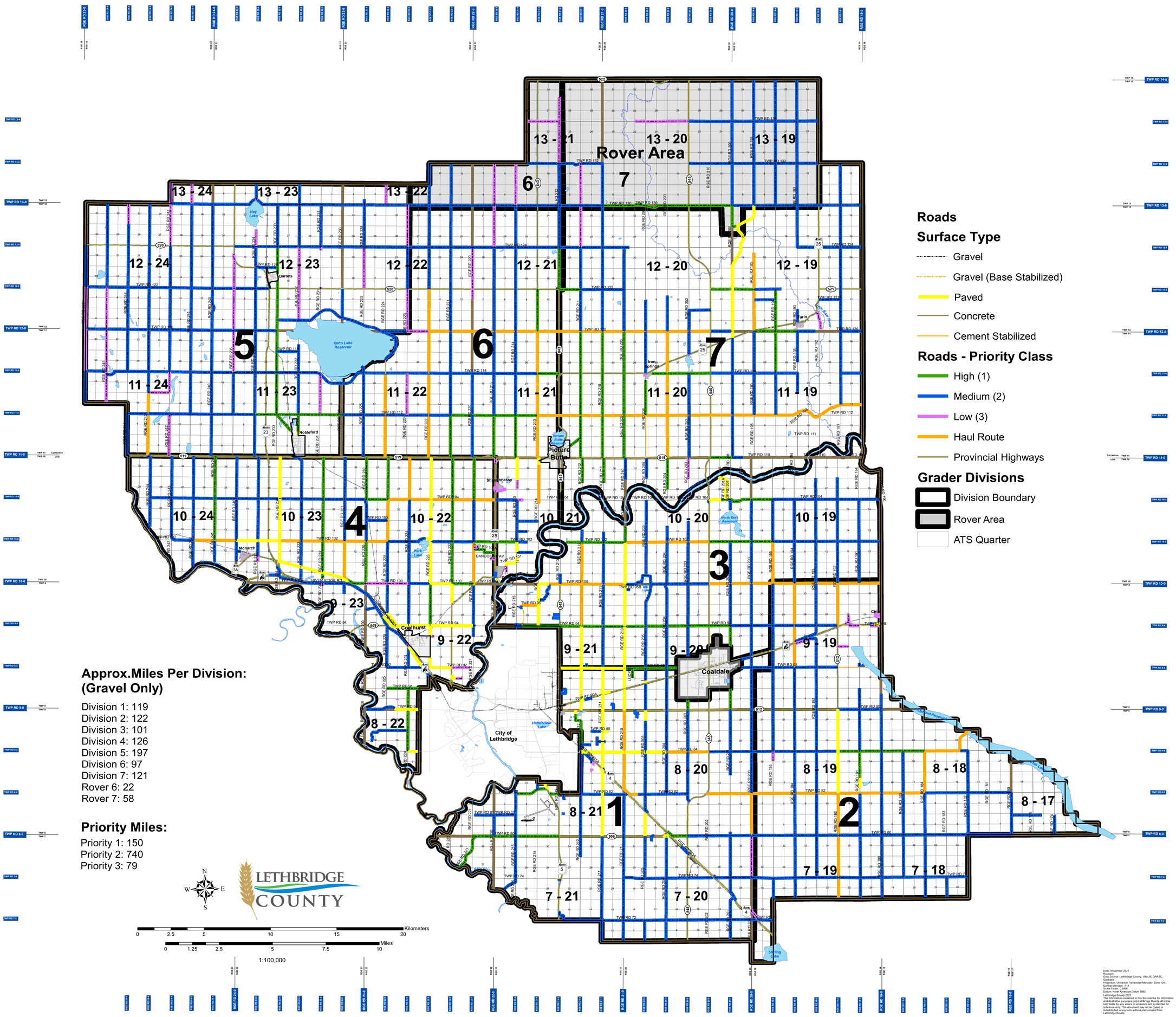
Datum: North American Datum 1983

2022 Gravel Road Grading Priority



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Datum: North American 1983
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Datum: North American Datum 1983
Lethbridge County 2021
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ALBERTA
TRANSPORTATION AND ECONOMIC CORRIDORS

Office of the Minister
MLA, Innisfail-Sylvan Lake

February 15, 2023

AR 92131

Mr. Tory Campbell
Reeve
Lethbridge County
100, 905 – 4 Avenue South
Lethbridge, AB T1J 4E4
tcampbell@lethcounty.ca

Dear Reeve Campbell:

Thank you for your December 15, 2022 letter regarding Highway 25, from Highway 521 to Highway 526.

