

# ASCE 38 – Updates and Tie-Ins

## Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data

Lawrence Arcand P.Eng

October 30, 2019

# Presenter Information

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# Presentation Overview

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Intro to UESI

ASCE 38 Basics

Quality Levels

Deliverables

Updates for version 38-20

How ASCE ties to “SUE for Municipalities”

How ASCE ties to “TAC Guidelines “

Case Study

# Intro to UESI

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## VISION

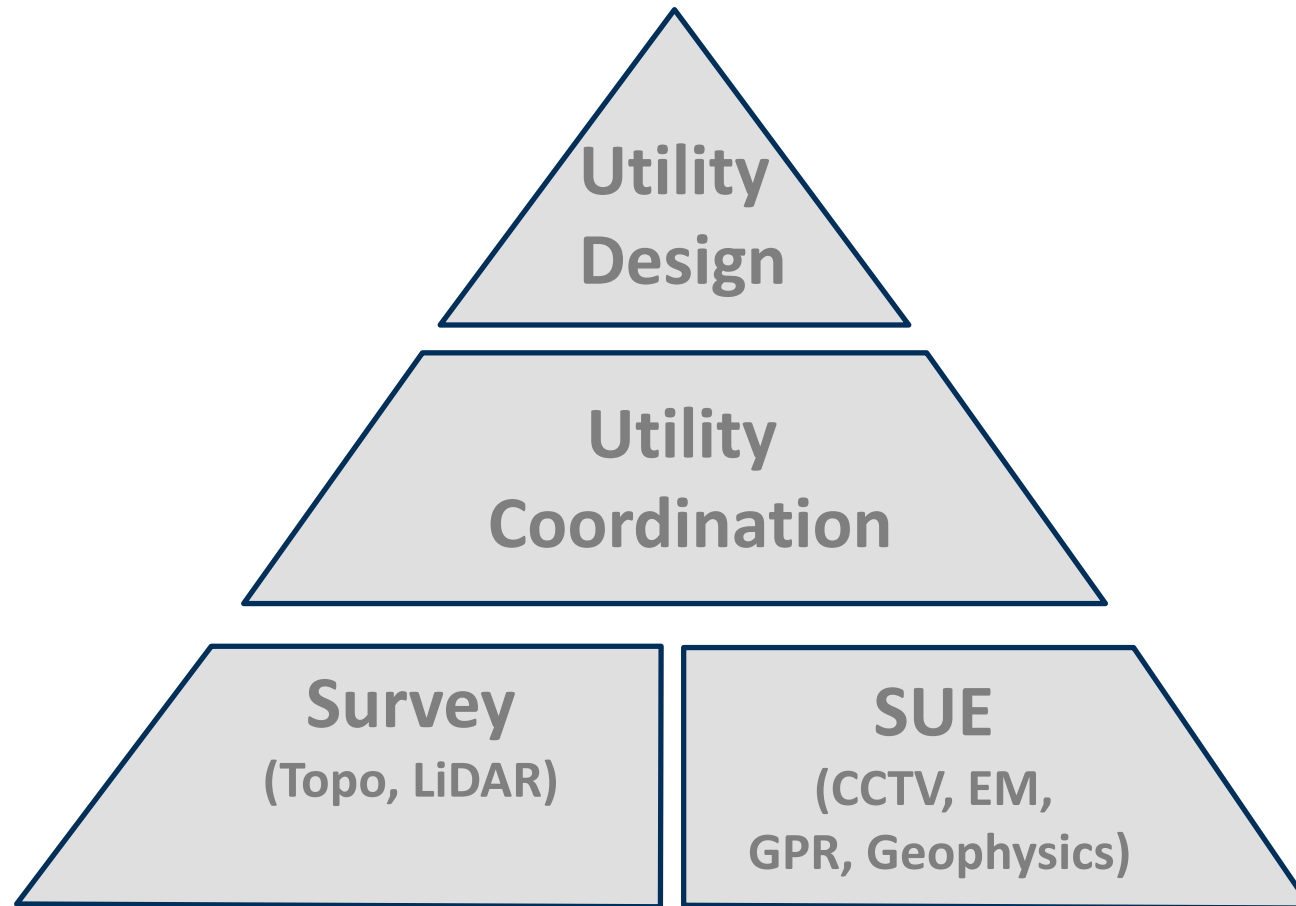
*The Utility Engineering & Surveying Institute (UESI) is the worldwide leader in generating products and services that promote and reward excellence in the engineering, planning, design, construction, operations, and asset management, for utility infrastructure and engineering surveying.*

<https://www.asce.org/utility-engineering-and-surveying/utility-engineering-and-surveying-institute/>



# Utility Engineering & Survey - Pyramid

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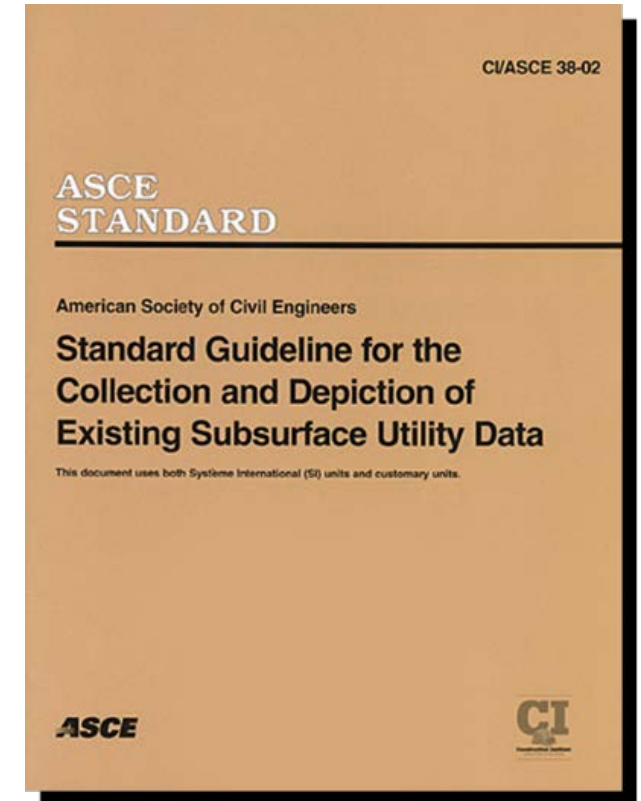


# ASCE 38 Standard

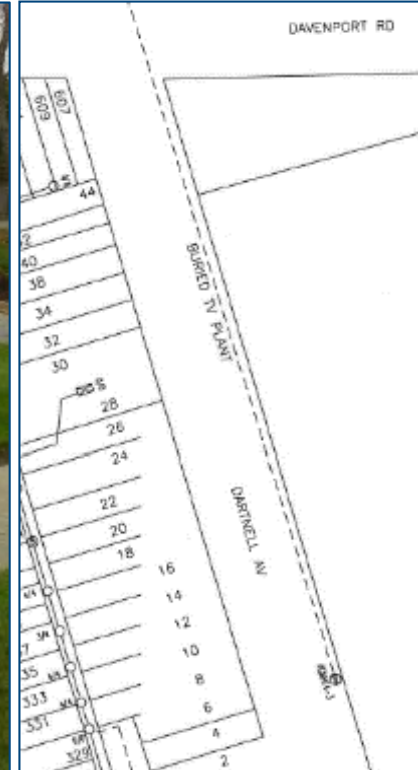
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“The specialty practice of civil engineering’s utility engineering branch that includes the investigation, analysis, judgment, and depiction of existing utility networks (Standard 38).”

**New Definition from CI/ASCE 38-20 Update**



# SUE Quality Levels



A

B

C

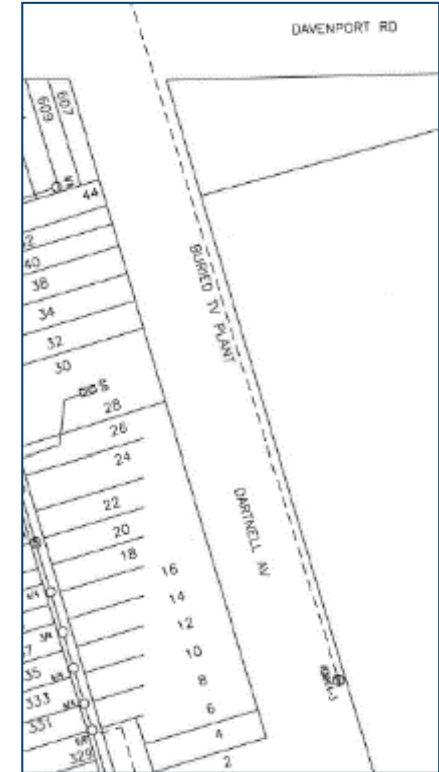
D



# SUE Quality Levels

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> No significant change in 38-20.





# SUE Quality Levels

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- > Several Clarifications made
- > Primarily used for sewers and those utilities where surface features relate directly to utility location
- > Must open MH covers to observe and measure pipes



C



# SUE Quality Levels

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- > Precision clause potentially to be added.
- > 80% of Designations to be within 12 inches (1 foot | 300mm) of the footprint of the actual Utility Segment.

HOW DO WE ACHIEVE THIS.....?



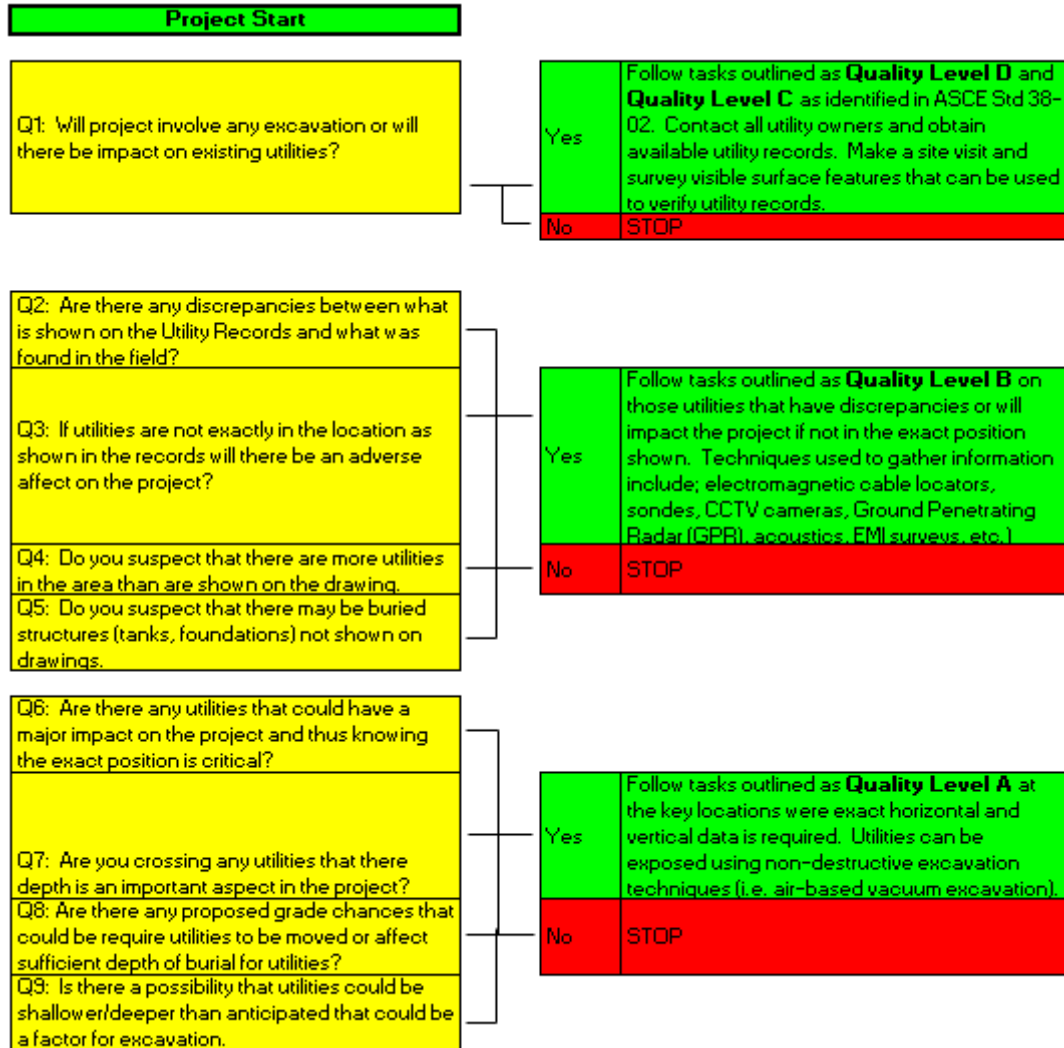
# SUE Quality Levels

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- > Survey accuracy now 30mm vertical and 60mm horizontal with a 95% confidence level



