



# Engineering Services for the Replacement of Kinsmen Bridge

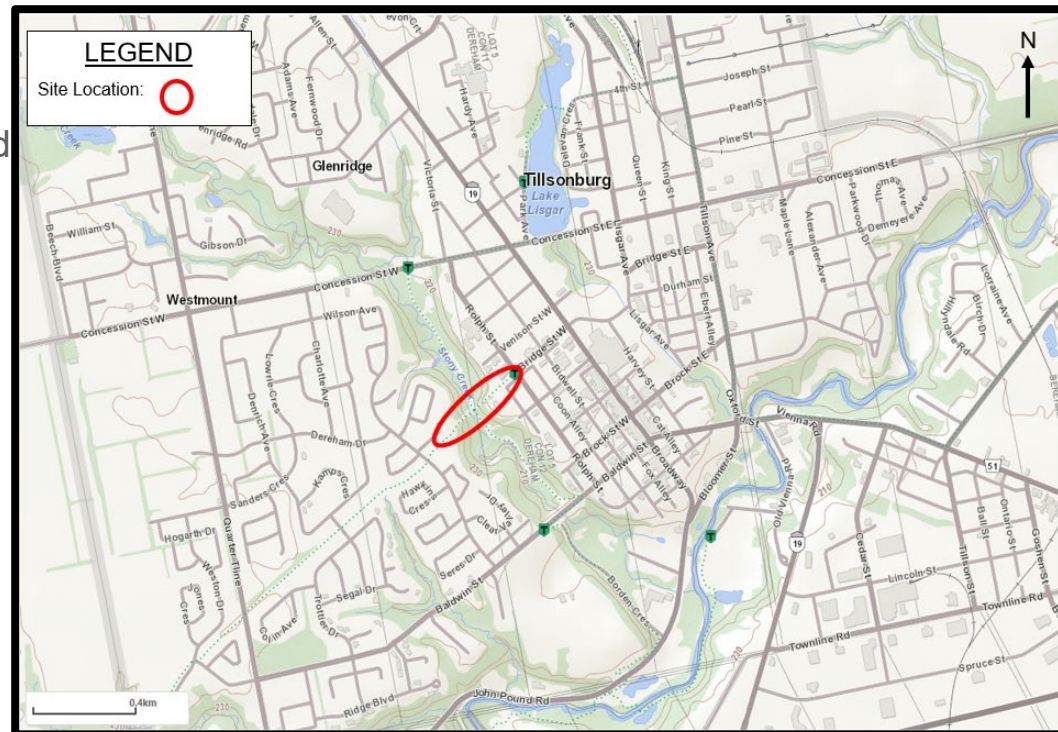
Municipal Class Environmental Assessment (Schedule A+)

## Introduction

- We encourage your input and feedback.
- If you have any comments please complete the comment sheet provided with these slides and send via email to the following address on or before **October 14, 2022**:  
**mneumann@planmac.com**
- There is an opportunity at any time during the Detail Design and EA process for interested persons to provide written input.
- Any comments received will be collected under the Environmental Assessment Act and, with the exception of personal information, will become part of the public record.

## Municipal Class Environmental Assessment

- The Town of Tillsonburg initiated a Municipal Class Environmental Assessment (MCEA) for the Detail Design for the Engineering Services for the replacement of Kinsmen Bridge. The site location is provided below on the Key Map.
- The purpose of the public information materials is to present the EA process, technical investigations completed, the alternative solutions for the future of the bridge, and a Preliminary Preferred Alternative Solution. Comments on the materials are encouraged to aid design development.
- This project is classified as a Schedule 'A+' project under the Municipal Class Environmental Assessment (2000, as amended in 2007, 2011 and 2015). Schedule 'A+' activities are pre-approved. As such, the Town may proceed to the implementation phase (i.e. design and construction) without following the procedures set out in any other part of the Class EA.



