



# **BRIDGE STREET BRIDGE REPLACEMENT**

**(WILMOT BRIDGE 34/B-T9)**

## **SCHEDULE B MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT**

**Public Information Centre  
(Virtual)  
2021**

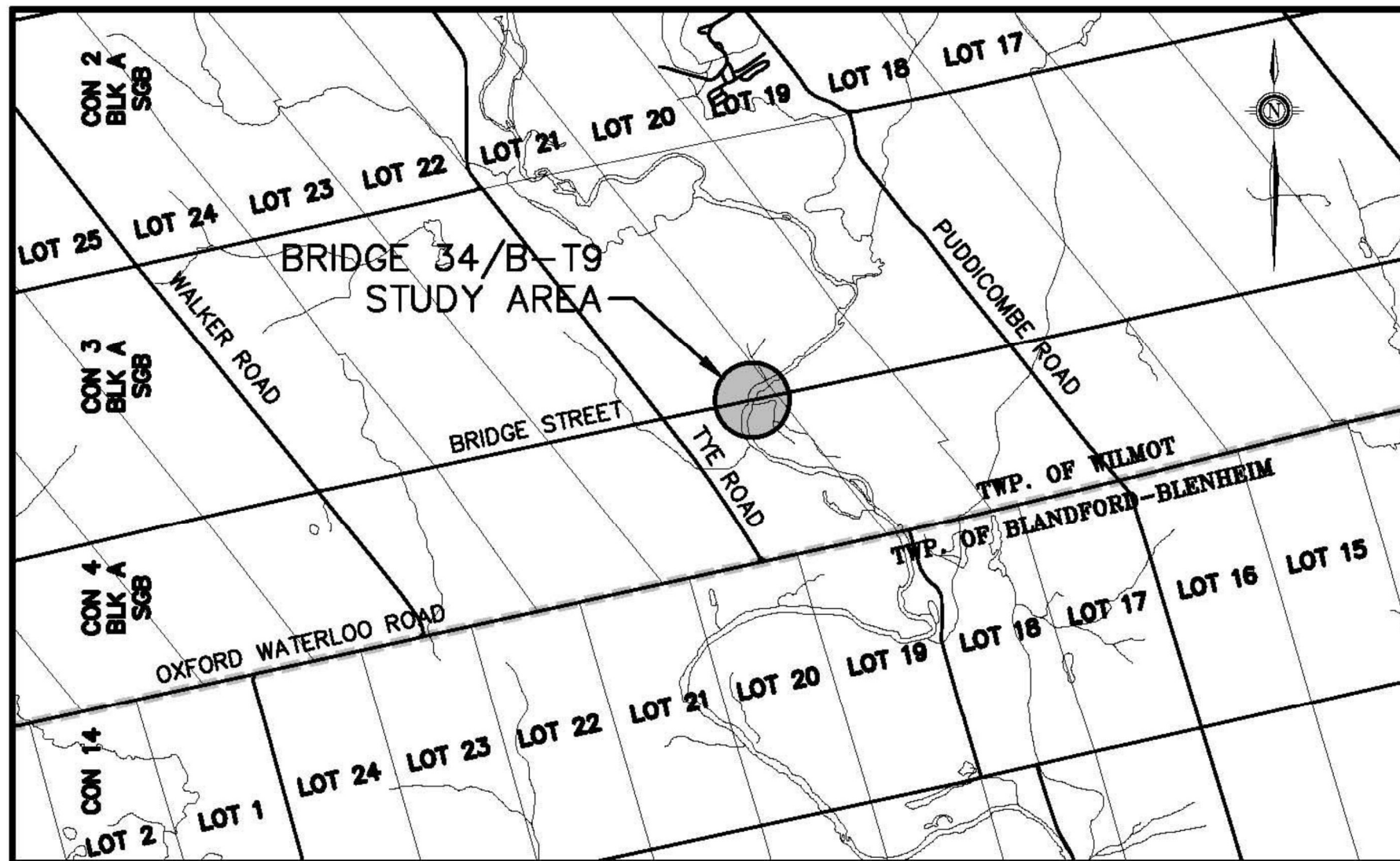


**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS

KITCHENER

SUDBURY

# Public Information Centre



Scale: N.T.S.

# WELCOME

# **Municipal Class Environmental Assessment Process**

## **Phase 1: Identify the Problem/Opportunity**



## **Phase 2: Alternative Solutions (We are here)**

- **Identify reasonable alternative solutions to the problem(s)**
- **Inventory natural, social and economic environments**
- **Identify impacts of the alternative solutions on the environment and mitigating measures**
- **Evaluate the alternative solutions and identify the recommended solutions**
- **Consult review agencies and the public**
- **Select the preferred solution**



## **Phase 5: Implementation**

- **Complete contract drawings**
- **Proceed to design/construction of the project**
- **Monitor for environmental provisions and commitments**

**Note: Phase 3 & 4 Do Not Apply to Schedule B Projects**



# Study Background and Location



North / Upstream Elevation (looking south)

- **Bridge Street Bridge spans the Nith River on Bridge Street between Tye Road and Puddicombe Road.**
- **Bridge Street Bridge is in overall poor condition and nearing the end of its useful life. In addition, it is deficient in width, vertical clearance, and loading capacity.**
- **The study is being completed as a Schedule ‘B’ project, following the Municipal Class Environmental Assessment (October 2000, as amended)**
- **The Municipal Class EA provides a decision-making process to ensure that all relevant engineering and environmental features are considered in the planning and design of municipal infrastructure. The process requires public and agency involvement.**



# Some Recurring Problems

- ▶ **During the last 10 years, this bridge has been closed multiple times. This averages to almost 1 closure per year.**
- ▶ **The overhead bracing (portal bracing) is routinely struck by vehicles. This results in the need for frequent repairs to this element.**
- ▶ **Despite the numerous repairs completed over the last 15 years, every year more of the original remaining bridge continues to deteriorate. It is not sustainable to continually repair this bridge.**



The latest road closure started from mid-September 2021 due to vehicular collision with the overhead bracings. Note one of the bent bracing angles in picture above.