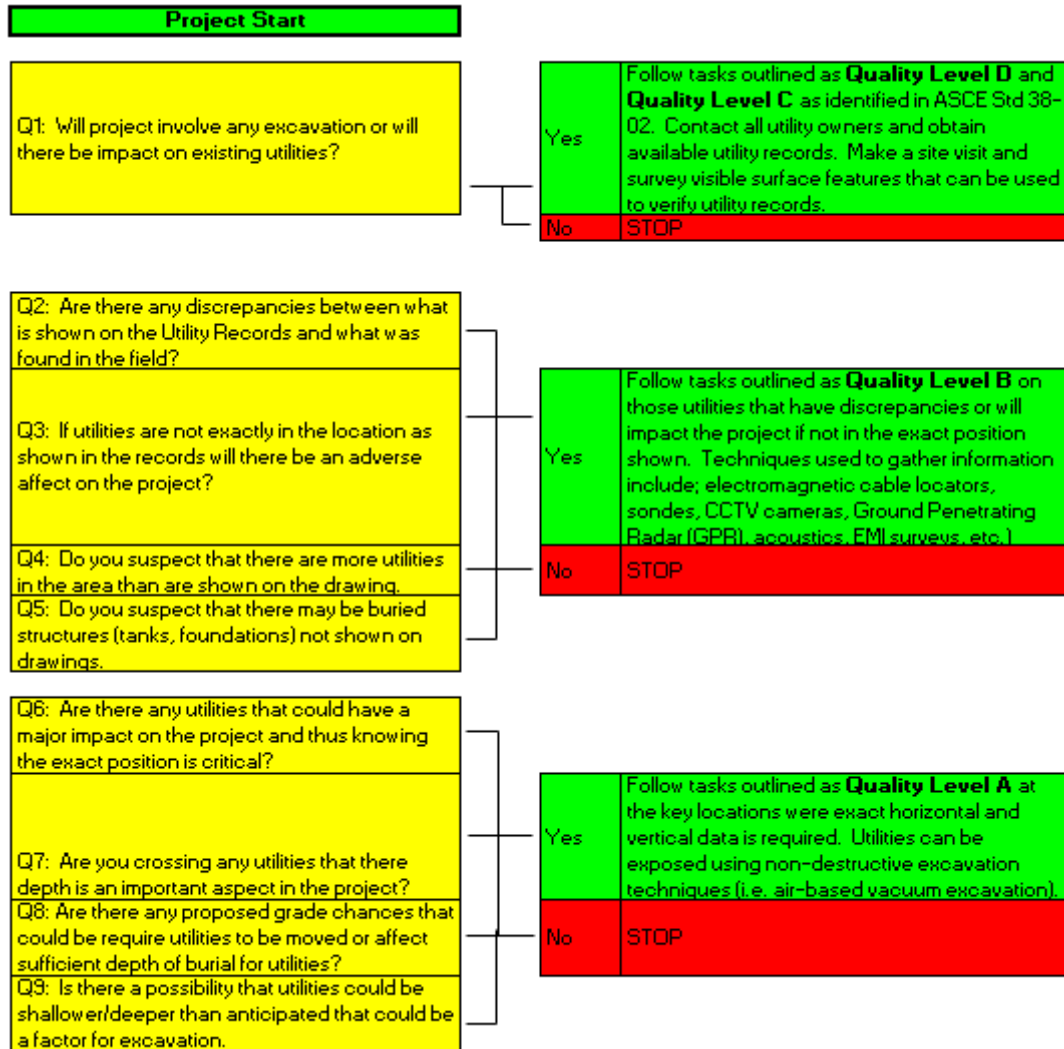
# Choosing Quality Levels



How do I decide what Quality Level to use?

Talk to your SUE Consulting Engineer.

# Choosing Quality Levels



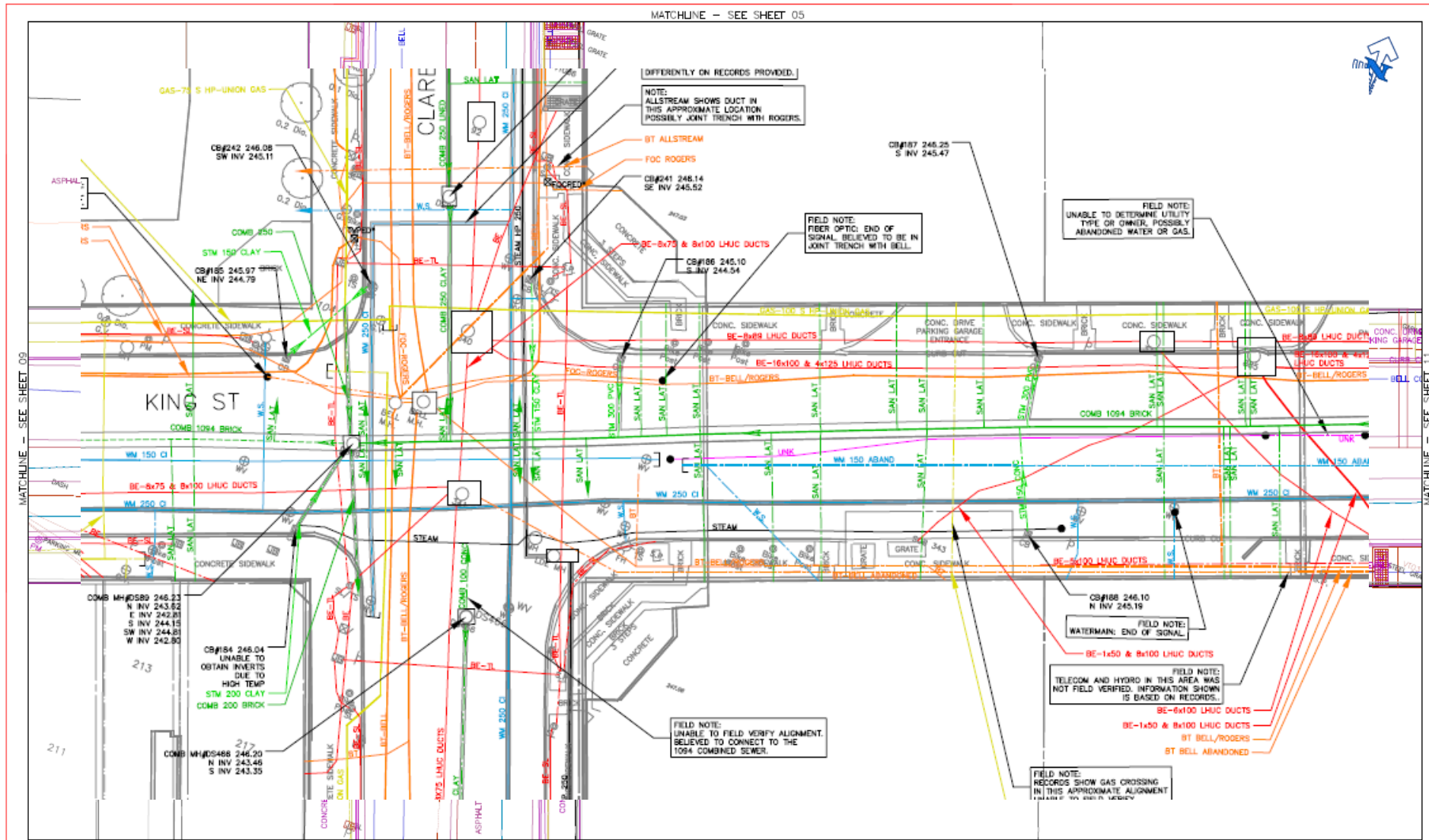
## Additional Questions to ask

What is the overall dollar value of project? - Balancing cost for investigation vs. overall cost of project.

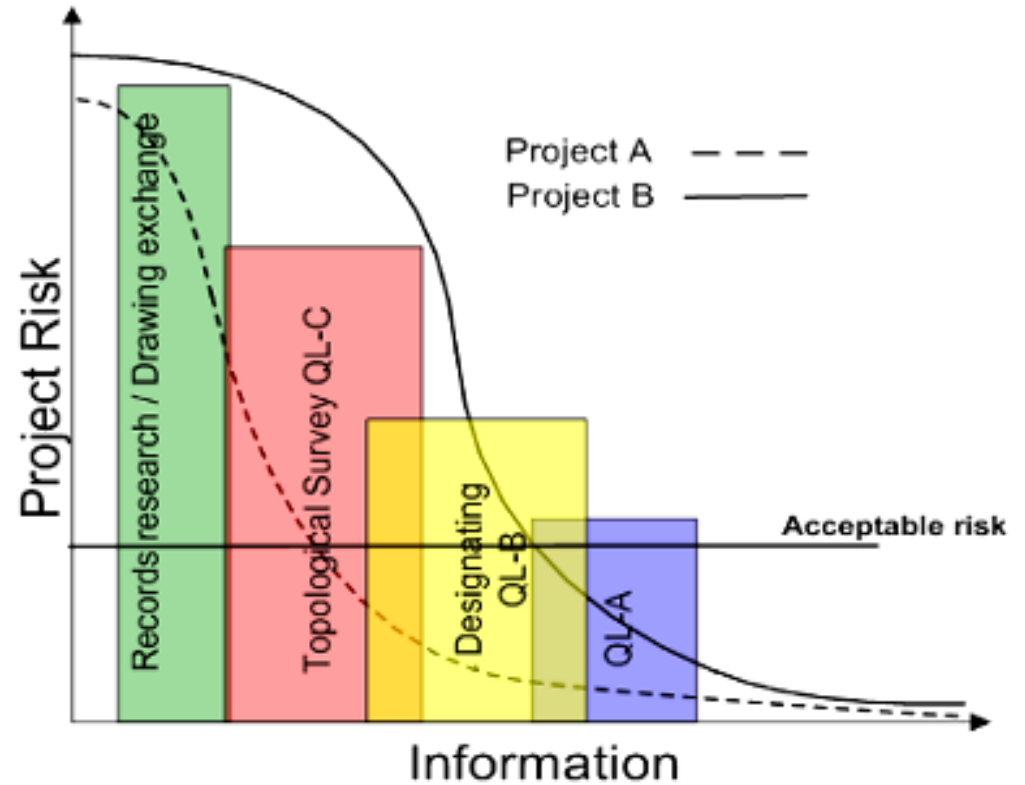
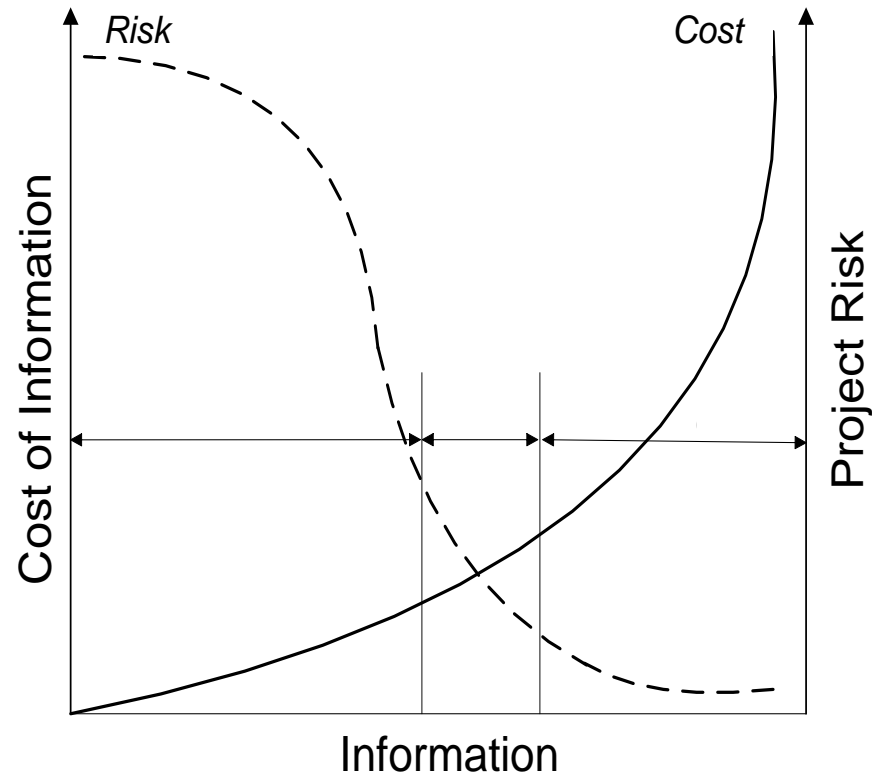
What is the overall importance of project? - How will running into utility problems which increase costs, and delay project completion be perceived.

