WILLS

PARTNERS IN ENGINEERING

June 5, 2021

City of Kawartha Lakes
Infrastructure Design and Construction
26 Francis Street
Lindsay, Ontario
K9V 5R8

Attention: Martin Sadowski, Sr. Engineering Technician

Re: Proposal for Additional Engineering Services Including Environmental Assessment and Design for the Replacement of the Lindsay Street Bridge in Fenelon Falls
D.M. Wills Project No. 20-9266

D.M. Wills Associates (Wills) was previously awarded an assignment by the City of Kawartha Lakes (City) under 2020-60-CQ for the rehabilitation of the existing Lindsay Street Bridge. In the course of our detailed investigations and preliminary design work, Wills identified a potentially serious structural issue with the design / condition of the structure. As a result, Wills recommended pivoting the work on that project to a 'temporary support' system, in order to ensure stability of the bridge. This construction was performed January-February, 2021 as emergency works by Clearwater Structures Inc. under Wills' supervision.

With the temporary support in place, it is recommended that the City now undertake a Schedule "C" Municipal Class Environmental Assessment (MCEA) and detailed design for the replacement of this structure. It is further recommended that the MCEA be completed in 2021, with detailed design and permitting in 2022, and construction in 2023/24.

Class Environmental Assessment

Per the 'Second Crossing' MCEA recommendations as of November, 2020, widening of the existing Lindsay Street crossing is not recommended. However, it notes that pedestrian connections require improvements, including the possible relocation of these facilities to the east side of the structure.

With this in mind, we believe the replacement of this structure would classify as a Schedule 'C' project under the 2015 amendments to the MCEA:

30. *Reconstruction of a water crossing where the reconstructed facility will not be for the same purpose, use, capacity and at the same location. (Capacity refers to either hydraulic or road capacity but does not include alterations to include or remove facilities for cycling, pedestrians or to support utilities.)*

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Given that the roadway width and hydraulic capacity would likely be impacted by the proposed replacement, and the anticipated cost will exceed $2.7M, we believe this more extensive level of EA is required.

Further the Heritage value of the bridge must be assessed under the MCEA provisions, as such a Cultural Heritage Evaluation Report, Heritage Impact Assessment and Stage 1 Archaeological Assessment are included in the Work Plan.

While a separate undertaking from the 'Second Crossing' MCEA, we will engage the same Key Stakeholders as well as complete new Public and Agency Consultation for the new MCEA. Key Stakeholders for the bridge include Parks Canada, Orillia Power and local Fenelon Falls businesses and residents. We anticipate five (5) points of public participation and contact; including Notice of Commencement, PIC#1, PIC#2, City Council Meeting and Notice of Completion. We will work with City staff to establish a detailed schedule upon approval to proceed.

The MCEA undertaking will also include field and desktop evaluations of environmental factors including fisheries, species at risk, etc. as may be required to document existing conditions and construction mitigations measures. Of importance is the role that these background studies will allow for Agency approvals moving through design and construction.

The Schedule "C" MCEA is scheduled to be completed in 2021. The proposed bridge replacement strategy and configuration (General Arrangement) will be documented in the Environmental Study Report (ESR) in accordance with the MCEA process. The ESR will include final bridge General Arrangement and Cost Estimate, as well as all coordination and mitigation measures required for successful design and construction. The final ESR will be first approved by City Council and then posted for the mandatory 30-day public review period.

Preliminary & Detailed Design

The goal of the design for this replacement structure would be to provide a new, safe, maintainable structure with a 75-year design life to replace the existing structure. Alignment and roadway configuration would generally be maintained as-is, with improvements for pedestrian traffic included and other recommendations from the 'Second Crossing' EA previsied for as future improvements, i.e. approach intersection works.

It should be noted that this is a complicated site with respect to the presence of other infrastructure. This includes Parks Canada lands, a hydro generating station at the north end (Orillia Power), watermain and sanitary forcemain supports, intersections at both ends of the structure, and several adjacent businesses.

We have allowed for a Geotechnical Investigation during the Class EA process that will allow for proper selection and evaluation of bridging options; however sue to staging concerns, it is generally understood that the new bridge will be constructed half-at-a-time to ensure that a single lane of traffic is always maintained. The existing bridge has a centreline construction joint in the deck which should allow for staged demolition of the deck and make way for the new bridge construction.

It is anticipated that the west side (south bound traffic lane) of the existing bridge will remain in service during Stage 1 construction as this side currently carries pedestrian traffic. With a sidewalk added to the east side (north bound traffic lane) during Stage 1 construction, the east side will have available pedestrian facilities when staging is flipped. Two-way traffic will be maintained at all times by using traffic signals and alternating vehicular traffic.