## MUNICIPAL CLASS EA PLANNING & DESIGN PROCESS

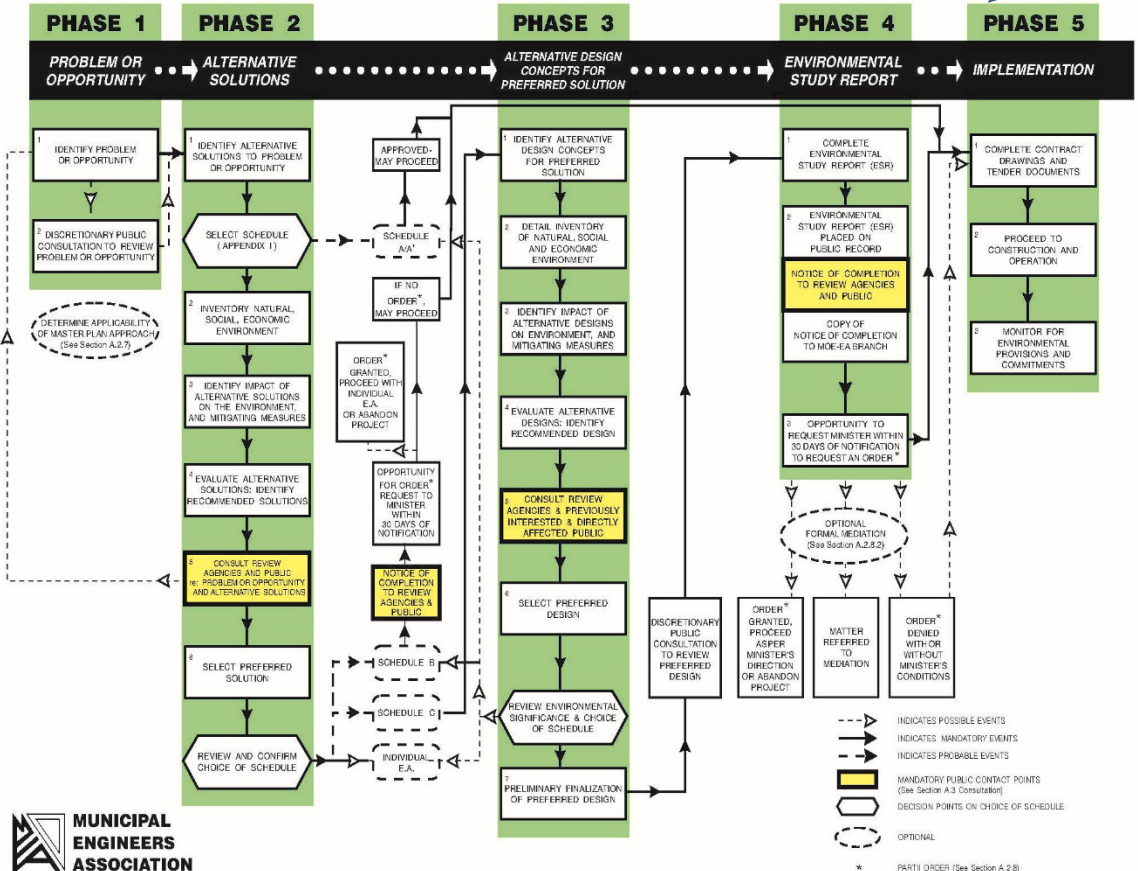
As Schedule 'A+' projects are pre-approved following public notification undertaking Phases 1 & 5 are optional.

A problem statement (Phase 1) has been developed for this project and appropriate design solution created to allow implementation.

**We Are Here**

### EXHIBIT A.2 MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



## Phase 1 (Problem Statement) and Design Development

- Phase 1 (Problem Statement):

“Following an engineering assessment of the Kinsmen Bridge it was determined that replacement of the structure was required due to significant corrosion present on the majority of the structural steel components. The Kinsmen Bridge has existing deficiencies that require rehabilitation to ensure public safety. These deficiencies will be rectified through appropriate design and construction.”