# Study Objective

## Problem/Opportunity Statement:

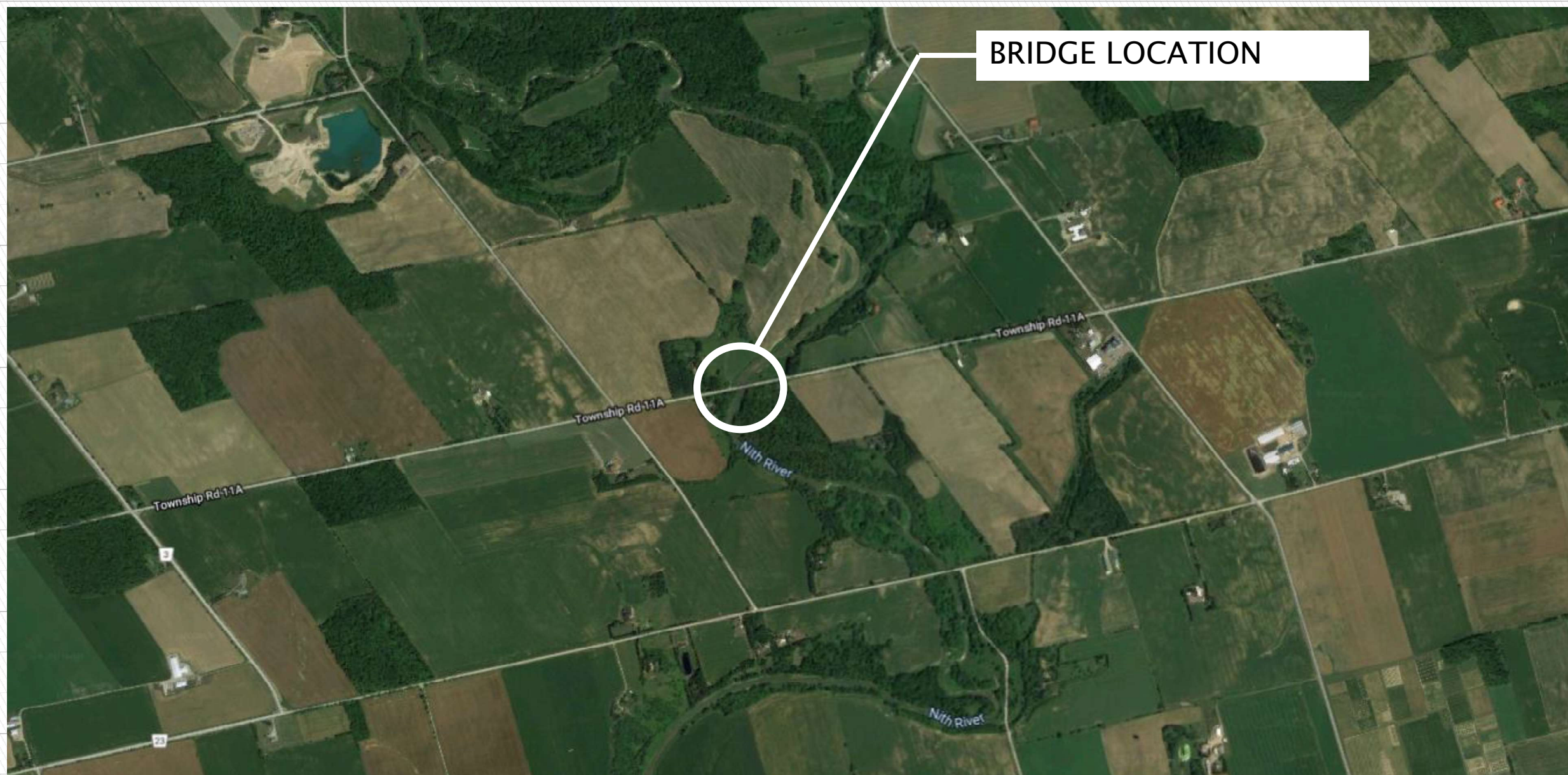
**To investigate possible improvements to Bridge Street Bridge to eliminate deficiencies and provide improved levels of traffic service and overall safety.**