I appreciate your comments in support of reverting the current paved surface of the 19.4 kilometre stretch of Highway 25 to gravel. Your recognition and understanding of the challenges faced by Transportation and Economic Corridors on this section of roadway is noted.

As Transportation and Economic Corridors has also received support on this matter from Municipal District of Taber, the department will now endeavor to revert the entire section of road from Highway 521 to Highway 526 to gravel as soon as feasible.

Should you have any further questions, please contact Mr. Darren Davidson, Regional Director. Mr. Davidson can be reached toll-free by dialing 310-0000, followed by 403-381-5533, or at darren.davidson@gov.ab.ca.

Thank you for taking the time to write.

Sincerely,

Devin Dreeshen

Honourable Devin Dreeshen, ECA
Minister of Transportation and Economic Corridors

cc: Honourable Nathan Neudorf, MLA for Lethbridge-East
Darren Davidson, Regional Director, Transportation and Economic Corridors

127 Legislature Building, 10800 - 97 Avenue NW, Edmonton, Alberta T5K 2B6 Canada Telephone 780-427-2080 Fax 780-422-2002

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ALBERTA
MUNICIPAL AFFAIRS

Office of the Minister
MLA, Calgary-Shaw

AR110967

Dear Chief Elected Officials:

The Government of Alberta understands the important role of local governments in fostering vibrant communities and supporting the provincial economy, and we are committed to ensuring municipalities and Metis Settlements meet their infrastructure and operating needs.

In keeping with this commitment, next year we will be introducing the Local Government Fiscal Framework (LGFF), an updated framework that ties funding to provincial revenue changes, which will ensure sustainable funding levels for the province and allow municipalities to plan more effectively for the future. The baseline funding amount for the LGFF will be $722 million in 2024/25. Subject to approval by the Legislature, the legislation will be updated so that this amount will increase or decrease at 100 per cent of the percentage change in provincial revenues from three years prior, rather than 50 per cent as legislated. In light of this change, capital funding under the Municipal Sustainability Initiative (MSI) and LGFF will total approximately $2 billion over the next three years, with MSI capital funding set at $485 million in 2023/24, and LGFF providing $722 million in 2024/25, and approximately $813 million in 2025/26.

In addition, operating funding has been increased. As many municipalities are facing increased operating costs due to inflation, our government will double the MSI operating budget in 2023/24 from $30 million to $60 million in recognition of these challenges.

The 2023 MSI allocations for all municipalities and Metis Settlements are available on the program website at www.alberta.ca/municipal-sustainability-initiative.aspx.

I am also pleased to advise you that Alberta's municipalities and Metis Settlements will receive $266 million in federal funding under the Canada Community-Building Fund (CCBF), an increase of $11 million from last year.

The 2023 CCBF allocations are available on the program website at www.alberta.ca/canada-community-building-fund.aspx.

…/2

320 Legislature Building, 10800 - 97 Avenue, Edmonton, Alberta T5K 2B6 Canada Telephone 780-427-3744 Fax 780-422-9550

Classification: Protected A

Please note MSI and CCBF funding is subject to the Alberta Legislature's approval of Budget 2023, and individual allocations and 2023 funding are subject to Ministerial authorization under the respective program guidelines. CCBF funding is subject to confirmation by the Government of Canada. I expect to send letters confirming MSI and CCBF funding commitments to local governments in the spring.

I look forward to working together to support the infrastructure and operating needs of your communities, and to ensure a smooth transition from the MSI to the LGFF program in 2024.