### Existing Site Conditions/Constraints

- The existing structure was initially constructed in 1888 for use as a railroad bridge and was later converted to a pedestrian bridge. This bridge is heavily used by pedestrian traffic to access downtown shopping areas by residents west of the Stoney Creek Ravine. A 2019 Engineering inspection determined that, the bridge is in urgent need of repairs within five (5) years, and that the bridge had only ten years of service life remaining at the time of inspection.
- The existing abutments and stone foundations were constructed to support the loads and stresses of a train bridge, and their good condition permits that they can be retained for the new pedestrian bridge with only minor repairs.
- There are few environmental constraints for this study area. Since no major excavation will be required, impacts to the natural environment are expected to be minimal, and will require only minor remediation efforts after construction. Short-term impacts during construction will be mitigated through use of common mitigation measures and policies, including erosion control measures and re-seeding efforts. Additionally, during construction, the currently eroding banks beneath the bridge will be stabilized to minimize long-term erosion the embankments.

## Technical Studies Completed

- 2019 OSIM Inspection – Standardized structural inspection conducted in Ontario that assess all features of a given structure. This inspection determined the 10-year remaining service life of the structure
- A Heritage Assessment was completed in 2020.
- Geotechnical Investigation – No Geotechnical Investigations or follow-up foundation engineering were required for this project given that minor rehabilitation of the stone foundations will lend them to be reused.
- Environmental studies will be limited to gaining approval from Long Point Region Conservation Authority under O.Reg 178/06, along with development of mitigation measures for construction (e.g. erosion and sediment control measures).

## Design Alternatives

- As part of many environmental studies and design processes for similar municipal projects, several alternatives are created and designed to a preliminary level to allow the complete involved team to assess the advantages and draw backs of these alternatives. The following alternatives were presented for this project:
  - Option 1: Do Nothing – No rehabilitation or replacement. This is used as a baseline if nothing is done to replace or preserve the current structure.
  - Option 2: Repair – Recommended repairs are conducted on the bridge structure. Repairs would need to be conducted during or before 2024 and would extend the lifespan of the bridge until 2029.
  - Option 3: Like-for-Like Replacement (Hybrid)– Replacement of only the steel components of the bridge while retaining the abutments and stone piers. The replacement bridge would be designed in a manner that is similar to the existing structure.
  - Option 4: Prefabricated Pedestrian Bridge – This alternative would involve the removal of all existing bridge components and replace with a new, prefabricated bridge. The design of the bridge could range from basic, to very modern in design.
  - Option 5: Prefabricated Pedestrian Bridge – This alternative would be the same as Option 4 but includes removal of the old stone foundations and replacement with new foundations.