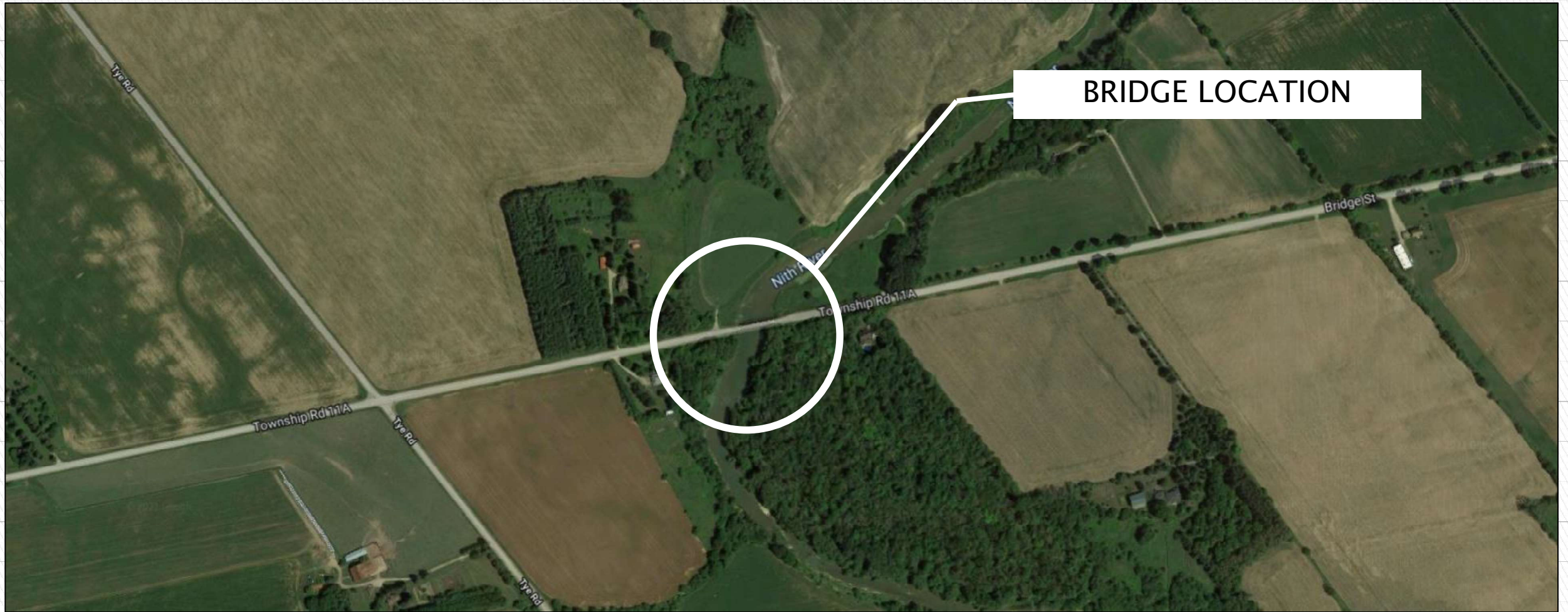
**West Approach (looking east)**

**The goal of this public information centre is to display background information, present the evaluation of alternatives considered to address the problem identified, and receive input on the preferred alternative.**













**Far East Approach (looking west)**



**East Approach (looking west)**



**North Elevation (looking south)**



**Looking Upstream (looking north)**





**Looking Downstream (looking south)**



**Deck Surface**



**Typical Railing**



**Typical Perforated Stringer**





**Typical Repaired Floor Beam**



**Typical Repaired Truss Chord**



**Typical Soffit**





**Field Entrance 1 - West of Bridge (looking north)**



**Field Entrance 2 - Future Driveway – East of Bridge**



**Entrance 3 – Residence East of Bridge (looking south)**



**Field Entrance 4 - East of Bridge (looking north)**



# **Additional Studies Completed**

**As part of the decision-making process, the following studies were completed:**

- **A Geotechnical Investigation was completed to have an understanding of the foundation conditions.**
- **A Hydrology Study is underway to ensure the preferred alternative has no impact on the Nith River.**
- **Environmental Screening Studies were completed at the subject area.**
- **An Archaeological Assessment was completed at the subject area.**
- **A Cultural Heritage Evaluation Report (CHER) / Heritage Impact Assessment (HIA) study was completed at the subject area.**
- **A Legal Survey was completed to determine the location of the existing property lines.**

**Copies of the above studies are available upon request.**



# Evaluation of Alternatives

## (part 1 of 4)

Criteria Group	No.	Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Repair Existing Bridge)	Alternative 3 (Replace Superstructure)	Alternative 4 (Replace with Single Span Steel Truss Bridge)	Alternative 5 (Replace with Multi Span Slab-on-Girder Bridge)	Comment
Natural Environment	1	Disruption to fish and changes to fish habitat	1	2	3	4	5	Considers disruption to fish and potential loss of fish habitat.
	2	Changes to vegetation and flora	1	2	3	4	5	Considers overall loss of vegetation. 1 does not result in any loss of vegetation 5 results in a significant loss of vegetation
	3	Disruption to wildlife and changes to wildlife habitat	1	2	3	4	5	Considers loss of habitat for wildlife such as birds and animals. 1 does not result in any loss of habitat 5 results in a significant loss of habitat
	4	Changes to surface water quality and quantity	1	2	4	5	3	Considers both increase and level of contamination of runoff. 1 does not 5 will not result in an improvement
	5	Changes to ground water quality and quantity	3	3	3	3	3	No changes to the quality or quantity of groundwater are anticipated
	6	Changes to stream flow	1	2.5	2.5	5	4	Considers changes to the overall alignment of the watercourse. 1 indicates the least disruption 5 has the most disruption
	7	Potential for ice jams	2.5	2.5	2.5	2.5	5	2.5 has no potential for ice jams 5 has potential for ice jams

# Evaluation of Alternatives

## (part 2 of 4)

Criteria Group	No.	Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Repair Existing Bridge)	Alternative 3 (Replace Superstructure)	Alternative 4 (Replace with Single Span Steel Truss Bridge)	Alternative 5 (Replace with Multi Span Slab-on-Girder Bridge)	Comment
Socio-Economic Environment	8	Changes to quality and quantity of agriculture	4.5	4.5	3	1.5	1.5	Considers change to the quality and quantity of farming
	9	Disruption to community due to frequent or permanent closure(s) of the crossing	5	4	3	2	1	Considers disruption to the community by not having a permanent crossing 2 if a new bridge is built 5 if no bridge is built
	10	Disruption to local business due to frequent or permanent closure(s) of the crossing	5	4	3	2	1	Considers disturbance to local business by not having a permanent crossing 1 if a new bridge is built 5 if no bridge is built
	11	Changes to recreation resulting from changing the status quo	1.5	1.5	4	4	4	Considers potential changes to navigation
	12	Changes to future development due to frequent or permanent closure(s) of the crossing	5	4	3	1.5	1.5	Considers loss of future development by not having a permanent crossing 1 if a new bridge is built 5 if no bridge is built
	13	Need for property acquisition if a new structure is pursued	2	2	2	4.5	4.5	1 requires no property to be purchased 5 requires the most amount of property to be purchased
	14	Length of construction if work is pursued	1	2	3	4	5	1 is the shortest to construct 5 is the longest to construct
	15	Improvement to traffic movement if a new structure is pursued	4.5	4.5	3	2	1	1 will provide improvement 5 will not provide improvement
	16	Changes to noise and vibration if a new structure is pursued	1.5	1.5	3.5	5	3.5	1 will result in a reduction in noise and vibration 5 will result in changes to noise and vibration
	17	Changes to air quality	5	4	3	2	1	Considers positive change to air quality as a result of quicker travel times 1 if a new bridge is built 5 if no bridge is built
	18	Access to emergency services due to frequent or permanent closure(s) of the crossing	5	4	2	2	2	Considers response times 1 if a new bridge is built 5 if no bridge is built
	19	Change in aesthetics	1	2	4	3	5	1 will restore aesthetics of Bridge Street Bridge 5 indicates the most change to original aesthetics