What is the potential safety risks involved with the project? - What type of utilities are present?

# SUE Investigation – QLD vs QLB



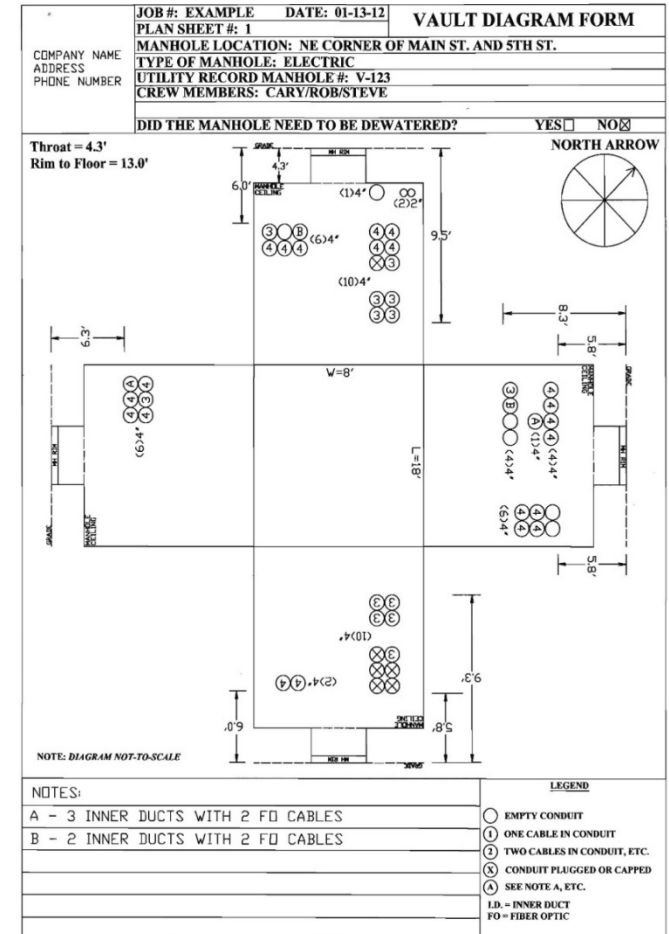
# SUE and Risk Management



ROI - \$3.41 (U of T Study)

# ASCE 38 – Other Key Updates

- > Measuring, Documenting and Depicting Depths
- > Measuring, Documenting and Depicting Vaults
- > Utility Report / Deliverables

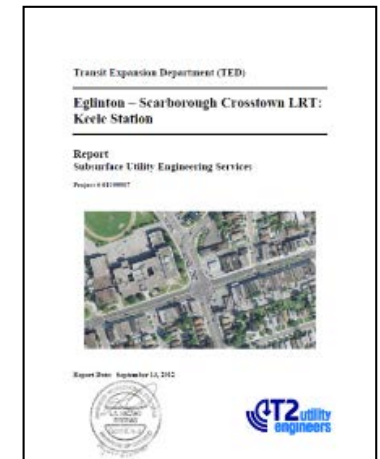
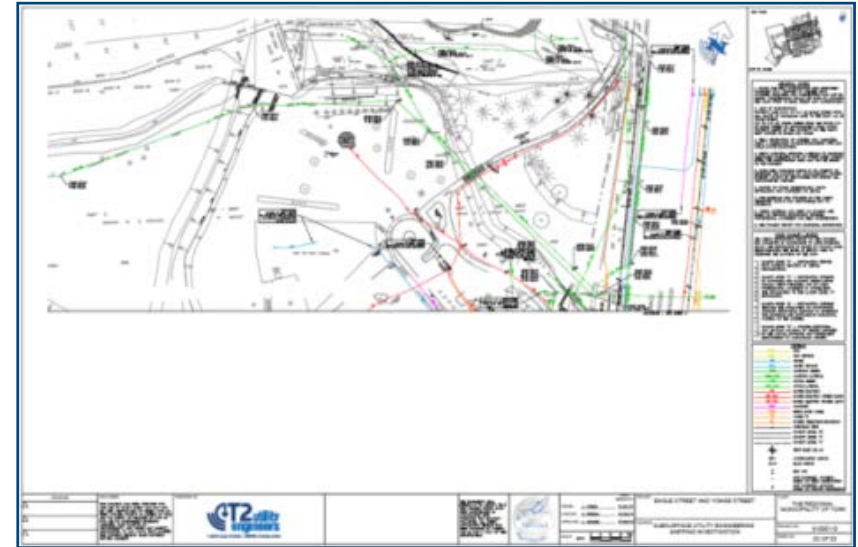




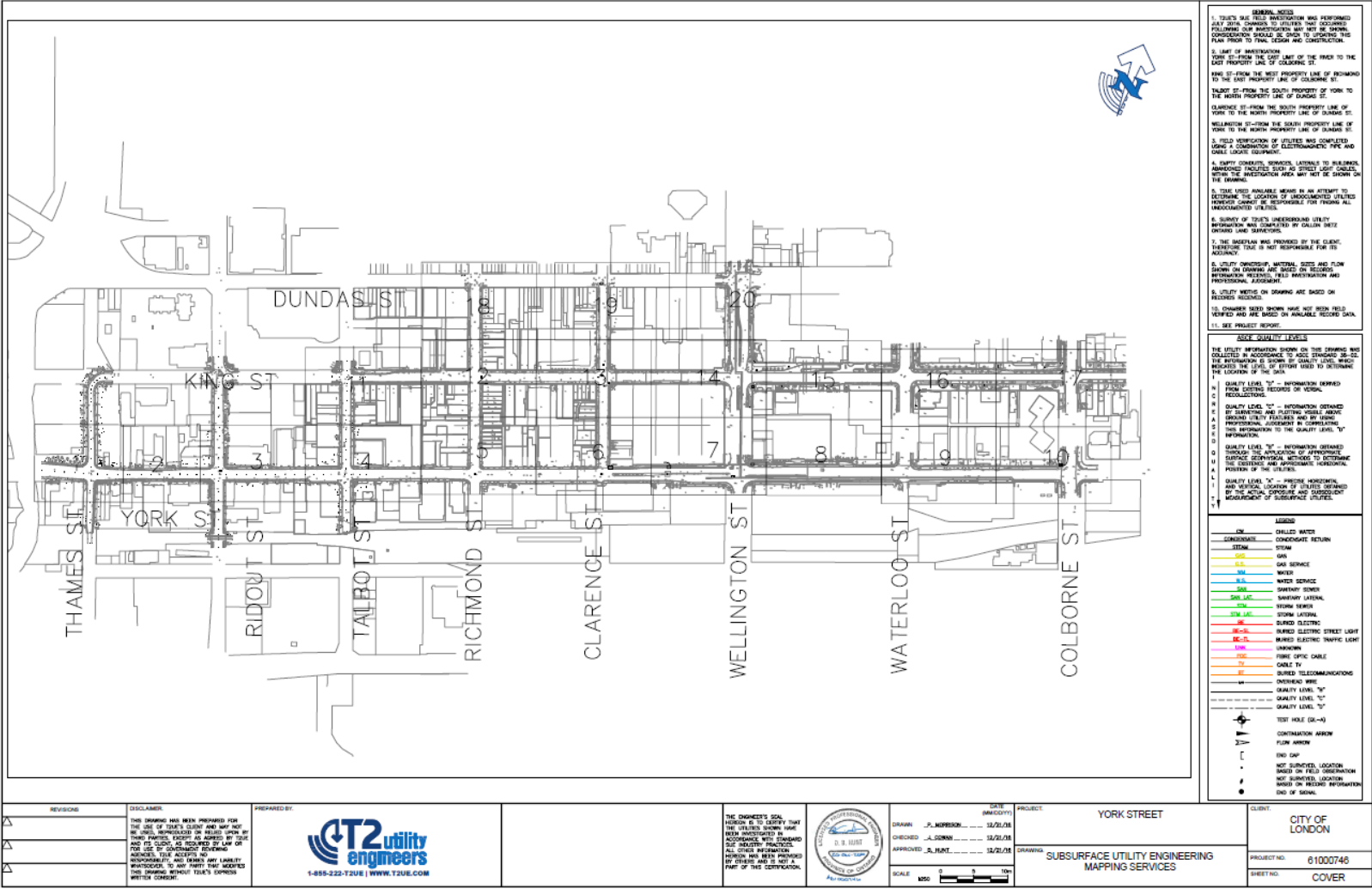
# Stamped Deliverables

“Affixing the seal on documents and drawings indicates they are final for the intended purpose and have been prepared by or under the supervision of a person licensed to practice professional engineering who is assuming responsibility for them. By sealing documents and drawings, license holders acknowledge that they assume professional responsibility for the design, opinions, judgments or directions given in the documents and drawings. The seal is a "mark of reliance," indicating that a license holder attests that other people can rely on the information provided in the documents and drawings.”

PEO use of the Professional Engineers Seal  
Guideline



# CAD Drawings



**GENERAL NOTES**

1. TRUITY BLUE FIELD INVESTIGATION WAS PERFORMED MAY 2014 WITH CHANGES TO UTILITY MAP ACCORDING FOLLOWING OUR INVESTIGATION MAY NOT BE SHOWN. CONSTRUCTION SPECIAL IS SHOWN TO LOCATING THIS PLAN PRIOR TO FINAL DESIGN AND CONSTRUCTION.
2. EAST OF WELLINGTON YORK ST FROM THE EAST LINE OF THE BRICK TO THE EAST PROPERTY LINE OF COLBORNE ST.
3. WEST FROM THE WEST PROPERTY LINE OF RICHMOND TO THE EAST PROPERTY LINE OF COLBORNE ST.
4. SOUTH OF FROM THE SOUTH PROPERTY OF YORK TO THE NORTH PROPERTY LINE OF DUNDAS ST.
5. CLARENCE ST FROM THE SOUTH PROPERTY LINE OF YORK TO THE NORTH PROPERTY LINE OF DUNDAS ST.
6. WELLINGTON ST FROM THE SOUTH PROPERTY LINE OF YORK TO THE NORTH PROPERTY LINE OF DUNDAS ST.
7. FIELD VERIFICATION OF UTILITIES WAS COMPLETED UNDER A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT.
8. NIGHT CONSTRUCTION WORKERS LABELS TO THE AREA. APPROVED FACILITIES SUCH AS STREET LIGHT CABLES, WITHIN THE INVESTIGATION AREA MAY NOT BE SHOWN ON THE DRAWING.
9. THIS FIELD INVESTIGATION WAS AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES. INVESTIGATOR IS RESPONSIBLE FOR PROVIDING ALL UNDOCUMENTED UTILITIES.
10. QUALITY OF THESE UNDOCUMENTED UTILITY INFORMATION WAS CONFIRMED BY COLLAR BEEZ INTERIOR FIELD INVESTIGATION.
11. THE DRAWING WAS PROVIDED BY THE CLIENT. INVESTIGATOR IS NOT RESPONSIBLE FOR ITS ACCURACY.
12. UTILITY OWNERSHIP, MATERIAL, SIZE AND FLOW DIRECTION ON DRAWING ARE BASED ON RECORDS. INFORMATION RECEIVED. FIELD INVESTIGATION AND PROFESSIONAL JUDGEMENT.
13. UTILITY METERS ON DRAWING ARE BASED ON RECORDS RECORDS.
14. CHAMBER DEPTH SHOWN HAVE NOT BEEN FIELD VERIFIED AND ARE BASED ON AVAILABLE RECORD DATA.
15. SEE PROJECT RECORDS.

