

Utility Coordination Memo

Presented to: Mr. Russ Watts, P.Tech. (Eng), P.L. (Eng), Engineering Services Manager

Project: 67 St & Taylor Dr. Roundabout, City of Red Deer, AB

Version: 1

Date: December 10, 2025

O/Ref.: Z0026225

Y/Ref.:

Object: Utility Coordination Memo for 67 St & Taylor Dr. Roundabout

1. Introduction

The purpose of this memorandum is to summarize the utility coordination activities completed during the preliminary design phase of the proposed roundabout at the intersection of 67 Street and Taylor Drive. This utility coordination was undertaken by CIMA+ (on behalf of City of Red Deer) to identify existing utilities within the project limits, assess potential conflicts with the proposed geometry, and confirm any regulatory requirements or agreements needed before advancing to detailed design.

Early engagement with utility owners and internal City departments was required ensured that potential conflicts were identified and mitigated proactively, supporting a constructible and compliant design that minimizes project risk. This memo summarizes the key steps undertaken in the utility coordination process, including conflict identification, base plan development, communication tracking, and next steps for relocation and agreement preparation.

2. Utility Conflict Identification

■ Background Data Collection

CIMA+ obtained available utility record drawings and GIS base files from the City of Red Deer to establish the existing conditions within the project area. These external reference files included ATCO, Civil, Electrical, Gas/Oil, Sanitary, Storm, Communications and Water.

■ AbaData Investigation

An AbaData search was completed to confirm the locations and ownership of third-party utility facilities within the project limits. The investigation provided additional confirmation of known utilities within the project area.

■ Alberta One Call Request (Planning and Design)

An Alberta One Call request was submitted on August 24, 2025 through Utility Safety Partners to notify all affected utility owners of the proposed design work. The intent of this request was to obtain the most up-to-date utility information and initiate early awareness among stakeholders. The locate ticket is attached in Appendix A.

Based on the locate ticket, the following utility owners were notified about the roundabout project: ATCO Gas and Pipelines, City of Red Deer, Roges Communications, Telus Communications and Zayo Canada Inc.

3. Development of Utility Base Plans

Based on the data collected, CIMA+ developed composite Utility Base Plans illustrating all known existing utilities within the project boundary. Individual Utility Plan Drawings were then prepared for each utility owner, clearly marking locations of potential conflicts with the proposed roundabout design. These drawings provided a clear visual representation of areas requiring attention and served as the foundation for discussions with each utility operator. A PDF version of each individual utility plan drawing is provided in Appendix B.

4. Development of the Utility Conflict Matrix

A Utility Conflict Matrix was created to serve as both a conflict register and a tracking tool for coordination activities. The matrix includes:

- Identified utility conflicts and their locations;
- Contact information for each utility owner;
- Summary of communications and correspondence logs; and
- Required follow-up actions required.

The Utility Conflict Matrix is a living document that is updated throughout the entire utility coordination process. A PDF version of the Utility Conflict Matrix is included in Appendix C of this document.

5. Utility Coordination Notification

Once the preliminary Utility Plan Drawings and Utility Conflict Matrix were completed, formal coordination was initiated through Utility Coordination Notification Emails issued to each affected utility owner (see Appendix D for a sample of the Notification Email). Each notification package included:

- A project summary and description of proposed works;
- The corresponding Utility Plan Drawing; and
- The relevant sections of the Utility Conflict Matrix.

This step ensured all utility owners were formally informed of the project, provided with accurate reference material, and invited to review potential impacts to their facilities.

6. Ongoing Notifications & Communication Summary

CIMA+ maintained active communication with utility owners and various City of Red Deer departments throughout the coordination process. Email correspondence and phone discussions were documented within the Utility Conflict Matrix, and provided as Appendices as below:

- **Water, Storm and Sanitary (Utilities):** Email correspondent attached in Appendix E.
- **Parks and Public Works:** Review letter from Parks & Public Works Department is attached in Appendix F.
- **Traffic Engineering:** Email communications and CAD file for existing signal infrastructures were provided. Refer to Appendix G for detail.
- **Environmental:** The City has identified a contamination area originated from a former Shell station approximately 250m east of the intersection. Email correspondent and a Site Specific Risk Assessment report from Shell is attached. Refer to Appendix H for detail.
- **Electrical:** Email communication includes CAD files for existing ELP system (civil and Electrical) at the project area, as well as the concept drawing for the existing overhead lines removal. Refer to Appendix I for detail.
- **Bell Canada:** Bell confirmed that there is no Bell asset in the project area. Email correspondence attached in Appendix J.
- **Rogers Communications (Shaw):** Email communication and CAD file existing infrastructures are attached. Refer to Appendix K for detail.
- **Telus Communications:** Email communication and CAD file of existing infrastructures are attached. Refer to Appendix L for detail.
- **ATCO Gas & Pipelines:** No response was provided at the time of this memo. Email correspondence attached in Appendix M.
- **Zayo Canada Inc.:** No response was provided at the time of this memo. Zayo asset map is attached in Appendix N.

As requested by the City, CAD files provided by the utilities through the utility coordination process are uploaded to the shared folder and can be access through this link [Utility Coordination](#), and the PDF version of the CAD files are included in Appendix O of this report.

7. Additional Steps (If Required)

If conflicts are confirmed during detailed design or construction, the following steps will be implemented:

- **Utility Relocations:**
Support the design of utility relocations, prepare associated cost estimates, and integrate relocation works into the construction schedule.

- **Hydrovac Coordination:**

Coordinate hydrovac test holes and survey to confirm the exact location and depth of critical utilities prior to finalizing the detailed design.

- **Crossing Agreements:**

Prepare required utility agreements, including permanent and temporary crossing agreements, to meet regulatory and utility owner requirements (e.g., ATCO Pipelines).

- **Construction Support:**

Provide ongoing utility coordination support during construction to address unforeseen conflicts, monitor relocations, and maintain communication with utility owners.

Prepared by:

Verified by:

Jie Yao, E.I.T.

Jie Yao, E.I.T. Transportation

Glen Campbell, P.Eng. Associated Partner

- p. j.
- Appendix A: Alberta One Call Ticket
 - Appendix B: Utility Plan Drawings (by Owner)
 - Appendix C: Utility Conflict Matrix
 - Appendix D: Utility Coordination Notification Email
 - Appendix E: Coordination Summary for Water, Storm and Sanitary (Utilities)
 - Appendix F: Coordination Summary for Parks & Public Works
 - Appendix G: Coordination Summary for Traffic Engineering
 - Appendix H: Coordination Summary for Environmental
 - Appendix I: Coordination Summary for Electrical
 - Appendix J: Coordination Summary for Bell Canada
 - Appendix K: Coordination Summary for Rogers Communications (Shaw)
 - Appendix L: Coordination Summary for Telus Communications
 - Appendix M: Coordination Summary for ATCO Gas & Pipelines
 - Appendix N: Coordination Summary for Zayo Canada Inc.
 - Appendix O: PDF Version of the Utility CAD Files by Each Utility

A

Appendix A

Alberta One Call Ticket





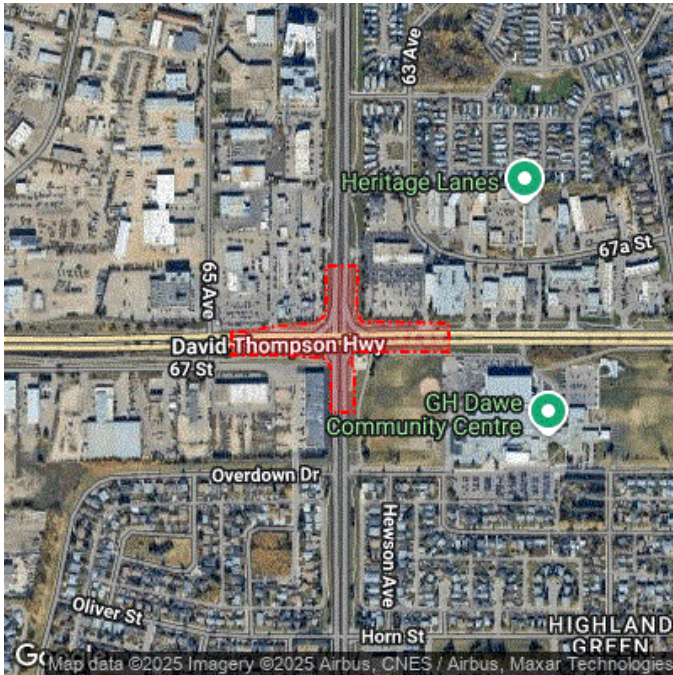
Ticket No: 20253500497

Excavator Details

Caller Id: 884943
Contact: Jie Yao
Company: CIMA+

Phone: 780 708 4910
Mobile: Not Supplied
Email: jie.yao@cima.ca

Dig Site and Ticket Details



[Open Map](#)

Proposed a roundabout for this intersection. Project is currently in planning and design phase.

Land Grids: LLD

NE-19-38-27-W4,NW-20-38-27-W4,SW-29-38-27-W4,SE-30-38-27-W4

Latitude: 52.288609

Longitude: -113.837813

Ticket Status	Original
Ticket Type	Planning & Design
Previous Ticket No.	Not Supplied
User Reference	Not Supplied
Ticket Date	2025-08-24T19:59:18-06:00
Work Start Date	2025-08-29T01:00:00-06:00
Address	6675 Taylor Dr., Red Deer, T4P 1Y3
Nearest Cross Street	Not Supplied
Type of work	Road Work
Activity	Road Install
Excavation Method	Grading
Excavation Depth	0.3 to 1m
Public Property	Road/Sidewalk
Private Property	None
Onsite Contact	Jie Yao
Onsite Phone	7807084910
Municipality	Not Supplied
Nearest Community	Not Supplied
Rural Subdivision	Not Supplied
Lot No.	
Block No.	
Plan No.	
ALP Option	No

Your Responsibilities

- Do not proceed with any excavation until all notified asset owners have responded by providing clearance, OR by identifying the location of their facilities with maps OR by placing locate marks on the ground.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using the Before You Dig Partners service, you agree to our privacy policy and the terms and conditions set out at on our web site.
- **For more information, visit www.BeforeYouDigPartners.com**

Utility Owner Details

The public utility owners listed below with a Status of "Notification Sent" have been requested to respond to your request. They may contact you directly for clarification of your request details.

Station Code	Authority Name	Status
AGSREDCT	ATCOGAS, A DIVISION OF ATCOGAS AND PIPELINES LTD. (AGSREDCT)	Notification Sent
APCENTRAL	ATCO PIPELINES (APCENTRAL)	Notification Sent
RDEER	CITY OF RED DEER (AB)	Notification Sent
ROGSHWA1	ROGERS COMMUNICATIONS CANADA INC. (HERITAGE SHAW)	Notification Sent
TELCNTRL	TELUS COMMUNICATIONS INC. (AB)	Notification Sent
ZAYOAB01	ZAYO CANADA INC.	Notification Sent

END OF UTILITIES LIST

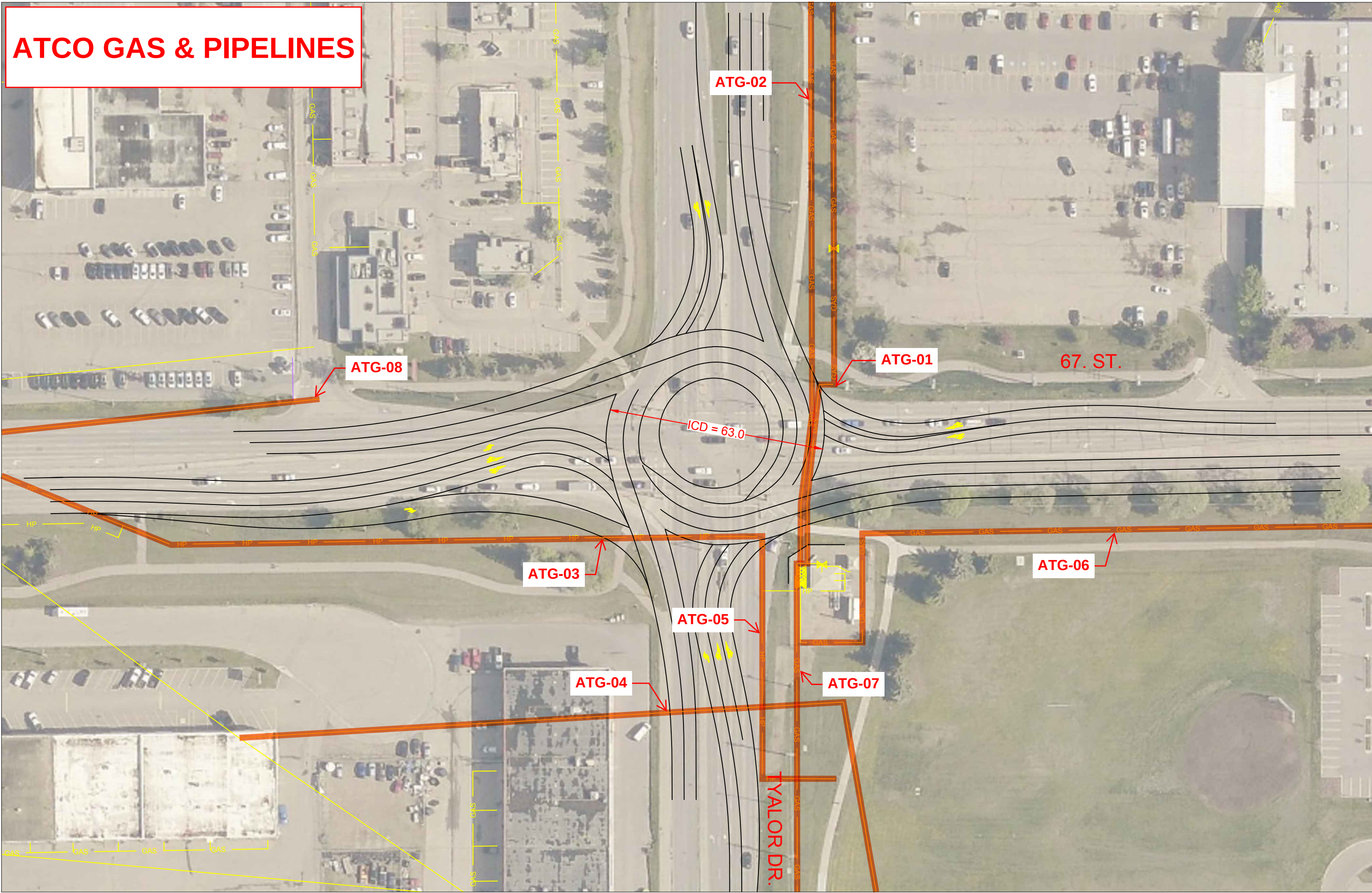
Request Utility Locates Online at www.BeforeYouDigPartners.com – 24 hours a day, 7 days a week

OneCallAccess - Powered by PelicanCorp

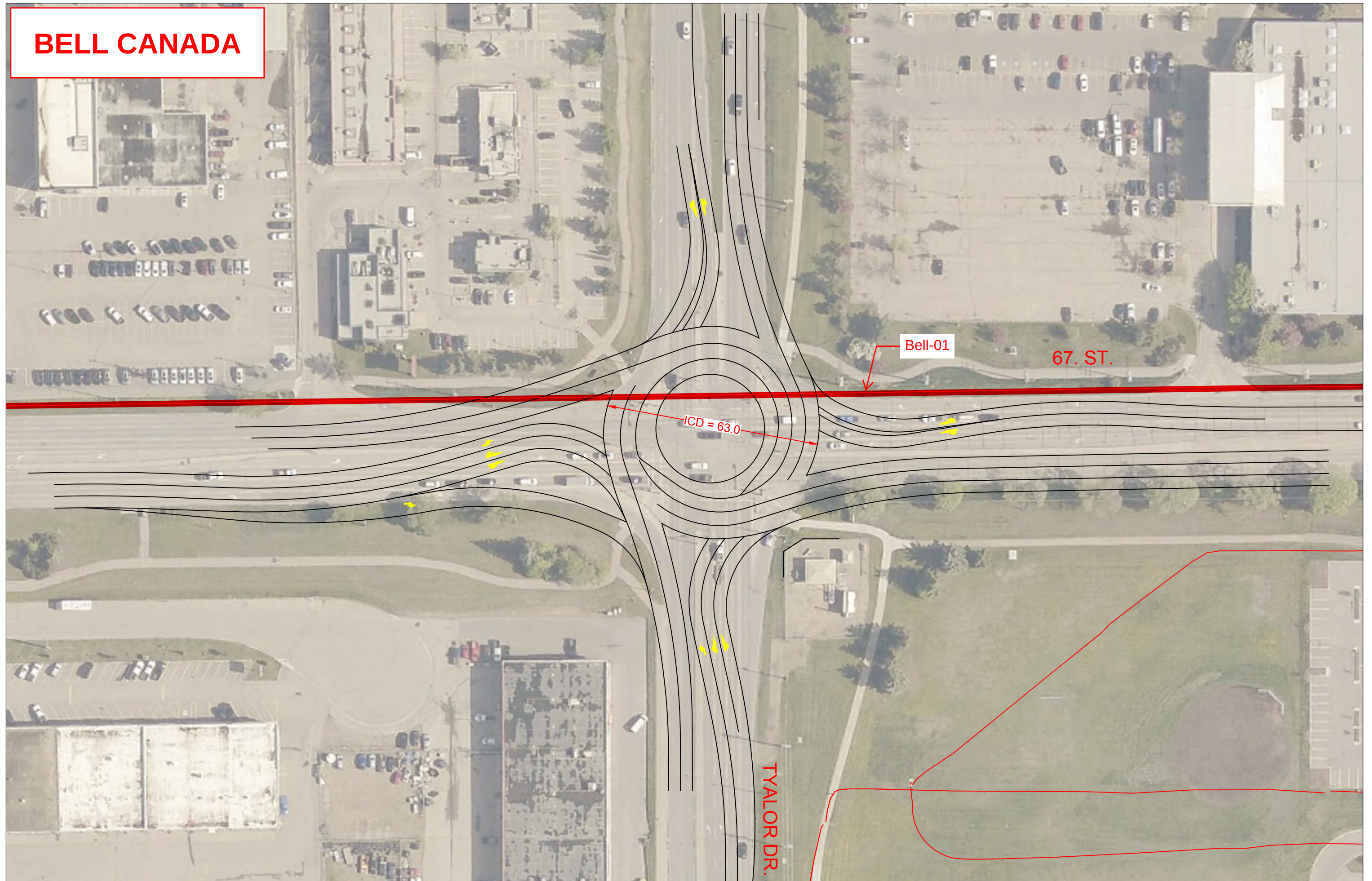
B

Appendix B Utility Plan Drawings (by Owner)