# Evaluation of Alternatives

## (part 3 of 4)

Criteria Group	No.	Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Repair Existing Bridge)	Alternative 3 (Replace Superstructure)	Alternative 4 (Replace with Single Span Steel Truss Bridge)	Alternative 5 (Replace with Multi Span Slab-on-Girder Bridge)	Comment
Cultural Environment	20	Potential presence of archaeological cultural heritage resources on or adjacent to the study area	1.5	1.5	4	5	3	1 would be no disturbance to existing ground 5 indicates major disturbance to existing ground
	21	Preservation of cultural heritage landscapes	1.5	1.5	4	5	3	1 indicates retention of existing landscape 5 indicates altering current landscape
	22	Preservation of existing built heritage resources	1.5	1.5	3	4.5	4.5	1 indicates retention of existing structure 5 indicates loss of current structure
Technical Considerations	23	Extent the alternative addresses the problem statement	5	4	3	1.5	1.5	1 meets the problem statement 5 does not meet the problem statement
	24	Effect on existing utilities	1.5	1.5	4	5	3	1 indicates least potential to affect utilities 5 indicates most potential to affect utilities
	25	Elimination of height restrictions	4	4	1.5	4	1.5	4 if there is a height limit across the bridge 1.5 if there is no limit
	26	Elimination of Load Posting	4.5	4.5	3	1.5	1.5	2 eliminates load posting 4.5 does not eliminate load posting
	27	Elimination of width restriction	4	4	4	1.5	1.5	4 if the structure is limited in width 1.5 if there is no limit
	28	Ability to improve geometry of roadway	5	4	3	2	1	1 will allow modifications 5 will not allow modifications
	29	Increase of traffic volume and speed due to overall improved geometry	5	4	3	2	1	1 indicates improvement to traffic volume and speed 5 indicates no improvements to traffic speed and volume
	30	Need to reconfigure laneways immediately adjacent to bridge	1.5	1.5	4.5	4.5	3	1 indicates no need for reconfiguration 5 indicates reconfiguration required
	31	Improvements to safety	5	4	3	2	1	1 provides many improvements 5 provides no improvements
	32	Ability to improve hydrology/hydraulic conditions	4	4	4	2	1	1 allows for improvement 5 does not allow improvement
	33	Constructability	1	2	3	5	4	1 is the easiest to construct 5 is the hardest to construct
	34	Construction timeline	1	2	3	5	4	1 is the shortest to construct 5 is the longest to construct
	35	Lifespan	5	4	3	2	1	1 is the longest period prior to reconstruction of the bridge 5 is the shortest period prior to reconstruction of the bridge
	36	Need for ongoing maintenance	5	4	3	2	1	Assumes replacing the bridge would require little maintenance whereas doing nothing would require



# Evaluation of Alternatives

## (part 4 of 4)

Criteria Group	No.	Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Repair Existing Bridge)	Alternative 3 (Replace Superstructure)	Alternative 4 (Replace with Single Span Steel Truss Bridge)	Alternative 5 (Replace with Multi Span Slab-on-Girder Bridge)	Comment
Cost	37	Purchase of private property	1.5	1.5	3	5	4	1 does not require purchasing property 5 requires purchasing private property
	38	Maintenance costs	5	4	3	2	1	Assumes a new modern bridge requires little or no maintenance and "doing nothing" would require frequent maintenance
	39	Cost to mitigate impacts to the natural environment	1	2.5	2.5	4	5	1 requires no mitigation 5 requires substantial mitigation
	40	Overall construction cost	1	3	2	5	4	1 would be the lowest cost 5 would be the highest cost
Totals			116	117	124	131.5	111.5	

Note:

Alternatives are ranked 1 to 5 with 1 having the least disturbance and 5 having the most disturbance except where noted.

Each row totals 15 points to ensure each criterion is weighted the same.

Alternative 5 (Replace with Multi Span Slab-on-Girder Bridge) has the lowest overall score.

Based on this evaluation, the Township intends to proceed with **Alternative 5**.