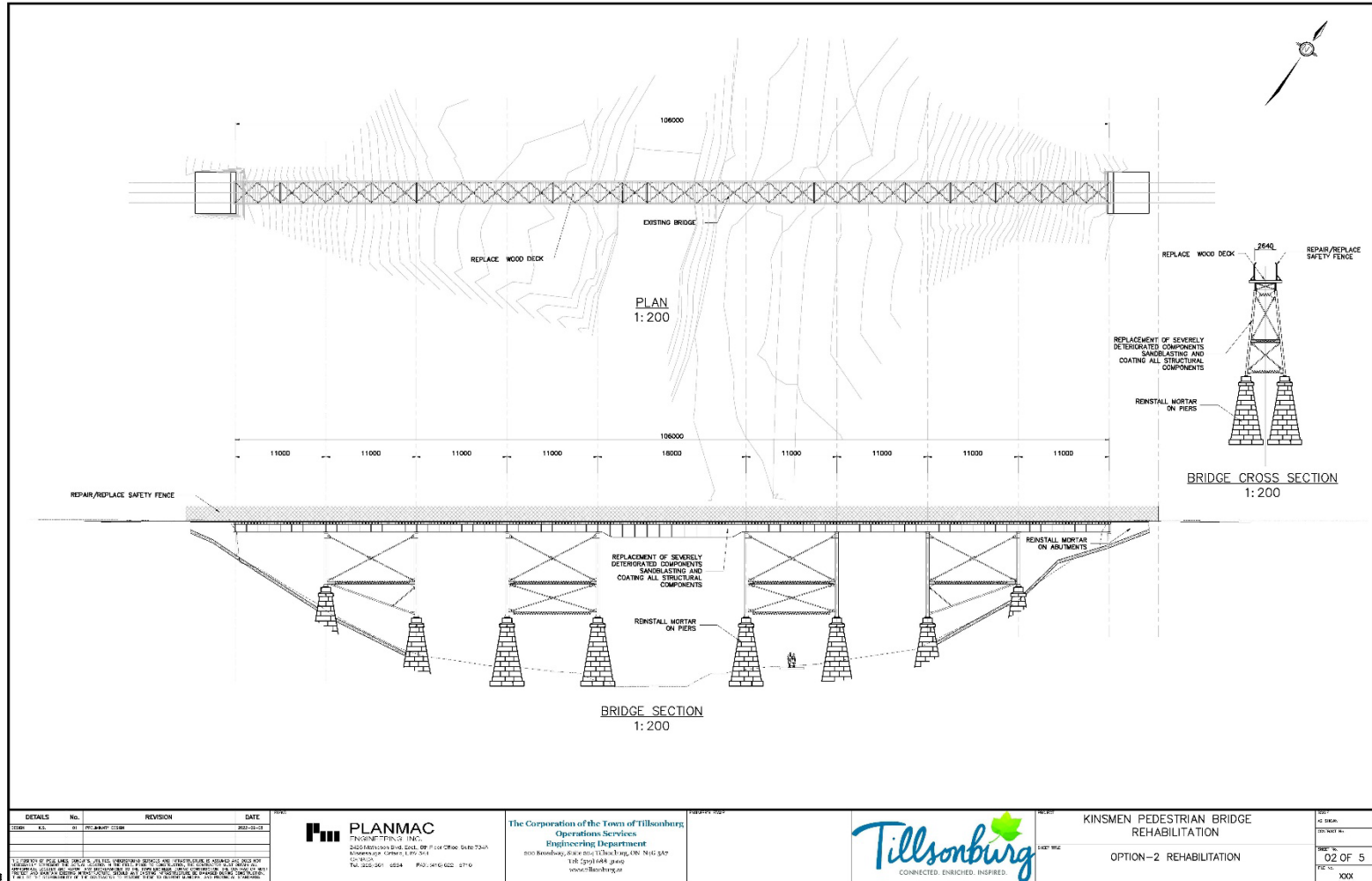
## Option 1: Do Nothing (Estimated \$1,369,500 over <10 Years Service Life)

Pros	Cons
No Immediate Costs.	Increased Long-term cost
Save existing structure as a heritage bridge.	Short service life/will require repairs by 2024 & frequent inspections

## Option 2: Repair (Estimated \$5,240,000 over 25-30 Years Service Life)

Pros	Cons
Less costly in the short term compared to full replacement	High long term cost
Service Life of the bridge will be extended to 2029	Increased Construction time
Save existing structure as a heritage bridge	

## Design Drawings: Option 2: Repair



DETAILS	No.	REVISION	DATE
112000	KL	01	10/27/2021

**PLANMAC**  
 ENGINEERING INC.  
 2405 BRIDLEWOOD DR. SUITE 101  
 WILSONVILLE, OHIO 45394  
 TEL: 513-333-0600 FAX: 513-333-0601

The Corporation of the Town of Tillsonburg  
 Operations Services  
 Engineering Department  
 100 Beesley Ave. #101 Tillsonburg, ON N1G 5A7  
 TEL: 519-373-1688 FAX: 519-373-1689  
 www.tillsonburg.ca