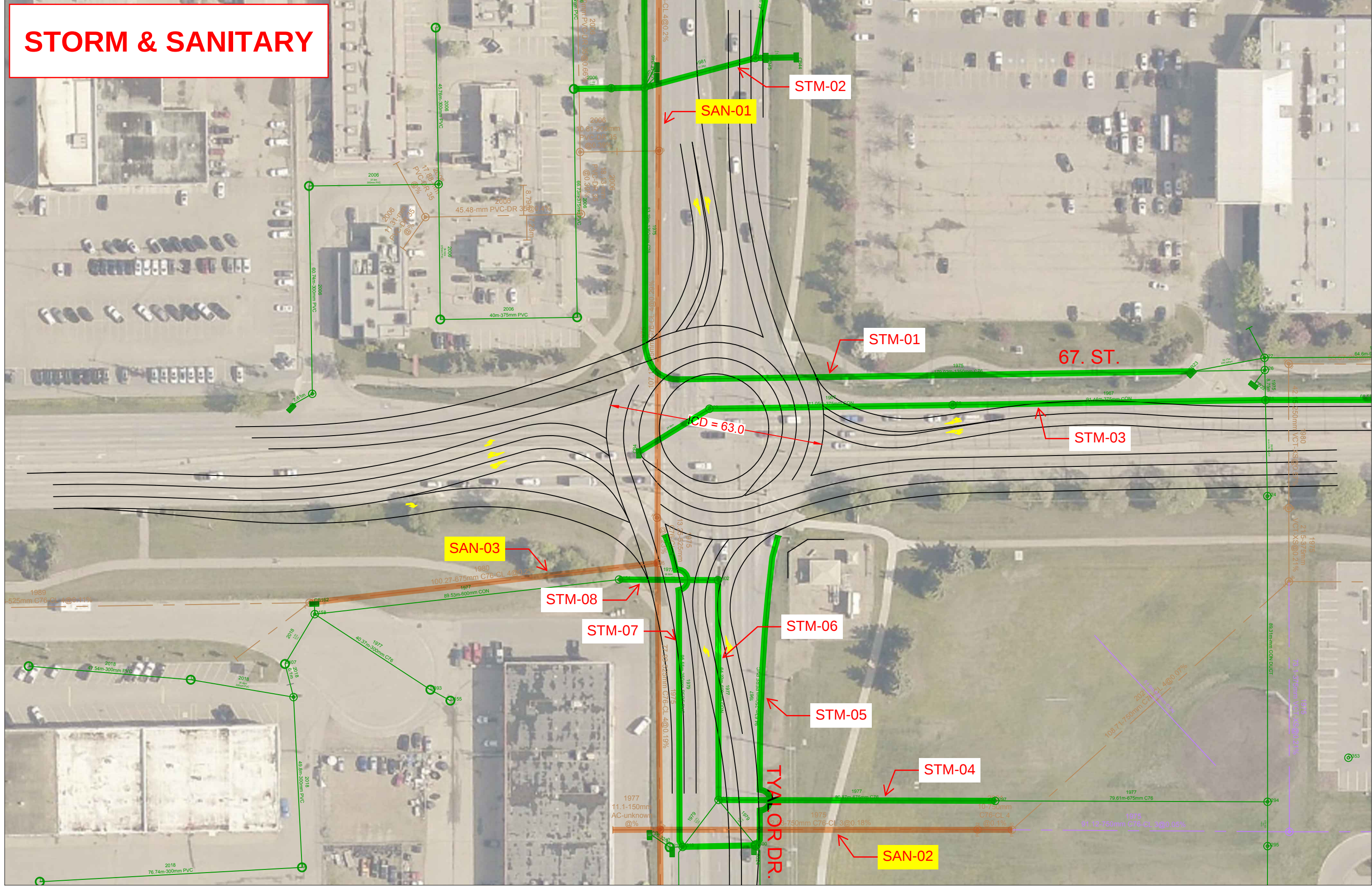
ATCO GAS & PIPELINES



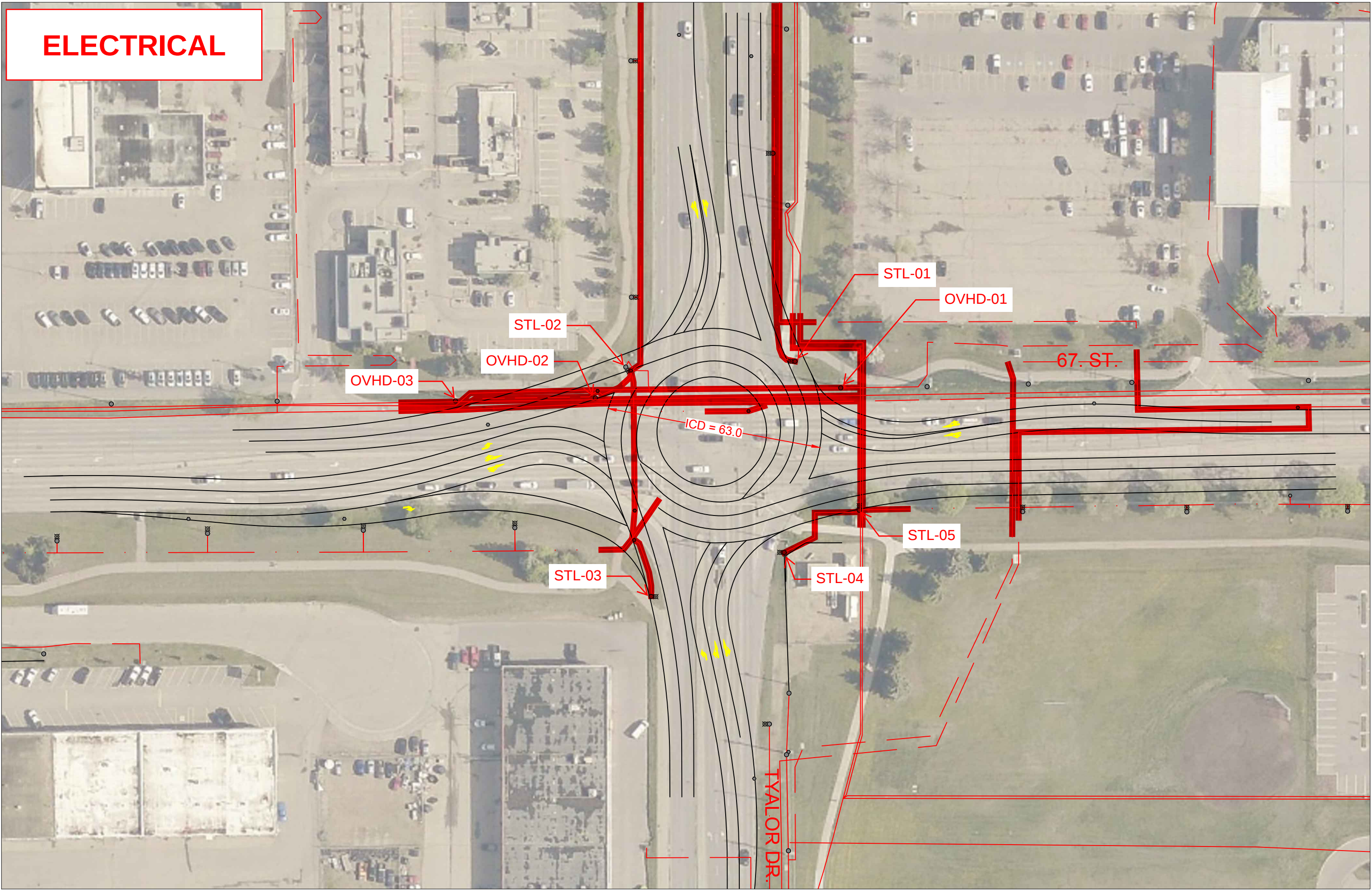
BELL CANADA



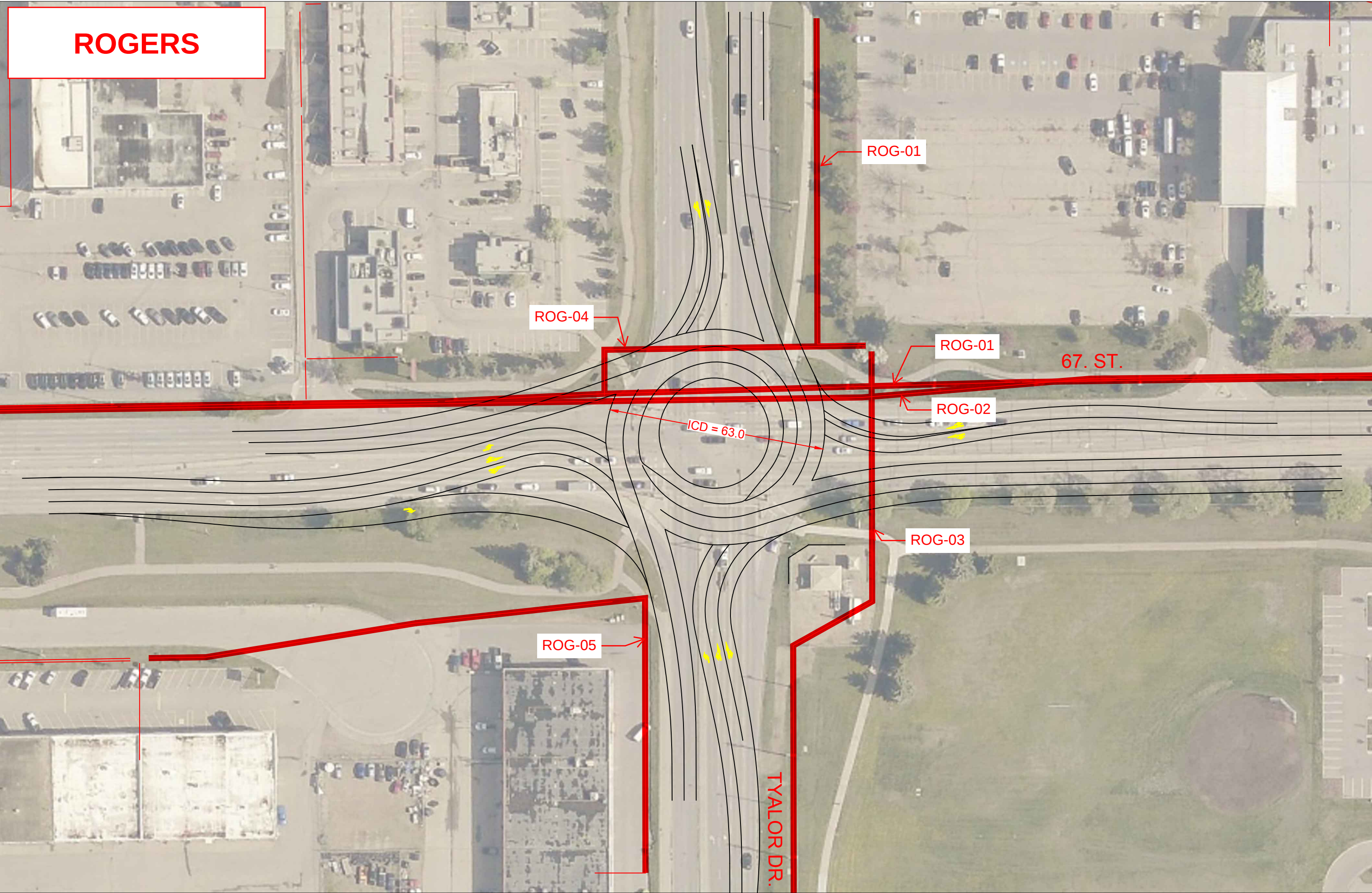
STORM & SANITARY

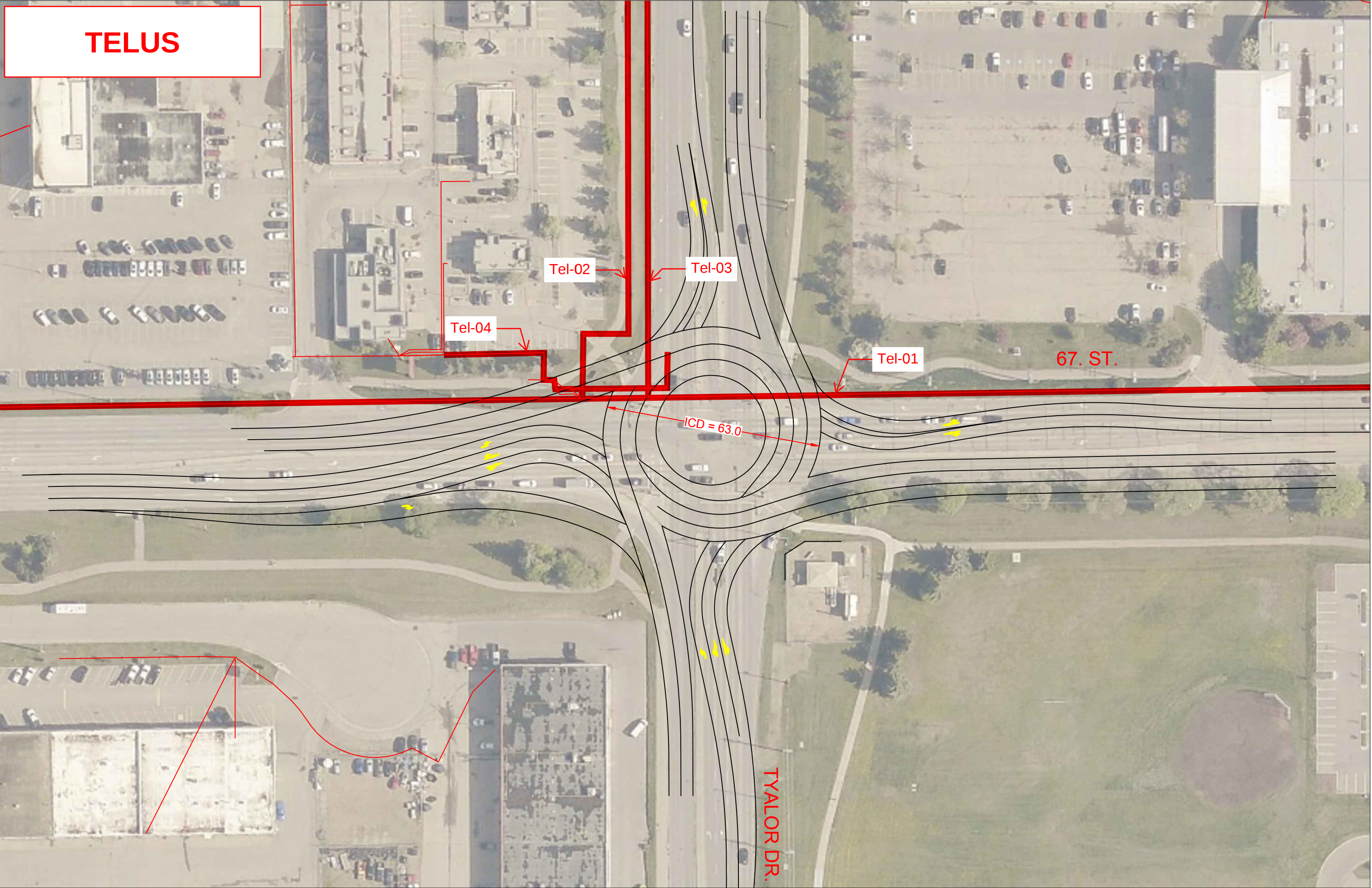


ELECTRICAL



ROGERS





WATER

WAT-01

67. ST.

ICD = 63.0

WAT-02

TYALOR DR.

C

Appendix C Utility Conflict Matrix

UTILITY COORDINATION TRACKING SHEET

Project: 67 St & Taylor Dr. Roundabout

Utility Owner	Contact	Position	Phone	Email	Sent		Received	
Traffic Engineering (CoR)	Joseph Lynn	Traffic Engineer	403-309-8538	Joseph.Lynn@reddeer.ca	09-Sep	Utility notification sent	11-Sep	PDF and CAD files and comments received
City of Red Deer								
Electric Utility	Brent Winter	Designer		Brent.Winter@reddeer.ca	09-Sep	Utility notification sent	10-Sep	PDF and CAD files and comments received
City of Red Deer	Keith Schick	Design Team Lead	780-871-4707	Keith.Schick@reddeer.ca				
		Electrical Distribution						
Environmental Planning	Cody Gillrie	Environmental Planning	587-876-4598	Cody.Gillrie@reddeer.ca	15-Sep	Utility notification sent	26-Sep	PDF and CAD files and comments received
City of Red Deer		Superintendent	403-342-8753					
Stom, Water and Sanitary	Cody Gillrie	Environmental Planning	587-876-4598	Cody.Gillrie@reddeer.ca	15-Sep	Utility notification sent	15-Oct	Email response/comments received
Underground Utilities		Superintendent	403-342-8753					
City of Red Deer								
Parks and Public Works	Calvin Kwan	Community Services	403-314-5852	calvin.kwan@reddeer.ca	15-Sep	Utility notification sent	10-Oct	PDF and CAD files and comments received
City of Red Deer		Planning Coordinator						
Rogers (Shaw)	Suzie GueladeYai	Planner		Suzie.GueladeYai@rci.rogers.com	15-Sep	Utility notification sent	17-Sep	Under review
	Alvin Yeung	Delivery Manager, Planning		alvin.yeung@rci.rogers.com	16-Oct	Follow up email sent	05-Nov	Phone conversation and CAD files received

Bell	Bradley Pedersen			Brad.Pedersen@bell.ca	15-Sep	Utility notification sent		
					16-Oct	Follow up email sent	16-Oct	Email response received
Telus	Jared Smith	Senior Design Specialist		jared.smith@telus.com	05-Sep	Utility notification sent	09-Sep	PDF and CAD files and comments received
ATCO	Wong, Lennae	Engineer in Training Red Deer, South District Engineering	587-679-0497	lennae.wong@atco.com	05-Sep	Utility notification sent	05-Sep	Email redirected to Lennae for response
					16-Oct	Follow up email sent		
	Erica Rex	Senior Engineer, Distribution Engineering Growth	587-220-5685	Erica.Rex@atco.com	05-Nov	2nd follow up email sent	10-Nov	No response received

D

Appendix D

Utility Coordination Notification Email

Jie Yao

From: Jie Yao
Sent: September 5, 2025 12:50 PM
To:
Cc: Glen Campbell; 'Russ.Watts@reddeer.ca'; 'Jared.Ho@reddeer.ca'; 'Simone.Thompson@reddeer.ca'
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Zayo
Attachments: Z0026225 - 67 Taylor Roundabout_Centered.pdf; 67 St_Taylor Drive - Conflict Matrix - Zayo.pdf

Hello,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 3, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.
Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073
#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA

E

Appendix E

Coordination Summary for Water, Storm and Sanitary (Utilities)

Jie Yao

From: Glen Campbell
Sent: October 15, 2025 8:23 AM
To: Russ Watts
Cc: Jared Ho; Sharaf Karabaev; Ward Yurystowski; Simone Thompson; Jie Yao; Shawn Sproule
Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Russ,

Thanks for your update,

We will overlay the interim and ultimate roundabout configurations with the utilities and circulate to your team for review.

Thanks

Glen

GLEN CAMPBELL

Associate Partner / Urban Roadways Manager / Transportation

M 780-721-5568

#100, 17187 - 114 Avenue, Edmonton, AB T5S 2N5 CANADA



Do you really need to print this email? Let's protect the environment!

CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

From: Russ Watts <Russ.Watts@reddeer.ca>
Sent: October 14, 2025 4:28 PM
To: Glen Campbell <glen.campbell@cima.ca>
Cc: Jared Ho <Jared.Ho@reddeer.ca>; Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>; Ward Yurystowski <Ward.Yurystowski@reddeer.ca>; Simone Thompson <Simone.Thompson@reddeer.ca>
Subject: FW: 67 St & Taylor Dr. Roundabout - Utilities

EXTERNAL EMAIL

Good afternoon Glen,

I had a good email discussion with Ward yesterday related to some feedback we got from Environmental Services regarding manholes and valves within the confines of the roundabout footprint. Ward has identified some significant challenges in particular with the Sanitary so we're going to have to make some decisions in that regard. Have a look at the comments and then we can discuss further at the next bi-weekly.

One question, is will you be providing a drawing with the utilities that show the interim and ultimate options of the roundabout with the potential utility conflicts.

Thanks,

Russ Watts, P.Tech. (Eng), P.L. (Eng) | Engineering Services Manager (he/him)

Engineering Services | The City of Red Deer

T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

From: Ward Yurystowski <Ward.Yurystowski@reddeer.ca>

Sent: October 09, 2025 2:19 PM

To: Russ Watts <Russ.Watts@reddeer.ca>

Cc: Simone Thompson <Simone.Thompson@reddeer.ca>

Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hi Russ,

This will be a tough one. We have some pipes that are arguable past their "mid-life" but not super close to a "end of life". The sanitary will be especially tough. It's a 6+m deep pipe that takes flow from a large area. When they expanded the Dawe Centre a few years back, they had to relocate a portion downstream of this intersection. It was a giant hole.

I've asked Wastewater Collections for any camera footage they may have of the sanitary and storm lines at the intersection so we can get a better feel for the condition. If they don't have any already, it would be wise for us to get some ourselves to support the decision, whichever way it may be.

But ya, having the CIMA drawing with the comparison would be valuable to review at this time.

Ward

From: Russ Watts <Russ.Watts@reddeer.ca>

Sent: October 09, 2025 11:33 AM

To: Ward Yurystowski <Ward.Yurystowski@reddeer.ca>

Cc: Simone Thompson <Simone.Thompson@reddeer.ca>

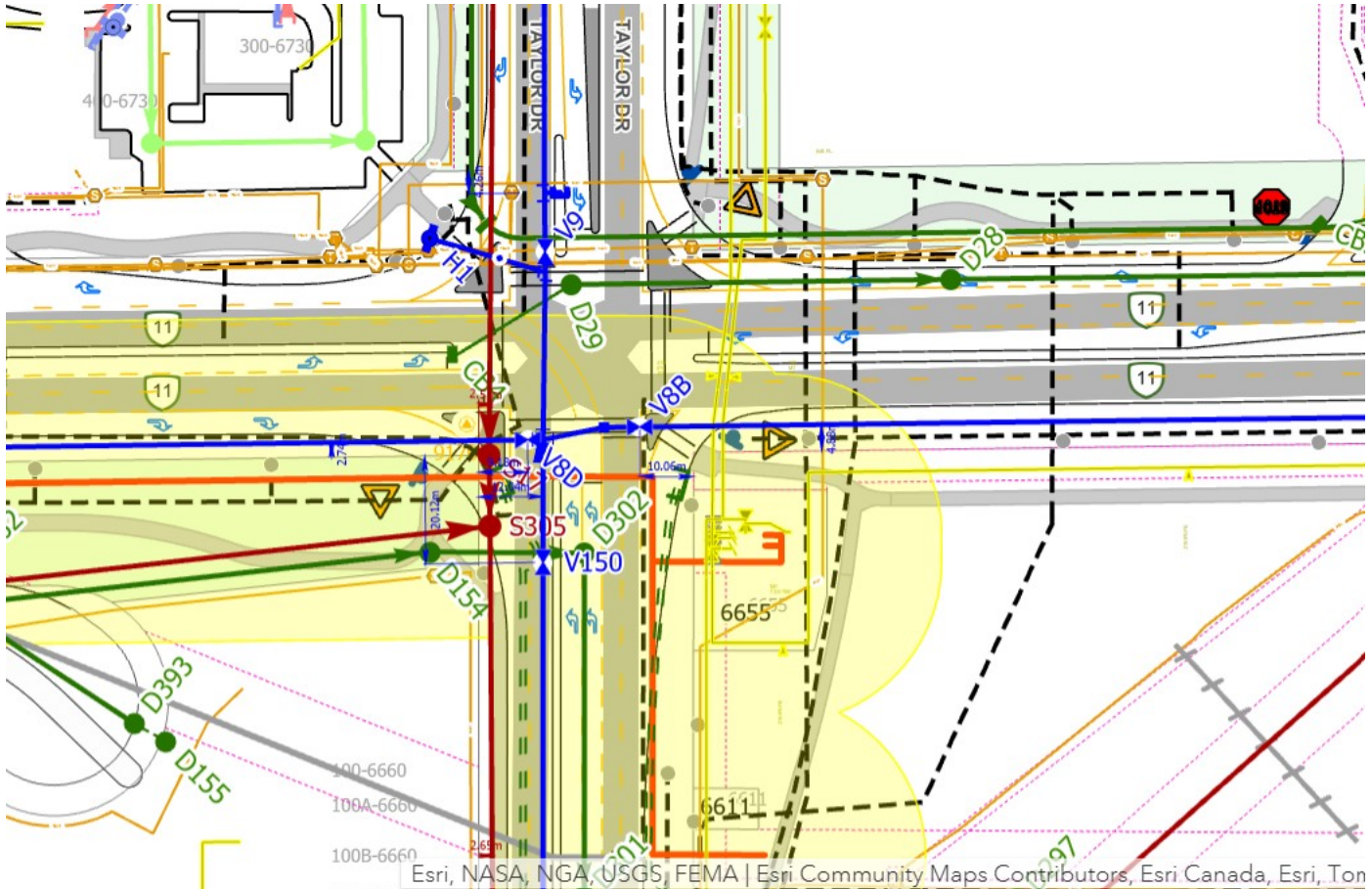
Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hi Ward,

Before we go back to the consultant, I'm wondering if we need to look a little closer about the scope of relocations before we give them direction. I'm a little reluctant to go back and say get rid of the manholes in the circulating lanes without reviewing the scope of work involved. Some of the storm will be easy, as it looks to be draining the

intersection and we'd need to replicate that but for example the line from the west connecting to S305 Sani manhole might need the whole line relocated? It kinda depends.

Once CIMA is done with the utility drawings in comparison to the roundabout we'll have a better look. Ultimately, given the age of some of it we might be smart to work on a bigger scope if more relocation is required. I still want to do underground work, move power poles, buy land etc a year before the roundabout construction itself so it's just a matter of getting the scope right now and then asking for the right amount of money in the right year.



Thanks,

Russ Watts, P.Tech. (Eng), P.L. (Eng) |Engineering Services Manager (he/him)

Engineering Services | The City of Red Deer

T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

From: Ward Yurystowski <Ward.Yurystowski@reddeer.ca>

Sent: October 07, 2025 7:21 AM

To: Russ Watts <Russ.Watts@reddeer.ca>

Cc: Simone Thompson <Simone.Thompson@reddeer.ca>

Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hi Russ,

That is my sense as well. Digging up a round-about to fix something beneath it would be pretty horrible no matter how new/old the round-about actually is. I'd be thinking the same thing they are in their shoes.

Taking a quick look at the era of the utilities they are from the 1960s/1970s. The water and sanitary are relatively major lines (with the sanitary being a 525mm diameter and the water being 300/400/500mm).

To get a better handle on things, at a minimum our first step early in this project would be to get a camera inspection of the sanitary and storm lines in the project footprint. This would give us the best insight on the condition of the gravity pipes. We could ask Wastewater Collections if they have any recent-ish information (as they do periodically camera mains under their own program). However if they are more than a couple years old, I'd say we should do it as part of the early project due-diligence.

Would you like me to pass this to Jared/Sharaf or assist more hands on?

Ward

From: Russ Watts <Russ.Watts@reddeer.ca>
Sent: October 07, 2025 6:54 AM
To: Ward Yurystowski <Ward.Yurystowski@reddeer.ca>
Cc: Simone Thompson <Simone.Thompson@reddeer.ca>
Subject: Fwd: 67 St & Taylor Dr. Roundabout - Utilities

Good morning Ward,

What are your thoughts on Joe's comments below? I don't get a definitive sense that we need to relocate things based on condition, so is this more of a nice to have? We haven't decided on the type of surface but likely it will be concrete. Perhaps it's worth relocating the conflicts in the circulating roadway.

Let's chat next week.

Thanks,

Russ Watts, P.Tech. (Eng), P.L. (Eng) Engineering Services Manager (he/him)
Engineering Services | The City of Red Deer
T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

Begin forwarded message:

From: James Christie <James.Christie@reddeer.ca>
Date: October 2, 2025 at 10:58:45 AM EDT
To: Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>
Cc: Jared Ho <Jared.Ho@reddeer.ca>, Joe Krego <Joe.Krego@reddeer.ca>, Russ Watts <Russ.Watts@reddeer.ca>
Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hello,

There are no current service requests for this immediate area for deep utility infrastructure.