**UTILITY INFORMATION SHOWN ON THIS DRAWING WAS OBTAINED BY ACCORDANCE TO THE STANDARD AS TO THE INFORMATION IS SHOWN BY QUALITY LEVEL WHICH INDICATES THE LEVEL OF EFFORT USED TO DETERMINE THE LOCATION OF THE SAID**

**QUALITY LEVEL "A" - INFORMATION OBTAINED FROM EXISTING RECORDS OR VIDEO RECORDINGS.**

**QUALITY LEVEL "B" - INFORMATION OBTAINED BY SURVEYING AND PLUMBING UTILITIES ABOVE GROUND WITH TULLERIES AND BY SURVEYING INFORMATION TO THE QUALITY LEVEL "B" INFORMATION.**

**QUALITY LEVEL "C" - INFORMATION OBTAINED THROUGH APPLICATION OF APPROVED SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE UTILITIES.**

**QUALITY LEVEL "D" - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE FLUOR CONDUIT AND CONDUIT INVESTIGATION OF SUBSURFACE UTILITIES.**

SYMBOL	DESCRIPTION
— (Blue)	CHILLED WATER
— (Green)	CONDENSATE RETURN
— (Yellow)	SEWER
— (Orange)	STORM
— (Red)	GAZ SERVICE
— (Purple)	WATER
— (Light Blue)	WATER SERVICE
— (Light Green)	SEWER SERVICE
— (Light Orange)	STORM SERVICE
— (Light Purple)	STONE LATERAL
— (Light Red)	STORM SEWER
— (Light Yellow)	STON LATERAL
— (Light Blue-Red)	BURIED ELECTRIC
— (Light Green-Red)	BURIED ELECTRIC STREET LIGHT
— (Light Orange-Red)	BURIED ELECTRIC TRAFFIC LIGHT
— (Light Purple)	UNKNOWN
— (Light Red)	FIBRE OPTIC CABLE
— (Light Yellow)	CABLE TV
— (Light Blue)	BURIED TELECOMMUNICATIONS
— (Light Green)	UNKNOWN PIPE
— (Light Orange)	QUALITY LEVEL "A"
— (Light Purple)	QUALITY LEVEL "B"
— (Light Red)	QUALITY LEVEL "C"
— (Light Yellow)	QUALITY LEVEL "D"

**TEST HOLE (SH-4)**

**CONTINUATION ARROW**

**FLOW ARROW**

**END OF SHEET**

**NOT SURVEYED LOCATION**

**SHOWN BY FIELD OBSERVATION**

**NOT SURVEYED LOCATION**




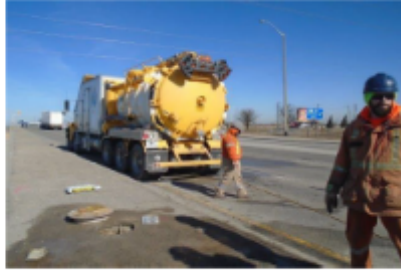
**SHOWN BY PRECISE INFORMATION**




**END OF SHEET**

REVISIONS	DISCLAIMER THIS DRAWING HAS BEEN PREPARED FOR THE USE OF THE CLIENT AND NOT FOR ANY OTHER PURPOSES. THE CLIENT IS RESPONSIBLE FOR THE USE OF THIS DRAWING IN CONNECTION WITH ANY OTHER PROJECTS AND ITS OWNERSHIP. THE CLIENT IS RESPONSIBLE FOR THE USE OF THIS DRAWING IN CONNECTION WITH ANY OTHER PROJECTS AND ITS OWNERSHIP.	PREPARED BY <b>T2 utility engineers</b> 1-888-232-1238   WWW.T2UE.COM	THE ENGINEER'S SEAL I, D. B. HART REGISTERED PROFESSIONAL ENGINEER ON BEHALF OF THE CLIENT	DATE PROJECT DRAWN CHECKED APPROVED SCALE MSS 0 3 6 M	PROJECT YORK STREET SUBSURFACE UTILITY ENGINEERING MAPPING SERVICES	CLIENT CITY OF LONDON PROJECT NO. 61000748 SHEET NO. COVER
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# Test Hole Data Sheet

Project Name: Hurontario LRT Project No.: 81000779 City: Brampton Prov.: Ontario		TEST HOLE No.: <b>S17-P1-TH1</b>
<b>TEST HOLE DATA</b>		
<b>Location</b> Client Reference No. - TH Date (m/d/yy) 3/23/17 Station - Easting 603702.62 Northing 4824007.81	<b>TEST HOLE PHOTO</b> 	
<b>Utility Description</b> Utility Type WM Utility Material MET Utility Width (Nom.) 400 mm		
<b>Elevation of Utility</b> Reference Elevation 207.18 m Top of Utility 202.88 m Bottom of Utility - m		
<b>Manual Depth From Grade</b> Top of Utility 4.30 m Bottom of Utility - m Depth of Excavation - m		
<b>Reference Marker</b> ID'd by Cut X Location Center of Utility Surface Type A Thickness 75 mm	<b>SECTION A-A (N.T.S.)</b> 	
Notes:		
	<b>SITE PHOTO</b> 	
Prepared By: J.S.      Date: 4/5/2017      Checked By: L.L.		

Project Name: Hurontario LRT Project No.: 81000779 City: Brampton Prov.: Ontario		TEST HOLE No.: <b>S17-P1-TH2</b>
<b>TEST HOLE DATA</b>		
<b>Location</b> Client Reference No. - TH Date (m/d/yy) 11/14/15 Station - Easting 603671.12 Northing 4834009.50	<b>TEST HOLE PHOTO</b> 	
<b>Utility Description</b> Utility Type EXP Utility Material - Utility Width (Nom.) - mm		
<b>Elevation of Utility</b> Reference Elevation 206.57 m Top of Utility - m Bottom of Utility - m		
<b>Manual Depth From Grade</b> Top of Utility - m Bottom of Utility - m Depth of Excavation 6.10 m		
<b>Reference Marker</b> ID'd by Rod & Cap Location - Surface Type NG Thickness - mm	<b>SECTION A-A (N.T.S.)</b>	
Notes: TEST HOLE WAS INTENDED TO EXPOSE GAS1030 SC XHP. T2UE PERFORMED TEST HOLE AT THE LOWEST POINT POSSIBLE (APPROXIMATELY 1.00m BELOW HURONTARIO ST CENTER LINE). T2UE THEN EXCAVATED TO A DEPTH OF 6.10m.		
	<b>SITE PHOTO</b> 	
Prepared By: J.S.      Date: 4/5/2017      Checked By: L.L.		

# Records Information Collected

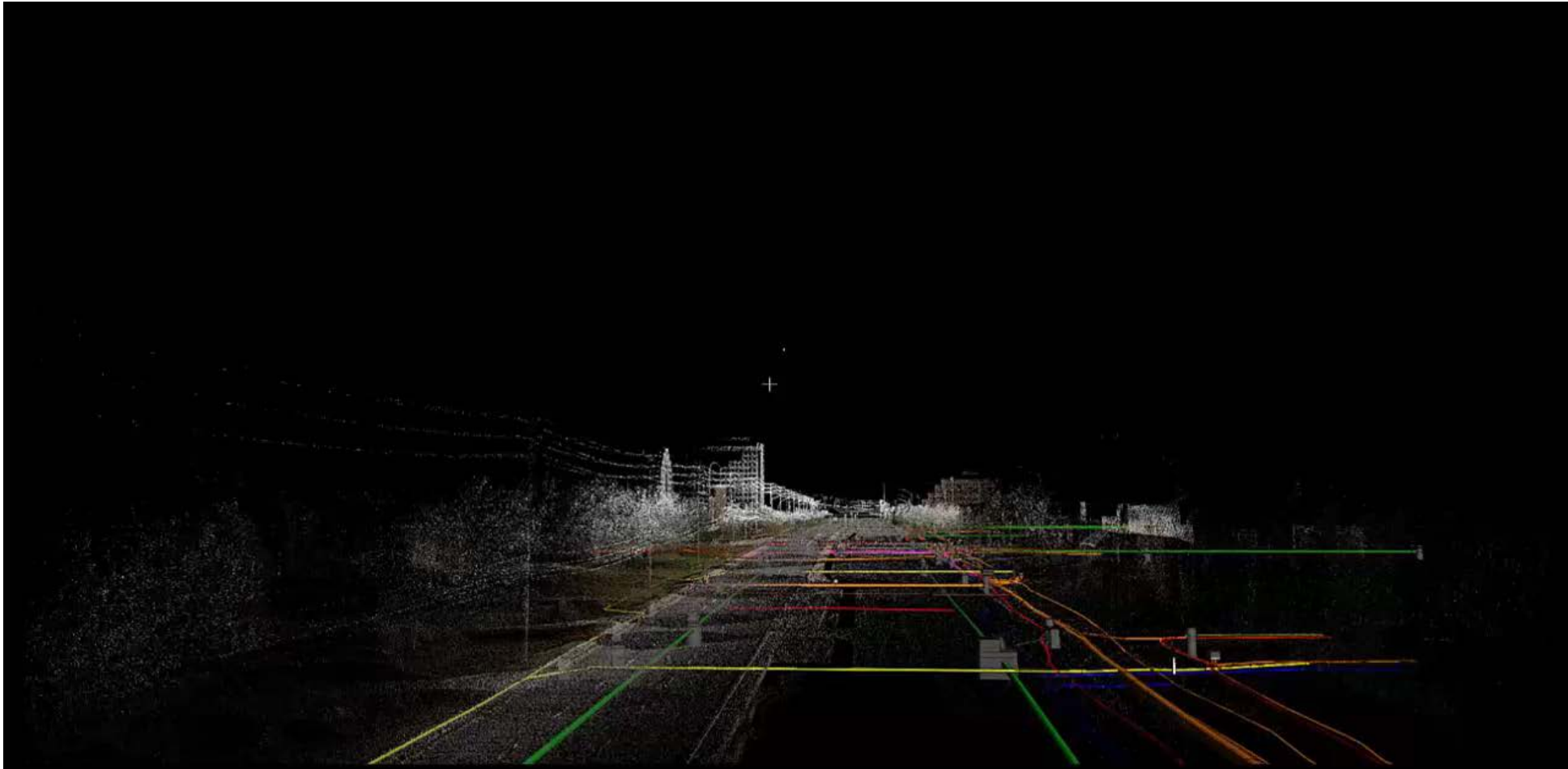
Utility Contact Sheet: CITY OF TORONTO						
Project Name		TTC - Scarborough Subway Extension		Completed by		J.S.
Project Number		61000922		Checked by		K.G.
Client		AECOM		Updated (dd/mm/yy)		AUG/20/2018
						
Utility	Email Address	Contact Name	Contact Information	Info Requested (MM/DD/YY)	Info Received (MM/DD/YY)	MATERIAL RECEIVED
Beanfield Metroconnect	<a href="mailto:tpucc@beanfield.com">tpucc@beanfield.com</a>	Daniel A. Chee	77 Mowat Ave., Suite 506 Toronto ON M6K 3E3 Canada tel: (416) 532-1555 Ext. 2020	JAN/05/17	JAN/05/17	NO CONFLICT
Bell Canada	<a href="mailto:bell_moc@telecom.ca">bell_moc@telecom.ca</a>	Elaine Oakley (Toronto) Chris Gill (Hamilton)	100 Borough Drive, Floor F5 Toronto, ON M1P 4W2 tel: 416-296-6587	JAN/05/17 1 CALL	JAN/16/17	DGN
Bell Multiview Records				JAN/05/17	JAN/16/17	PDF
Cogeco Data Services Inc.	<a href="mailto:utility.circulations@cofecodata.com">utility.circulations@cofecodata.com</a>	Samir Patel	Cogeco Data Services Inc. 413 Horner Ave Toronto, ON M8W 4W3 Tel: 416-840-8755 Fax: 416-626-7774	JAN/05/17	JAN/06/17	JPG
Enbridge Gas Distribution	<a href="mailto:mark_ups@enbridge.com">mark_ups@enbridge.com</a>	Joe Marozzo	500 Consumers Road 4th Floor - Post A2 - VPC North York, ON M2J 1P8 tel: (416) 758-7956 fax: (416) 758-4374	JAN/05/17	JAN/10/17	PDF
Enbridge Pipelines Inc	<a href="mailto:ast.reu.crosino@enbridge.com">ast.reu.crosino@enbridge.com</a>	Ann Newman	tel: 519-339-0503 fax: 519-339-0510 ann.newman@enbridge.com	JAN/05/17	JAN/5/17	NO CONFLICT
Group Telecom	<a href="mailto:gt_moc@telecom.ca">gt_moc@telecom.ca</a>	Ambar Mendes	Telecom Design Inc. 200 Town Centre Blvd., Suite 300, Markham, ON. L3R 8G5 Tel: 905-470-2112 ext. 40305	JAN/05/17	JAN/5/17	NO CONFLICT