# Preferred Alternative – Drawing 1 of 5

## STEEL BEAM GUIDE RAIL WITH CHANNEL

### NORTHWEST QUADRANT

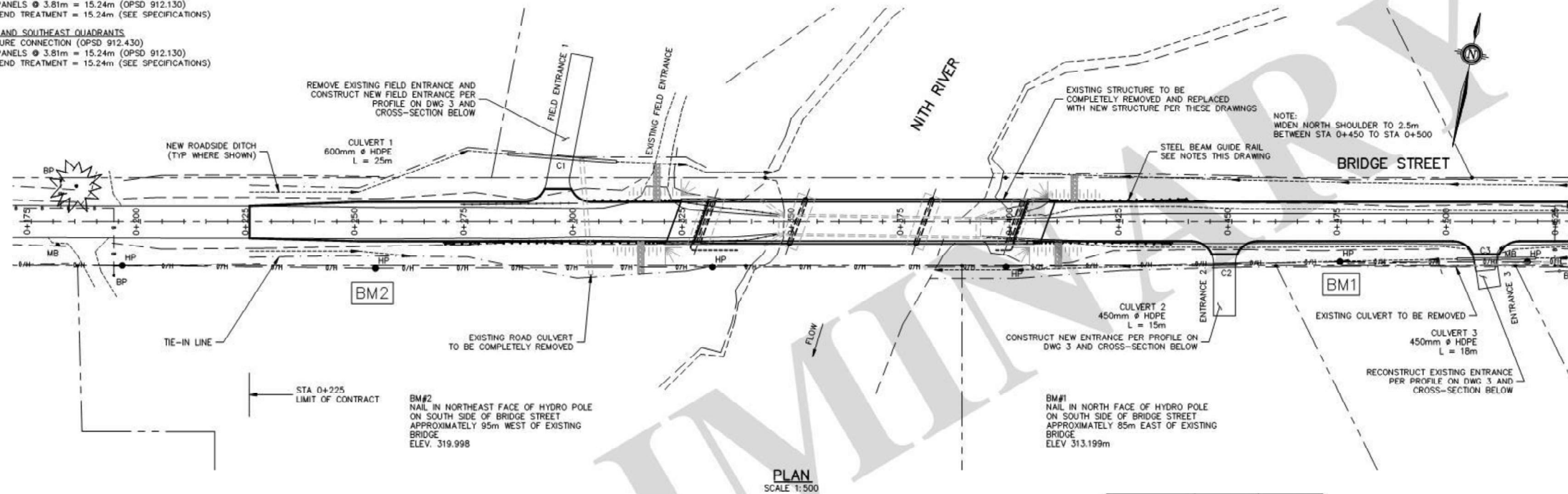
- 1 - STRUCTURE CONNECTION (OPSD 912.430)
- 9 - SBGR PANELS @ 3.81m = 34.29m (OPSD 912.130)
- 1 - LEAVING END TREATMENT = 3.81m (OPSD 912.235)

### NORTHEAST QUADRANT

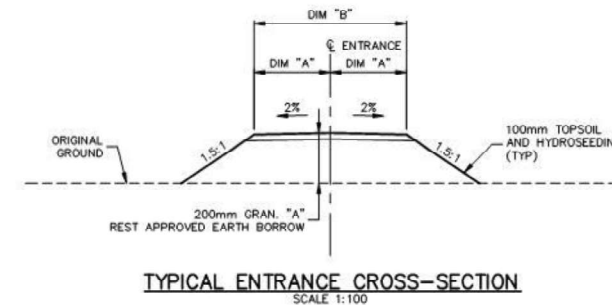
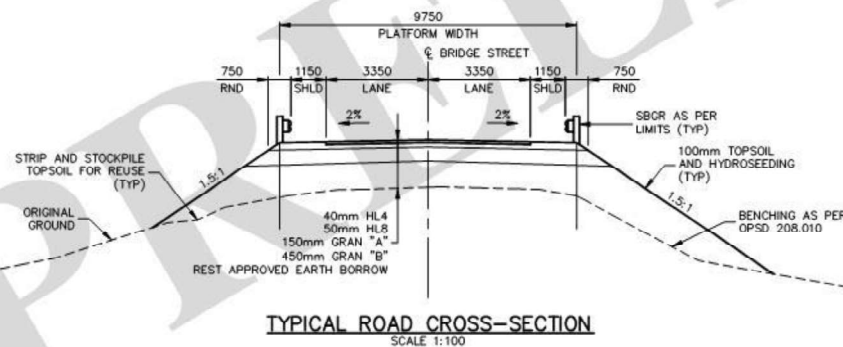
- 1 - STRUCTURE CONNECTION (OPSD 912.430)
- 4 - SBGR PANELS @ 3.81m = 15.24m (OPSD 912.130)
- 1 - SBEAT END TREATMENT = 15.24m (SEE SPECIFICATIONS)

### SOUTHWEST AND SOUTHEAST QUADRANTS

- 1 - STRUCTURE CONNECTION (OPSD 912.430)
- 4 - SBGR PANELS @ 3.81m = 15.24m (OPSD 912.130)
- 1 - SBEAT END TREATMENT = 15.24m (SEE SPECIFICATIONS)



LOCATION	DIM "A"	DIM "B"
FIELD ENTRANCE 1	2.5m	5.0m
ENTRANCE 2	1.75m	3.5m
ENTRANCE 3	2.5m	5.0m
FIELD ENTRANCE 4	2.5m	5.0m



No.	REVISION	DATE	DESIGNED BY: A.G.
1.	ISSUED FOR PIC	OCT 1/21	CHECKED BY: P.M.
			DRAWN BY: J.A.
			CHECKED BY: A.G.
			FIELD BOOK:

SCALE  
1:500

5.0m 0 10m  
(ON 24 x 36 PAPER)