Thanks,

James

From: Joe Krego <Joe.Krego@reddeer.ca>

Sent: October 02, 2025 6:42 AM

To: Russ Watts <Russ.Watts@reddeer.ca>; Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>

Cc: Jared Ho <Jared.Ho@reddeer.ca>; James Christie <James.Christie@reddeer.ca>

Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hello Russ,

I do not have any future replacement work in that area, but I have CC'd James Christie on this so he can tell you if there have been any service requests logged for this area.

Thanks,

Joe Krego, P.Eng.

Environmental Planning Engineer II

Utility Services | City of Red Deer

403.314.5864

From: Russ Watts <Russ.Watts@reddeer.ca>

Sent: October 02, 2025 4:52 AM

To: Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>; Joe Krego <Joe.Krego@reddeer.ca>

Cc: Jared Ho <Jared.Ho@reddeer.ca>

Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Good morning all,

Thanks Joe, we'll pass these comments along to the consultant. Do you have any of these utilities on an upcoming replacement list? During detailed design we would identify a limit within the footprint of the roundabout for replacement to relocate the valves and manholes but wondering if there was other work planned that we could coordinate with this sort of like we did with the signals at 43rd and Taylor.

Appreciate you bringing it up.

Russ Watts, P.Tech. (Eng), P.L. (Eng) | Engineering Services Manager (he/him)

Engineering Services | The City of Red Deer

T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

From: Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>
Sent: October 01, 2025 3:40 PM
To: Joe Krego <Joe.Krego@reddeer.ca>
Cc: Russ Watts <Russ.Watts@reddeer.ca>; Jared Ho <Jared.Ho@reddeer.ca>
Subject: RE: 67 St & Taylor Dr. Roundabout - Utilities

Hello Joe,

Thank you for sharing your concerns regarding the deep utilities at the proposed roundabout location.

I understand the importance of addressing the age and positioning of the existing infrastructure. Transportation Engineering is currently working with our consultant, CIMA+, on the functional planning study for improvements at the 67 St & Taylor Dr intersection.

At this stage, I would not recommend reaching out to CIMA+ directly. Instead, I suggest we include Russ in the loop to get his advice on the best way to move forward with your feedback and how it should be communicated to the consultant.

Sharafiddin (Sharaf) Karabaev | P.Eng | M.Eng | PMP®
Transportation Design Engineer | Engineering Services
The City of Red Deer

T: 403.342.8307 E: Sharaf.karabaev@reddeer.ca



From: Joe Krego <Joe.Krego@reddeer.ca>
Sent: Wednesday, October 1, 2025 3:13 PM
To: Sharaf Karabaev <Sharaf.Karabaev@reddeer.ca>
Subject: 67 St & Taylor Dr. Roundabout - Utilities

Hello Sharaf,

The Utilities Department has concerns regarding the age and locations of the deep utilities if the proposed roundabout is to proceed. Should the following be provided directly to your consultant CIMA+?

1. The Water mains should be replaced with PVC and new valves installed in locations outside of the roadway and any concrete.
2. The Storm mains may need to be relocated so manholes can be placed outside of roadway and concrete if possible
3. The Sanitary mains may need to be relocated so manholes can be placed outside of roadway and concrete if possible

Thank you,

Joe Krego, P.Eng.
Environmental Planning Engineer II
Utility Services | City of Red Deer

F

Appendix F

Coordination Summary for Parks & Public Works

Date: October 14, 2025

To: Jie Yao
CIMA+

From: Calvin Kwan
Parks & Public Works

Subject: **67 St & Taylor Dr. Roundabout Project**
67 St & Taylor Dr., Red Deer, AB
Parks and Public Works Review, Submission #1

The Parks and Public Works department has completed review of the proposed roundabout project at 67 Street and Taylor Drive. We are in support of the project with the following comments:

Public Works Engineer

- Requesting clarification regarding how the crossfall and crown transition is being addressed along 67 St. Depending on the proposed tie-in point, it may be appropriate to extend the project limits and reprofile the median beyond the original limits to address long-term geometric and drainage concerns.

Parks and Open Space Designer

- A landscape plan must be provided, as there is currently no information identifying the proposed landscape losses and plans to restore City assets.

Community Services Planning Coordinator

- As per Section 7.3 of the Highland Green Neighborhood Area Structure Plan, any redevelopment shall be sensitive to maximizing retention of existing mature site landscaping. Please ensure that mature trees on the site are preserved to the greatest extent possible.

Should you have any questions, please do not hesitate to reach out.

Thank you,

Calvin Kwan
Community Services Planning Coordinator
The City of Red Deer
Parks & Public Works | Parks Section

G

Appendix G

Coordination Summary for Traffic Engineering

Jie Yao

From: Joseph Lynn <Joseph.Lynn@reddeer.ca>
Sent: September 11, 2025 1:54 PM
To: Jie Yao
Cc: Glen Campbell; Russ Watts; Jared Ho; Simone Thompson
Subject: RE: [External] RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Electrical & Traffic Signal
Attachments: RD_TC_025 67 St and Taylor Dr-TC-24x36.pdf; RD_TC_025 67 St and Taylor Dr.dwg

EXTERNAL EMAIL

Good Afternoon Jie,

Please find attached the drawings, PDF and AutoCad, for the signalized intersection of 67 Street and Taylor Drive.

I will be the direct contact from the Traffic Section of Engineering for this project and there are no planned changes to our infrastructure at this location.

Should there be any new streetlighting or major changes to existing streetlighting proposed for this location please include the Traffic Section for review and comments.

Thank You,

Joseph Lynn, C.E.T., P.L.(Eng.) | Traffic Engineer
Engineering Services | The City of Red Deer
T: 403-309-8538

www.reddeer.ca

From: Jie Yao <Jie.Yao@cima.ca>
Sent: September 09, 2025 2:54 PM
To: Joseph Lynn <Joseph.Lynn@reddeer.ca>; Kyle Perron <Kyle.Perron@reddeer.ca>; Vince Gibbons <Vince.Gibbons@reddeer.ca>
Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ Watts <Russ.Watts@reddeer.ca>; Jared Ho <Jared.Ho@reddeer.ca>; Simone Thompson <Simone.Thompson@reddeer.ca>
Subject: [External] RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Electrical & Traffic Signal

Hello,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 3, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.

Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073

#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



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EXISTING	TRAFFIC SIGNAL	PROPOSED
	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - SECONDARY - 8 SECTION HEAD Red Arrow Green	
	HORIZONTALLY ALIGNED SIGNAL w/ BACK PLATE - PRIMARY - 8 SECTION HEAD Red Arrow Green	
	HORIZONTALLY ALIGNED SIGNAL w/ BACK PLATE Red Arrow Green Left Arrow Green	
	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green	
	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green	
	HORIZONTALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green	
	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green	
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	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green	
	HORIZONTALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green	
	VERTICALLY ALIGNED SIGNAL w/ BACK PLATE - 8 SECTION HEAD Red Arrow Green Left Arrow Green Right Arrow Green	
SIGNAL ARM		
	ACCESSIBLE PEDESTRIAN COUNTDOWN SIGNAL	
	PEDESTIAN COUNTDOWN SIGNAL	
	ACCESSIBLE PEDESTRIAN SIGNAL	
	PEDESTRIAN SIGNAL	
	ADVANCE WARNING FLASHER	
	PULL BOX	
	TRANSFORMER	
	IN-GROUND SENSOR	
	WOOD POLE	
	STREET LIGHT	
	ACCESS POINT	
	REPEATER	
	NON-MUTISIVE DETECTOR	
	TRAFFIC CABINET / CONTROLLER	
	SIGNAL STRUCTURE BASE	
	ROTATABLE SIGNAL STRUCTURE BASE	
	MANNER BALL	
	TRAFFIC CONTROL LRD BOX	
	LDR SENSOR (push-in / Visual)	
	30mbs Duct or HDPE	
	30mm Carbon or FIBRE	
	19mm RGD	
	25mm RGD	
	1" WATER	
	2" or 30mm UNKNOWN MATERIAL	
	100mm	
	150mm	

9				
8				
7				
6	24-06-03	G.B.	J.L.	AS-BUILT
5	20-05-20	R.W.	R.W.	OH MEASUREMENTS, WO# 249368
4	20-04-21	R.W.	R.W.	SIGNAL A TO D, WO# 238345
3	19-09-17	R.W.	R.W.	CONDUIT UPDATES
2	19-03-29	R.W.	K.P.	FIELD UPDATES
1	18-05-11	R.W.	K.P.	AS-BUILT
NO.	DATE	BY	APV	SUBJECT

ISSUED/REVISION



PROJECT:

TRAFFIC CONTROL

TC# 25
67 STREET &
TAYLOR DRIVE

DATE:	NOVEMBER 1, 2018
DRAWN BY:	M.S.
DESIGNED BY:	R.W.
CHECKED BY:	D.B.
APPROVED BY:	K.P.

SCALE:

1:250

DFS NUMBER	REV.	DWG. NO.	SHEET
	6	1	1 / 1

H

Appendix H Coordination Summary for Environmental

Jie Yao

From: Russ Watts <Russ.Watts@reddeer.ca>
Sent: September 26, 2025 12:33 PM
To: Jie Yao
Cc: Glen Campbell; Jared Ho; Sharaf Karabaev; Simone Thompson
Subject: FW: [External] 67 St & Taylor Dr. Roundabout - Utility Circulation for City of Red Deer Departments
Attachments: 6195 67a Street - 2025 Addendum Site-Specific Risk Assessment RAP - 2025-07-17.pdf

EXTERNAL EMAIL

Fyi

Russ Watts, P.Tech. (Eng), P.L. (Eng) |Engineering Services Manager (he/him)

Engineering Services | The City of Red Deer

T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

From: Dana Williamson <Dana.Williamson@reddeer.ca>
Sent: September 26, 2025 12:11 PM
To: Russ Watts <Russ.Watts@reddeer.ca>
Cc: Spencer Podgurski <Spencer.Podgurski@reddeer.ca>
Subject: RE: [External] 67 St & Taylor Dr. Roundabout - Utility Circulation for City of Red Deer Departments

Hi Russ,

Cody sent us this to review as well, as it came to him through Jie Yao. The following is the information Spencer compiled (and will likely come back through Cody as well).

There's contamination in the City's utility right-of-way approximately 250 m east of the 67 St and Taylor Dr intersection. This is from a former Shell station at 6195 67A St. Shell recently commissioned the attached site-specific risk assessment relating to the contamination within the City's right-of-way. The affected City land is shown in the attached report (Figures 2-4). The SSRA concludes there's no risk associated with the contamination, but if it is to be excavated, Shell should be notified so that they may appropriately dispose of the contaminated soil.

Otherwise, the closest site with a known ESA is the current Mitsubishi dealership (6444 67 Street), immediately north of 67th Street, with impacts delineated on their property (2016). The Co-op Gas Station has active underground tanks that are 40 m west of the current Taylor Drive alignment, 200 m north of the current 67 street alignment and ~210 m northwest of the intersection. There has been no contamination reported at the Co-op location, but there's a high probability with buried fuel tanks.

Regards,
Dana

Dana Williamson

Contaminated Sites & Environmental Regulatory Specialist
D: 403.406.8629

From: Russ Watts <Russ.Watts@reddeer.ca>
Sent: September 26, 2025 6:52 AM
To: Dana Williamson <Dana.Williamson@reddeer.ca>
Cc: Spencer Podgurski <Spencer.Podgurski@reddeer.ca>
Subject: FW: [External] 67 St & Taylor Dr. Roundabout - Utility Circulation for City of Red Deer Departments

Good morning Dana,

Here is the functional plan I was mentioning the other day. Can you have a look and let me know if there are any known environmental issues. I did take a look in ELI and there are no landfill constraints identified and one ESA to the east at Fountain Tire. If you have anything on file withing these constraints please let me know.

The attachment shows the ultimate lane configurations and the goal would be to work within the existing ROW so I would be curious to know if there is anything from the adjacent properties migrating into the ROW.

If you can respond before the October 13 date CIMA has asked for I can incorporate this into the overall comments.

Thanks,

Russ Watts, P.Tech. (Eng), P.L. (Eng) |Engineering Services Manager (he/him)

Engineering Services | The City of Red Deer
T: 403-342-8158 | D: 403-406-8671 | C: 403-318-0507

www.reddeer.ca

From: Jie Yao <Jie.Yao@cima.ca>
Sent: September 22, 2025 4:43 PM
To: Lee Birn <Lee.Birn@reddeer.ca>; Janet Cunningham <Janet.Cunningham@reddeer.ca>; Danielle.Meger@reddeer.ca; Michael Leibach <Michael.Leibach@reddeer.ca>; Tom Marstaller <Tom.Marstaller@reddeer.ca>; Cody Gillrie <Cody.Gillrie@reddeer.ca>; Joe Krego <Joe.Krego@reddeer.ca>
Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ Watts <Russ.Watts@reddeer.ca>; Jared Ho <Jared.Ho@reddeer.ca>; Simone Thompson <Simone.Thompson@reddeer.ca>
Subject: [External] 67 St & Taylor Dr. Roundabout - Utility Circulation for City of Red Deer Departments

Hello,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

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- Detailed Design Completion: November, 2026
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- A project liaison contacts for the entire duration of the project;
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- Any further updates on your planned utility infrastructure that may have potential impact.

A Drawing of our preliminary design is attached for your reference based on the information available at this time. Please review the attached document and provide feedback by **October 13, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.
Engineer in Training / Highway Engineering

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#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



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TECHNICAL MEMORANDUM

DATE 17 July 2025

Project No. CA0040929.7738-1000

TO Brett Reynolds PAg - Program Manager - Soil and Groundwater Solutions
Shell Canada Limited

CC karl.bresee@wsp.com; nik.davos@wsp.com

FROM Karl Bresee, BSc, PBD, PBIol

EMAIL karl.bresee@wsp.com

SUPPLEMENTAL SSRA PROPOSING SITE-SPECIFIC REMEDIAL OBJECTIVES (SSRO) FOR THE FORMER GLENDALE SHELL SERVICE STATION, 6195 67A STREET, RED DEER, AEPA FILE DLTMO001059, SHELL LC C44059

1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Shell Canada Limited (Shell) to address outstanding concerns that have been raised with two portions of land owned by the City of Red Deer, adjacent to the former Shell retail service station located at 6195 67A Street, Red Deer, Alberta (the "Site"; as shown on Figures 1 and 2). These adjacent properties include:

- 1) City of Red Deer land located south of the Site (the "City Lands"); and,
- 2) A right-of-way located at the western edge of the commercial property at 6206 67 Street and eastern edge of the commercial property at 6350 67 Street, Red Deer, Alberta.

Risk Management Plans (RMPs) were provided to the owners of the affected adjacent lands; City Lands, City Right-of-Way (ROW) and the commercial property located at 6206 67A Street, Red Deer, Alberta (the "Commercial Property"). The Commercial Property owner (Ohio Holding Inc.) has accepted the RMP for the Commercial Property Management Area (Shell Canada Products 2024). Furthermore, if excavation or subsurface construction is planned or required within the management areas, Shell must be notified prior to ground disturbance to ensure that petroleum hydrocarbon (PHC)-impacted soils are appropriately managed (AtkinsRéalis 2024). The City of Red Deer has raised concerns for isolated residual soil impacts in the ROW utility corridor and a green area of City Lands (Figures 1 and 2).

WSP understands that the purpose of this memo is to address the isolated residual exceedances in soil such that the City of Red Deer and Alberta Environment and Protected Areas (AEPA) have additional information that promotes acceptance of the proposed RMP.

1.1 Background

The Site was decommissioned in 2014, and the impacted source materials were excavated in 2015 to fully remediate the residual PHC impacts in soil on the Site. The Site and surrounding properties are designated as commercial land use, the inferred groundwater flow direction is to the northwest and the soil texture has been

classified as fine-grained. Extensive environmental investigations have been completed at the Site and Tier 2 guidelines were calculated and a comprehensive RMP has been developed (AtkinsRéalis 2024).

The residual PHC impacts on City of Red Deer land are isolated and have been fully delineated vertically and laterally (AtkinsRéalis 2024). Additionally, there is no contamination remaining in groundwater and no potential for soil vapour impacts based on soil and groundwater results (AtkinsRéalis 2024). A single soil exceedance of PHC Fraction F2 was identified on the ROW between 3.5 to 4.0 metres below ground surface (mbgs) within a storm utility corridor (01-46 on Figure 3), which was measured in 2001. In 2011, soil samples were collected from borehole BH11-63 (11-63 on Figure 3) between 3.9 to 4.0 and 5.9 to 6.0 mbgs. Reported concentrations of PHC Fraction F2 were below their respective AEPA soil guideline for both samples. It is unlikely that the PHC Fraction F2 exceedances from 23 years ago would be representative of current conditions based on the results at BH11-63 and potential mass reduction effects from physical remediation and biodegradation on the spatial extent since the delineation samples were collected in 2011. It is important to note that a dual phase vacuum extraction system (i.e., physical remediation) operated from 1998 to 2010 within a few metres (m) of BH01-46 and BH11-63. Physical remediation and enhanced biodegradation included manual and passive product bailing, product removal via vacuum truck, implementation of a dual-phase vacuum extraction system, bioremediation enhancement solution and hydrogen peroxide injection. As such, light non-aqueous phase liquid has not been observed in any well at the former Shell site or off-site properties since 2005 (AtkinsRéalis 2024). Historical and annual groundwater monitoring at several wells between 2001 to 2011 has measured concentrations below applicable guidelines since 2007. Assuming that the exceedance at 01-46 is still present, the approximate estimated volume of soil is less than five cubic metres (m³) on the ROW, based on delineation boreholes which represent the lateral extent of PHC Fraction F2-impacted fine-grained soils at a depth range between 3.5 to 4.0 mbgs.

Two soil exceedances of PHC Fraction F2 were identified on City Lands in 2015 between 2.4 to 3.7 mbgs, below the existing grass boulevard and asphalt sidewalk adjacent to 67 Street (EXC-082 and S4-5/6 on Figure 4). According to the RMP, the off-site Management Area for City Lands encompasses an approximate area of 68 square metres (m²), 32 m² of which was identified as the approximate area of contamination (AtkinsRéalis 2024). Additional boreholes were drilled in 2016 to the south (16-88 on Figure 3) and west (16-89 on Figure 3) of the exceedances between 2.3 and 4.0 mbgs. Reported concentrations of PHC Fraction F2 were below the laboratory detection limit for all five soil samples analyzed, including one duplicate. Assuming the area of contamination is 32 m² and 0.2 m of fine-grained soils are impacted across the entire area, the approximate volume of PHC Fraction F2 impacted soil is less than 6.5 m³ on City Lands. The estimated volume of impacted soil does not take into consideration the potential mass reduction effects of biodegradation on the extent and concentration of residual PHC Fraction F2, since the delineation samples were collected in 2016.

Environment and Climate Change Canada published additional guidance regarding the implementation of the Canada-Wide Standard for PHC in soil under the Federal Contaminated Sites Action Plan (FCSAP) in 2022 (FCSAP 2022). Combustible headspace vapour screening is one line of evidence used to detect whether an elevated level of PHC Fraction F2 is present when evaluating management limits (i.e., <60 parts per million [ppm]) and it is important to note that FCSAP has not provided a scientific rationale for the basis of benchmark, but it is suspected to be a level above background. Headspace vapour concentrations collected at delineation boreholes on the ROW and City Lands were well below measurements collected at depths where PHC Fraction F2 concentrations above their respective soil guideline were identified.

Table A summarises residual and historical concentrations of PHC Fraction F2 in soil for comparison to the eco-contact pathway and management limits. Off-site migration is not considered a pathway of concern because there is no more sensitive land use surrounding the Site.

Table A: Summary of Residual Concentrations of PHC Fraction F2 in Soil on City of Red Deer Land

COC	Sample Date	Sample Location	Sample Depth (mbgs)	Headspace (ppm)	Sample Concentration (mg/kg)	AEPA Tier 2 Guideline (mg/kg)	
						Ecological Direct Soil Contact	Management Limit
ROW							
PHC Fraction F2	23 May 2001	BH01-46	3.5 – 4.0	85	2,400	NA	1,000
PHC Fraction F2	1 December 2011	BH11-63	3.9 - 4.0	5	990	NA	1,000
PHC Fraction F2	1 December 2011	BH11-63	5.9 - 6.0	15	11	NA	1,000
City Lands							
PHC Fraction F2	16 September 2015	EXC2-082	2.4 –2.5	190	2,700	260	1,000
PHC Fraction F2	20 July 2015	BH15-S4	3.5 – 3.7	0	1,500	NA	1,000
PHC Fraction F2	2 February 2016	BH16-88	2.3 - 2.5	0	<10	260	1,000
			3.5 - 4.0	0	<10	NA	1,000
PHC Fraction F2	2 February 2016	BH16-89	2.3 - 2.5	0	<10	260	1,000
			3.5 - 3.8	0	<10	NA	1,000

Notes: Sources: AEPA guidelines for fine-grained soils, commercial land use (AEPA 2024); Environmental Site Assessment and Remediation Summary Report (2000 – 2016) (SNC-Lavalin 2016).

Bold Above respective AEPA Tier 2 Soil Guideline

COC contaminant of concern

mg/kg milligrams per kilogram

NA not applicable; exclusion of the ecological direct soil contact pathway for F1, F2, F3 and F4 is permitted below 3 m.

1.2 Objectives

The objectives of the memo are:

- To provide a description of relevant historical information;
- To provide a detailed characterization of the likelihood and magnitude of adverse effects to plants and invertebrates;
- To evaluate multiple lines of evidence related to the natural attenuation of PHC Fraction F2 in soil; and
- To develop site-specific management limits.

2.0 ASSESSMENT OF ECOLOGICAL DIRECT CONTACT

As stated in Table A, a single PHC Fraction F2 exceedance of the ecological direct soil contact guideline remains on City Lands at a depth of 2.4 to 2.5 mbgs. The City Lands includes an asphalt driveway, a multi-use pathway and a green area with three small trees/shrubs. The residual PHC Fraction F2 exceedance has been fully delineated vertically and laterally within a portion of the City Lands that is currently covered by grass. The City Lands soils are fine-grained in texture.

According to the AEPA, surface soil guidelines for petroleum hydrocarbons must be applied to a minimum depth of 1.5 m (AEPA 2024). The application of subsurface guidelines (e.g., exclusion of the ecological direct soil contact guidelines) varies depending on the site as follows; below 3 m in depth at any site, below 1.5 m in depth within a 5 m setback from an oilfield wellhead or below 1.5 m at remote forested sites in the Green Area with fine textured soil (AEPA 2024).

The minimum allowable depth of 1.5 mbgs for the application of subsurface guidelines is based on the depth at which the ecological direct contact pathway no longer applies (ESRD 2014). A review on the distribution of soil invertebrates concluded that plant rooting depth, rather than the distribution of soil invertebrates would be the limiting factor in determining an exclusion depth for the ecological direct soil contact pathway (ESRD 2014). The 1.5 mbgs depth was developed based on maximum rooting depths for tree and shrub species relevant to the forested parts of Alberta (ESRD 2014).

The application of subsurface soil guidelines below 3 m in depth at any site is based on the potential for the soil to be disturbed and brought to the surface during construction (ESRD 2014). The assumption is that soil is unlikely to be disturbed and brought to the surface within 5 m of an oilfield wellhead or in remote forested sites in the Green Area.