# Multi-Channel GPR



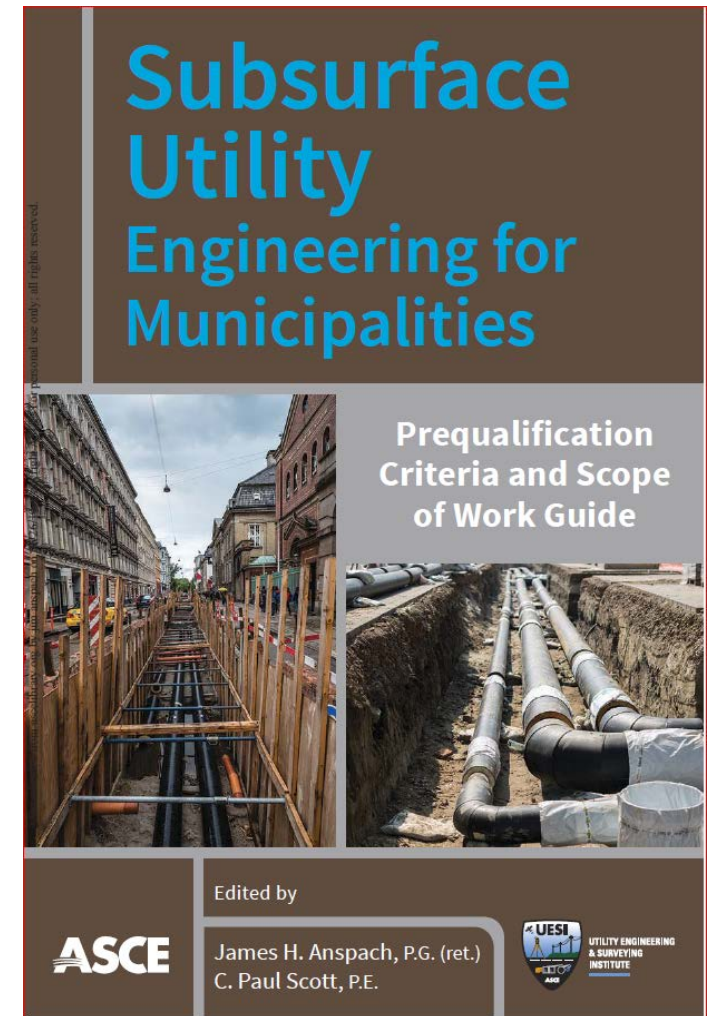
# 3D Model Deliverables

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# SUE for Municipalities

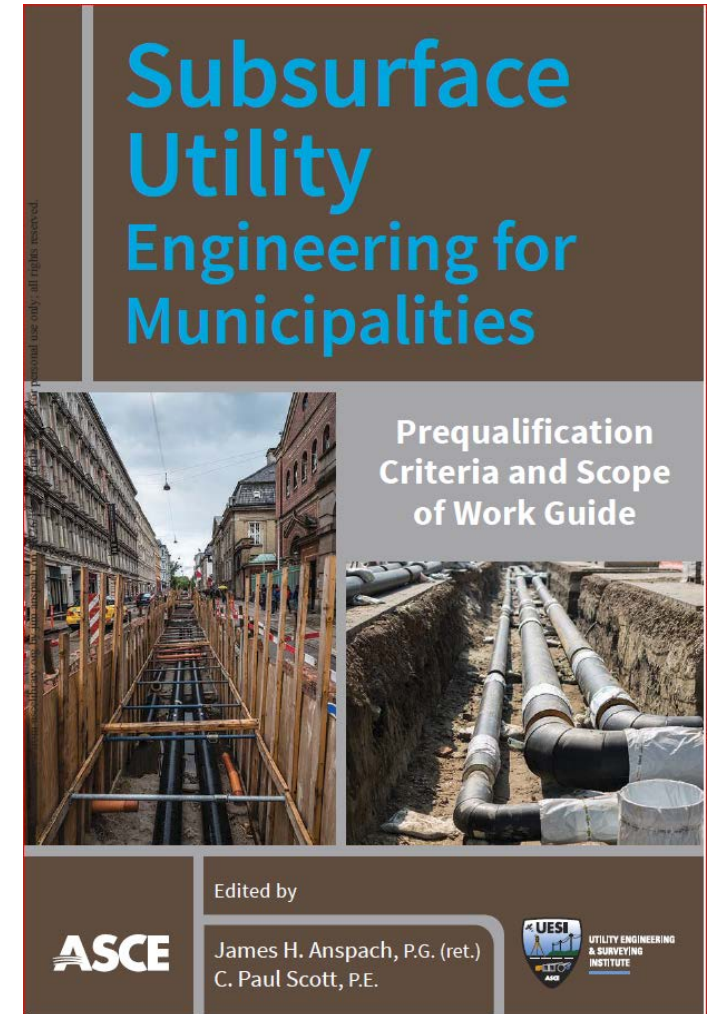
- > The purpose of this publication is to increase the awareness and use of Subsurface Utility Engineering (SUE) on public works projects.
- > Every academic, Public Agency, and Federal study on SUE since the 1990s shows a significant return on investment to the public.
- > This book is a resource of information for understanding and starting to bring the use of SUE up to date.



# SUE for Municipalities

Document Answers some key questions about SUE:

- > What is it?
- > Why use it?
- > How to use it and procure it?
- > What does it cost?
- > Who provides it?
- > Who uses it?
- > What is its future?

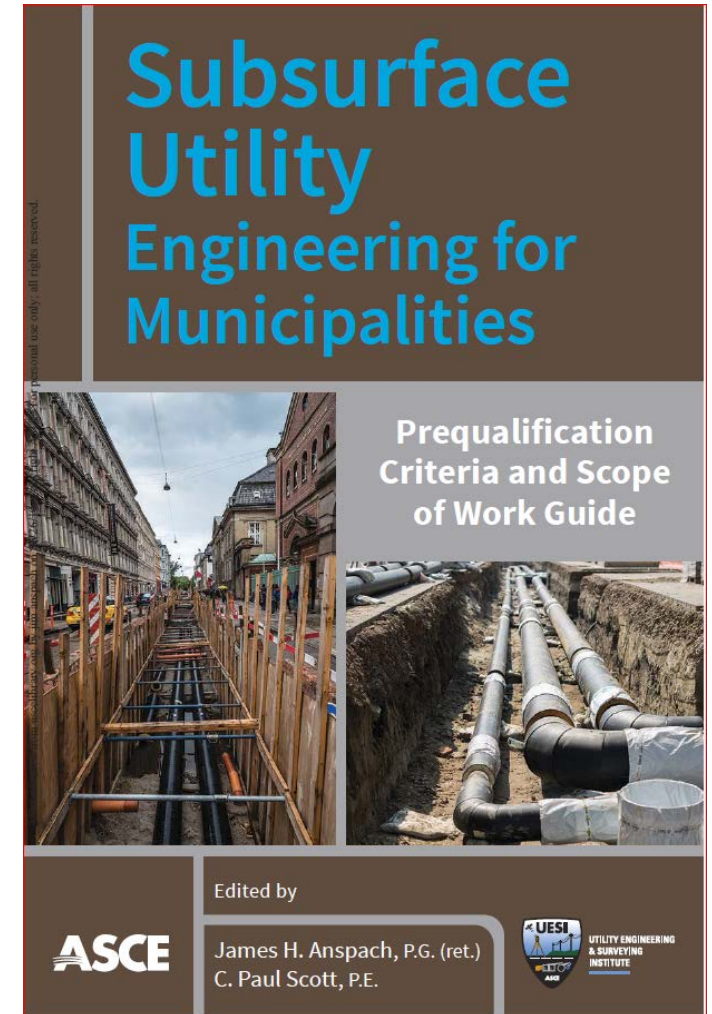




# SUE for Municipalities

Extremely Valuable Appendix

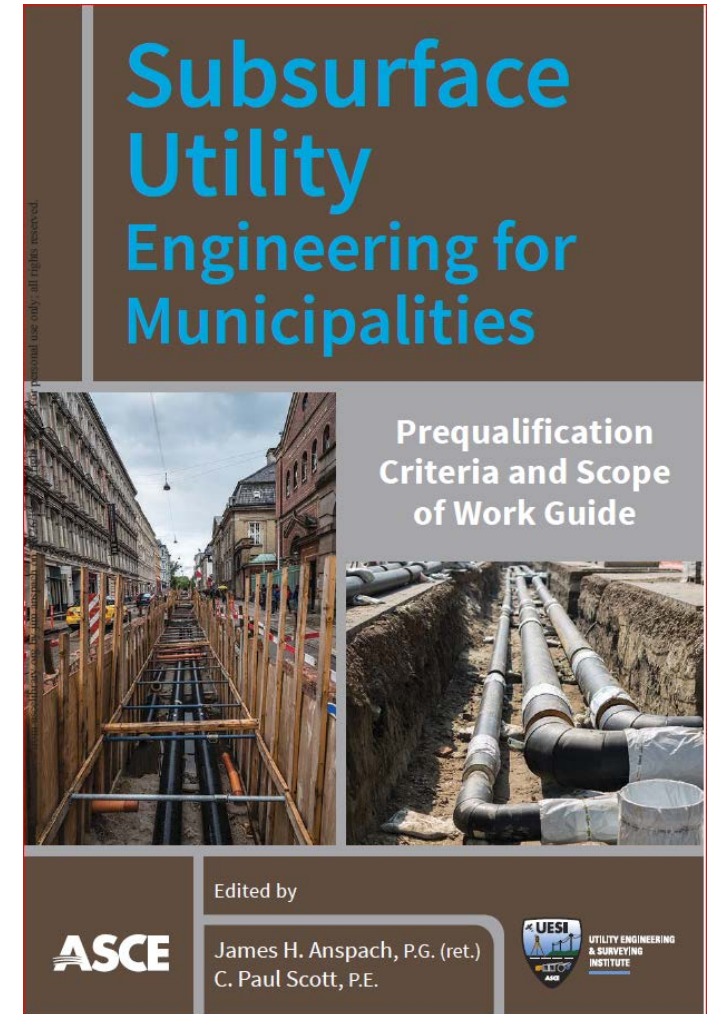
- > Appendix A: Selected Bibliography of SUE Information
- > Appendix B: Excerpt from the EJCDC E Series Commentary
- > Appendix C: SUE Prequalification Guide
- > Appendix D: SUE Scope of Work Guide



# SUE for Municipalities

Looking to get a copy?

- > \$70 for ASCE Members
- > ASCElibrary.org and thrash around, or  
<https://ascelibrary.org/doi/book/10.1061/9780784415368>



# TAC Guideline

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- > Original Document - Design-Bid-Build
- > In Development – PPP
- > Incorporates ASCE 38



## *Guideline for the Coordination of Utility Relocations*



# TAC Guideline - Utility Coordinator

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- Utility Coordination is a fundamental aspect of all capital projects
- Utility Coordinators manage one of the highest risk elements on projects
- Experience is key!