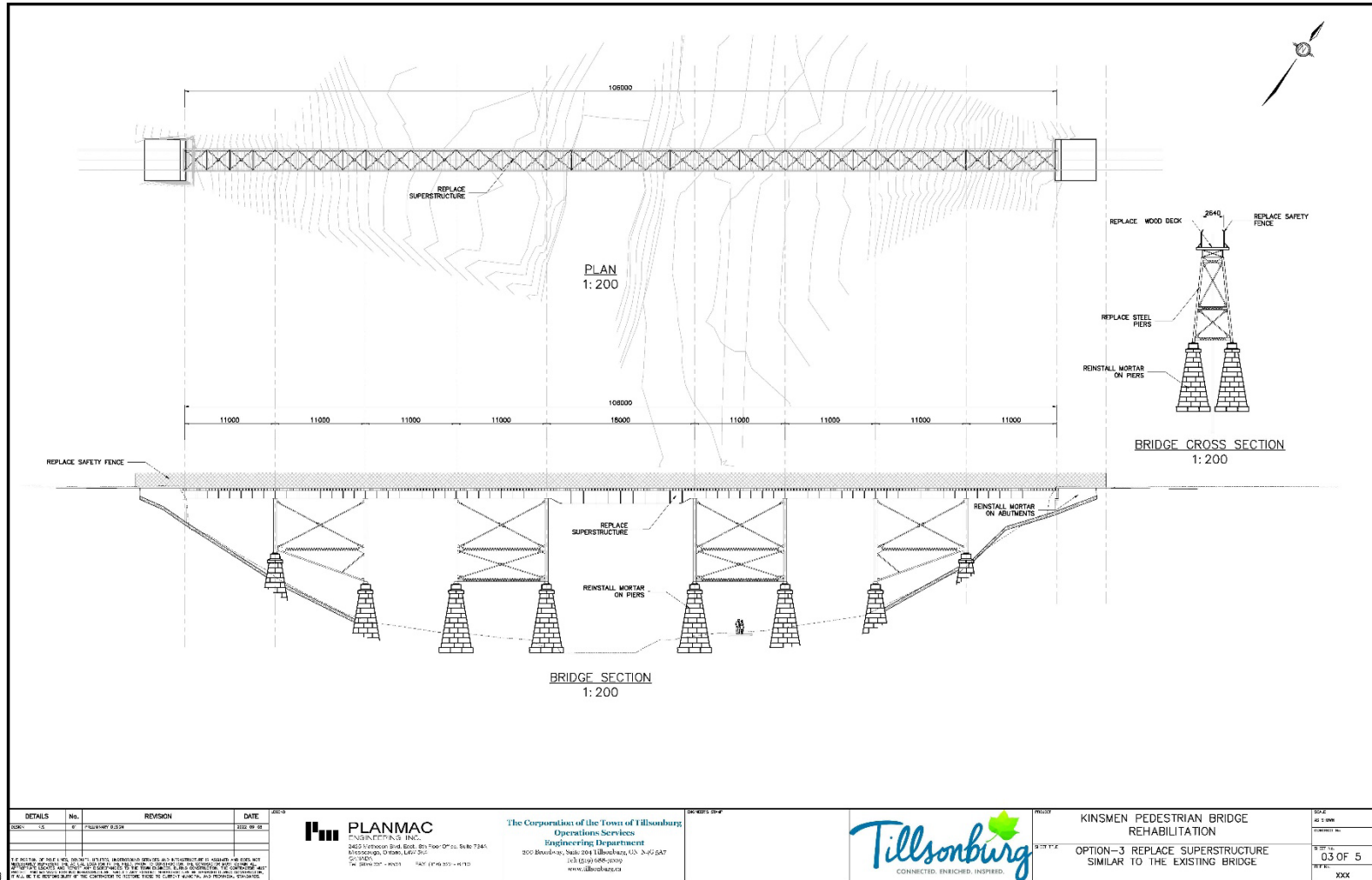
PROJECT	KINSMEN PEDESTRIAN BRIDGE REHABILITATION	DATE	02 OF 5
DATE	OPTION-2 REHABILITATION	SCALE	XXX

## Option 3: Like-for-Like Replacement (Hybrid)

(Estimated \$6,602,000 over 50-60 Years Service Life)

Pros	Cons
Retain the Aesthetic, and historic feel of the current bridge	Most Expensive Option
Long service life	Increased use of resources/materials from extra steel components to fit Historical Look (less environmentally friendly)