FCSAP guidance states that ecological direct soil contact Tier 1 values do not need to be considered below depths of 1.5 m, which has been adopted by other provincial jurisdictions (FCSAP 2022). The British Columbia Ministry of Environment and Climate Change Strategy (BC ENV) Protocol 13 for Contaminated Sites defines surface soil as the top 1 m of soil, below which terrestrial soil exposure does not need to be considered (BC ENV 2021). The portion of City Lands contain three small trees/shrubs and grass coverage and the typical rooting depths for these types of plants are summarised below (Table B). It is important to note that the site is heavily disturbed by human activity (i.e., commercial land use covered by asphalt or concrete) and provides no functional habitat for ecological receptors.

Table B: Typical Root Zone Depths for Mature Plants

Plant	Root Zone Depth (mbgs) ^(a)
Lawn and Garden	0.2 to 0.3
Shrubs	0.3 to 0.6
Trees	0.5 to 0.9

Note: (a) University of Arizona 2017; units were converted from inches to metres.

Given that the PHC Fraction F2 exceedance (2.4 to 2.5 mbgs) is deeper than the typical root zone depth for mature plants relevant to the Site (0.2 to 0.9 mbgs) (University of Arizona 2017) and the maximum rooting depths for tree and shrub species relevant to the forested parts of Alberta in fine-grained soils (1.5 m) (ESRD 2014), adverse effects from eco-contact with PHC Fraction F2 are not expected. Additionally, the majority of the root density in temperate biomes, including grasslands, forests and crops, is in the top 30 centimetres (cm) of soil, thus, 30 cm is a reasonable default estimate of the depth of plant root exposure to contaminants in soil (Jackson et al. 1996). Chemical concentrations in untilled field soil that are associated with toxicity are typically measured in the top 10 to 20 cm (Suter et al. 2000). Finally, the Environment and Sustainable Resource Development (ESRD 2014) and Millennium EMS Solutions Ltd. (MEMS 2022) concluded that upward migration of F2 or F3 hydrocarbons from subsoil up into the upper rooting zone should not be a limiting factor for hydrocarbons, unless subsurface soils are physically moved to the surface. Since the PHC Fraction F2 exceedance has been delineated to a limited extent and is well below the ecologically relevant soil zone whereby exposure to toxicants may occur, no potential for risks from direct contact with soil are expected for current and future ecological receptors. The conclusion is supported by Canadian Council of Ministers of the Environment (CCME 2020) which indicates the protection goal in ecological risk assessment is at the population and community level and the extent of potential impact at the site is so small as to impair ecological populations.

Since the application of surface soil guidelines to a depth of 3 mbgs is based on the potential for soil to be disturbed and brought to the surface during construction and this portion of City Lands is a boulevard that includes an asphalt driveway, a multi-use pathway and a green area with three small trees/shrubs with no known current underground utility corridors, it is unlikely that any construction will occur that would have the potential to bring contaminated soil to depths that would be ecologically relevant (within the top 1.5 mbgs).

In other jurisdictions (i.e., North America and International), exclusion criteria have been developed for site practitioners to aid with determining whether ecological receptors are a priority at a property, which describes conditions where ecological exposure pathways can be considered insignificant (TCEQ 2018). Under the Texas Commission on Environmental Quality (TCEQ 2018), a checklist is used to determine if an affected property can be excluded from further ecological assessment or consideration, which includes the following, assuming there are no changing future considerations:

- Property not in contact with or in proximity to surface waters (i.e., freshwater aquatic life pathway excluded);
- Property not utilized as valuable habitat for natural communities (birds, mammals, reptiles, etc...);
- Property wholly contained within contiguous land characterized by urban development (e.g., pavement, buildings, landscaped area, functioning cap, roadways, equipment storage, manufacturing, other surface cover of structure or disturbed ground);

- Chemicals of concern in soil are below 5 feet below ground surface (i.e., 1.5 mbgs) or the property has physical barrier to prevent receptor exposure in surface soil; and
- Property is not known to serve as habitat, foraging area or refuge to protect ecological receptors.

The above-mentioned criteria checklist has also been referenced by Advancing Standards Transforming Markets (ASTM 2022), an international agency that has been accredited by the Standards Council of Canada and incorporated within the Atlantic Partnership in Risk-Based Corrective Action Implementation (PIRI 2021). In all instances, the property met the checklist criteria and, as such, ecological receptors would be excluded from further assessment.

3.0 ASSESSMENT OF MANAGEMENT LIMITS

As stated in Table A, historical exceedances of the management limit for PHC Fraction F2 remain on the ROW and City Lands. The ROW is described as an asphalt paved utility corridor located within the parking lot of commercial businesses. The City Lands include an asphalt driveway, a multi-use pathway and a green area with three small trees/shrubs. The residual PHC Fraction F2 exceedances on both ROW and City Lands have been fully delineated vertically and laterally.

AEPA adopted management limits developed by the CCME (AEPA 2024). The CCME developed management limits (see Table C) to incorporate additional scientific, technical and socio-economic factors (CCME 2008). These factors include:

- Free phase formation;
- Exposure of worker in trenches to PHC vapours;
- Fire and explosive hazards;
- Effects on buried infrastructure;
- Aesthetic considerations; and
- Technological factors.

It is noted that not all factors were incorporated when developing management limits for specific PHC fractions. The management limit for PHC Fraction F2 was set at the lowest value of the applicable factors; exposure of workers in trenches to PHC vapours and fire and explosive hazards, as shown in the table below.

Table C: Management Limits for Commercial Land Use and Fine-grained Soils (CCME 2008)

Category	Description	Benchmark Value (mg/kg)			
		PHC Fraction F1	PHC Fraction F2	PHC Fraction F3	PHC Fraction F4
Management Limit	Free Phase Formation	800	NGR	NGR	10,000
	Effect on Workers in Trenches	1,000	1,000	NGR	NGR
	Fire and Explosive Hazards	1,700	5,200	NGR	NGR
	Effects on Buried Infrastructure	NGR	NGR	NGR	NGR
	Aesthetic Considerations	NGR	NGR	NGR	NGR
	Technological Factors	NGR	NGR	5,000	NGR
	Recommended Management Limit	800	1,000	5,000	10,000

Notes: Source: Canada-Wide Standard for PHC in Soil: Scientific Rationale (CCME 2008).

NGR no guideline required

The benchmark value of 1,000 mg/kg for the effect on workers in trenches for PHC Fraction F2 was based on a model developed by the Virginia Department of Environmental Quality (VDEQ) that predicts the influx of contaminant vapours into trenches (CCME 2008). Then using predicted vapour concentrations in a trench, risks were evaluated based on occupational exposure limits for gasoline and jet fuel in absence of relevant acute toxicity endpoints for PHCs (CCME 2008). It was acknowledged by CCME, that occupational exposure limits are not appropriate endpoints for human health risk assessment. However, based on the predictive modelling and occupational exposure limits, a benchmark value of 1,000 mg/kg was considered protective of effects on workers in trenches (CCME 2008).

The benchmark value of 5,200 mg/kg for fire and explosive hazards was based on the Johnson & Ettinger model, to represent situations where contaminants were within 30 cm from the enclosed space, and the VDEQ trench model for contamination in contact with the enclosed space. Based on these models, a benchmark value of 5,200 mg/kg was established (CCME 2008).

Since CCME's 2008 publication of Canada-Wide Standards for PHC in Soil, more scientific knowledge has become available that should be considered when addressing the applicability of the management limits' limiting factors. A re-evaluation of PHC Fractions F2 and F3 management limits was conducted by MEMS for the Petroleum Technology Alliance of Canada (PTAC) in 2020. The objective of this re-evaluation by MEMS was to conduct a thorough review of the scientific basis for existing management limits and undertake any research necessary to develop management limits with a more robust scientific basis. A summary of the findings related to the CCME's limiting factors for the PHC Fraction F2 management limit are discussed in the following paragraphs.

As shown in Table C, the management limit for PHC Fraction F2 is based on a benchmark value of 1,000 mg/kg for effect on workers in trenches. MEMS (2020, 2022) conducted a review and determined it was unclear exactly how the PHC Fraction F2 management limit was derived from the various scenarios (input assumptions) used by the VDEQ trench vapour model (MEMS, 2022). Additionally, the model and key default inputs were not validated against real-world measurements. This gap was addressed by MEMS by conducting experimental validation of the selected model input parameters. The VDEQ trench vapour model was re-run with the following refinements: using the measured headspace concentrations of PHC Fraction F2 relative to the measured PHC Fraction F2 soil concentration (to reduce the uncertainty involved in using default partitioning assumptions and parameters) and using the average measured trench air exchange rate from a study rather than assumed values. After the re-evaluation, the calculated PHC Fraction F2 trench worker management limit for fine soil was determined to be 17,000 mg/kg.

Another factor in determining the management limit for PHC Fraction F2 is fire and explosive hazards, and this benchmark was determined to be 5,200 mg/kg by CCME (2008). However, experimental work reported by PTAC in 2013 confirmed that neither PHC Fraction F2 nor F3 is flammable under ambient environmental conditions and therefore NGR was reported (MEMS 2022). Furthermore, the experimental finding that PHC Fraction F2 is not flammable when a flame is directly applied to the free product superseded the PHC Fraction F2 guidelines of 5,200 mg/kg calculated indirectly by CCME (2008) using modelling approaches (MEMS 2020).

Technological factors such as potential effects on buried infrastructure are a viable consideration for the site. The MEMS (2022) assessment included a literature review and experimental work and concluded that there is no realistic possibility that F2 would impact the water supply, fibre-optic cables or underground power cables as infrastructure is protected by a conduit or materials (e.g., steel and concrete) that eliminates contact or infiltration.

A summary of MEMS's (2020, 2022) re-evaluation of PHC Fraction F2 management limit factors, compared to CCME's 2008 benchmark values are shown in Table D below.

Table D: MEMS 2022 Re-evaluation of PHC F2 Management Limits for Fine Textured Soils and Commercial Land Use

Description	CCME Benchmark Value ^(a)	MEMS Benchmark Value ^(b)
Free Phase Formation	NGR	10,000
Effect on Workers in Trenches	1,000	17,000
Fire and Explosive Hazards	5,200	NGR
Effects on Buried Infrastructure	NGR	NGR
Aesthetic Considerations	NGR	SSB
Technological Factors	NGR	SSB
Recommended Management Limit	1,000	10,000

Notes: all units are in milligrams per kilogram (mg/kg); where applicable, values were selected based on a commercial land use with fine-grained soils.

(a) Canada-Wide Standard for PHC in Soil: Scientific Rationale (CCME 2008).

(b) Re-Evaluation of F2 and F3 Petroleum Hydrocarbons Management Limits (MEMS 2022).

NGR no guideline required

NL not a limiting consideration

SSB any issues should be managed on a site-specific basis

- not reassessed by MEMS, 2022

As shown in Table D, the results of MEMS' re-evaluation were that the limiting factor for PHC Fraction F2 is free phase formation. This re-evaluation was based on the Alberta ESRD approach, which is based on PTAC experimental data from 2013 that was not available at the time of the CCME (2008) evaluation. The experiments are considered to have a high degree of relevance and a high degree of scientific defensibility; hydrocarbon fractions were generated by distilling crude oil sourced from Alberta, coarse and fine soils were field collected from Alberta, adequate replication was conducted and results were corrected for any free phase that could be re-mobilized by simulated changes of water table depth. This benchmark was set at 10,000 mg/kg and is the limiting factor for the management limit of PHC Fraction F2. Therefore, according to MEMS (2022), the overall management limit recommended for PHC Fraction F2 is 10,000 mg/kg for all land uses and fine soil. Given that the maximum concentration of PHC Fraction F2 on the ROW and City Lands (2,400 and 2,700 mg/kg, respectively) are below the recommended management limit set by MEMS during their re-evaluation, no risks are expected to occur from the six factors considered in the development of management limits.

It is important to note that the MEMS (2020, 2022) work that was completed for PTAC has not been fully endorsed nor adopted by AEPA as recent contaminated site guidance from AEPA (2024) excludes the recommended management limits. As such, reliance on these limits for management of PHC risks at sites in Alberta should be cautioned and only used when deemed acceptable by AEPA.

4.0 FEDERAL CONTAMINATED SITE GUIDANCE OF PHC

The federal government provides supplemental guidance to assist contaminated site custodians with management decision-making tools for PHC risks (FCSAP 2022). The guidance acknowledges that site-specific remediation objectives (i.e., Tier 3) may be acceptable or used to develop a risk management strategy. When

measured PHC concentrations at a site exceed management limits there is a factor evaluation option available and a process of pathway exclusion and assessment of precluding factors (e.g., no impacts <30 cm to a building foundation or within 10 m of a surface water body) where unconditional or conditional acceptance can be achieved (see Figure 1).

The application of ecological direct soil contact pathway varies across Canada due to jurisdictional difference in interpretation of the management practices and policies. Typically, these guidelines are considered applicable to all soils within the first 1.5 mbgs and may not be applicable to soils deeper than 3 mbgs. As such the application of management practices at intermediate depths between 1.5 and 3 mbgs is variable. Regarding the ecological direct soil contact pathway, the following is observed:

- Atlantic PIRI have adopted a 1.5 mbgs cut-off for protection of direct ecological contact (Atlantic PIRI 2021);
- British Columbia recommends a depth of 1 mbgs below which the direct soil contact pathway need not be considered (BC ENV 2021); and
- Federal guidance has adopted the top 1.5 mbgs as operable for the direct soil contact pathway for ecological receptors (FCSAP 2022).

Typically, management limits cannot be excluded or adjusted; however, supplemental guidance (FCSAP 2022) indicates that the omission of management limits is possible when sufficient site data are collected for the factor evaluation. In addition, the omission of management limits is possible when appropriate Occupational Health and Safety (OHS) regulations and best practices are followed or implemented to ensure the health and safety of workers at contaminated sites, particularly for those entering trenches or other confined spaces (FCSAP 2022). Following the factor evaluation of the management limit applicability for measured PHC Fraction F2 concentrations (i.e., maximum PHC Fraction F2 measured to be 2,700 mg/kg at the site), the following is observed:

- Maximum measured PHC Fraction F2 concentration was 2,700 mg/kg and exceeded the trench worker management limit of 1,000 mg/kg; however, worker safety would be maintained via an OHS program, which would be required to be in place to control and/or manage these risks, in accordance with OHS regulations (Figure A).
- Maximum measured PHC Fraction F2 concentration was 2,700 mg/kg, which did not exceed the fire and explosive hazard management limit of 5,200 mg/kg (Figure B).

Therefore, management limit exceedances have been addressed at the site and no further action is required to address management limits (see Figure B). As such, according to Figure A, the site should receive conditional acceptance. It is important to note that consideration of effects on buried infrastructure was not considered due to lack of guidelines and can be assessed on a case-by-case basis and site priorities. However, the MEMS (2022) assessment included a literature review and experimental work that concluded that there is no realistic possibility that PHC Fraction F2 would impact the water supply, fibre-optic cables or underground power cables.

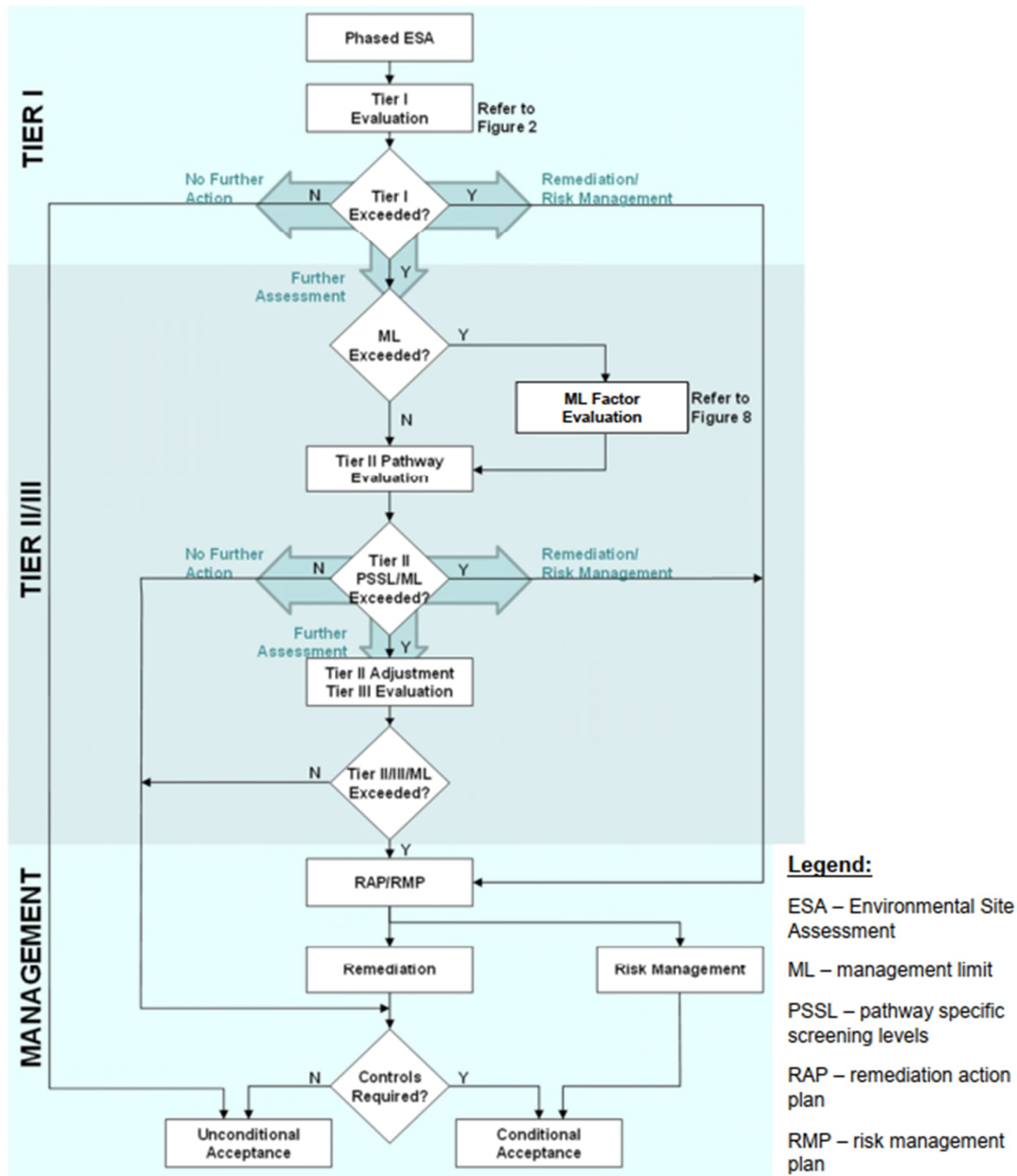


Figure A: Canada Wide Standard PHC Process Flowchart (FCSAP 2022)

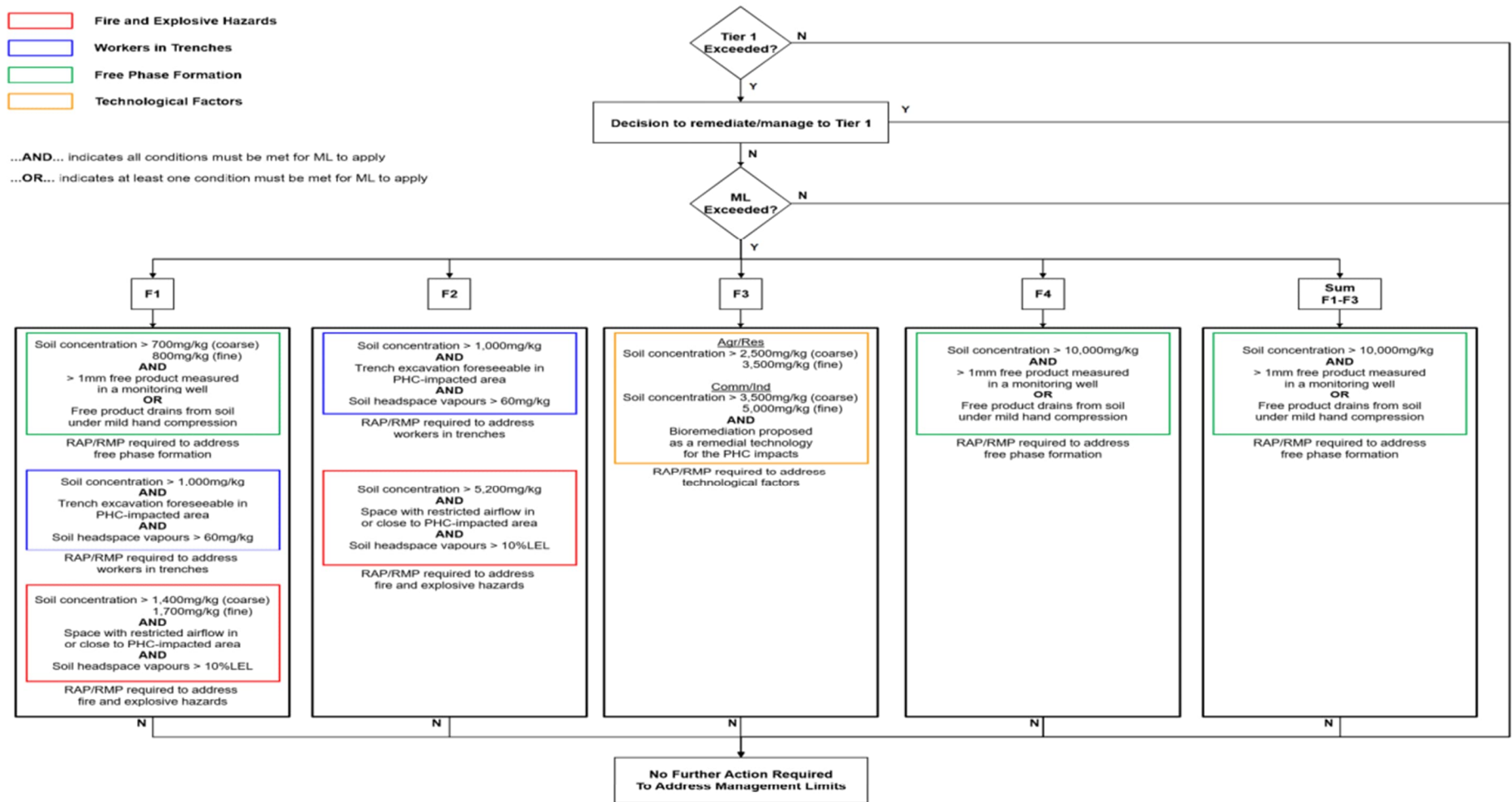


Figure B: Factor Evaluation of Management Limit Applicability (FCSAP 2022)

5.0 NATURAL ATTENUATION

The objective of Step 8 of the *FCSAP Decision-Making Framework* is to implement remediation and risk management measures for contaminated sites. Natural attenuation of PHC Fraction F2 in soil and groundwater in this context is an in situ passive remediation approach where lines of evidence are evaluated to determine the applicability of natural attenuation as a long-term remedial approach (FCSAP 2021).