BRIDGE 34/B-T9 REPLACEMENT

TOWNSHIP OF WILMOT

REGION OF WATERLOO

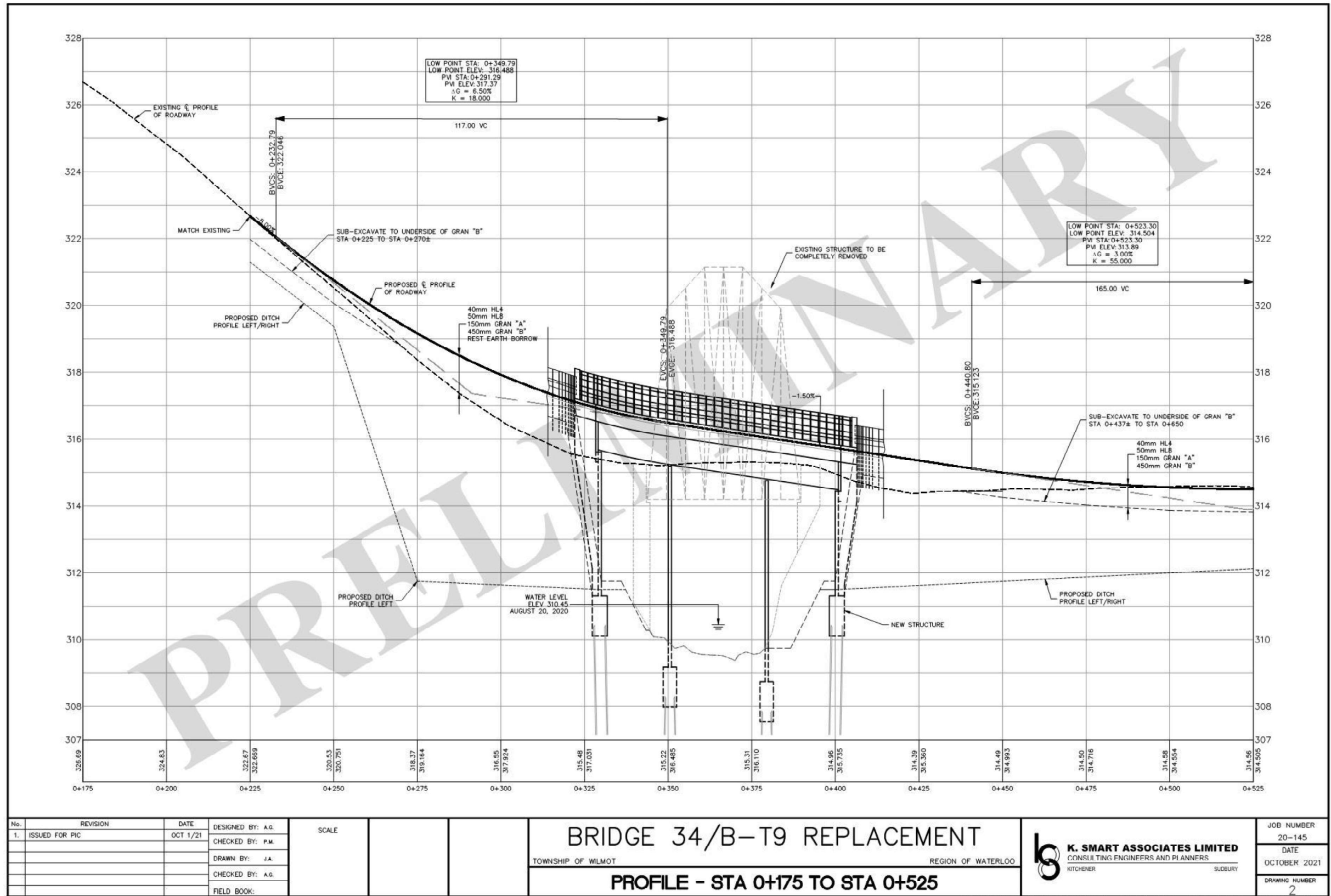
PLAN



**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS  
KITCHENER SUBURBY

JOB NUMBER 20-145
DATE OCTOBER 2021
DRAWING NUMBER 1

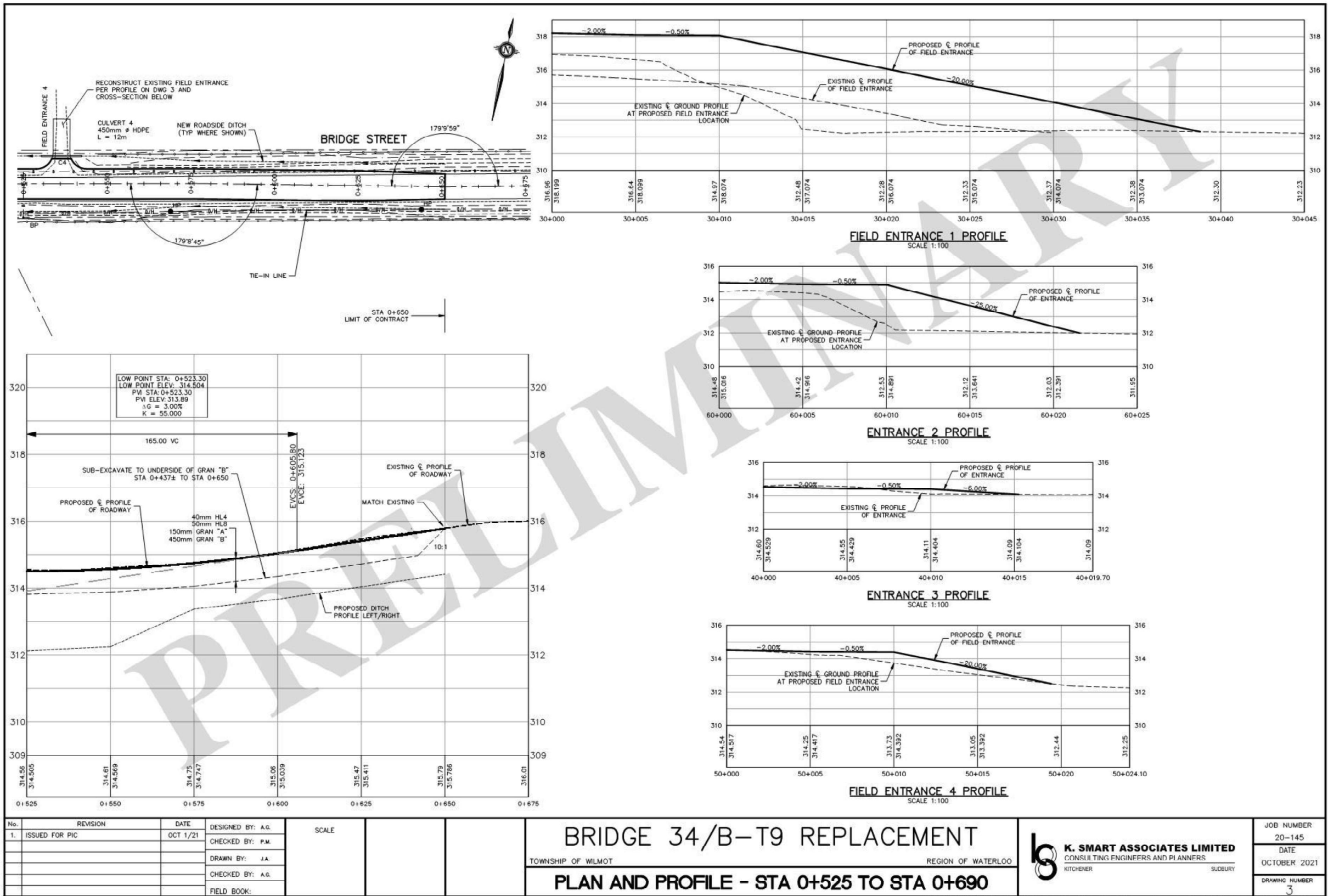
# Preferred Alternative – Drawing 2 of 5