Aspects of heritage may be implemented during detailed design in conjunction with the Heritage Impact Assessment report, but this will likely be limited to railings and other aesthetic features, as the original bridge construction is very common and does not warrant protection. Enhanced pedestrian facilities with mid-bridge lookouts, decorative street lights, etc. will be included in the detailed design.

The most critical aspects of detailed design will be maintenance of traffic, in-water timing restrictions, coordination with Parks Canada and Orillia Power, and understanding of geotechnical (foundation) conditions. We intended to gain full understanding of these items throughout completion of the MCEA and detailed design, so that the final design and contract can fully disclose, address and mitigate all issues.

Key Project Team Members

All work will be overseen by David Bonsall, P. Eng., Manager, Structural Engineering. The original bridge engineering team from the initial retainer assignment submission remains unchanged, with the exception that Ghassan Zanzoul, P.Eng. has been replaced with Babar Karamat, P.Eng., Senior Structural Engineer. Babar has over sixteen years' experience specializing in transportation structures. During the course of his career, he has prepared preliminary and detail designs of simple and continuous span steel and prestressed concrete bridges, culverts, retaining walls and other civil structures. He has worked on rehabilitation projects involving concrete repairs and structural strengthening using FRP composites. Babar's CV is attached.

No other CV's are attached to this submission, as the Bridge Engineering Team members remain the same as noted in our Prequalification 2014-103-RFPQ documents. This is the same team that has successfully completed many bridge projects for the City in recent years.

Golder Associates Inc. (Golder) is also included on the project team to provide their input on the replacement structure foundation requirements. Wills regularly works with Golder on large scale MTO projects and we believe their expertise will be critical to the success of the project. Golder will carry out a field investigation and borehole program to inform a formal Foundation Investigation and Design Report for Wills' use in designing the replacement structure and as information to the Contractor during design of their requirements (dewatering, protection systems, etc.).

It is important to note that the scope of work included within is for the Preliminary Geotechnical Investigation and Foundation Design. We have also received recent geotechnical reports form Parks Canada to assist with scoping our work and enhancing the understanding of the site. That being said, a more detailed and comprehensive geotechnical investigation and design report will be required during detailed design to reflect the final bridge configuration and footing/abutment locations.

Project Schedule

Upon notice to proceed by the City, Wills is committed to having tender-ready documents by late 2022 for construction in the 2023-2024 seasons. A sizable amount of preliminary design coordination will be required with all the interested parties, including Parks Canada, Orillia Power, Kawartha Conservation Authority, Hydro One, Bell Canada, and the City. This work will take place in 2021 and 2022 to ensure that all coordination items are fully addressed within the tender documents ready for end of 2022.

We are confident in our ability to coordinate all required relocations or other works and obtain all necessary approvals in advance of tendering.

Wills has committed adequate resources and experienced staffing to the project to ensure that this deadline is achieved. As Director and Manager, Structural Engineering at Wills, Mr. Bonsall has authority to allocate additional resources to this project, if necessary, to ensure deadlines are met.

Fee Estimate

Wills is committed to the successful delivery of this project and our ability to coordinate meetings locally is a distinct advantage. The key agency for this project (Parks Canada) is located in Peterborough and we have established good working relationship with their team.

We are also committed to working with the City to reduce MCEA and design costs to the fullest extent possible without compromising the quality and outcome of the MCEA and design. The goal is for the most complete and fully coordinated tender documents and construction.

Given the nature of this project and the many current unknowns, we present this Fee Estimate as an Upset Limit and will only invoice the City for actual incurred time and expenses. Sub-Consultant invoices will be marked up by 5% to account for coordination and administrative costs.

Our Upset Fee is established as follows:

Schedule "C" Class EA & Preliminary Design	**$ 230,000**
Geotechnical Investigation and Report	$ 60,000
Cultural Heritage and Archaeological Assessments	$ 25,000
Environmental Screening, Field Work and Reporting	$ 30,000
Public Consultation (incl. First Nation Consultation)	$ 15,000
Environmental Study Report preparation	$ 30,000
Preliminary Design (Bridge, Traffic & Hydraulic Eng.)	$ 50,000
Project Management	$ 20,000

Detail Design & Tender Preparation	**$ 220,000**
Est. 4% of $5.5M Construction Cost; incl. Geotechnical, Electrical	

Total Upset Limit Fees for Class EA, Preliminary & Detail Design, and Tendering is $ 450,000.

This represents 8.2% of Est. Construction Cost and should be considered good value to the City given the complexity of this project. Again, the Fee(s) will be respected as an Upset Limit and invoicing will be limited to actual time incurred. We will provide "By Person" summary with each invoice for tracking.

Thank you for the opportunity to provide this brief proposal and work plan. We are prepared to begin work on this assignment immediately and shall help to ensure that the work is completed on time and on budget.

Should you have any questions, please do not hesitate to contact the undersigned.

Yours very truly,

David Bonsall, P. Eng.
Manager, Structural Engineering

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