# Role of the Utility Coordinator

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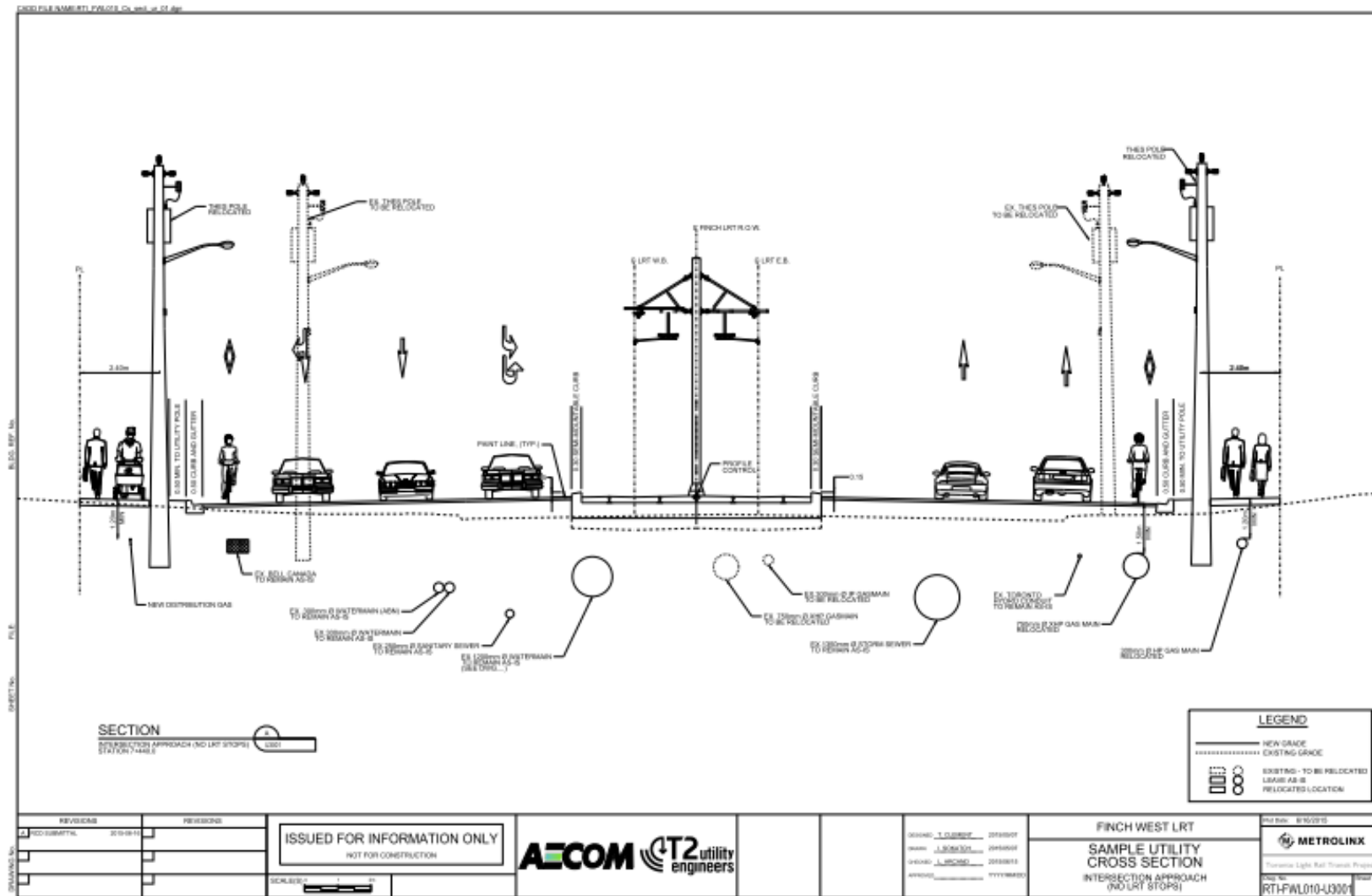
- Coordinate between Designer and Utilities
- Review impact of design on utilities
- Analyze conflicts and recommend revisions to design or utility relocation or protection
- Establish preferred utility running line – factor in constructability, scheduling, cost
- Ensure Utility Agency completes relocation design on schedule
- Track utility relocation construction
- Implement unknown conflict resolution process
- Document scope changes
- Reconcile utility invoicing for payment
- Review “As Built” drawings for accuracy



Utility Coordinators blend engineering, design, and construction experience

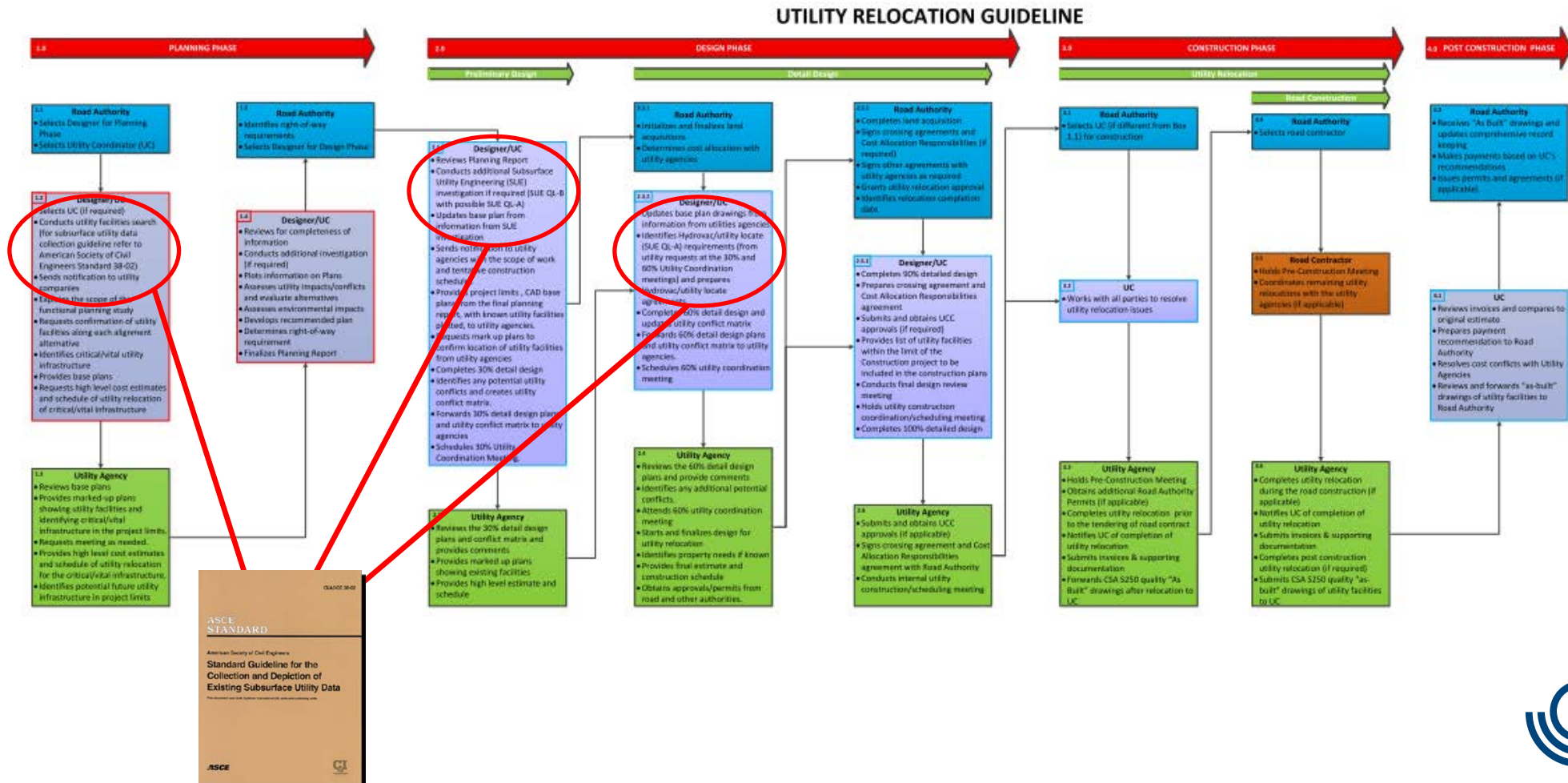
# UC Minimizing Conflicts

Shift LRT alignment to reduce gas conflict

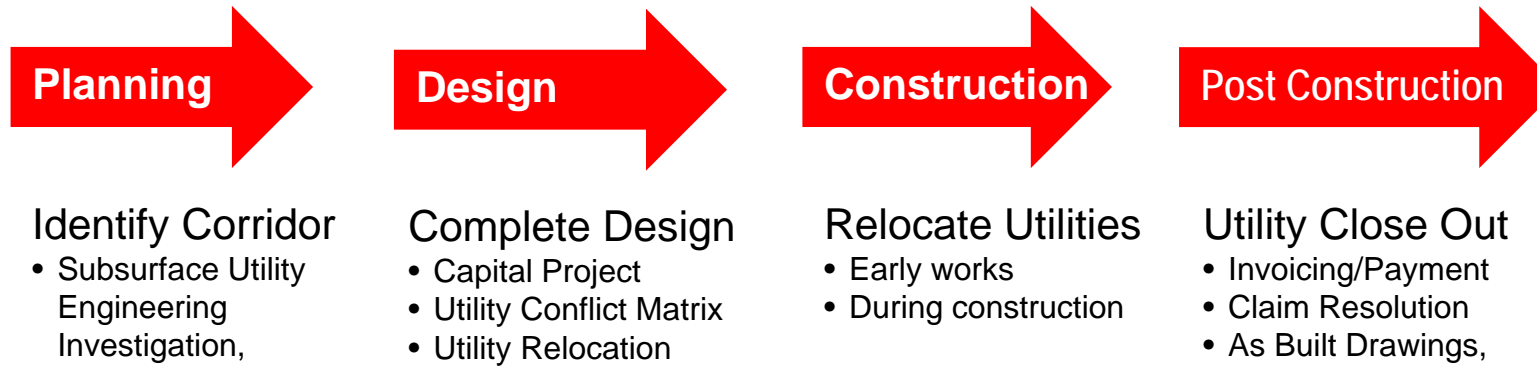


# TAC Guideline – Design-Bid-Build

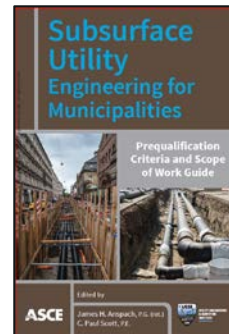
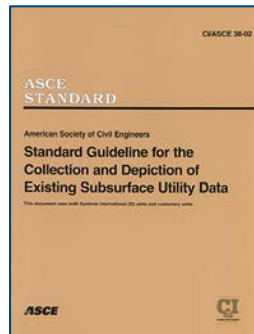
## TAC -Transportation Association of Canada’s - Canadian Guideline for Utility Relocation Coordination.