Sincerely,

Rebecca Schulz
Minister

cc: Chief Administrative Officers
Linda Lewis, Interim Chief Administrative Officer, Metis Settlements General Council
Cathy Heron, President, Alberta Municipalities
Paul McLauchlin, President, Rural Municipalities of Alberta
Dave Lamouche, President, Metis Settlements General Council
Dan Rude, Chief Executive Officer, Alberta Municipalities
Gerald Rhodes, Executive Director, Rural Municipalities of Alberta

Good morning,

I am reaching out on behalf of MP Thomas, in hopes of organizing a meeting between MP Thomas and council. MP Thomas would like to meet with you to discuss current challenges and opportunities for the County of Lethbridge and learn how she can best serve you in the upcoming year.

Currently, we are looking at setting up meetings April 11th – 14th. Evening meetings would also be possible with the exception of Thursday.

Please let me know if there is a time that would work well for council.

I look forward to hearing from you.

Best wishes,

Dallas Neudorf

Constituency Manager

Office of Rachael Thomas
Member of Parliament for Lethbridge

255 – 8 St. S, Lethbridge, AB T1J 4Y1
Office | Bureau: 403.320.0070

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE ADDRESSEE AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL. IF YOU ARE NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE. THANK YOU.

Invitation to Reeve, Council and Senior Administration to the Coaldale Operations Net-Zero Building Grand Opening/Waterton Battery Energy Storage System Celebration

Good afternoon,

FortisAlberta is excited to announce that on April 20, 2023, we will be hosting the grand opening of our flagship Net-Zero Building in the Town of Coaldale. The event will run from 11:00 am to 1:00 pm (lunch included).

The Coaldale operations building was completed in 2022 and is the Company's first new build that uses the Canada Green Building Council zero carbon building standard.

The building, which is situated on 6.7 acres of land with 11,000 sq ft shop space and 8,500 sq ft of office space, is fully electric with no natural gas services. The building design focuses on reducing energy consumption while using onsite solar array to meet its electricity needs.

Please find attached a formal invitation to the event, with an RSVP date of April 6, 2023.

Thank you,

FORTIS ALBERTA

Celebrating Innovations in our Industry

Thursday, April 20, 2023

11 a.m. ceremony

11:30 a.m.–1 p.m. tour and luncheon

1012 11 Avenue, Coaldale, AB

Please join us as we celebrate innovations in our electricity distribution business in southern Alberta. We are excited to present to you the following projects which are 'firsts' in our system:

- An overview and tour of our new operations centre in Coaldale, which follows the Canada Green Building Council Zero Carbon Building™ standard. From this facility, we serve Coaldale, and many other communities in the Lethbridge and southern Alberta area.
- The Waterton Battery Energy Storage System helps improve the reliability of electricity to Waterton Lakes National Park, which is served from a single, main power line. The battery backup system can keep the townsite energized while allowing for necessary repairs.

Please RSVP by April 6 to Kelsey Nixon at kelsey.nixon@fortisalberta.com or 780.464.8859.

FORTIS ALBERTA

Dear CAOs,

Please share the attached with your staff and councils!

Please find attached an invitation to the Southern Alberta Economic Development Forum on March 30th in Lethbridge, Alberta.

This event will feature a Keynote presentation by Economist **Jack Mintz** on **the Future of Alberta's Economy**.
There will also be a presentation from Economic **Todd Hirsch** titled: **Bracing for Turbulence, Preparing for Economic Disruption.**

The day also features **Breakfast, Lunch,** and a number of **breakout sessions** on topics of interest for southern Albertans.

It's $80 to attend, and SouthGrow is only aiming to cover our costs.

Please share this with your colleagues and networks, and you can register Here!: https://www.eventbrite.ca/e/southern-alberta-economic-development-forum-tickets-517002106217

Sincerely,

Peter Casurella
Executive Director
SouthGrow Regional Initiative
Creating Opportunity in Southern Alberta

ALBERTA'S ECONOMIC FUTURE

SOUTHERN ALBERTA ECONOMIC DEVELOPMENT FORUM

JACK MINTZ

THE FUTURE OF ALBERTA'S ECONOMY

IN THE COMING YEARS, FIVE MAJOR TRENDS WILL BOOST OR UNDERMINE ECONOMIC GROWTH: DEMOGRAPHICS, DEGLOBALIZATION, NEW TECHNOLOGIES, ENERGY TRANSFORMATION AND INTERNATIONAL AND, IN CANADA, REGIONAL TENSIONS. ALBERTA'S CHALLENGE IS TO RIDE A WAVE THAT LEADS TO PROSPERITY.