Biodegradation of PHC by heterotrophic microbes is well known to occur in soil and groundwater under the proper conditions. Environment and Climate Change Canada (ECCC) Ontario Region published Technical Assistance Bulletin #19 (ECCC 2014) which summarized available research on the use of intrinsic remediation (i.e., natural attenuation) as a primary remedial method for reducing the long-term management of residual hydrocarbons in soil and groundwater. Evidence to support natural attenuation can be derived from a documented loss or reduction in the mass of contaminants in the field. In addition, lines of evidence that include contaminant and geochemical analytical data, whether direct or conclusive indirect evidence of microbiological activity, including degradation modelling, can be used to support intrinsic remediation of residual PHC (ECCC 2014). ECCC recommended lines of evidence used to evaluate the effectiveness of natural attenuation of residual PHC Fraction F2 for the Site include:

- Source removal and delineation of PHC impacted soils at the Site and City Lands;
- Assessment of historical soil data as it relates to indicators of PHC degradation;
- The calculation of first-order decay constants to estimate the rate of natural attenuation (Newell 2002); and
- Assess the statistical significance of increasing or decreasing trends in long-term temporal data.

A recent study of the long-term risk management of PHC contaminated soils concluded that contaminants in soil are less mobile and less dispersive than contaminants in groundwater, therefore, the concentration versus time rate constant was used to estimate the degradation of different residual PHC fractions compared to ecological screening levels for different soil conditions (Bahar et al. 2024). In the study, a 95% confidence interval was calculated to reduce uncertainty associated with degradation modelling assumptions to estimate the time required for PHC fraction concentrations to be below ecological screening levels.

First-order decay rate constants and statistical analysis (i.e., box and whisker plots) of data were used to evaluate potential long-term trends in the concentration of residual PHC Fraction F2 in subsurface soils at BH01-46, EXC2-082 and BH15-S4 (Figure C) and the site since 2000. Figure C presents the predicted PHC Fraction F2 concentration with time based on a half-life of 4.79 years in soil (AEPA 2024; CCME 2008) which is converted to a rate constant of 0.14 year^{-1} . The figure shows how soil concentrations are expected to fall below the management limit of 1,000 mg/kg and eco-contact guideline of 260 mg/kg with degradation.

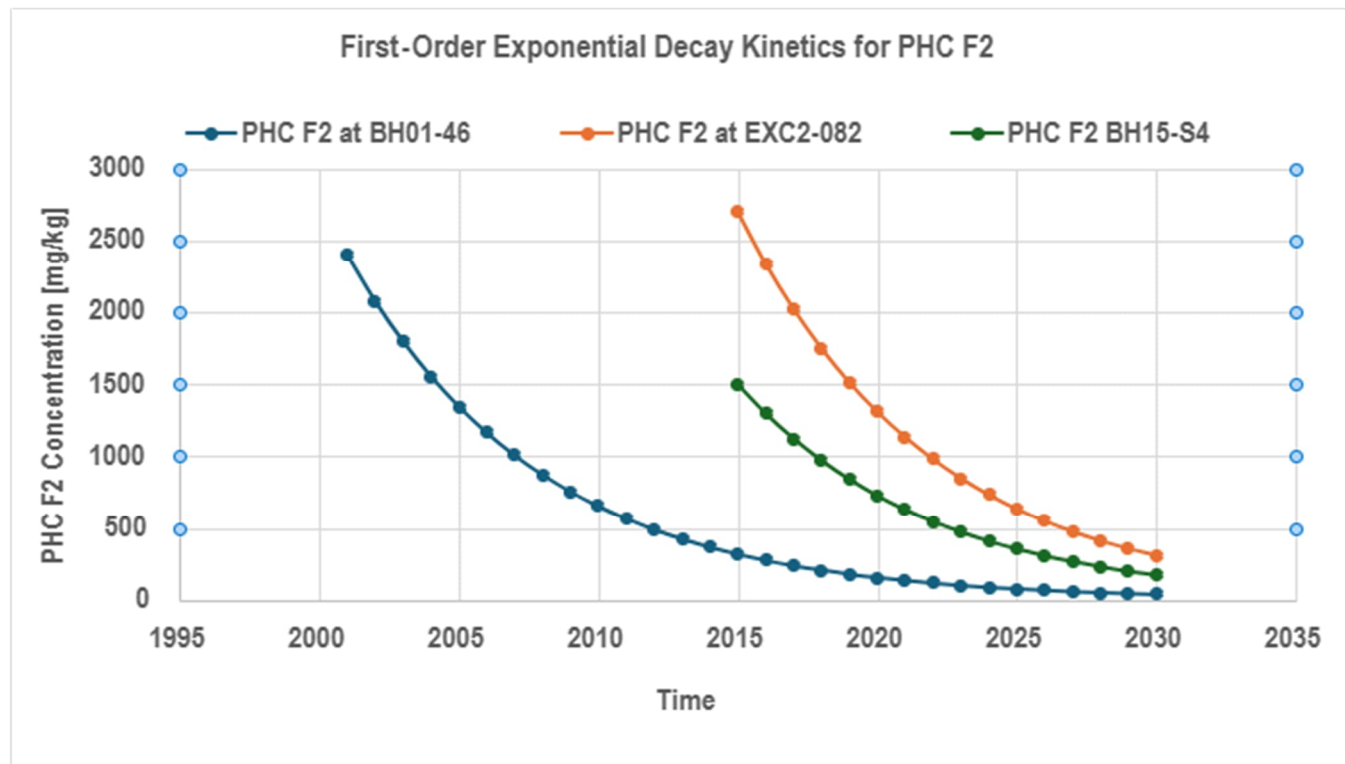


Figure C: Estimated Decay Rates of Residual Concentrations of PHC F2 in Soil

First-order decay modelling was conducted to estimate the natural rate of decay of PHC Fraction F2 in soil using the first-order decay kinetics formula applied in Bahar et al. 2024. Although the rate of PHC Fraction F2 decay in soil is influenced by the complex interaction between biological, environmental and geochemical factors, natural attenuation is a primary remedial method for reducing the need for the long-term management of residual concentrations of PHC. Given that residual concentrations of PHC Fraction F2 in soil on the ROW and City Lands were identified many years ago, it is very likely that natural attenuation has reduced concentrations and the ecotoxicity of aliphatic and aromatic components, especially since studies have indicated that PHC Fraction F2 attenuates more rapidly than larger fractions (Bahar et al. 2024). Furthermore, proximal soil samples collected at the same depth range in 2011 (BH-63) and 2016 (BH16-88 and BH16-89) indicated that measured concentrations of PHC Fraction F2 in soil on the ROW and the City Lands were below their respective AEPA soil guidelines. The natural attenuation of petroleum hydrocarbons by aerobic and anaerobic degradation is an important line of evidence to consider when realistically assessing the potential likelihood that ecological receptors may come into contact with residual concentrations of PHC Fraction F2.

Finally, Figure D presents a box and whisker plot of the measured PHC Fraction F2 concentrations in soil for two sampling periods (i.e., 2000 to 2003 and 2011 to 2016) that represent concentrations before and after remediation, plus the figure presents the measured concentrations that were excavated between 2011 to 2016. The figure demonstrates how sample concentrations are dramatically reduced across the site post remediation. It is important to note that the concentrations for each sampling period are presented on a logarithmic scale to capture the full range of concentrations (i.e., 10 to 19,000 mg/kg).

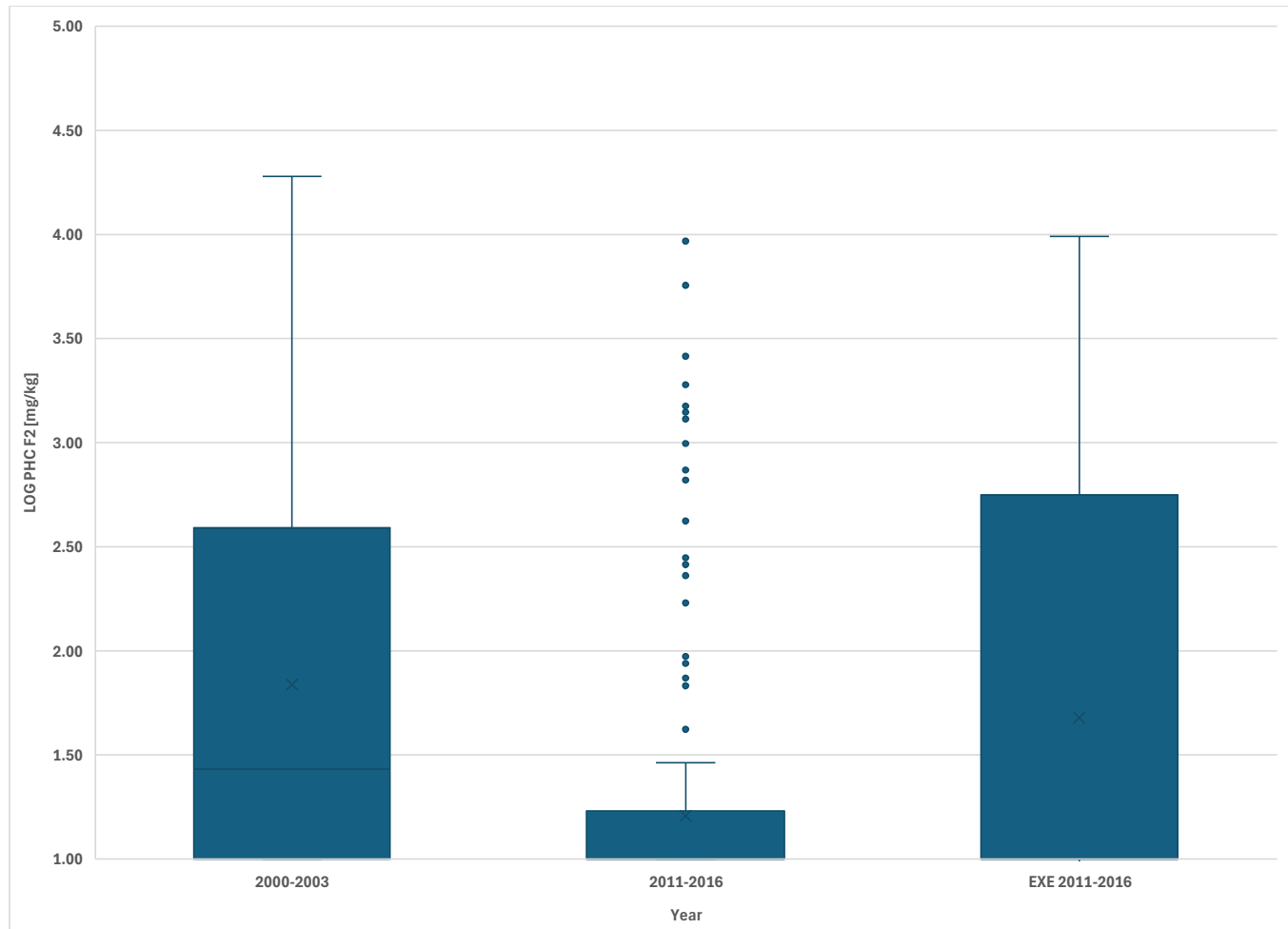


Figure D: Box and Whisker Plot of Measured PHC Fraction F2 Concentrations With Year of Sampling

6.0 RECOMMENDED SSRO

Most ecological risk assessments are conducted using point estimates for exposure, which is a useful tool for effectively screening numerous exposure pathways with appropriate conservatism to reduce uncertainty; however, for residual risks it is sometimes difficult to ascertain the compounding conservatism on risk estimates (CCME 2020). Weight of evidence as defined by the CCME (2020) is a process used to aggregate information from different lines of scientific evidence to render a conclusion regarding the probability of magnitude and harm. Multiple scientific lines of evidence were reviewed for point source exceedances of the CCME's benchmark for PHC Fraction F2 on the ROW and City Lands, these include:

- The delineation of residual PHC Fraction F2 impacts in soil;
- A review of scientific literature regarding plant root depths;

- Consideration of federal (FCSAP 2022), provincial (AEPA 2024) and regional guidance (MEMS 2022) regarding management limits.
- Consideration of natural attenuation to reduce residual concentrations of PHC Fraction F2;
- Consideration of the suitability of habitat and population level risks for use by ecological receptors on City Lands;
- The potential for future construction activities to disturb residual PHC Fraction F2 impacts;
- Administrative controls (i.e., ground disturbance notification) to prevent receptor contact with impacted soil; and
- A comparison of management limits using more recent research.

Considering this aggregate information, the potential magnitude of risk to ecological receptors under a current or future scenario is likely to be negligible. The site is considered to be heavily disturbed by human activity and provides no functional habitat for ecological receptors. Point-source exposure to residual concentrations of PHC Fraction F2 in soil under a future construction or maintenance scenario can be mitigated by administrative controls already in place. The SSRO for the site is the recommended management limit for PHC Fraction F2, which is 5,200 mg/kg (FCSAP 2022) based on recent case studies and the potential operability of viable exposure pathways between delineated residual concentrations of PHC Fraction F2 in soil and receptors. The recommended SSRO assumes that surface soil impacts (i.e., depths from zero to 1.5 mbgs) are not prevalent at the site and domestic use aquifer (DUA) and freshwater aquatic life (FAL) are not operable pathways. As such, the recommended SSRO for the site have been segregated into soil depths ranging from 0 to 1.5 mbgs, 1.5 to 3.0 mbgs and >3 mbgs, which are presented in Table E, Table F and Table G, respectively. These guidelines summarize the viability of exposure pathways for human and ecological receptors in comparison to their respective fine-grained soil guidelines for commercial land use (AEPA 2024).

Table E: Alberta Tier 2 Surface Soil Guidelines for Commercial Land Use and Fine-Grained Soils (AEPA 2024) – PHCs 0 to 1.5 mbgs

Receptor	Pathway	Unit	Benzene	Toluene	Ethylbenzene	Xylenes	F1 (C ₆ -C ₁₀) - BTEX	F2 (C ₁₀ -C ₁₆)	F3 (C ₁₆ -C ₃₄)	F4 (C ₃₄ -C ₅₀)
Human	Direct Soil Contact ^(a)	mg/kg	550	1,100	2,900	780	22,000	10,000	23,000	30,000
	Vapour Inhalation (Slab-on-Grade) ^(b)	mg/kg	2.2	7,900	13,000	790	4,500	23,000	n/g	n/g
	Protection of DUA ^(c)	mg/kg	0.046	0.52	0.073	0.99	1,100	1,500	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	5,100	9,900	27,000	7,300	30,000	30,000	30,000	30,000
Ecological	Direct Soil Contact ^(e)	mg/kg	310	330	430	230	320	260	2,500	6,600
	Nutrient/Energy Cycling Check	mg/kg	n/g	n/g	n/g	n/g	n/g	n/g	n/g	n/g
	Protection of FAL ^(f)	mg/kg	7.9	63,000	NGR	NGR	30,000	30,000	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	440	1,100	790	930	3,000	2,100	4,300	30,000
Other	Management Limit	mg/kg	n/g	n/g	n/g	n/g	800	5,200 ^(h)	5,000	10,000
Overall Guideline^(g)		mg/kg	2.2	330	430	230	320	260	2,500	6,600

Notes:

^(a) The direct soil contact exposure pathway for people may be operable under a future scenario where impacted soil is excavated

^(b) The vapour inhalation exposure pathway for people may be operable given the distance of PHC F2 impacts from indoor breathing spaces

^(c) The protection of a DUA exposure pathway is inoperable according to conditions outlined in the Guide to excluding the domestic use aquifer based on municipal bylaws (AEPA 2022)

^(d) The Off-Site migration exposure pathway is inoperable, residual PHC F2 in soils have been fully delineated vertically and laterally

^(e) The direct soil contact exposure pathway for ecological receptors is operable at PHC depths less than 1.5 mbgs.

^(f) The protection of freshwater aquatic life exposure pathway is inoperable, there is no aquatic receiving environment within 10 m of residual PHC F2 impacts (AEPA 2024b)

^(g) Lowest applicable guideline value for all human, ecological and other receptors

^(h) Modified based on FCSAP (2022) factor evaluation and set to 5,200 mg/kg.

n/g = no guideline; > = greater than

Guideline values have been capped at a maximum value of 30,000 mg/kg (AEPA 2024)

NGR - No guideline required when calculated value is >1,000,000 mg/kg (AEPA 2024)

Table F: Alberta Tier 2 Surface Soil Guidelines for Commercial Land Use and Fine-Grained Soils (AEPA 2024) – PHCs 1.5 to 3.0 mbgs

Receptor	Pathway	Unit	Benzene	Toluene	Ethylbenzene	Xylenes	F1 (C ₆ -C ₁₀) - BTEX	F2 (C ₁₀ -C ₁₆)	F3 (C ₁₆ -C ₃₄)	F4 (C ₃₄ -C ₅₀)
Human	Direct Soil Contact ^(a)	mg/kg	550	1,100	2,900	780	22,000	10,000	23,000	30,000
	Vapour Inhalation (Slab-on-Grade) ^(b)	mg/kg	2.2	7,900	13,000	790	4,500	23,000	n/g	n/g
	Protection of DUA ^(c)	mg/kg	0.046	0.52	0.073	0.99	1,100	1,500	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	5,100	9,900	27,000	7,300	30,000	30,000	30,000	30,000
Ecological	Direct Soil Contact ^(e)	mg/kg	310	330	430	230	320	260	2,500	6,600
	Nutrient/Energy Cycling Check	mg/kg	n/g	n/g	n/g	n/g	n/g	n/g	n/g	n/g
	Protection of FAL ^(f)	mg/kg	7.9	63,000	NGR	NGR	30,000	30,000	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	440	1,100	790	930	3,000	2,100	4,300	30,000
Other	Management Limit	mg/kg	n/g	n/g	n/g	n/g	800	5,200 ^(h)	5,000	10,000
Overall Guideline^(g)		mg/kg	2.2	1,100	2,900	780	800	5,200	5,000	10,000

Notes:^(a) The direct soil contact exposure pathway for people may be operable under a future scenario where impacted soil is excavated^(b) The vapour inhalation exposure pathway for people may be operable given the distance of PHC F2 impacts from indoor breathing spaces^(c) The protection of a DUA exposure pathway is inoperable according to conditions outlined in the Guide to excluding the domestic use aquifer based on municipal bylaws (AEPA 2022)^(d) The Off-Site migration exposure pathway is inoperable, residual PHC F2 in soils have been fully delineated vertically and laterally^(e) The direct soil contact exposure pathway for ecological receptors is inoperable based on depth to PHC contamination^(f) The protection of freshwater aquatic life exposure pathway is inoperable, there is no aquatic receiving environment within 10 m of residual PHC F2 impacts (AEPA 2024b)^(g) Lowest applicable guideline value for all human, ecological and other receptors^(h) Modified based on FCSAP (2022) factor evaluation and set to 5,200 mg/kg.

n/g = no guideline; > = greater than

Guideline values have been capped at a maximum value of 30,000 mg/kg (AEPA 2024)

NGR - No guideline required when calculated value is >1,000,000 mg/kg (AEPA 2024)

Table G: Alberta Tier 2 Subsoil Guidelines for Commercial Land Use and Fine-Grained Soils (AEPA 2024) – PHCs > 3.0 mbgs

Receptor	Pathway	Unit	Benzene	Toluene	Ethylbenzene	Xylenes	F1 (C ₆ -C ₁₀) - BTEX	F2 (C ₁₀ -C ₁₆)	F3 (C ₁₆ -C ₃₄)	F4 (C ₃₄ -C ₅₀)
Human	Direct Soil Contact ^(a)	mg/kg	550	1,100	2,900	780	22,000	10,000	23,000	30,000
	Vapour Inhalation (Slab-on-Grade) ^(b)	mg/kg	2.3	8,100	13,000	790	4,700	24,000	n/g	n/g
	Protection of DUA ^(c)	mg/kg	0.046	0.52	0.073	0.99	1,100	1,500	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	5,100	9,900	27,000	7,300	30,000	30,000	30,000	30,000
Ecological	Direct Soil Contact ^(e)	mg/kg	620	660	860	460	640	520	5,000	13,200
	Nutrient/Energy Cycling Check	mg/kg	n/g	n/g	n/g	n/g	n/g	n/g	n/g	n/g
	Protection of FAL ^(f)	mg/kg	7.9	63,000	NGR	NGR	30,000	30,000	n/g	n/g
	Off-Site Migration ^(d)	mg/kg	890	2,100	1600	1800	6,000	4,300	8,600	30,000
Other	Management Limit	mg/kg	n/g	n/g	n/g	n/g	800	5,200 ^(h)	5,000	10,000
Overall Guideline^(g)		mg/kg	2.3	1,100	2,900	780	800	5,200	5,000	10,000

Notes:

^(a) The direct soil contact exposure pathway for people may be operable under a future scenario where impacted soil is excavated

^(b) The vapour inhalation exposure pathway for people may be operable given the lateral distance of PHC F2 impacts from indoor breathing spaces

^(c) The protection of a DUA exposure pathway is inoperable according to conditions outlined in the Guide to excluding the domestic use aquifer based on municipal bylaws (AEPA 2022)

^(d) The Off-Site migration exposure pathway is inoperable, residual PHC F2 in soils have been fully delineated vertically and laterally

^(e) The direct soil contact exposure pathway for ecological receptors is inoperable based on depth to PHC contamination

^(f) The protection of freshwater aquatic life exposure pathway is inoperable, there is no aquatic receiving environment within 10 m of residual PHC F2 impacts (AEPA 2024b)

^(g) Lowest applicable guideline value for all human, ecological and other receptors

^(h) Modified based on FCSAP (2022) factor evaluation and set to 5,200 mg/kg.

n/g = no guideline; > = greater than

Guideline values have been capped at a maximum value of 30,000 mg/kg (AEPA 2024)

NGR - No guideline required when calculated value is >1,000,000 mg/kg (AEPA 2024)

7.0 CONCLUSION

The potential for human health and ecological risks associated with the residual PHC Fraction F2 soil contamination on City Lands and ROW were assessed in this memorandum. The assessment was based on soil data analysed in 2001 and 2015. It is noted that PHCs biodegrade over time, and it is unlikely that the PHC Fraction F2 exceedances from 10 and 24 years ago would be representative of current conditions. Nonetheless, in absence of more recent soil analytical data to confirm natural attenuation, PHC Fraction F2 exceedances reported in 2001 and 2015 of the ecological direct contact and management limits guideline were assumed to be representative of current conditions on City Lands and ROW.

The ecological direct contact pathway was considered inoperable (i.e., at depths less than 1.5 mbgs) based on the minimum depth of the measured PHC Fraction F2 contamination, 2.4 to 2.5 mbgs, which is below the depth that would be considered ecologically relevant (within the top 1.5 mbgs). The applicability of the ecological direct contact pathway to a depth of 3 mbgs is not based on ecological relevancy but is included based on the potential that during construction contaminated soil could be disturbed and brought to the surface (ESRD 2014). Furthermore, it is unlikely that any construction will occur to depths of 2.4 to 2.5 mbgs on this portion of City Lands that is a boulevard and includes an asphalt driveway, a multi-use pathway and a green area with three small trees/shrubs, with no known current underground utility corridors. Based on TCEQ (2018) and ASTM (2022) the property met the ecological exclusion checklist criteria, as such, ecological receptors would be excluded from further assessment. It is important to note that if excavation or subsurface construction is planned or required within the management areas, Shell must be notified prior to ground disturbance to ensure that PHC-impacted soils are appropriately managed (AtkinsRéalis 2024). Therefore, there are no potential risks expected for ecological receptors from direct contact with soil given the current vegetation present at the City Lands. Based on MEMS (2022), the upward migration of F2 or F3 hydrocarbons from subsoil up into the upper rooting zone (i.e., top 1.5 mbgs) should not be a limiting factor for hydrocarbons.