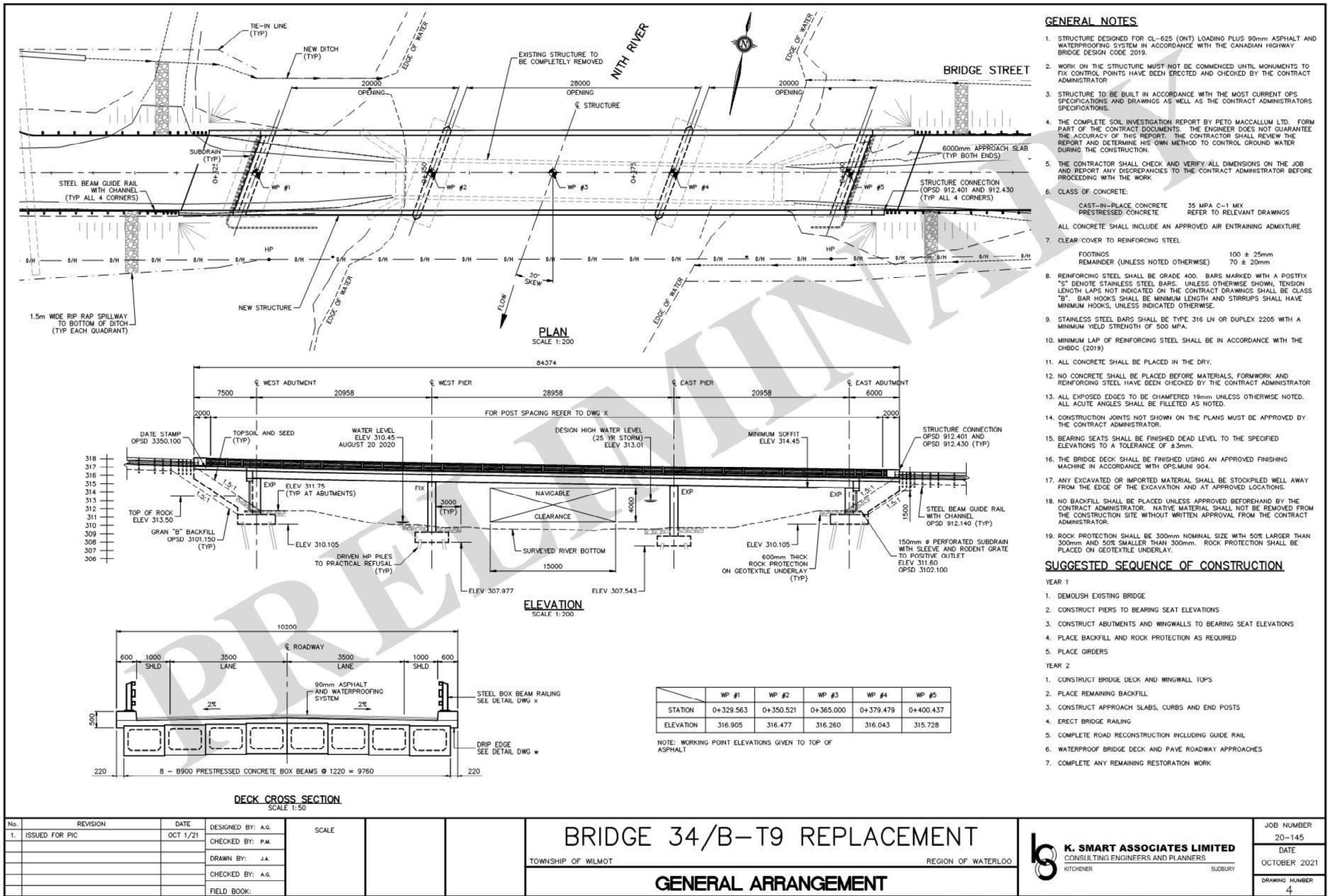
No.	REVISION	DATE	DESIGNED BY: A.G.	SCALE				<div>BRIDGE 34/B-T9 REPLACEMENT</div> <div>TOWNSHIP OF WILMOT<div>REGION OF WATERLOO</div></div> <div>PROFILE - STA 0+175 TO STA 0+525</div>	<div><div><div>bs</div></div><div><div>K. SMART ASSOCIATES LIMITED</div><div>CONSULTING ENGINEERS AND PLANNERS</div><div>KITCHENER</div><div>SUBURBY</div></div></div>	JOB NUMBER
1.	ISSUED FOR PIC	OCT 1/21	CHECKED BY: P.M.							20-145
			DRAWN BY: J.A.							DATE
			CHECKED BY: A.G.							OCTOBER 2021
			FIELD BOOK:							DRAWING NUMBER
										2