TODD HIRSHE

BRACING FOR TURBULENCE: PREPARING FOR ECONOMIC DISRUPTION

SPIKING INTEREST RATES, CRUSHING INFLATION AND COMMODITY PRICE VOLATILITY THREATEN TO DAMPEN CONSUMER AND BUSINESS SENTIMENTS. IN THIS TURBULENT ENVIRONMENT, WHAT IS LIKELY TO HAPPEN? AND WHAT CAN BUSINESSES AND INDUSTRIES DO TO PREPARE?

MARCH 30TH

SANDMAN SIGNATURE LETHBRIDGE

PANEL DISCUSSIONS INCLUDE:

BROADBAND
LABOUR
COLLABORATION
WASTE-TO-ENERGY
AGRI-FOOD TOURISM
ENERGY FUTURE
INVESTMENT-ATTRACTION

BREAKFAST AND LUNCH WILL BE PROVIDED

$80.00 PER TICKET

EVENT RUNS FROM 8:30AM - 4:00PM

SCAN CODE TO GET TICKETS NOW OR VISIT SOUTHGROW.COM

DIVE DEEP INTO KEY REGIONAL ISSUES

INVESTMENT ATTRACTION

BONNIE NUNNARI | YULIIA MARCINKOSKI

Opportunities abound: Discover the untapped potential of attracting investment into your communities. Join us for an insightful session on the promising returns and growth prospects awaiting Southern Alberta.

WASTE TO ENERGY

KIRK HOFFMAN | SEAN COLLINS | TOM GRANT

Turning trash into treasure: Exploring the potential of waste-to-energy solutions for a sustainable future. Join us to learn about innovative technologies and best practices for converting waste into renewable energy sources.

AGRI-FOOD TOURISM

ERIN CRANE

Feed your wanderlust and your appetite: Unleashing the power of agri-food tourism for local businesses. Don't miss this chance to learn how to tap into this burgeoning market and showcase your unique farm-to-table experiences to visitors near and far.

COLLABORATION

RENAE BARLOW | BEV THORNTON

Stronger together: Harnessing the power of regional collaboration for sustainable growth and development. Join us for an informative session on the benefits, strategies, and success stories of working together to achieve shared goals.

ENERGY FUTURE

MAGGIE HANNA | BRAD NICKEL

Powering the future: Charting a course towards a sustainable and resilient energy landscape. Join us to explore the latest innovations, trends, and policies shaping the energy sector, and learn how you can be part of the solution.

LABOUR

CHARLES MCARTHUR | BRYON ANDERSON

Talent matters: Overcoming labour market challenges and unlocking your region's potential. Join us for an insightful session on effective strategies for attracting and retaining a skilled workforce in today's rapidly evolving economic landscape.

BROADBAND

IMRAN MOHIUDDIN | PHIL WRIGHT

Connecting rural communities: Unlocking the potential of broadband for economic and social development. Join us to learn about the latest opportunities, best practices, and success stories in expanding broadband access and adoption in rural areas.

Prentice Institute for Global Population and Economy
4401 University Drive W (L1184)
Lethbridge, AB T1K 3M4
403-380-1814
https://www.ulethbridge.ca/prentice-institute

RE: Invitation to Canadian Rural Revitalization Foundation Conference in June 2023

Dear Jeremy Wickson,

On behalf of the Prentice Institute for Global Population and Economy, we would like to extend an invitation to the Canadian Rural Revitalization Foundation (CRRF) conference that we will be hosting in June 2023. This conference will bring together policy, academic and community specialists from across the country.

The theme of this conference will be Moving In, Moving On, and Moving Up: Living Well in Rural Canada. This conference invites presentations, posters, and panels that address the question(s): What does it mean to live well in rural Canada? What are the key factors, issues, and responses that shape and define well-being in rural places? As the first return to Alberta for CRRF in several years, we are extending this invitation both internationally and outside the rural development audience and hope you will find time to join us as a presenter or attendee.