The management limits set by CCME in 2008 for PHC Fraction F2 (1,000 mg/kg) are considered overly conservative and were based on theoretical models without real world validation. MEMS conducted a re-evaluation of management limits based on recent scientific knowledge and case studies in 2020; the recommended management limit for PHC Fraction F2 was set at 10,000 mg/kg (MEMS, 2022). It is important to note, that the maximum concentrations of PHC Fraction F2 reported on City Lands and the ROW (2,700 and 2,400 mg/kg, respectively) are well below the PHC Fraction F2 management limit of 10,000 mg/kg. For this site, the FCSAP (2022) factor evaluation was used to derive a PHC Fraction F2 SSRO of 5,200 mg/kg that is applicable to soils depths greater than 1.5 mbgs. As such, no risks are expected from free phase formation, exposure of worker in trenches to PHC vapours, fire and explosive hazards, effects on buried infrastructure, aesthetic considerations, or technological factors, including ecological contact with soil. Therefore, no further action is required at the site and the site should receive conditional closure and if excavation or subsurface construction is planned or required within the management areas, Shell must be notified prior to ground disturbance to ensure that PHC-impacted soils are appropriately managed and appropriate OHS measures are incorporated (AtkinsRéalis 2024).

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CLOSURE

Regards,

WSP Canada Inc.

A handwritten signature in black ink, appearing to read 'Karl Bresee', with a long, sweeping horizontal line extending to the right.

Karl Bresee, BSc, PBD, PBiol

Senior Risk Assessor

ND/KB/sh

Distribution: Shell Canada Limited; WSP Canada Inc.

Attachments: Figures

PATH: L:\SHELL_Canada_Limited\6195_67A_St_RedDeer_AB\989_PROJECTS\CA0040929\7738\02_PRODUCT\ON\001\WAD\Figure2_SiteSurrounding.mxd PRINTED ON: 2024-10-31 AT: 3:32:22 PM



LEGEND

- FORMER SHELL SITE (APPROXIMATE)
- COMMERCIAL PROPERTY
- CITY ROW
- CITY LANDS
- LOT LINE

0 10 20 30 40 50

1:1,000 Meters

Coordinate System: NAD 1983 UTM Zone 12N

REFERENCE(S)

1. IMAGERY SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS [2022]

CLIENT

SHELL CANADA LIMITED

PROJECT

6195 - 67A STREET
RED DEER, ALBERTA

TITLE

SITE AND SURROUNDING LAND USE

CONSULTANT	YYYY-MM-DD	2024-10-31
	DESIGNED	K.BRESEE
	PREPARED	J.HECK
	REVIEWED	S.TOMASELLO
	APPROVED	S.TOMASELLO

PROJECT NO.
CA0040929.7738

FIGURE
2

PATH: L:\SHELL Canada, Limited\6195_67A_St_RedDeer_A\B090_PROJECTS\CA0040929\773802_PROD\CD\ON001\AXD\Figures3_SitePlan.mxd PRINTED ON: 2024-10-31 AT: 3:24:05 PM



LEGEND

- MONITORING WELL
- DESTROYED / DECOMMISSIONED WELL
- BOREHOLE
- FORMER SHELL SITE (APPROXIMATE)
- COMMERCIAL PROPERTY
- CITY ROW
- CITY LANDS
- LOT LINE
- LIMIT OF 2015 EXCAVATION
- COMMUNICATION LINE
- FIBRE OPTIC LINE
- GAS LINE
- OVERHEAD POWER LINE
- SANITARY SEWER LINE
- STORM LINE
- UNDERGROUND ELECTRICAL LINE
- WATER LINE
- CATCH BASIN / MANHOLE
- POWER POLE

0 5 10 15 20 25
1:450 Meters

Coordinate System: NAD 1983 UTM Zone 12N

REFERENCE(S)

1. IMAGERY SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS [2022]

CLIENT

SHELL CANADA LIMITED

PROJECT

6195 - 67A STREET
RED DEER, ALBERTA

TITLE

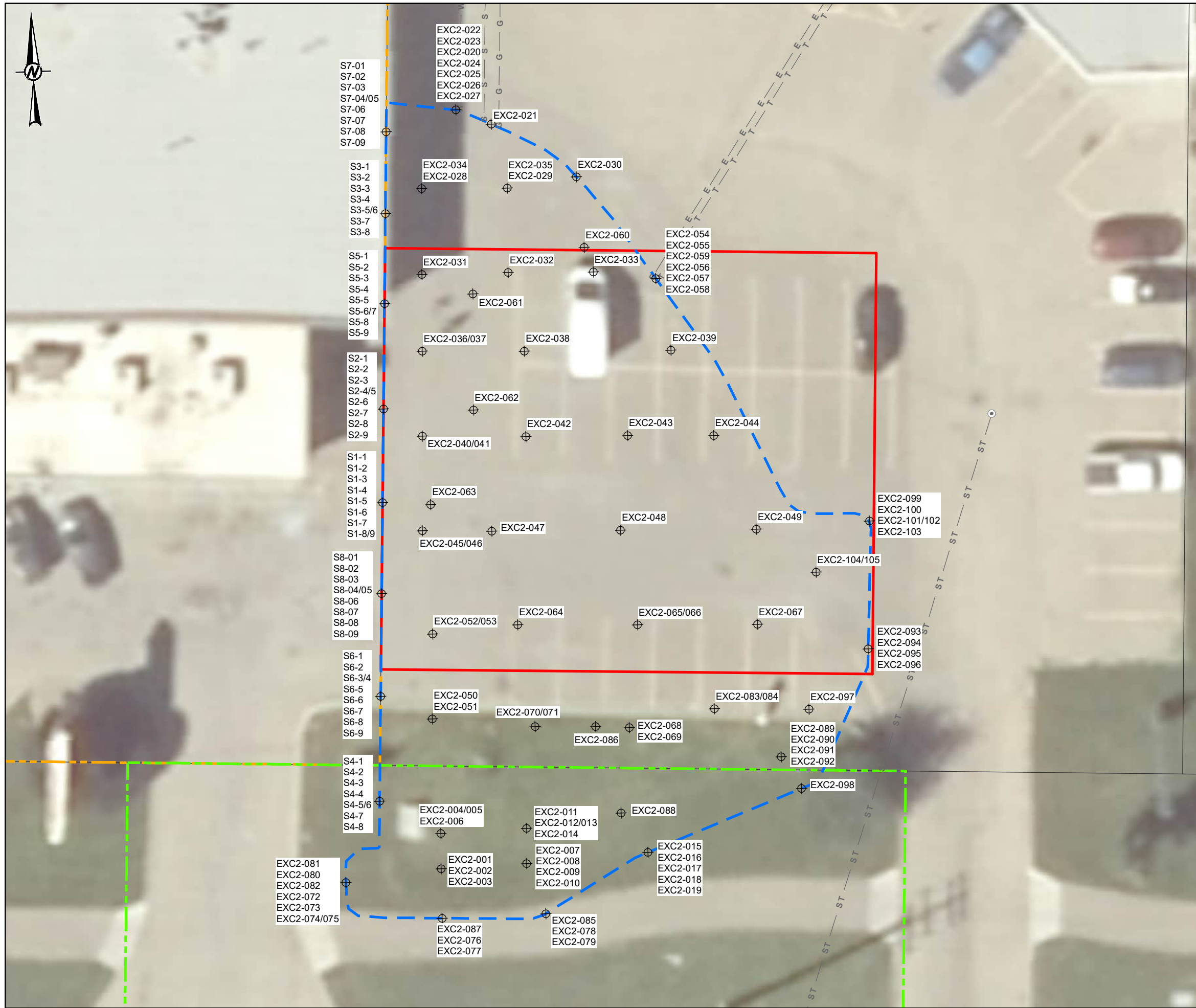
SITE PLAN

CONSULTANT	YYYY-MM-DD	2024-10-31
DESIGNED	K.BRESEE	
PREPARED	J.HECK	
REVIEWED	S.TOMASELLO	
APPROVED	S.TOMASELLO	

PROJECT NO.
CA0040929.7738

FIGURE
3

PATH: L:\SHELL_Canada_Limited\6195_67A_St_RedDeer_AB\989_PROJECTS\CA0040929\773802_PROD\FIGURES\FIGURE4_Excavation.mxd PRINTED ON: 2024-10-31 AT: 4:01:46 PM



LEGEND

- CONFIRMATORY SAMPLING LOCATION
- FORMER SHELL SITE (APPROXIMATE)
- COMMERCIAL PROPERTY
- CITY LANDS
- LOT LINE
- LIMIT OF 2015 EXCAVATION
- COMMUNICATION LINE
- GAS LINE
- SANITARY SEWER LINE
- STORM LINE
- UNDERGROUND ELECTRICAL LINE
- WATER LINE
- CATCH BASIN / MANHOLE

0 2 4 6 8 10
1:225 Meters

Coordinate System: NAD 1983 UTM Zone 12N

REFERENCE(S)

1. CONFIRMATORY SOIL SAMPLING LOCATIONS PROVIDED FROM ATKINSREALIS. PROJECT NO. 130279-405. DATE: SEPTEMBER 22, 2015. SCALE 1:250

2. IMAGERY SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS [2022]

CLIENT

SHELL CANADA LIMITED

PROJECT

6195 - 67A STREET
RED DEER, ALBERTA

TITLE

LIMIT OF 2015 EXCAVATION AND CONFIRMATORY SAMPLING LOCATIONS

CONSULTANT	YYYY-MM-DD	2024-10-31
	DESIGNED	K.BRESEE
	PREPARED	J.HECK
	REVIEWED	S.TOMASELLO
	APPROVED	S.TOMASELLO

PROJECT NO.
CA0040929.7738

FIGURE
4



Appendix I

Coordination Summary for Electrical

Jie Yao

From: Keith Schick <Keith.Schick@reddeer.ca>
Sent: September 10, 2025 11:57 AM
To: Jie Yao
Cc: Brent Winter; Vince Gibbons; Kyle Perron; Joseph Lynn; Jared Ho; Simone Thompson; Russ Watts; Glen Campbell
Subject: 67 St & Taylor Dr. Roundabout - Utility Circulation for Electrical & Traffic Signal--ELP File 25-0123
Attachments: RD_IMS_ELP_Civil_snip.dwg; RD_IMS_ELP_Electrical_snip.dwg; 25-0123 Taylor and 67 TC Concept.pdf

Follow Up Flag: Follow up
Flag Status: Completed

EXTERNAL EMAIL

Hi

Brent Winter will be the designer in charge of this project for ELP. The ELP file number is 25-0123.

- Attached are the CAD files for ELP system in the area of the project
 - Note there are communication cables on the ELP OH structures, you must contact the communication company directly to move their lines.
 - Street lights are the responsibility of City of Red Deer engineering, please deal with them for removal etc. City of Red Deer engineering will have to contact ELP for any connections or connection changes to the electrical distribution system.
 - I have attached a concept drawing that shows the removal of overhead lines on the North side of the project. The project will be charged all costs for the removal and construction of new underground lines.
- Should you wish to ELP to proceed with our design, please let Brent know.

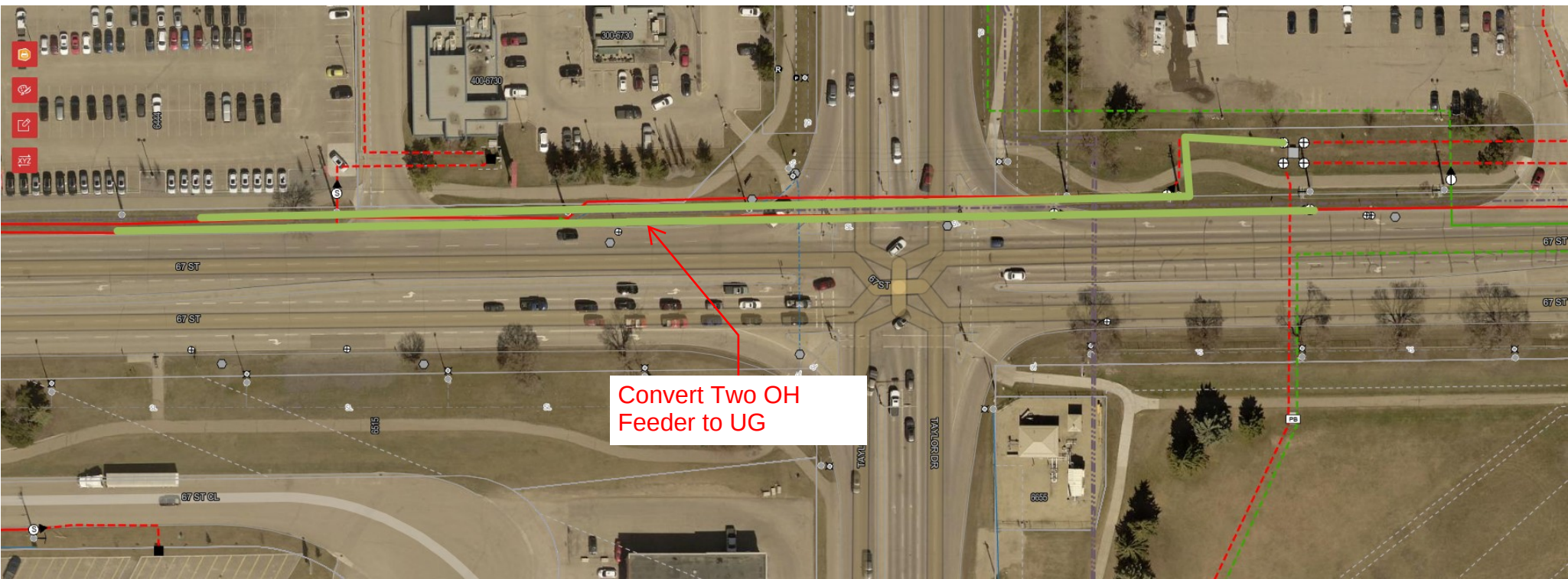
Thanks

Keith Schick | Electrical Distribution – Design Team Lead

Electric Utility – Utility Services | The City of Red Deer

T: 403-342-8274 | D: 403-309-8467

My cell is 780-871-4707.



J

Appendix J Coordination Summary for Bell Canada

Jie Yao

From: Pedersen, Bradley <Brad.Pedersen@bell.ca>
Sent: October 16, 2025 2:58 PM
To: Jie Yao
Cc: Glen Campbell
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Bell Canada

Follow Up Flag: Follow up
Flag Status: Completed

EXTERNAL EMAIL

Hello Jie,

That fibre belongs to TELUS. Bell has no facilities within your project area.

Regards,

Brad Pedersen

OSP Detailed Engineering & Implementation

BELL Canada

W: 780-409-6855

C: 780-232-3776



From: Jie Yao <Jie.Yao@cima.ca>
Sent: October-16-25 2:14 PM
To: Pedersen, Bradley <Brad.Pedersen@bell.ca>
Cc: Glen Campbell <Glen.Campbell@cima.ca>
Subject: [EXT]RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Bell Canada

Hi Brad,

Hope you are doing well. I'm just following up on the utility review request sent last month to see if you had a chance to review? If you are not the correct recipient to this matter, could you please direct me to the right person, that would be much appreciated.

Thanks
Jie

From: Jie Yao
Sent: September 15, 2025 8:40 AM
To: Brad.Pedersen@bell.ca
Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca
Subject: FW: 67 St & Taylor Dr. Roundabout - Utility Circulation for Bell Canada

Hello Corey,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 6, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.

Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073

#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



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K

Appendix K

Coordination Summary for Rogers Communications (Shaw)

Jie Yao

From: Suzie GueladeYai <Suzie.GueladeYai@rci.rogers.com>
Sent: November 6, 2025 10:47 AM
To: Jie Yao; Tanner Trentham
Cc: Glen Campbell; Alvin Yeung
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw
Attachments: 67 St & Taylor Dr. Roundabout - RogersShaw CAD file.dwg

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL

Good morning Jie,

Please find attached our CAD file. As mentioned yesterday, this does not accurately reflect our alignments.

Thank you,

Suzie Guelade-Yai
Network Planner, Planning
10450 178 St NW, Edmonton, AB
e Suzie.GueladeYai@rci.rogers.com
m 780-490-3506



From: Jie Yao <Jie.Yao@cima.ca>
Sent: Thursday, November 6, 2025 9:17 AM
To: Tanner Trentham <Tanner.Trentham@rci.rogers.com>; Suzie GueladeYai <Suzie.GueladeYai@rci.rogers.com>
Cc: Glen Campbell <Glen.Campbell@cima.ca>
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

Hi Suzie,

Thanks for the call yesterday and as discussed, can you please provide the latest CAD file for the Roger's assets within the project area, and your initial comments? If you can send them by Friday this week it would be much appreciated.

Thanks
Jie

From: Alvin Yeung <Alvin.Yeung@rci.rogers.com>
Sent: October 27, 2025 11:52 AM
To: Jie Yao <Jie.Yao@cima.ca>; Tanner Trentham <Tanner.Trentham@rci.rogers.com>; Harth Mahmood <Harth.Mahmood@rci.rogers.com>; Dylan Mackay <Dylan.Mackay@rci.rogers.com>; Suzie GueladeYai <Suzie.GueladeYai@rci.rogers.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca

Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

EXTERNAL EMAIL

Hi Jie,

Sorry for the delay, I was away for a few weeks. Our planner [@Suzie GueladeYai](#) is reviewing and will get back to you shortly.

Thanks,

Alvin Yeung

Delivery Manager, Planning, P.Eng., PMP

10450 178 St NW, Edmonton, AB T5S 1S2

e alvin.yeung@rci.rogers.com

m 780-616-6329



From: Jie Yao <Jie.Yao@cima.ca>

Sent: Thursday, October 16, 2025 1:43 PM

To: Alvin Yeung <Alvin.Yeung@rci.rogers.com>; Tanner Trentham <Tanner.Trentham@rci.rogers.com>; Harth Mahmood <Harth.Mahmood@rci.rogers.com>; Dylan Mackay <Dylan.Mackay@rci.rogers.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca

Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

Hi Alvin,

Hope you are doing well. I'm just following up to see if you had a chance to review the request yet? If you have any questions, please let me know.

Thanks

Jie

From: Alvin Yeung <Alvin.Yeung@rci.rogers.com>

Sent: September 17, 2025 4:16 PM

To: Tanner Trentham <Tanner.Trentham@rci.rogers.com>; Jie Yao <Jie.Yao@cima.ca>; Harth Mahmood <Harth.Mahmood@rci.rogers.com>; Dylan Mackay <Dylan.Mackay@rci.rogers.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca

Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

EXTERNAL EMAIL

Hi Jie,

Thank you for contacting us. We are currently intaking this request and will get back to you once we've had a chance to review.

Regards,

Alvin Yeung

Delivery Manager, Planning, P.Eng., PMP

10450 178 St NW, Edmonton, AB T5S 1S2

e alvin.yeung@rci.rogers.com

m 780-616-6329



From: Tanner Trentham <Tanner.Trentham@rci.rogers.com>

Sent: Monday, September 15, 2025 9:37 AM

To: Jie Yao <Jie.Yao@cima.ca>; Harth Mahmood <Harth.Mahmood@rci.rogers.com>; Dylan Mackay <Dylan.Mackay@rci.rogers.com>; Alvin Yeung <Alvin.Yeung@rci.rogers.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca; Project Manager - Northern Alberta <ProjectManagerNorthernAlberta@rci.rogers.com>

Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

Good Morning Jie,

I'm including our project managers in this.

[@Harth Mahmood](#) [@Dylan Mackay](#) [@Alvin Yeung](#) including all three of you as I'm not sure who will be taking this project, can you please answer Jie's requests below?

Tanner Trentham

Delivery Specialist, Network Implementation - NAB

4761 62 St

Red Deer, Ab

T4N 2R4

e tanner.trentham@rci.rogers.com

m (403) 848-0742



From: Jie Yao <Jie.Yao@cima.ca>

Sent: Monday, September 15, 2025 8:36 AM

To: Tanner Trentham <Tanner.Trentham@rci.rogers.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca

Subject: FW: 67 St & Taylor Dr. Roundabout - Utility Circulation for Rogers/Shaw

Hello Tanner,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 6, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.
Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073
#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



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Appendix L

Coordination Summary for Telus Communications

Jie Yao

From: Jared Smith <jared.smith@telus.com>
Sent: October 16, 2025 2:30 PM
To: Jie Yao
Subject: Re: 67 St & Taylor Dr. Roundabout - Utility Circulation for Telus

EXTERNAL EMAIL

Sounds good Jie. Please keep in mind that some of this is mainway conduit, and will be difficult and time consuming to relocate. So early notification would be greatly appreciated.

Thanks,

Jared Smith, CET

Senior Design Specialist, NEO - Network Engineering and Operations

TELUS

T +1 403 341 8350 | M +1 403 506 1279

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Thank you.

On Thu, Oct 16, 2025 at 2:04 PM Jie Yao <Jie.Yao@cima.ca> wrote:

Hi Jared,

Sorry I must missed your email from last month and thanks for sending over the drawing which I received from Bruce Tse. With regard to your question, the answer is no that we have not determined which Telus infrastructure will be truly impacted as the we are still in the concept design phase. I will be in touch with you once we have some more definitive answers.

Thanks

Jie

From: Jared Smith <jared.smith@telus.com>
Sent: September 8, 2025 8:03 AM
To: Jie Yao <Jie.Yao@cima.ca>
Subject: Fwd: 67 St & Taylor Dr. Roundabout - Utility Circulation for Telus

EXTERNAL EMAIL

Hello Jie,

I am the Design Specialist in charge of the Red Deer area. In the future, you can send any of these to me directly, or to mbcalgaryengineering@telus.com if you are unsure of the area.

I see for this project that you have highlighted several Telus cables/conduits as being in conflict of the construction, but have labelled them as "crossing" in your matrix. Have you identified yet whether these conduits will actually be in conflict of the new construction?

I will send this to our brownline team to get you facilities information, but it will not include utility depth.

Thanks,

Jared Smith, CET

Senior Design Specialist, NEO - Network Engineering and Operations

TELUS

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Thank you.

----- Forwarded message -----

From: **Chris Rauckman** <chris.rauckman@telus.com>

Date: Mon, Sep 8, 2025 at 7:53 AM

Subject: Fwd: 67 St & Taylor Dr. Roundabout - Utility Circulation for Telus

To: Jared Smith <jared.smith@telus.com>

Hey Jared,

Did you get this? First time I've been sent a circulation.

Chris Rauckman

Field Construction Manager

OP Construction West - 403 North

CNI (Customer Network Implementation)

7447 Edgar Industrial Bend

Red Deer AB T4P 3Z5

Cell: 403-506-2935

Chris.rauckman@telus.com

----- Forwarded message -----

From: **Jie Yao** <Jie.Yao@cima.ca>

Date: Fri, Sep 5, 2025 at 12:32 PM

Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for Telus

To: Chris.rauckman@telus.com <Chris.rauckman@telus.com>

Cc: Glen Campbell <Glen.Campbell@cima.ca>, Russ.Watts@reddeer.ca <Russ.Watts@reddeer.ca>, Jared.Ho@reddeer.ca <Jared.Ho@reddeer.ca>, Simone.Thompson@reddeer.ca <Simone.Thompson@reddeer.ca>

Hello Chris,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 3, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.
Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073
#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



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Appendix M

Coordination Summary for ATCO Gas & Pipelines

Jie Yao

From: Jie Yao
Sent: November 5, 2025 2:40 PM
To: 'Wong, Lennae'; Rex, Erica
Cc: Glen Campbell; Russ Watts; Jared Ho; Simone Thompson
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

Hi Lennae and Erica,

We are finalizing utility coordination results for the City of Red Deer for the roundabout project. I'm just following up again to see if you had a chance to review the files and provide necessary comments?