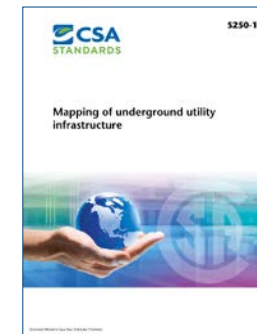
# TAC Guideline – Design-Bid-Build



## ASCE 38



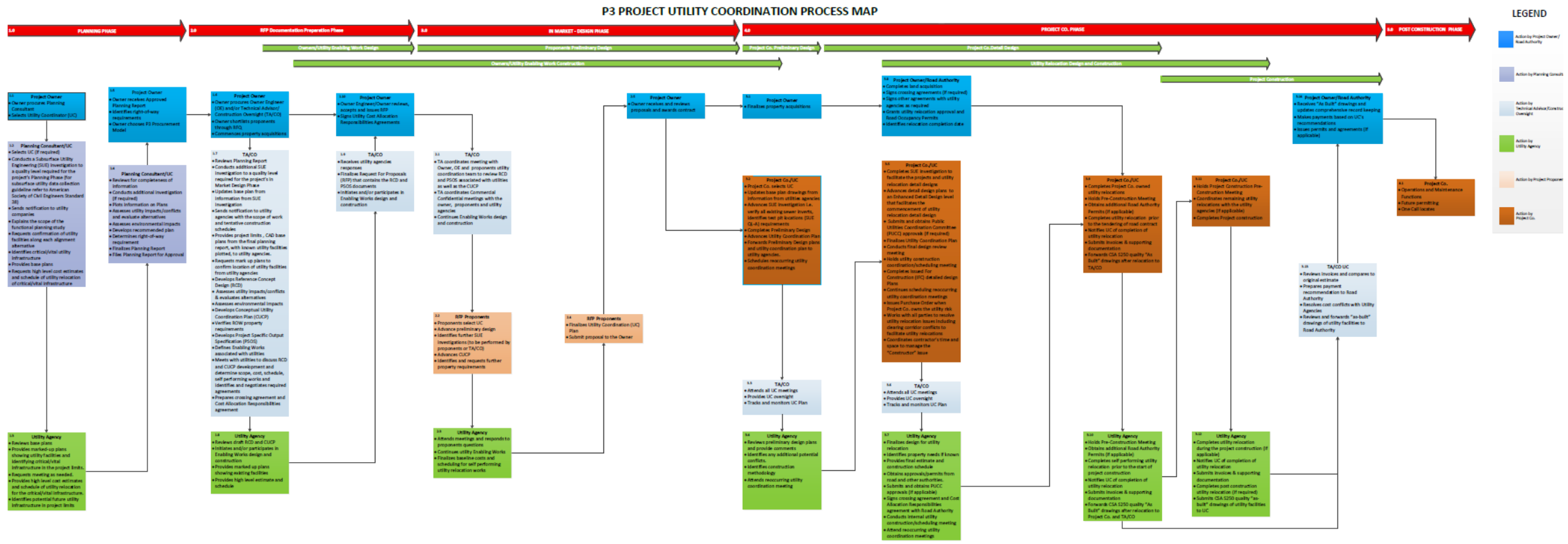
## CSA S250





# TAC Guideline – PPP

## TAC -Transportation Association of Canada's - Canadian Guideline for Utility Relocation Coordination.



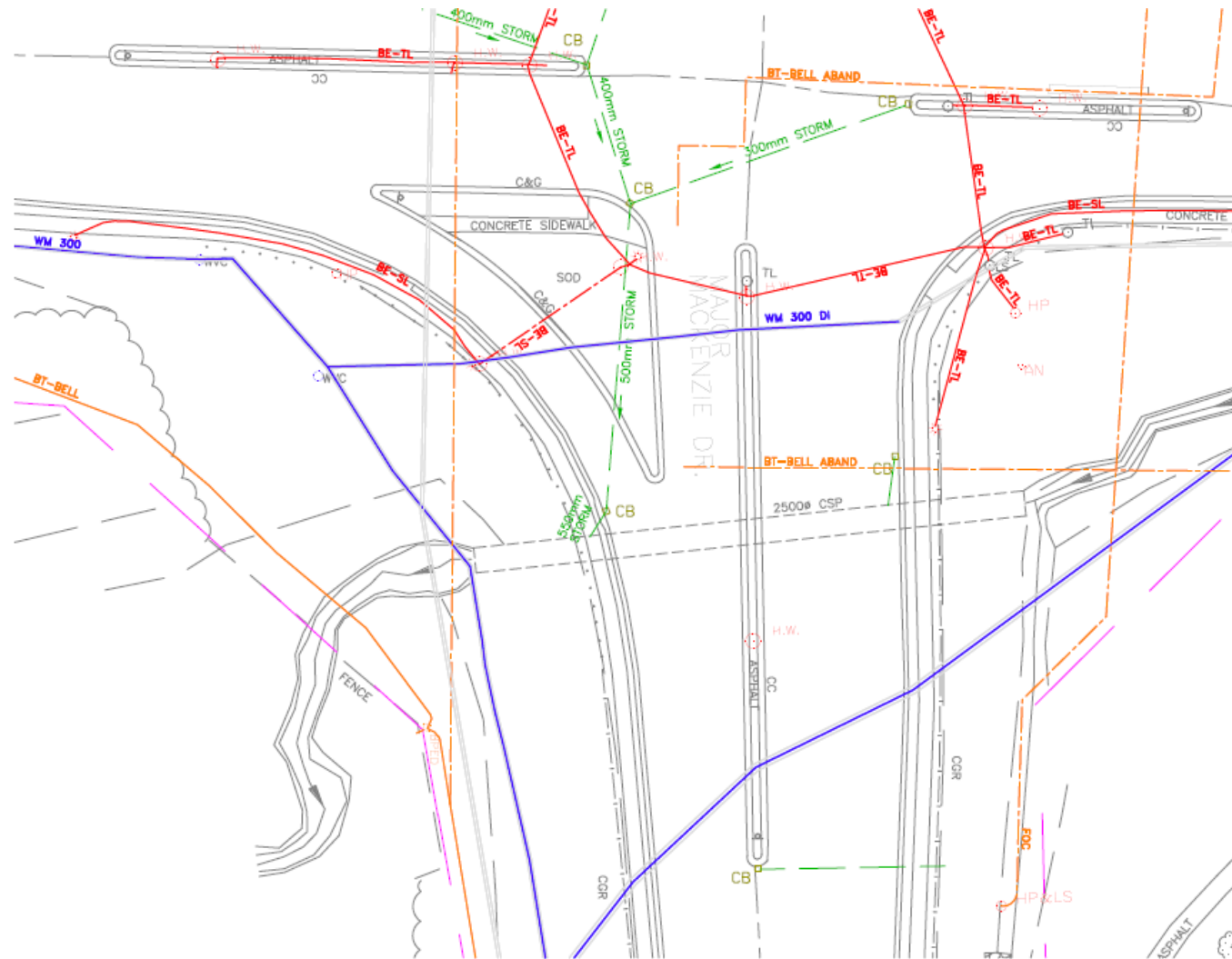
# How SUE data is incorporated in Projects

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## Case Study – Bathurst St – Hwy 7 to Teston

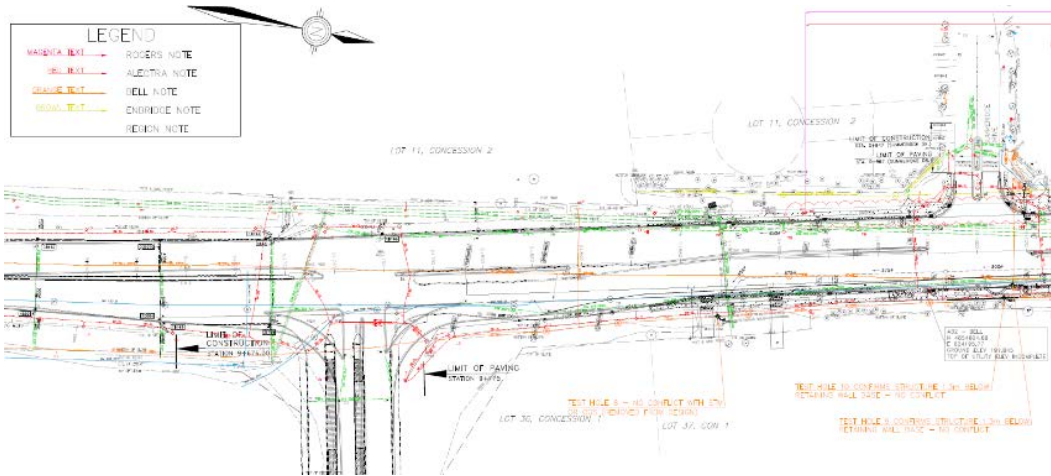
# Bathurst Street – Hwy 7 to Teston

## QLB vs Records



# Bathurst Street – Hwy 7 to Teston

## Composite Utility Plan (ASCE 38-02 Compliant)



### Utility Conflict Matrix

York Region Contract # 6387294-v2  
 Task Project # 6105626-16  
 Updated: December 19, 2017  
 Status: PRELIMINARY

	Conflict resolved
	Intensive TM (requires designating firm)
	Confirmed conflict
	Engineering review required



Case #	Utility Information	EA Location (Sta Start)	EA Location (Sta End)	Conflict Distance (m)	Proposed Grade Change (m)	Location	Assessment of Effects	Investigation Required	Rehabilitation Required	Resolved
1	Bell Conduit (SPVCD1)-ABND	9+700	10+100	-	-	Waterline within NB lanes	Existing Bell structure confirmed abandoned by Bell - remove as required.	No	No	Yes
2	Bell Conduit (12PVCD1)	9+750	9+700	30	-	East Blvd crossing Highway 7 ramp	Proposed ramp reconfiguration. Reconfiguration does not increase proposed road base width, no conflict anticipated.	No	No	Yes
3	Bell MH (40Mdy)	9+870	-	-	-	East Blvd	No grade change at Bell MH	No	No	Yes
4	Bell Conduit (12PVCD1)	9+870	9+850	20	-	East Blvd	Bell conduit within proposed boulevard - no conflict.	No	No	Yes
5	Bell Conduit (12PVCD1)	9+889	-	-	-	East Blvd	3.5m UPGRADE - test hole confirms that ex. Bell structure is beneath the proposed 300mm storm sewer, and the UPGRADE has been removed from final design - no conflict.	No	No	Yes
6	Bell Conduit (12PVCD1)	9+889	9+890	91	-	East Blvd	Bell conduit within proposed boulevard - no conflict.	No	No	Yes
7	Bell Conduit (12PVCD1)	9+890	10+010	25	-	East Blvd	Existing alignment under proposed road. Depth of structure unknown, conflict based on Bell record alignment. GI-B investigation confirms alignment, perform test hole to determine if conflict exists with existing Bell UPGRADE - test hole completed, structure and conduit under proposed retaining wall base by 1.5m - no conflict, Bell to verify.	No	No	Yes
8	Bell Conduit (12PVCD1)	10+010	10+000	70	-	East Blvd	Bell conduit within proposed boulevard - no conflict.	No	No	Yes
9	Bell Conduit (2PVCD)	10+018	-	-	-	Crossing	Existing Bell conduits crossing proposed storm sewers and road widening (east side widening only). Proposed storm sewers being installed at approximate same elevation as existing storm sewers. Confirm depth of Bell under east side for conflict with proposed road base. UPGRADE - test hole confirms conduit is 100mm below proposed road base - no resolution required.	No	No	Yes
10	Bell Conduit (12PVCD1)	10+090	10+100	70	+0.10	East Blvd	Existing alignment under proposed curb and sidewalk. Depth of structure unknown, GI-B investigation confirms alignment, test hole required to confirm conflict with sub-slab and CB test at 10+141. Bell to confirm elevation of conduit using the south side of chamber at 10+100.	No	No	Yes
11	Bell MH (40Mdy)	10+140	-	-	-0.15	East Blvd	Whether can accommodate grading. Test hole by location of east pipe on roof. Chamber to remain in place. When plan to be placed and under reduction to be completed during road work, Bell to supply 75' length for steel piping and 10' reduction to be included into Parking contact (revisions).	No	Yes	No
12	Bell Conduit (SPVCD1) or (2PVCD1)	10+140	10+200	100	-	East Blvd	Existing alignment under proposed curb lane. 2 test holes completed over 100m distance. Confirmed in alignment due to test holes completed. Existing structure conflicting with proposed CB lanes at 10+141, 10+142 and 10+170. Review not conflict with location of road base (Revised) and location of structure required (3.5m APPROX). Bell to confirm if of other structure and determine if correct location and bearing is confirmed. Test hole required. Test hole in proposed curb lane, success. Place into underground conduit or transfer to new location.	No	Yes	No
13	Bell Pipe and steel cable	10+170	10+170	100	-	East Blvd	Existing alignment under existing, no test holes completed and no GI-B. Line location deviates from record and test holes. Amend GI-B results to identify conflict.	No	No	Yes
14	Bell Conduit (SPVCD1) or (2PVCD1)	10+240	10+440	100	-	East Blvd	Existing alignment under existing, no test holes completed and no GI-B. Line location deviates from record and test holes. Amend GI-B results to identify conflict.	No	No	Yes
15	Bell Conduit (2PVCD1)	10+440	-	-	-	East Blvd	Existing structure not conflicting with proposed CB lanes at 10+440.	No	No	Yes
16	Bell Conduit (12PVCD1)	10+448	10+482	36	-	East Blvd	Test hole indicates that Bell structure is below road base and CB test at 10+470, no conflict.	No	No	Yes