The conference will take place from June 20th to June 23rd, 2023, at the University of Lethbridge Campus. Registration for the conference will open in early 2023, details will be available on the Prentice Institute website at https://www.ulethbridge.ca/prentice-institute. We hope that you are able to accept this invitation and would be delighted to see you at the conference.

Please note that a modest amount of funding for Indigenous presentations and/or presenters may be available upon request. You can contact the Institute at prentice@uleth.ca or 1.403.380.1814.

Sincerely yours,

DocuSigned by:

85DF987CE15349D...

Lars K. Hallström, Ph.D.
Director, Prentice Institute for Global Population and Economy
Professor of Political Science

United Way Lethbridge is excited to announce that we are hosting the ***Red Tie Gala*** on April 1, 2023 at the Coast Hotel with a delicious plated meal prepared by LA Chefs Catering. The evening will also consist of an attractive, exciting silent auction, recognition awards presentation, fun photo booth, swing dance performance and live music by Peter & the Wolves.

Gather your friends, family and colleagues for this great evening celebrating the communities' dedication, hard work and spirit that have been expressed by individuals and organizations for outstanding contributions to the United Way. United Way of Lethbridge works to raise funds for charitable organizations that deliver vital programming in communities across Southern Alberta tackling unignorable issues like hunger, addiction education in rural schools, domestic violence and more.

This will be a night to remember!! I have attached partnership opportunities, silent auction and ticket information for your review. With your help we can create a great evening of fun and recognition as well as support many local issues creating poverty to possibility, healthy people and strong communities, and allowing kids to be all they can be.

Please review the attached package, poster and the partner agencies we assist. Do not hesitate to reach out with any questions or for more information. I would be happy to meet with you to discuss a partnership that fits well with your business.

I look forward to your consideration in partnering or donating a silent auction item or purchasing tickets to attending this important event.

https://lethbridgeunitedway.ca/red-tie-gala

Kindest regards,

Jackie

Jackie French
Resource Development Manager
Office: 403-327-1700 Cell: 403-715-0525 | development@lethbridgeunitedway.ca
United Way Lethbridge & South Western Alberta

Red Tie Gala

Partnership Opportunities

United Way
Lethbridge &
South Western Alberta

Red Tie Gala
AWARDS OF DISTINCTION

Greetings!

United Way Lethbridge & South Western Alberta's Red Tie Gala celebrates the communities' dedication, hard work, and spirit that have been expressed by individuals and organizations for outstanding contributions to the United Way during the year through actions like workplace campaigns, leadership giving, community events, in-kind donations, and volunteer-led philanthropy.

The annual event gathers community leaders and supporters across Lethbridge & South Western Alberta for a glamourous evening of recognition to celebrate the progress of fundraising and volunteer efforts throughout the past year and their unified progress to help build a community where everyone can thrive.

It would be our honour to work with you to find a meaningful partnership that aligns with your brand with a social purpose that establishes real action in the community.

About United Way

Our goal is to ensure that organizations in our community get support they need to continue the essential programs they provide. We do this by helping bring light to the issues and needs of South Western Alberta communities, and making it easy for people to get involved and make a difference. Through our fundraising efforts we support three funding priorities:

- Poverty to Possibility
- Healthy People, Strong Communities
- All that Kids Can Be

#203B, 542 7 Street S, Lethbridge, AB T1J 2H1
403-327-1700

Presenting Partnership

United Way holds a special place in many people's hearts. People trust the United Way as a leader in the community, and as a Presenting partner, this opportunity will demonstrate the power of doing local good and working united!