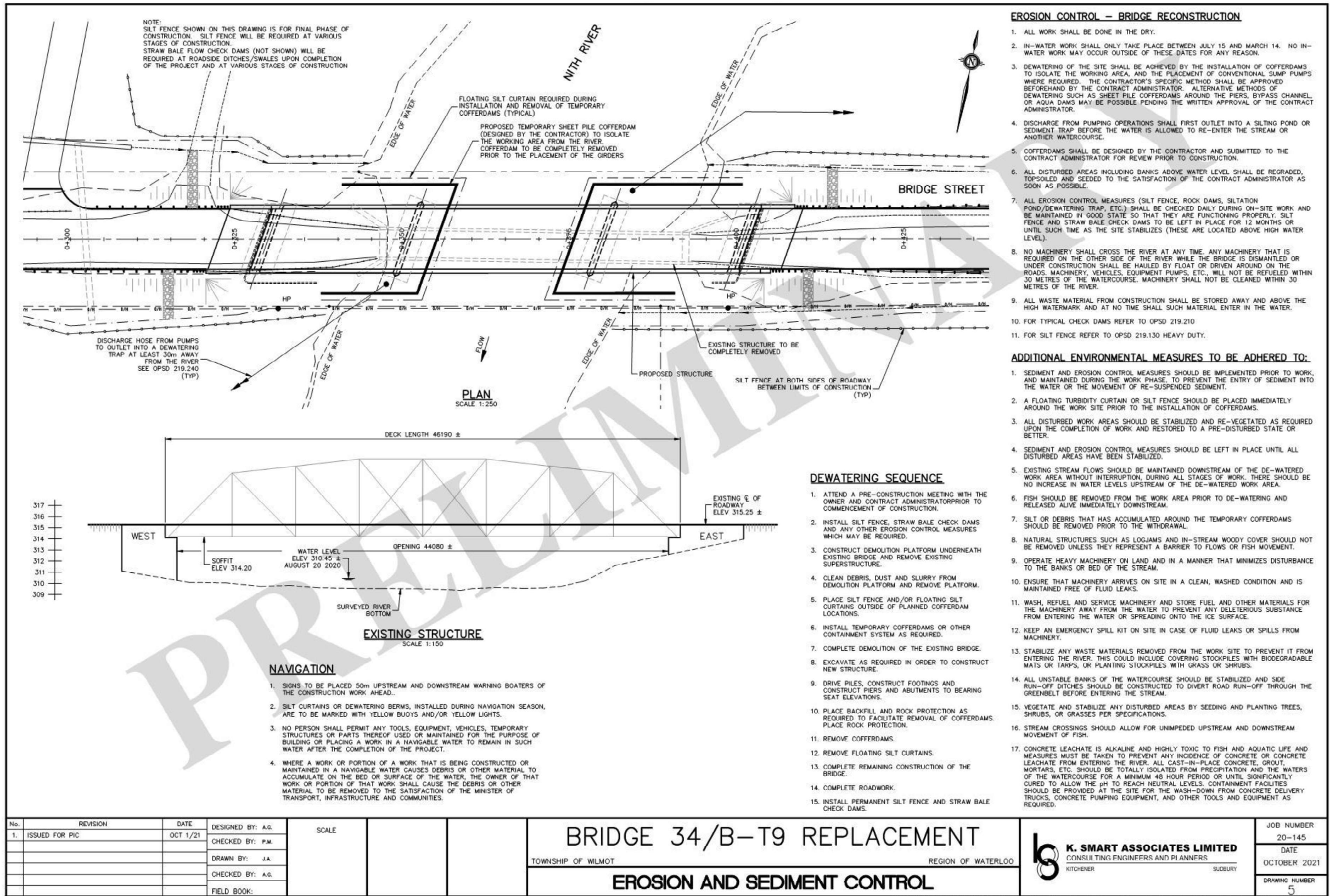
# Preferred Alternative – Drawing 3 of 5



# Preferred Alternative – Drawing 4 of 5



# Preferred Alternative – Drawing 5 of 5





# Preliminary Cost Estimate

Category No.	Category Description	Total Price
1	General Requirements	\$ 135,000
2	Roadwork	\$ 426,250
3	Removals	\$ 188,500
4	Roadside Safety	\$ 81,002
5	Restoration	\$ 62,000
6	Bridge Work	\$ 2,482,950
7	Contingency	\$ 150,000

Total	\$ 3,525,702
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**A detailed cost breakdown is available upon request.**

# Next Steps:

- **Receive feedback on preferred alternative.**
- **Finalize the 'Project File'**
- **Publish a 'Notice of Completion' and distribute via the New Hamburg Independent, Township of Wilmot website, and private notice to interested agencies and residents adjacent to the study area. The notice will identify the opportunity to review the 'Project File' over a 45 calendar day period.**
- **Assuming that comments raised during the 45 day review period can be resolved, the Township will proceed with the detailed design, tendering, and construction.**

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**Comments regarding this PIC will be received until Monday, November 1, 2021. You can submit your comments by way of either of the following methods:**

- **By visiting the following link and completing the online form:**  
[https://www.wilmot.ca/en/doing-business/resources/Documents/Current\\_Projects/PIC-Comment-Sheet.pdf](https://www.wilmot.ca/en/doing-business/resources/Documents/Current_Projects/PIC-Comment-Sheet.pdf)
- **By regular mail or email to either of the following contacts:**

**Mr. Jeff Molenhuis, P. Eng.,  
Director of Public Works & Engineering  
Township of Wilmot  
60 Snyder's Road West  
Baden, ON N3A 1A1  
Phone: 519-634-8519 ext. 9238  
Email: jeff.molenhuis@wilmot.ca**

**Mr. Allan Garnham, P. Eng.  
K. Smart Associates Limited  
85 McIntyre Drive  
Kitchener, ON, N2R 1H6  
Phone: 519-748-1199 ext. 246  
Email: agarnham@ksmart.ca**

**THANK YOU FOR ATTENDING**