## Design Drawings: Option 3: Like-for-Like Replacement



DETAILS	No.	REVISION	DATE	BY	CHK'D	DATE	BY	CHK'D
	15	FIELDWORK 03/24	2022 09 03					

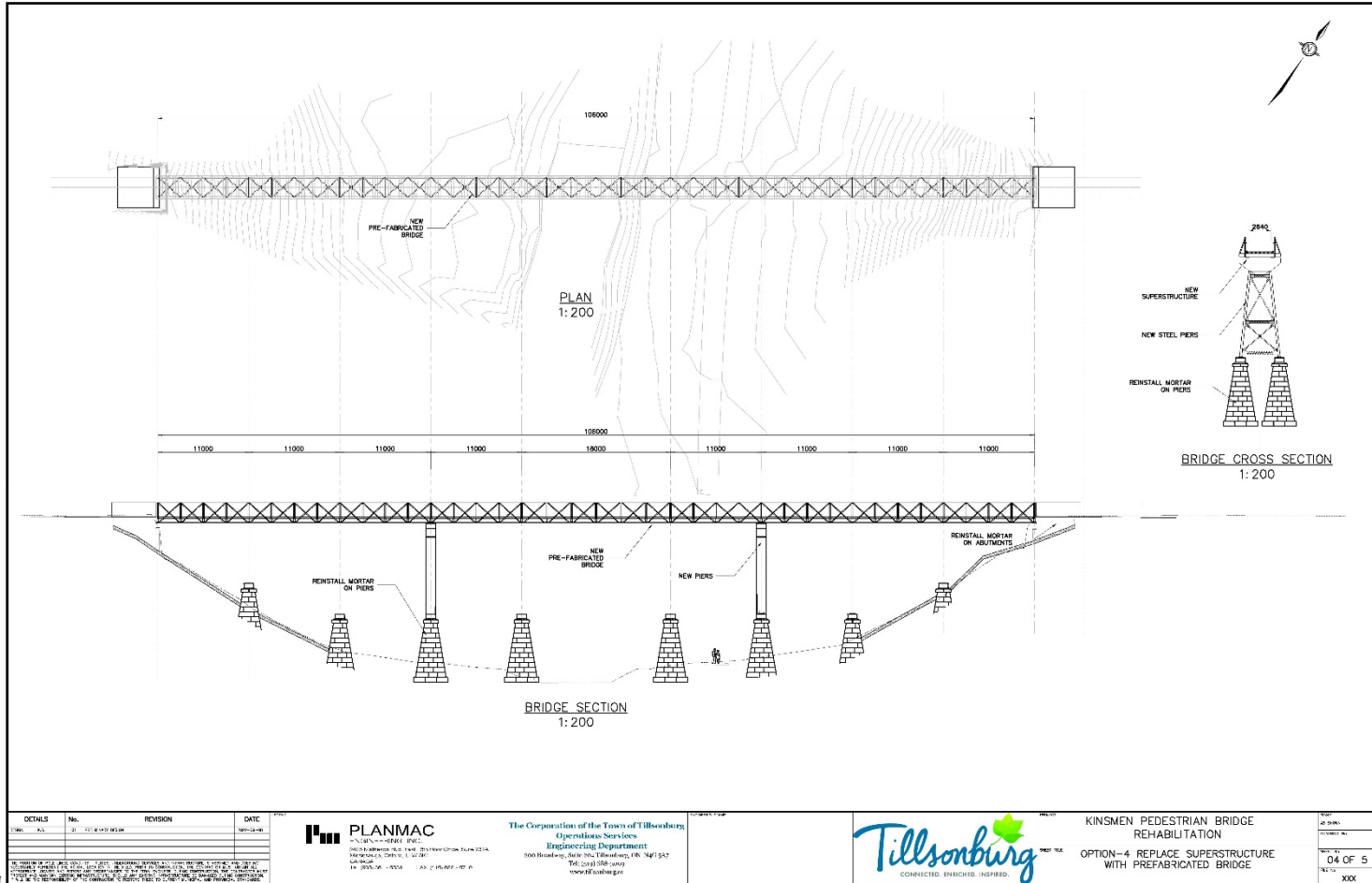
<b>PLANMAC</b> ENGINEERING INC. 2422 S. GREENWOOD DR. SUITE 100 TILLSONBURG, OH 43081-1677 TEL: 614.329.1100 FAX: 614.329.1101 www.planmac.com	The Corporation of the Town of Tillsonburg Operations Services <b>Engineering Department</b> 300 Broadview, Suite 204 Tillsonburg, OH 43081 TEL: 419.329.1100 www.tillsonburg.com	 CONNECTED. ENRICHED. INSPIRED.	PROJECT: KINSMEN PEDESTRIAN BRIDGE REHABILITATION DRAWING: OPTION-3 REPLACE SUPERSTRUCTURE SIMILAR TO THE EXISTING BRIDGE SHEET: 03 OF 5 TITLE: XXX
--	--	------------------------------------	--