Thanks
Jie

From: Jie Yao
Sent: October 16, 2025 1:46 PM
To: 'Wong, Lennae' <lennae.wong@atco.com>
Cc: Glen Campbell <Glen.Campbell@cima.ca>
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

Hi Lennae,

Hope you are doing well. I'm just following up to see if you had a chance to review the request yet? If you have any questions, please let me know.

Thanks
Jie

From: Wong, Lennae <lennae.wong@atco.com>
Sent: September 16, 2025 11:48 AM
To: Jie Yao <Jie.Yao@cima.ca>
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

EXTERNAL EMAIL

Hi Jie,

I'll look at this and reach out to our other ATCO groups and try to get comments earlier than Oct 3rd for you.

This traffic circle is going to be affecting 3 different groups within ATCO so it won't be just myself providing comments.

Thanks,

Lennae Wong (she/her)
Engineer in Training
Red Deer, South District Engineering
Natural Gas

**Due to multiple near identical names, please double check email spelling if manually inputting;*
Lennae Wong – Red Deer Engineering
Leanne Wong – Edmonton Planning & Reporting
Leann Wong – North Fleet Admin

C. 587-679-0497 **A.** 7590 Edgar Industrial Dr, Red Deer AB, T4P 3R2

From: Jie Yao <Jie.Yao@cima.ca>
Sent: Monday, September 15, 2025 8:40 AM
To: Rex, Erica <Erica.Rex@atco.com>; Wong, Lennae <lennae.wong@atco.com>
Cc: Ward, Mel <Mel.Ward@atco.com>; Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca;
Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

CAUTION: This email originated outside of ATCO. Do not click links or open attachments unless you trust the sender and know the content is safe. Immediately report suspicious emails using the **Phish Alert Report button**.

Hi Erica and Lennae,

Thanks for the email. Can you please review attached files and provide comments and files as per the original utility circulation email below?

Thanks
Jie

From: Rex, Erica <Erica.Rex@atco.com>
Sent: September 5, 2025 3:53 PM
To: Jie Yao <Jie.Yao@cima.ca>
Cc: Ward, Mel <Mel.Ward@atco.com>; Wong, Lennae <lennae.wong@atco.com>; Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca; Jared.Ho@reddeer.ca; Simone.Thompson@reddeer.ca
Subject: RE: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

EXTERNAL EMAIL

Good Afternoon Jei,

Lennae Wong (cc'd) will be your project coordinator within ATCO. She will be able to review the files, and coordinate with you to provided the requested information.

Thank You,

Erica Rex P.Eng., M.Sc. (she/her)
Senior Engineer, Distribution Engineering Growth
ATCO Gas & Pipelines

C. 587-220-5685
OH: 7:30am-4pm
A. 410 Stafford Dr. N, Lethbridge, Alberta, Canada, T1H 2A9



[ATCO.com](#) [LinkedIn](#) [Facebook](#) [Instagram](#) [X](#)

In the spirit of reconciliation, we acknowledge the traditional territories and homelands on which many of our ATCO operations and facilities are located. We honour and respect the diverse history, languages, ceremonies, and culture of the Indigenous Peoples who call these areas home.

From: Tan, Yanyi <Yanyi.Tan@atco.com>
Sent: Friday, September 5, 2025 3:12 PM
To: Rex, Erica <Erica.Rex@atco.com>
Subject: Fw: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

Good afternoon Erica,

I got the below request for City of Red Deer road work that might require relocation. I worked with City of Red Deer a few years ago for another roundabout relocation so they probably kept my contact information on file. I will let you respond and give them an updated contact.

Thanks and have a great weekend!

Yanyi Tan, P.ENG

Engineer, Pipeline Integrity Projects

ATCO Gas & Pipelines

P. 403-355-0524

A. 909-11 Ave SW, Calgary, AB, Canada, T2R 1P3



[ATCO.com](#) [LinkedIn](#) [Facebook](#) [Instagram](#) [X](#)

From: Jie Yao <Jie.Yao@cima.ca>
Sent: Friday, September 05, 2025 12:27 PM
To: Ward, Mel <Mel.Ward@atco.com>; Tan, Yanyi <Yanyi.Tan@atco.com>
Cc: Glen Campbell <Glen.Campbell@cima.ca>; Russ.Watts@reddeer.ca <Russ.Watts@reddeer.ca>; Jared.Ho@reddeer.ca <Jared.Ho@reddeer.ca>; Simone.Thompson@reddeer.ca

<Simone.Thompson@reddeer.ca>

Subject: 67 St & Taylor Dr. Roundabout - Utility Circulation for ATCO Gas & Pipelines

Some people who received this message don't often get email from jie.yao@cima.ca. [Learn why this is important](#)

CAUTION: This email originated outside of ATCO. Do not click links or open attachments unless you trust the sender and know the content is safe. Immediately report suspicious emails using the **Phish Alert Report button**.

Hello Mel and Yanyi,

Please be advised that CIMA+ is working on behalf of **City of Red Deer** for the Planning and Preliminary Design of the **67 St & Taylor Dr. Roundabout Project**.

The project's tentative schedule is as follows:

- Detailed Design Completion: November, 2026
- Issued For Tender: March, 2027
- Construction Start: May, 2027

Based on our initial Planning & Design One Call Ticket **#20253500497** on August 24, 2025, your infrastructure may be impacted by the proposed design. As a result, we are requesting the following information:

- A project liaison contacts for the entire duration of the project;
- Updated record information of existing infrastructure utilities that are within the project limits (preferably CAD, if possible); and
- Any further updates on your planned utility infrastructure that may have potential impact.

A marked-up Utility Plan Drawing of our preliminary design and a copy of our Utility Conflict Matrix is attached for your reference based on the information available at this time. Please review the attached documents and provide feedback by **October 3, 2025**.

If you have any questions, or require any additional information, please do not hesitate to reach out.

Thanks!

JIE YAO, E.I.T.
Engineer in Training / Highway Engineering

M 780-708-4910 **F** 780-428-3073
#100, 14535 118 Avenue, Edmonton, AB T5L 2M7 CANADA



Engineering
for people



KINCENTRIC
Best Employer
CANADA 2019

Do you really need to print this email? Let's protect the environment!

CONFIDENTIALITY WARNING This email is confidential. If you are not the intended recipient, please notify the sender immediately and delete it in its entirety.

N

Appendix N

Coordination Summary for Zayo Canada Inc.

Cable Locate Request

1-800-837-6448

EXCAVATION SITE	6675 TAYLOR DR.	RED DEER, AB	Xstreet:	Xstreet2:
APPLICANT'S NAME	JIE YAO		COMPANY NAME (if applicable) CIMA+	
APPLICANT'S ADDRESS			PHONE NO. (780)-708-4910 ext.	
	STREET	CITY	POSTAL CODE	
ALTERNATE CONTACT:	JIE YAO		ALTERNATE PHONE NO: (780)-708-4910 ext.	
EMAIL ADDRESS:	jie.yao@cima.ca		FAX NO.:	
ORIGINAL CALL DATE:	8/24/2025 7:59:00 PM		WORK TO BEGIN DATE:	8/29/2025 1:00:00 AM
			ZAYO TICKET NO.	20253500497

TYPE OF WORK:	ROAD WORK	EXCAVATOR DOING WORK:	LOCAL GOVERNMENT
Contractor - Additional Location Info: LOTNO> BLOCKNO> PLANNO>			

BURIED CABLE LOCATION DETAILS (To be completed by ZAYO Locator)	
1. Were facilities located at excavation site?	☐ NO Reasons:
2. How was the location of the facilities marked?	☐ PAINT ☐ STAKED ☐ OTHER (Specify Below)
3. What type of facilities marked?	☐ BURIED CABLE ☐ ENCASED CONDUIT ☐ UNENCASED CONDUIT
4. Was the applicant present at time of locate?	☐ NO Reasons: ☐ FIBRE WATCH REQUIRED-CALL _____ FOR APPOINTMENT
Remarks: ACTIVITY>ROAD INSTALL LANDGRIDS>NE-19-38-27-W4,NW-20-38-27-W4,SW-29-38-27-W4,SE-30-38-27-W4 PROPOSED A ROUNDABOUT FOR THIS INTERSECTION. PROJECT IS CURRENTLY IN PLANNING AND DESIGN PHASE. TICKET SENT TO :ROGSHWA1, TELCNTRL, AGSREDCT, APCENTRAL, RDEER, ZAYOAB01	
Dig Info - Additional Dig Info: EXCAVATIONDEPTH>0.3 TO 1M EXCAVATIONSIZE>29000 SQ M AREAMARKED>FALSE PROPERTYTYPE>PUBLIC PROPERTY, PRIVATE PROPERTY PROPERTYDETAILS>ROAD/SIDEWALK/NOFFROAD	
Dig Info: Utility Remarks: ZAYO FIBRE STRUCTURE IS MARKED IN BLUE ON DRWG2 ATTACHED. DARRELL.FORREST@ZAYO.COM 403-615-9760	
Locator Remark:	

ZAYO - INSTRUCTIONS TO APPLICANT- PLEASE READ CAREFULLY

- Requests for a locate should be made at least **2** working days prior to digging. Call ZAYO anytime at **800-837-6448**.
- ZAYO cannot guarantee precise location or depth of facilities. You must **HAND DIG** within one meter (3.28 feet) of markings for paired voice frequency and power cable and within 2.5 meters (8.2 feet) of markings for fiber optic cable.
- Because markings made by ZAYO when locating cable may disappear, or be displaced, any delays in digging after locate require a new locate.
- This locate was completed based on information given to ZAYO's locator at the time of the request or locate. **ANY CHANGES TO LOCATION OR NATURE OF WORK REQUIRE NEW LOCATE.**
- You will be liable for damages caused to ZAYO's facilities if you do not follow these instructions, or abide by the locate.
- NOTE FIBRE WATCH REQUIREMENTS- PLEASE CALL THE NUMBER NOTED ABOVE AT LEAST ONE WEEK IN ADVANCE OF EXCAVATION.**
- Under no circumstances shall ZAYO or any of its affiliated or associated companies, or any of their employees be held liable for any losses (including down time) suffered by anyone as a result of a location error made by ZAYO
- Applicant is responsible to remove any ZAYO flags or stakes at locate site once construction is complete.

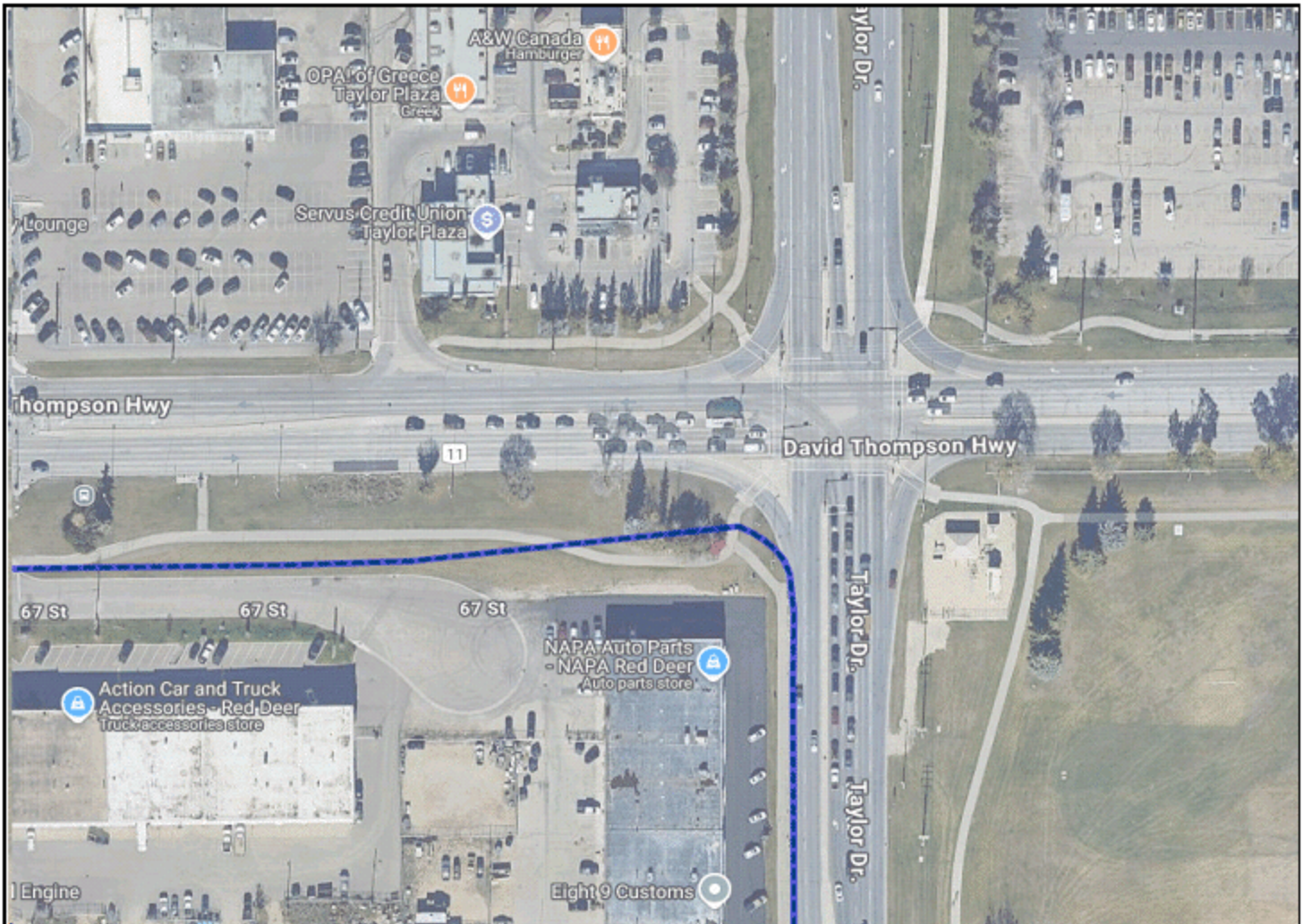
ZAYO locates are valid for a period of 60 days



Cable Locate Request

1-800-837-6448

Locator's sketch of site: (NOTE: This sketch is for illustration purposes only. It is not drawn to scale or in reference to the property lines.)



ZAYO – INSTRUCTIONS TO APPLICANT- PLEASE READ CAREFULLY

1. Requests for a locate should be made at least **2** working days prior to digging. Call ZAYO anytime at **800-837-6448**.
2. ZAYO cannot guarantee precise location or depth of facilities. You must **HAND DIG** within one meter (3.28 feet) of markings for paired voice frequency and power cable and within 2.5 meters (8.2 feet) of markings for fiber optic cable.
3. Because markings made by ZAYO when locating cable may disappear, or be displaced, any delays in digging after locate require a new locate.
4. This locate was completed based on information given to ZAYO's locator at the time of the request or locate. **ANY CHANGES TO LOCATION OR NATURE OF WORK REQUIRE NEW LOCATE.**
5. You will be liable for damages caused to ZAYO's facilities if you do not follow these instructions, or abide by the locate.
6. **NOTE FIBRE WATCH REQUIREMENTS- PLEASE CALL THE NUMBER NOTED ABOVE AT LEAST ONE WEEK IN ADVANCE OF EXCAVATION.**
7. Under no circumstances shall ZAYO or any of its affiliated or associated companies, or any of their employees be held liable for any losses (including down time) suffered by anyone as a result of a location error made by ZAYO.
8. Applicant is responsible to remove any ZAYO flags or stakes at locate site once construction is complete.

Above accepted by: _____ Date: _____
(Print Name) Month Day Year

APPLICANT'S SIGNATURE _____ LOCATOR'S NAME DARRELL FORREST LD. NO. _____
(Print Name)

Locator: DARRELL FORREST Date/Time: 08/25/2025 08:52:25

NOTE:

ZAYO-000001b

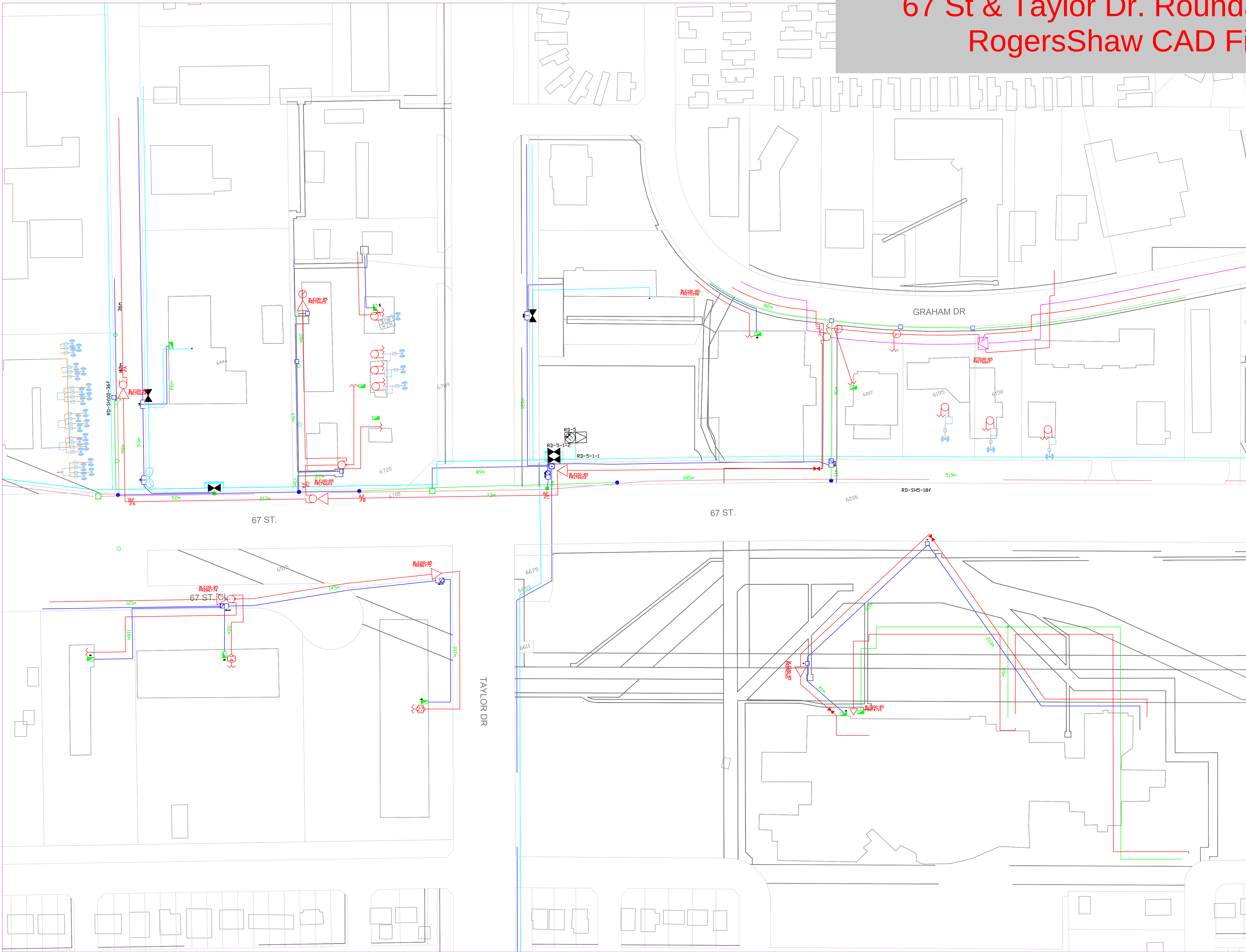
ZAYO locates are valid for a period of 60 days