The benefits may be adjusted to suit your needs and are listed as follows:

PRESENTING PARTNER OF THE RED TIE GALA $8000

- **Reserved VIP table of 8 for the Gala**
- **Positioned as Presenting partner in event name**
- **One-minute welcoming remarks at the Gala**
- **On-stage branding**
- **Logo and link (where applicable) featured in all pre-event, onsite, and post-event marketing materials**
- **Brief write-up about your philanthropic efforts and your partnership with the United Way in the event program**
- **Social media engagement and recognition including your company's social handles**
- **Live mentions and thank you by emcee during the Gala**
- **Digital slide show during the Gala, invitations, and thank you messages**
- **Opportunity to present the awards**

#203B, 542 7 Street S, Lethbridge, AB T1J 2H1

403-327-1700 www.lethbridgeunitedway.ca

Partnership Package Options

The Red Tie Gala is a celebration and inspiration for philanthropic efforts. During the Gala we present the Awards of Distinction, recognizing exceptional individuals and groups who have embraced giving and have the potential to achieve amazing things for our community.

BASE BENEFITS (ALL PARTNERSHIP OPTIONS)

- **Logo and link (where applicable) featured in all pre-event, onsite, and post-event marketing materials**
- **Social media engagement and recognition including your company's social handles**
- **Live mentions and thank you by emcee during the Gala**
- **Digital slide show during the Gala**
- **Recognition of the logo on event promotional materials & advertisements**
- **Recognition of the logo in post thank you advertisement**
- **Representation in the print program**

MEDIA PARTNER $5000

SOLD

- VIP Reserved table of 8 to the Gala
- Opportunity to introduce the entertainment

DINNER PARTNER $5000

- VIP Reserved table of 8 to the Gala
- Logo on Menu & Featured at the Bar

LOCAL LOVE PARTNER $4000

- VIP Reserved table of 8 to the Gala
- Full page Ad on the screen at the event

VENUE PARTNER $3000

SOLD

- VIP Reserved table of 8 to the Gala
- Opportunity to have customized dessert with logo

#203B, 542 7 Street S, Lethbridge, AB T1J 2H1

403-327-1700

www.lethbridgeunitedway.ca

Partnership Package Options

PHOTO BOOTH PARTNER $2500

SOLD

- 4 tickets to the Gala
- Your banner is located next to the photo booth

WINE PARTNER $2500

SOLD

- 4 tickets to the Gala
- Table wine featuring your branding

DÉCOR PARTNER $2500

- 4 tickets to the Gala

IMPACT PARTNER $1500

- 2 tickets to the Gala

COMMUNITY SPIRIT PARTNER $750

- Partner one of the United Way Award Recipients to attend the Gala

SILENT AUCTION PARTNER (DONATED ITEMS)

- Donate a silent auction item
- Company Logo listed on the silent auction bid sheet

Does not Include the Base Benefits

PRESENTED BY UNITED WAY Lethbridge & South Western Alberta
AND OUR PRESENTING PARTNER

SATURDAY APRIL 1, 2023 AT THE COAST HOTEL / LA CHEFS
5 PM COCKTAILS / SILENT AUCTION
6 PM PLATED DINNER
7 PM RECOGNITION AWARDS
8 PM SILENT AUCTION WRAP UP
8:30 PM SWING BRIDGE DANCE PERFORMANCE
9 PM LIVE MUSIC BY PETER & THE WOLVES

For more information and reserve your desired package please contact Jackie French (Resource Development Manager)
403-327-1700
development@lethbridgeunitedway.ca

#203B, 542 7 Street S, Lethbridge, AB T1J 2H1
403-327-1700
www.lethbridgeunitedway.ca

Partnership Package Options

PARTNERSHIP COMMITMENT

Yes! I would like to support United Way Lethbridge & SW Alberta and be a Red Tie Gala partner.

PARTNERSHIP LEVEL

- ☐ **Presenting Partner - $8000**
- ☐ **Media Partner - $5000**
- ☐ **Dinner Partner - $5000**
- ☐ **Local Love Partner - $4000**
- ☐ **Venue Partner - $3000**
- ☐ **Photo Booth Partner - $2500**
- ☐ **Wine Partner - $2500**
- ☐ **Décor Partner - $2500**
- ☐ **Impact Partner - $1500**
- ☐ **Community Spirit Partner - $750**
- ☐ **Silent Auction Partner (donated items)**

TICKETS

Table of 8 ($1150) How many tables: _____ Total: _____

Ticket Purchase ($150 each) How many _____ Total: _____

CONTACT INFORMATION

Name: _____

Business Name:_____

Address: _____

City/Province: _____ Postal Code: _____

Cell: _____ Email:

PAYMENT INFORMATION

☐Visa ☐MasterCard ☐AMEX ☐Cheque*

*Please make all cheques payable to United Way Lethbridge and South Western Alberta and note Red Tie Gala

Credit Card#: _____CVV: _____ Expiry Date: ____ / ____

Payment Amount Authorized: _____

Name on Card: _____

Signature: _____ Date: _____

PLEASE RETURN BY FRIDAY, MARCH 10

Mail to:
Jackie French, United Way Lethbridge & South Western Alberta,
#203B, 542 7 Street S, Lethbridge, AB T1J 2H1

OR

Email:
development@lethbridgeunitedway.ca
Phone: 403-327-1700
www.lethbridgeunitedway.ca

2022-2023 UNITED WAY **PARTNER AGENCIES**

POVERTY TO POSSIBILITY

Interfaith Food Bank - Baby Bundle Program
Kidney Foundation of Canada - Emergency Financial Assistance Service
Womanspace Resource Centre - Income Tax, ID Replacement, Financial Literacy

HEALTHY PEOPLE, STRONG COMMUNITIES

Chinook Sexual Assault Centre - Chinook Child & Youth Advocacy Centre
Inclusion Foothills - Family Support Program (Claresholm)
Inclusion Lethbridge - Caseload Capacity Sustainability
Parkinson Association of Alberta - Rural Outreach Program
SAIPA - Self-Advocacy Workshops & Resources

ALL THAT KIDS CAN BE

Family Centre - Ready For School: Family Literacy for Immigrant Families
Safe Haven Women's Shelter Society - Summer Day Camp

Local Love is the stuff that fuels our communities. It makes sure families have nutritious food. It creates opportunities for social inclusion. It helps kids to be confident in themselves. Local love helps us create pathways out of poverty so people and families in our community can thrive.

United Way
Lethbridge &
South Western Alberta

lethbridgeunitedway.ca

#LocalLove

To: Mr. Reeve and Members of County Council,

You are invited:

To the 15th Annual Vimy Dinner on Saturday, April 22, 2023.

We extend this invitation to you on behalf of Major Robert Mein, Commanding Officer, 20th Independent Field Battery and the 1908 League of Military Associations.

Tickets are $100.00 and available for purchase only at the following link:

www.vimydinner.ca

Theme:

This year's theme is commemorating the Liberation of Holland

Dress:

The event is formal. Mess Dress Number 2, DEU 2B or Black Tie/ Business Formal equivalent

Location:

Vimy Ridge Armoury, 337 Stubb Ross Road, Lethbridge AB (near the airport)

Date:

Saturday April 22, 2023

Time:

Cocktails at 6pm for dinner at 7pm

Cocktails and entertainment:

There will be a cash bar and silent auction items. Lethbridge Big Band providing entertainment.

Regimental Affiliations:

Please email your regimental affiliations to vimydinner@gmail.com on or before March 15, 2023 in order to be considered for our program.

Tickets:

Tickets $100.00 and available until Friday, April 14, 2023. (subject to availability; no tax receipts issued)

Multiple Guests/ Table:

If you would like to have multiple guests at the same table or purchase a table for 8 people, please provide their names in an email to vimydinner@gmail.com

Corporate Sponsors:

Please let us know if you are interested in being recognized at our event as a corporate sponsor by emailing: vimydinner@gmail.com

Vimy Dinner Objective:

The goal of the Vimy Dinner is to showcase the military presence in Southern Alberta and to share some of the traditions of our military heritage with the community. Proceeds from the event go towards the promotion of our Veterans, Serving Military, Cadets, their organizations, and our shared military heritage.

The 1908 League of Military Associations:

Is a not-for-profit partner with the 20IFB to assist with the organization of events, such as the Vimy Dinner. On February 1, 1908 the 25th (Independent) Battery was formed in Lethbridge. This was the foundation of our community's momentous military presence. The 1908 League's namesake is a nod to the foundation of our military heritage. The directors are Major Robert Mein, 2Lt Matthew McHugh, Treasurer Michael Gabriel.