## Option 4: Replace Superstructure, Repairing Foundations

(Estimated \$5,000,000 over 75-80 Years Service Life)

Pros	Cons
Optimized cost	Different Aesthetic Design – May change look and feel of the park area
No Earth or In-Water works required	
Long Service Life	
Shortest Construction time	
Lowest overall environmental impact/emissions	
Creative space in the design process – Bridges could range from basic to modern designs	

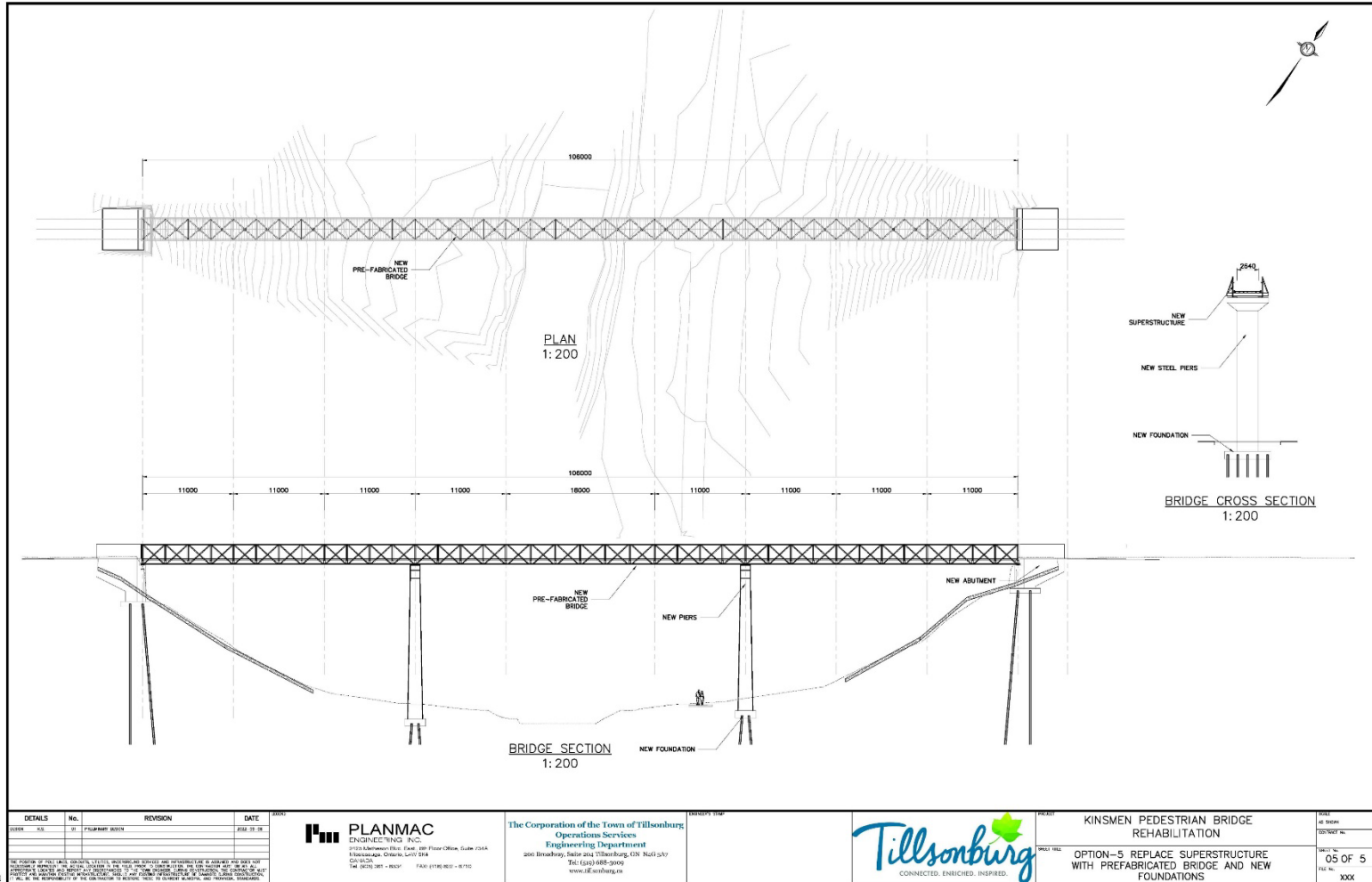
## Design Drawings: Option 4: Replace Superstructure, Repairing Foundations