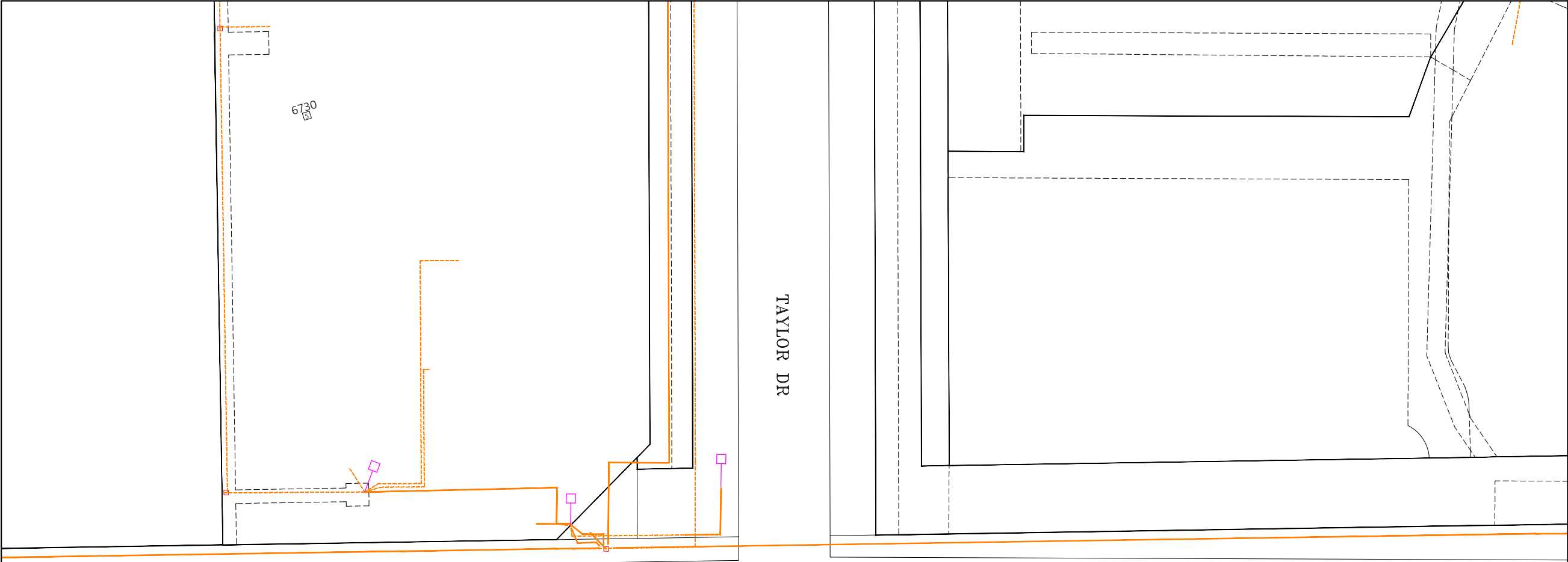


Appendix O

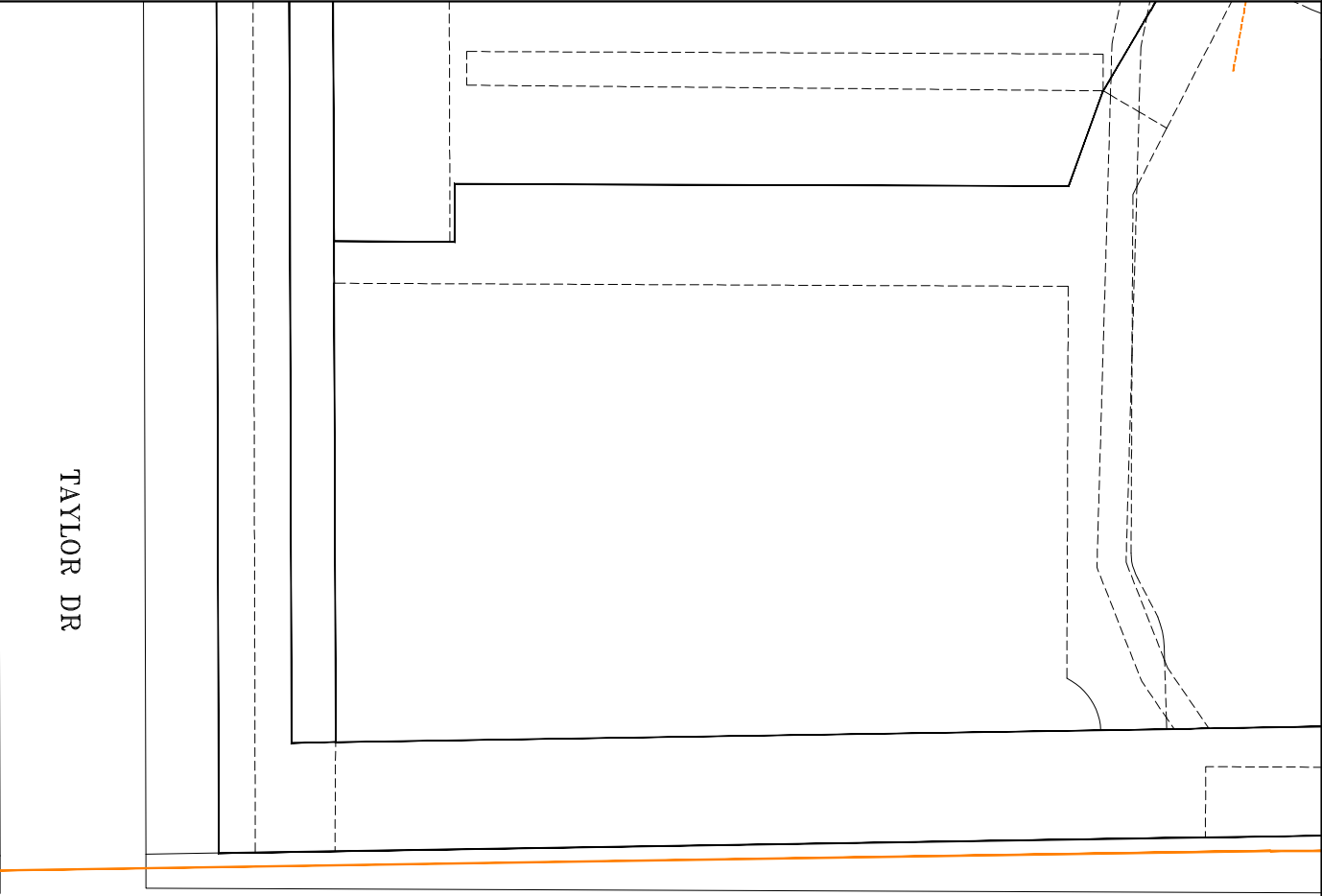
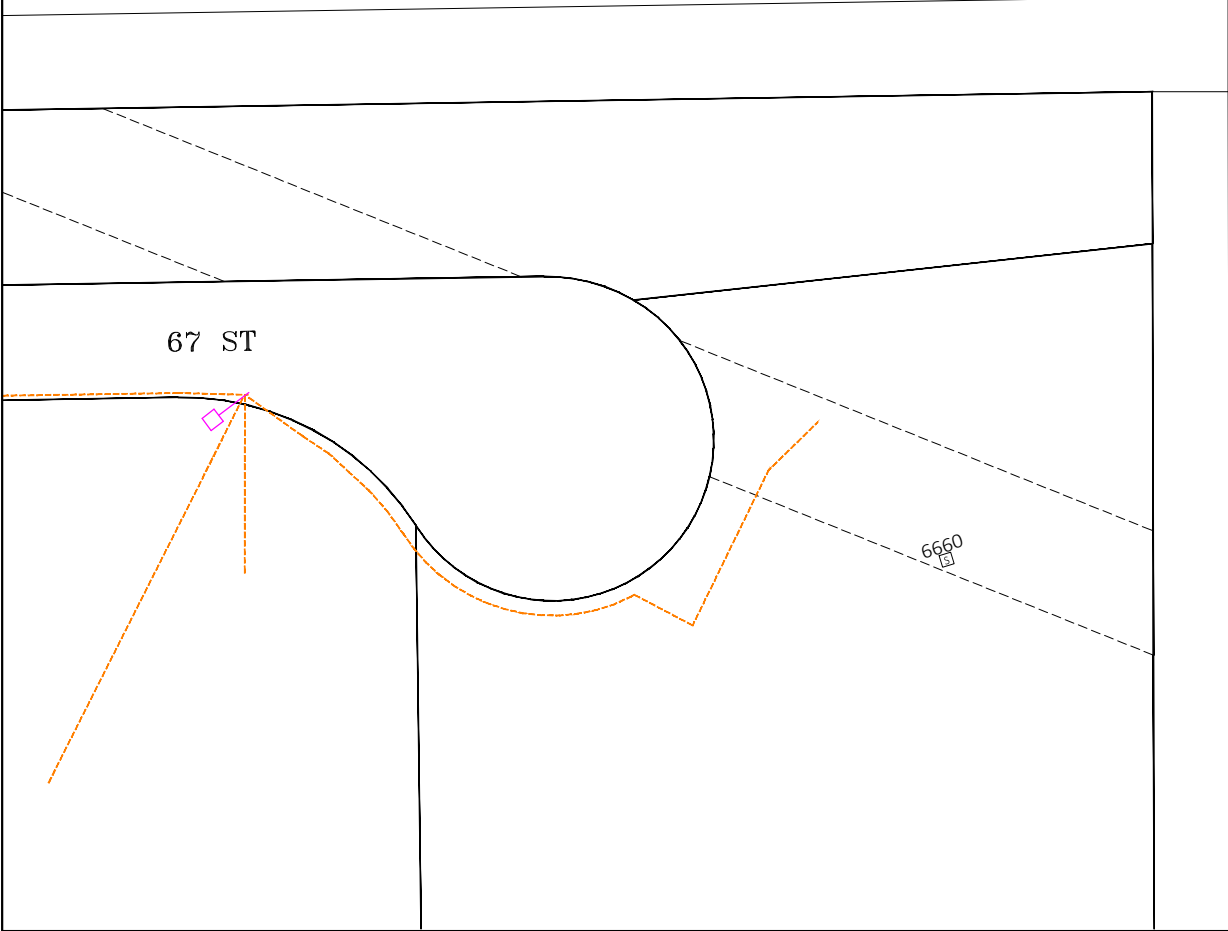
PDF of Utility CAD Files by Each Utility

67 St & Taylor Dr. Roundabout -
RogersShaw CAD File

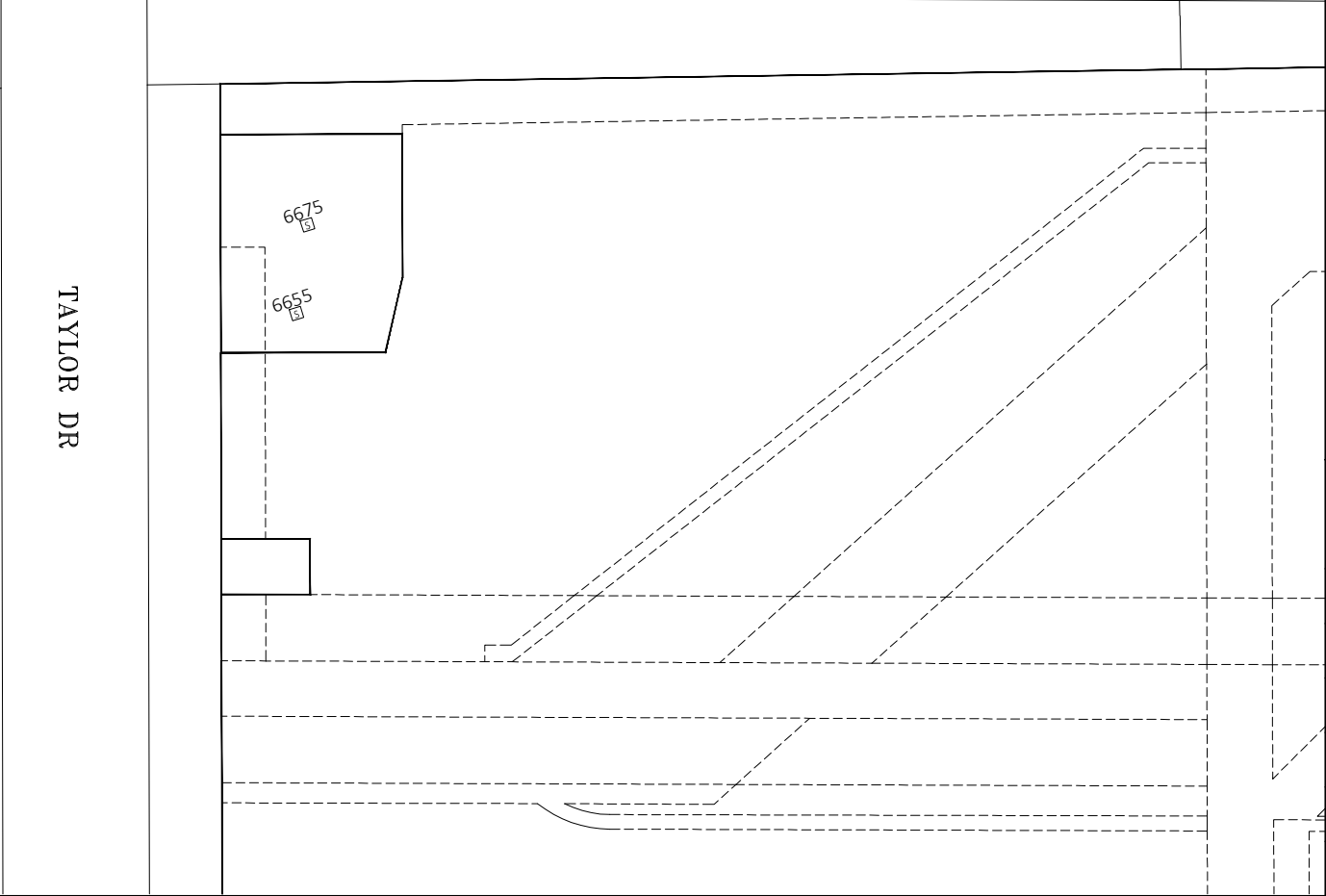




67 ST



67 ST



LEGEND

TELUS CONDUIT

TELUS BURIED CABLE

TELUS PEDESTAL

TELUS VAULT

TELUS MANHOLE

TELUS Communications Inc.

FOR EXACT LOCATION OF
TELUS FACILITIES LOCATES
ARE REQUIRED.

NAD83 UTM 10TM
COORDINATE SYSTEM

PROJECT NUMBER:

N/A

PROJECT NAME:

ROUNDAABOUT

PROJECT LOCATION:

67 ST AND TAYLOR DR

WIRE CENTRE:

RDDR

CITY/TOWN:

RED DEER, AB

NETWORK:

N/A

DRAFTED BY:

BMT

DESIGNED BY:

BMT

DATE

2025-09-09

SCALE:

1:1000

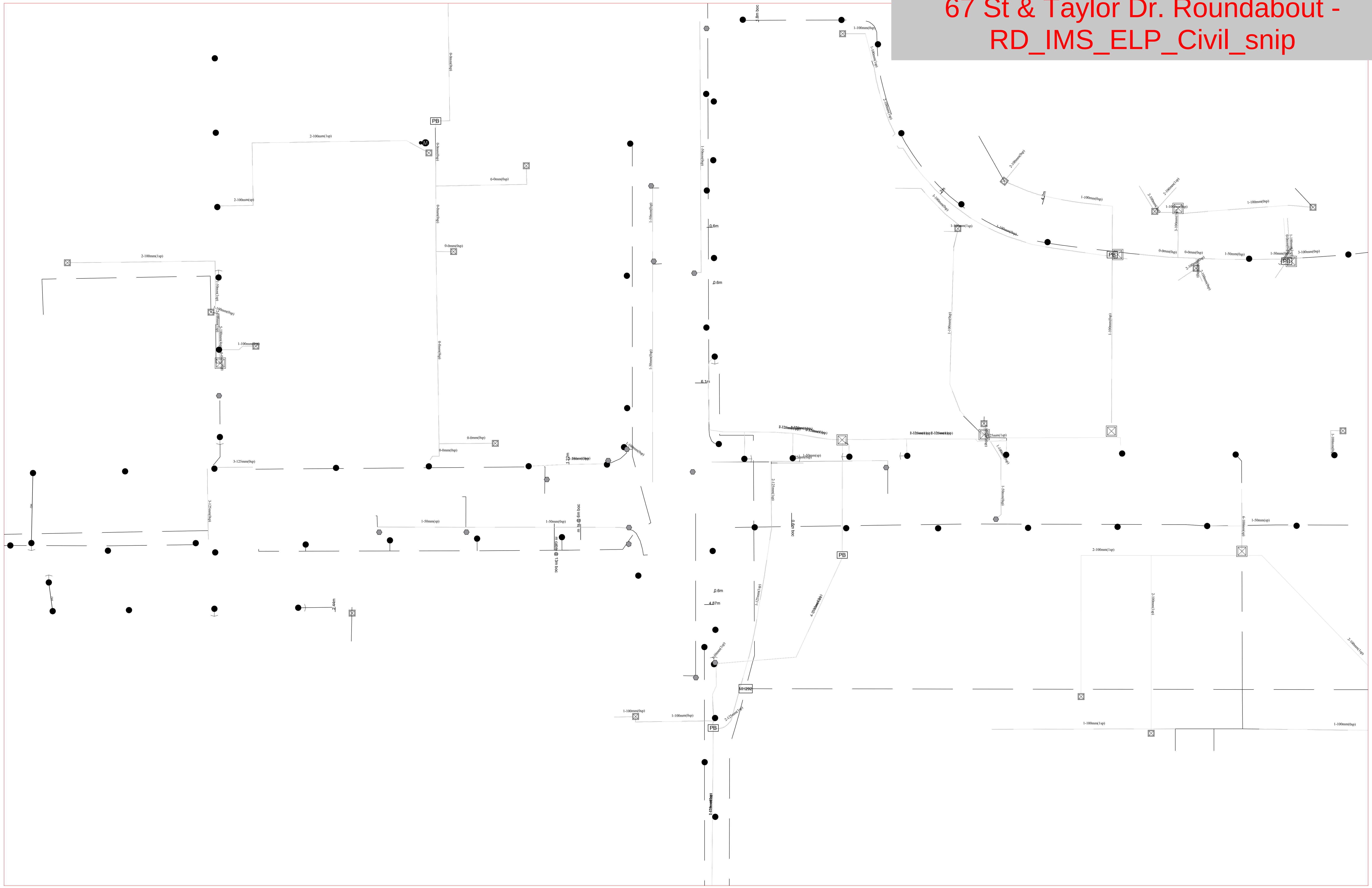
PLAN:

BL01

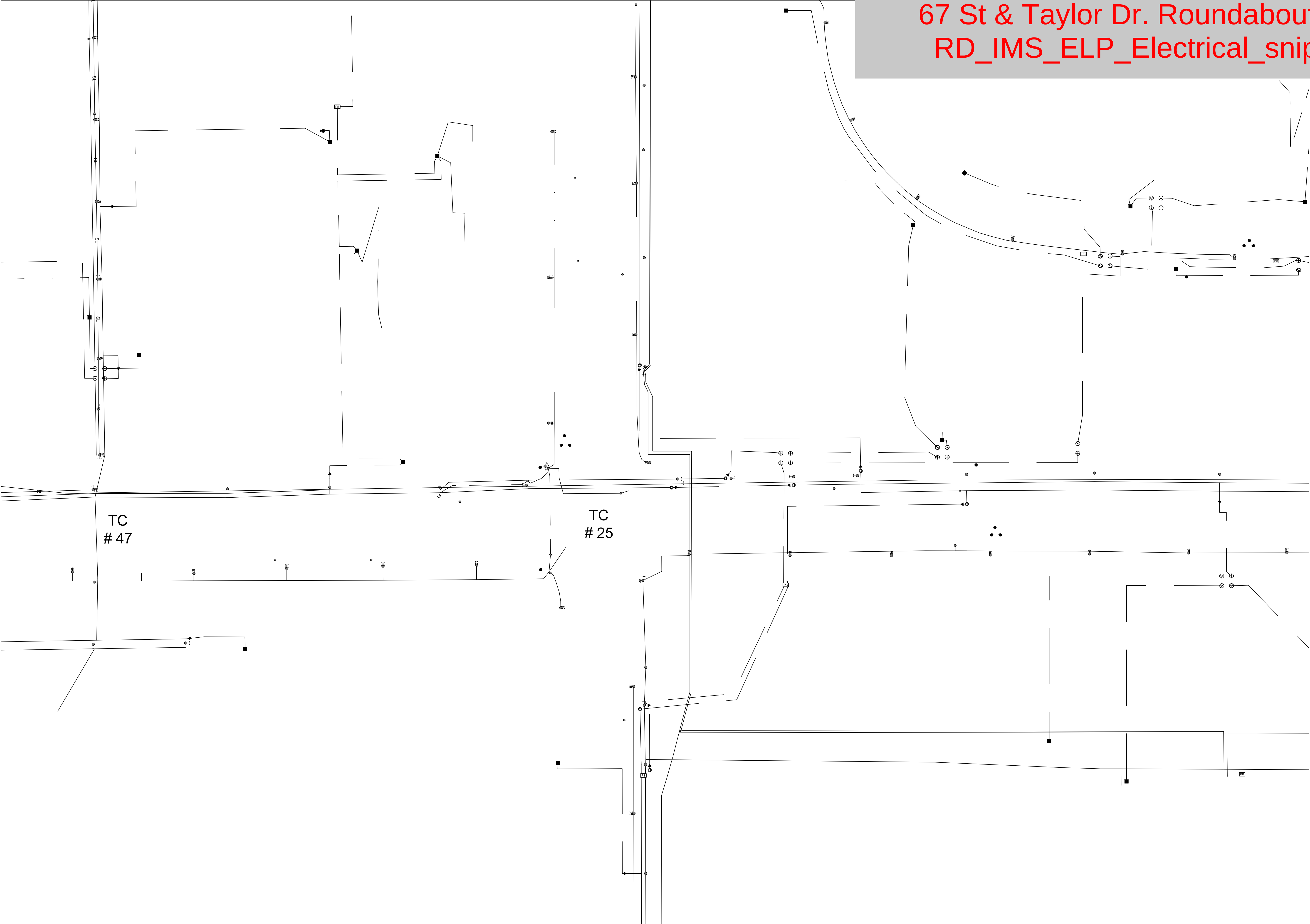
REV:

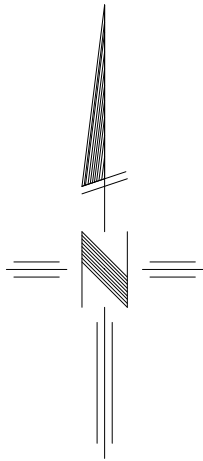
0

67 St & Taylor Dr. Roundabout - RD_IMS_ELP_Civil_snip



67 St & Taylor Dr. Roundabout -
RD_IMS_ELP_Electrical_snip



[illegible]

ISSUED/REVISION



DATE:	NOVEMBER 1, 2018
DRAWN BY:	M.S.
DESIGNED BY:	R.W.
CHECKED BY:	D.B.
APPROVED BY:	K.P.

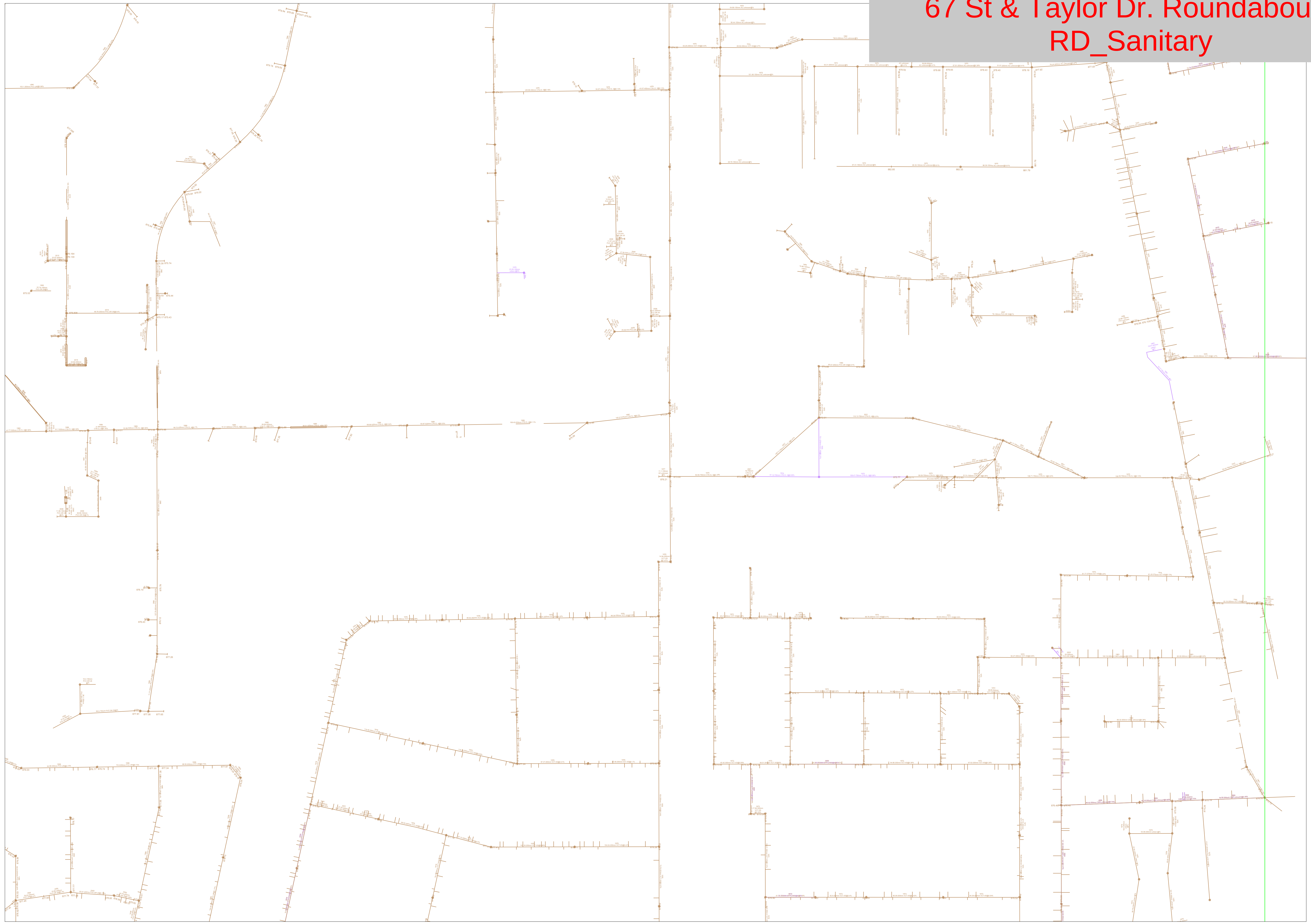
SCALE: 1:250

DFS NUMBER	REV.	DWG. NO.	SHEET
	6	1	1 / 1

67 St & Taylor Dr. Roundabout - RD_ATCO



67 St & Taylor Dr. Roundabout - RD_Sanitary



67 St & Taylor Dr. Roundabout - RD_Storm



67 St & Taylor Dr. Roundabout - RD_Water