Questions:

Please email vimydinner@gmail.com

Get Tickets:

www.vimydinner.ca

LINK PATHWAY

Lethbridge County Council
#100, 905 4 Ave S
Lethbridge, AB

March 8, 2023

Dear Lethbridge County Reeve & Council,

On behalf of the Link Pathway Committee, I would like to extend an invitation to Lethbridge County Council to have a representative sit on the committee. The Link Pathway Committee meets once per month. You are free to send a representative of your choosing, from council or from staff.

We hope you consider our invitation, and we look forward to working with you on the Link Pathway project.

Sincerely,

Henry Doeve
Chair
Link Pathway Committee

C/O Alvin Reinhard Fritz Architect Inc.
10 - 90001 Range Road 212 Lethbridge County,
Alberta, Canada T1J 5N9

AGENDA ITEM REPORT

Title:	Lethbridge County Council Attendance Update - February 2023
Meeting:	Council Meeting - 16 Mar 2023
Department:	Administration
Report Author:	Candice Robison

APPROVAL(S):

Larry Randle, Interim Chief Administrative Officer — Approved - 06 Mar 2023

STRATEGIC ALIGNMENT:

Governance	Relationships	Region	Prosperity
☒	☐	☐	☐

EXECUTIVE SUMMARY:

To remain transparent to its citizens. Lethbridge County Council report on their activities and events attended throughout the month.

RECOMMENDATION:

No motion required.

REASON(S) FOR RECOMMENDATION(S):

To remain transparent to the citizens of Lethbridge County.

PREVIOUS COUNCIL DIRECTION / POLICY:

A County Council update is provided monthly.

BACKGROUND INFORMATION:

Lethbridge County Council in order to remain transparent to its citizens, provides a monthly report on their activities and events for the prior month.

ALTERNATIVES / PROS / CONS:

By not reporting activities and events attended by members of Council, citizens are unaware of the events occurring within the region and are unaware of the participation of Council with regards to Community events.

FINANCIAL IMPACT:

None at this time.

LEVEL OF PUBLIC PARTICIPATION:

☒ **Inform**	☐ **Consult**	☐ **Involve**	☐ **Collaborate**	☐ **Empower**

ATTACHMENTS:

Lethbridge County Council Attendance - February 2023

Lethbridge County Council Attendance
February 2023

Division 1
Councillor Lorne Hickey

February 1	FCSS Meeting
February 2	Lethbridge County Council Meeting
February 15	Green Acres Finance Meeting
February 22	Green Acres Board Meeting

Division 2
Reeve Tory Campbell

February 1	Exhibition Park Board Meeting
February 2	Lethbridge County Council Meeting
February 2	Exhibition Park AGM
February 13	Lethbridge County/City of Lethbridge IDP Meeting
February 14-16	Exhibition Park/Travel Alberta Ottawa Trade Mission
February 28	Meeting with William Wang, Director, Alberta China Offices
February 28	Meeting with Mayor Van Rijn, Coaldale Admin, County Admin

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Division 3
Councillor Mark Sayers

February 2	Lethbridge County Council Meeting
February 16	RMA Asset Management Workshop
February 22	Coaldale Chamber of Commerce AGM

Division 4
Deputy Reeve John Kuerbis

February 2	Lethbridge County Council Meeting
February 3	Mayors and Reeves
February 13	Lethbridge County/City of Lethbridge IDP Meeting
February 16	RMA Asset Management Workshop
February 17	Emperor of Japan Birthday Celebration
January 26	CAO Farewell Supper
January 31	Emergency Advisory Committee Meeting

Division 5
Councillor Eric Van Essen

February 2	Lethbridge County Council Meeting
February 7-8	Alberta Irrigation Districts Association Conference
February 16	RMA Asset Management Workshop
February 17	Highway 3Twinning Development Association Board Meeting

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Division 6
Councillor Klaas VanderVeen

February 2	Lethbridge County Council Meeting
February 27	SAEWA Board Meeting

Division 7
Councillor Morris Zeinstra

February 2	Lethbridge County Council Meeting
February 6-8	Alberta Irrigation Districts Association Conference
February 28	AgExpo