## Utility Conflict Matrix (Comprehensive)

# Bathurst Street – Hwy 7 to Teston

Utility Relocation Matrix

1000 Highway 7 East of Hwy 101  
 The Project # 100000-10  
 Issued: December 10, 2015  
 Status: PRELIMINARY

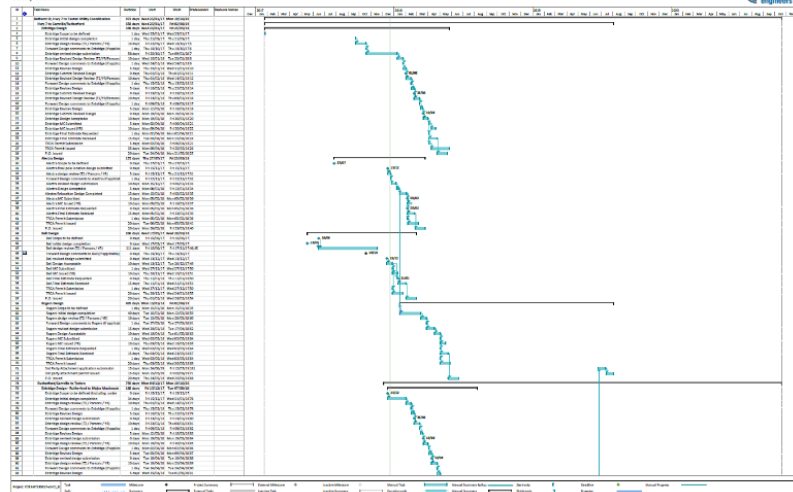
Today's Date: 09/20/2017

UTZ utility engineers

Location	Utility	Utility Type/Status	Geographical Area (Street Intersections)	Existing Location (City)	Proposed Strategic Action	Utility Contact	Existing Item #	Proposed Item #	Other Item #	Other Item #	Other Item #	Other Item #	Other Item #	Other Item #	Other Item #	Other Item #	Other Item #
1-44	Aerista	Primary Overhead	Bathurst between Highway 7 and Richardson	14475 to 14475	Aerista primary overhead line to conflict with proposed road widening and street relocation. Relocate pole to the proposed sidewalk and proposed street.	Type: Overhead	780	780	Storage Gas	TRCA	Jan-17	Jan-17	Feb-18				
47-204	Aerista	Primary Overhead	Bathurst between Richardson and Taylor	14475 to 14475	Aerista primary overhead line to conflict with proposed road widening and street relocation. Relocate pole to the proposed sidewalk and proposed street.	Type: Overhead	780	780	Storage Gas, Bell	TRCA	Jan-17	Jan-17	Feb-18				
<b>Gas</b>																	
11	Bell Canada	Man Lift Adjustment	Bathurst between Richardson and Taylor	14475 to 14475	Adjust existing 10" gas service to existing 10" gas service. To be done by contractor.	Man Lift	780	780	NA	NA	Jan-17	Jan-17	Dec-18				
12	Bell Canada	Breakdown cover (PVCC) relocation	Bathurst between Richardson and Taylor	14475 to 14475	Breakdown cover existing PVCC structure.	Man Lift	780	780	NA	NA	Jan-17	Jan-17	Dec-18				
13	Bell Canada	Aerista Bell cables and poles	Bathurst between Richardson and Taylor	14475 to 14475	Remove and Bell by passing into existing gas Bell mast structure.	Man Lift	780	780	NA	NA	Jan-17	Jan-17	Dec-18				
17	Bell Canada	Man Lift Adjustment	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust existing 10" gas service to existing 10" gas service. To be done by contractor.	Man Lift	780	780	NA	NA	Jan-17	Jan-17	Dec-18				
14-21, 45, 47-49	Bell Canada	New 2 to 3 inch duct structure, new man lift structure	Bathurst between Highway 7 and Taylor	14475 to 14475	Place new Bell conduits, chamber and pedestal to coincide conflict with road widening construction.	Man Lift	780	780	NA	TRCA	Jan-17	Jan-17	Dec-18				
15, 16, 18	Bell Canada	Aerista Bell cables, poles and man lift	Bathurst between Taylor and Highway 7	14475 to 14475	Transfer existing man lift cables to new Aerista poles, adjust underground conduits to new pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
61	Bell Canada	Aerista Bell on Aerista poles	Bathurst between Taylor and Highway 7	14475 to 14475	Transfer existing man lift cables to new Aerista poles, adjust underground conduits to new pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
63	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Place man lift PVCC structure. Cable due to conflict with proposed Aerista pole and man lift.	Man Lift	780	780	NA	NA	Mar-18	Mar-18	Jan-17-2018				
69-73	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Man Lift PVCC structure with proposed road widening and street relocation. Relocate poles to new Aerista pole location and replace PVCC.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
74	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
75	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
81	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
82	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
83	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	Aerista	Mar-18	Mar-18	Jan-17-2018				
85	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	Aerista	NA	Mar-18	Mar-18	Jan-17-2018				
86	Bell Canada	Man Lift	Bathurst between Taylor and Highway 7	14475 to 14475	Adjust man lift to new Aerista pole location.	Man Lift	780	780	NA	NA	Mar-18	Mar-18	Jan-17-2018				
<b>Storage Gas</b>																	
2	Storage Gas	100mm 27" dia	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas to avoid conflict with proposed City and man lift.	Type: Gas	780	780	NA	NA	Jan-20-2017	Jan-20-2017	Jan-21-2018				
17-21, 23-24	Storage Gas	100mm 27" dia	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas to avoid conflict with proposed City and man lift.	Type: Gas	780	780	TRCA	TRCA	Jan-20-2017	Jan-20-2017	Jan-21-2018				
34	Storage Gas	80mm 27" dia	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas to avoid conflict with proposed man lift.	Type: Gas	780	780	NA	NA	Dec-18-2017	Dec-18-2017	May-18-2018				
38	Storage Gas	80mm 27" dia	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas to avoid conflict with proposed man lift.	Type: Gas	780	780	NA	NA	Dec-18-2017	Dec-18-2017	May-18-2018				
43	Storage Gas	Test Station	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas test station due to conflict with proposed road widening.	Type: Gas	780	780	NA	NA	Dec-18-2017	Dec-18-2017	May-18-2018				
44	Storage Gas	Test Station	Bathurst between Taylor and Highway 7	14475 to 14475	Relocate gas test station due to conflict with proposed road widening.	Type: Gas	780	780	NA	NA	Dec-18-2017	Dec-18-2017	May-18-2018				

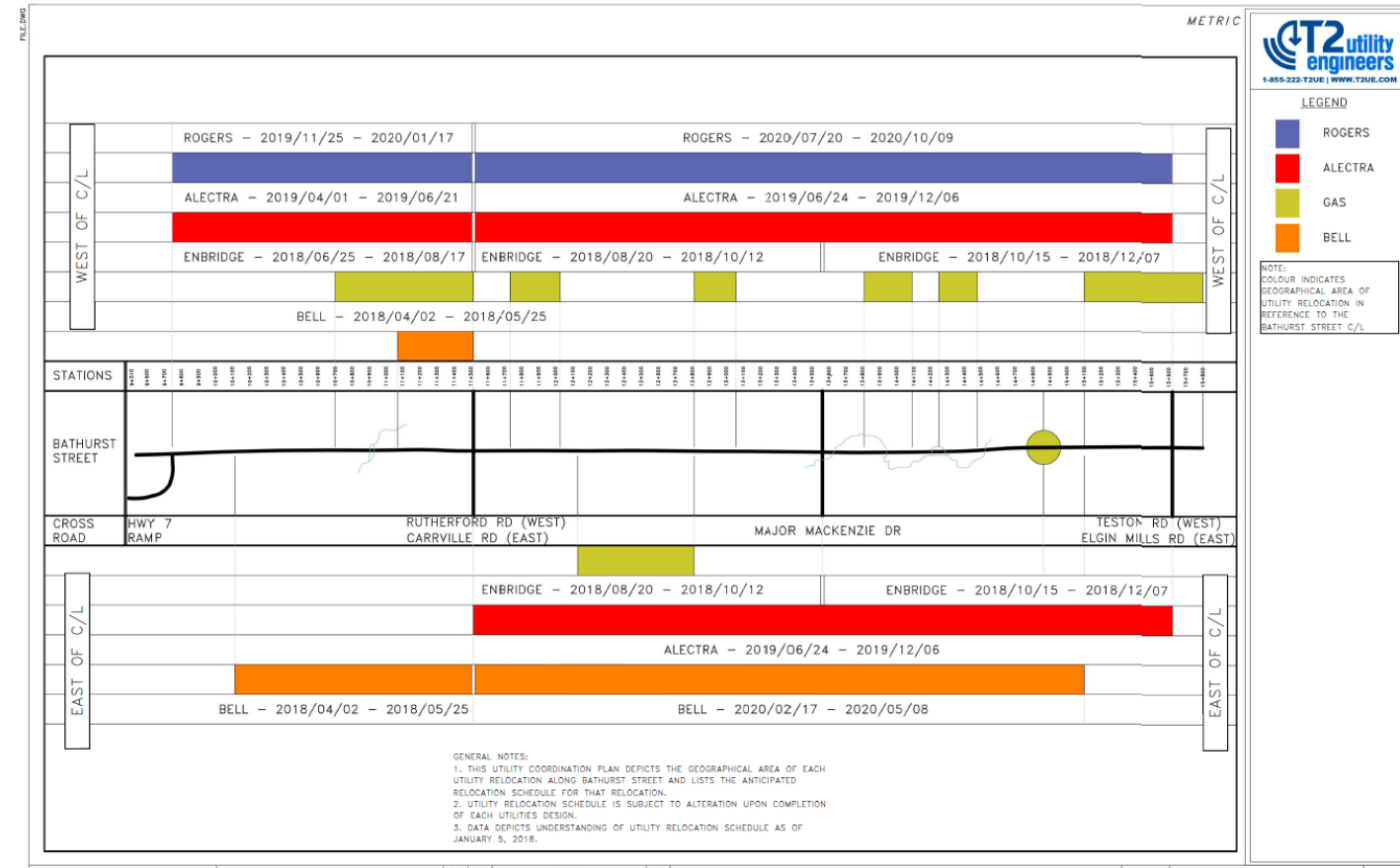
Utility relocation Matrix (Scope Reduced)

Utility Coordination Plan - Schedule



Utility Coordination Schedule (Utility Design and Construction)

# Bathurst Street – Hwy 7 to Teston



# Bathurst Street – Hwy 7 to Teston

## Utility Relocation Cost Savings

York Region Contract # - 6597304-v2  
 T2ue Project # 61000423-16  
 Updated: December 19, 2017  
 Status: PRELIMINARY



Utility Agency	Location (STA to STA)	Utility Type	Amount of Scope Eliminated	Est. Cost Savings	Est. Schedule Savings	Mitigation Option
Bell Canada	Hwy 7 to Rutherford	U/G duct structures / chambers / cabling	530m of duct structure (estimated \$1000/m), 600m of cabling (estimated \$500/m)	\$ 850,000.00	6-10 months	QL-B confirmed alignment, Test holes confirmed depth, Proposed OGS system relocated
Bell Canada	Major MacKenzie Drive	U/G duct structure (16D)	Breakout / support / reinstatement of non-existent Bell structure during YR contract	\$ 100,000.00	1 month	QL-B investigation and collaboration with Bell confirmed no Bell structure present
Bell Canada	McCallum to Oxford Street (east side)	Aerial Bell fiber	2200m of new fiber (assumed \$50/m)	\$ 110,000.00	6 months	Aerial Bell fiber on existing concrete Alectra poles. Reviewed scope with Alectra and determined that Alectra can "top" (cut in half) the existing concrete poles. Otherwise new fiber would have been required for the entire length.
Enbridge Gas	Rutherford to Major MacKenzie Drive	300mm ST XHP	1230m (Est. \$3000 /m)	\$ 3,690,000.00	3-6 months	Revised sidewalk alignment, changed to sumless CB's, adjusted proposed pole design, maintained gas beneath proposed curb lane
Enbridge Gas	Major MacKenzie Drive to Teston	300mm ST XHP	1175m (Est. \$3000 /m)	\$ 3,525,000.00	8-12 months (due to creek crossings)	Revised sidewalk alignment, changed to sumless CB's, adjusted proposed pole design, maintained gas beneath proposed curb lane
			TOTAL	\$ 8,275,000.00		
			YR Costs (35% of total)	\$ 2,896,250.00		

ROI > 10:1



# INDUSTRY CALL TO ACTION

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TAC Guideline for the Coordination of Utility Relocations  
as Overarching Document

Use ASCE 38 for Utility Mapping

Use SUE for Municipalities for how to use/procure SUE



**UTILITY ENGINEERING  
& SURVEYING  
INSTITUTE**

**NOW IT IS UP TO YOU TO USE THEM!!!**



Thank you

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