## Option 5: Replace Superstructure and Foundations (Estimated \$6,250,000 over 75-80 Years Service Life)

Pros	Cons
Less maintenance cost than option 4	Different Aesthetic Design – May change look and feel of the park area
Entire Bridge and Foundations are brand new	Higher Construction Cost than Option 4
Allow the most structurally optimized design / Most room for creativity in design	Need Earth works/possible in-water works
	Longer Construction time than option 4

## Design Drawings: Option 5: Replace Superstructure and Foundations





## Recommended Design Alternative

- **The Project Team has recommended Option 3, the Hybrid option, as the preferred solution for the following reasons:**
  - This option allows the look and feel of the historical area/bridge to remain, while ensuring the safety of all pedestrians. Planmac also believes that with our creative design process, we can enhance the look and feel of the bridge and surrounding park area by providing a cleaner look to this historical feature. This will be achieved through replacement of the heavily corroded old bridge and fencing with a new steel replacement structure supported on existing foundations.
  - Option 3, 4 and 5 also allow more thorough improvements to sediment retention.
  - Options 3 and 4 will also be the most environmentally friendly, due to not needing to excavate and replace the footings.
  - Option 3 will be more expensive, and will require more materials, but a historical design should not change the look and feel of the park area. This will ensure that any concerns with changes to maintain heritage requirements or desires will be mitigated.

## Design/Construction Considerations

- Fortification of the embankments will be necessary for the long term viability of the bridge.
- Environmental impacts will be taken into consideration through implementation of construction methods and procedures to minimize impact on several different aspects of the study area. This includes considering the impact on vegetation, erosion and sediment control and soil contamination.
- All applicable legal regulations pertaining to engineering design and environmental impact mitigation will be followed during the design and pre-construction process.

# Next Steps

- Review and consider public comments.
- Receive permitting from Long Point Region Conservation Authority and complete the Detailed Design.
- Prepare Construction Tender Document.
- Initiate Construction and Contract Administration.

# YOUR COMMENTS ARE IMPORTANT TO US

Please complete a Comment Sheet provided and email or mail to either of the below contacts on or before **October 14, 2022**:

**Mike Neumann, P.Eng.**  
Project Manager  
Planmac Engineering Inc.  
2425 Matheson Blvd. E.  
8<sup>th</sup> Floor Office, Suite 734A  
Mississauga, ON L4W 5K4  
Phone: (705) 443-1721  
Email: [mneumann@planmac.com](mailto:mneumann@planmac.com)

**Shayne Reitsma, P.Eng.**  
Manager of Engineering  
Town of Tillsonburg  
200 Broadway, Suite 204  
Tillsonburg, ON, N4G 5A7  
Phone: (519) 688-3009 x 4410  
Email: [SReitsma@tillsonburg.ca](mailto:SReitsma@tillsonburg.ca)