# APPENDIX G - CULTURAL ASSESSMENT REPORTS

**CULTURAL HERITAGE EVALUATION REPORT**

# NIAGARA STREET BRIDGE (STRUCTURE ID 050205)
# REGIONAL ROAD 50 (NIAGARA STREET) OVER WELLAND RIVER

**CITY OF WELLAND**
**REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO**

**FINAL REPORT**

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ASI File: 19CH-087

March 2020

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**CULTURAL HERITAGE EVALUATION REPORT**

**NIAGARA STREET BRIDGE (STRUCTURE ID 050205)**
**REGIONAL ROAD 50 (NIAGARA STREET) OVER WELLAND RIVER**

**CITY OF WELLAND**
**REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO**

## EXECUTIVE SUMMARY


ASI was contracted by Associated Engineering, on behalf of the Regional Municipality of Niagara to prepare a Cultural Heritage Evaluation Report (CHER) for the Niagara Street Bridge (Structure 050205) over the Welland River. The subject bridge carries Regional Road 50 (Niagara Street) over the Welland River in the City of Welland, Ontario. This CHER is intended to evaluate the cultural heritage value of the subject bridge based on the evaluation criteria set under *Ontario Regulation 9/06*.

The Niagara Street Bridge is a prestressed concrete I-beam and slab bridge. The substructure was built in 1932 and the superstructure was replaced in 1973. The bridge is oriented in a north-south direction between Riverbank Street and Mill Street in the City of Welland, Regional Municipality of Niagara. The bridge carries two lanes of vehicular traffic in either direction across the Welland River in four spans, with a total deck length of 68.7 metres and an overall structure width of 14 metres. The bridge has not been identified on the City of Welland's Heritage Register or on the *Ontario Heritage Bridge List* and is not currently protected under the *Ontario Heritage Act*.

Based on the results of archival research, an analysis of bridge design and construction in Ontario, field investigations, and application of *O. Reg. 9/06* of the *Ontario Heritage Act*, the Niagara Street Bridge was determined not to have cultural heritage value.

The following recommendations are proposed for the Niagara Street Bridge:

1. This report should be filed with heritage staff at the City of Welland, at the Regional Municipality of Niagara, with the Ministry of Heritage, Sport, Tourism and Cultural Industries, and any other relevant stakeholders that may have an interest in the project.

**PROJECT PERSONNEL**

| | |
|---|---|
| Senior Project Manager: | Lindsay Graves, MA CAHP<br>Senior Cultural Heritage Specialist \| Senior Project Manager - Cultural Heritage Division |
| Project Coordinator | Katrina Thach, Hon. BA<br>Archaeologist \| Project Coordinator - Environmental Assessment Division |
| Project Manager: | Johanna Kelly, MSc<br>Cultural Heritage Associate \| Project Manager - Cultural Heritage Division |
| Historical Research: | Johanna Kelly |
| Field Review: | Meredith Stewart, MSc<br>Cultural Heritage Assistant - Cultural Heritage Division |
| Report Production: | Johanna Kelly |
| Graphics Production: | Andrew Clish, BES<br>Senior Archaeologist - Planning Assessment Division |
| Report Reviewer(s): | John Sleath, MA<br>Cultural Heritage Specialist \| Project Manager - Cultural Heritage Division |
| | Lindsay Graves |

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## 1.0 INTRODUCTION

ASI was contracted by Associated Engineering, on behalf of the Regional Municipality of Niagara to prepare a Cultural Heritage Evaluation Report (CHER) for the Niagara Street Bridge (Structure 050205) over the Welland River. The subject bridge carries Regional Road 50 (Niagara Street) over the Welland River in the City of Welland, Ontario. This CHER is intended to evaluate the cultural heritage value of the subject bridge based on the evaluation criteria set under *Ontario Regulation 9/06*.

The Niagara Street Bridge consists of a precast, prestressed concrete I-beam and concrete slab superstructure built in 1973 atop cast-in-place piers and abutments constructed in 1932. The bridge is oriented in a north-south direction and is located between Riverbank Street and Mill Street in the City of Welland, Regional Municipality of Niagara, Ontario (Figure 1). The bridge carries two lanes of vehicular traffic in either direction across the Welland River in four spans, with a total deck length of 68.7 metres and an overall structure width of 14 metres. The bridge has not been identified on the City of Welland's Heritage Register or on the *Ontario Heritage Bridge List* and is not currently protected under the *Ontario Heritage Act*.

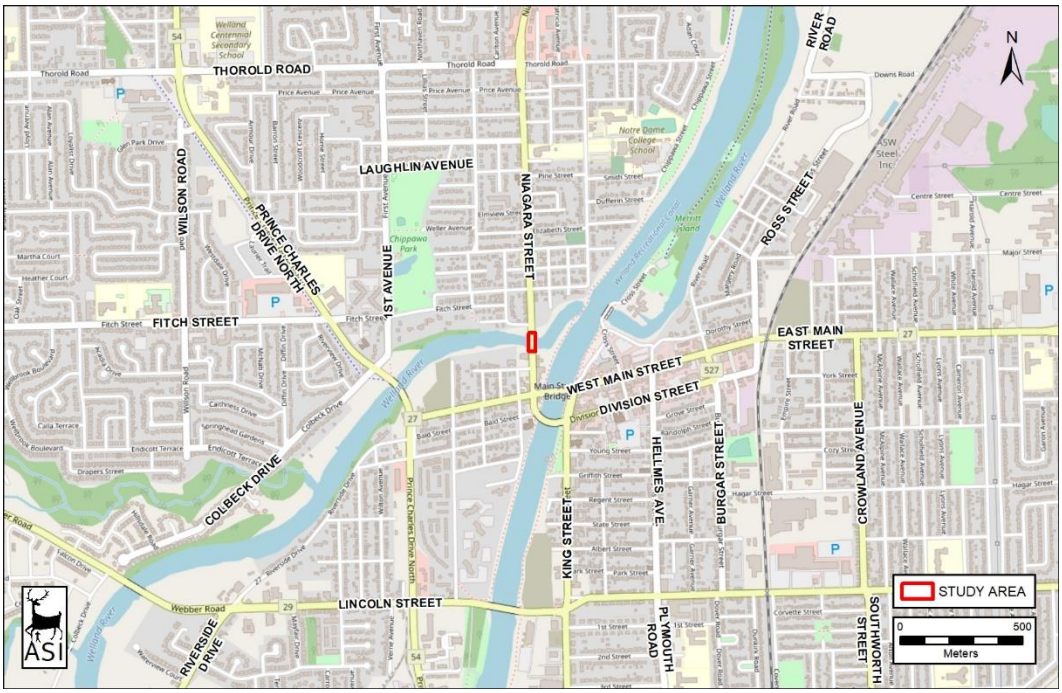


Figure 1: Location of the study area



As this structure was constructed prior to 1956 a CHER is required to determine if the bridge retains cultural heritage value (Municipal Engineers Association 2014). Research was completed to investigate, document, and evaluate the cultural heritage value of the subject bridge. The CHER was conducted by Victoria Mance and Johanna Kelly, under the senior project management of Lindsay Graves, ASI.

The principal aims of this report are to:

- Describe the methodology that was employed and the legislative and policy context that guides heritage evaluations of bridges;
- Provide detailed research outlining a historical overview of the design and construction of the bridge within the broader context of the surrounding township and bridge construction generally; and
- Evaluate the bridge using *O. Reg. 9/06*, *Criteria for Determining Cultural Heritage Value or Interest*, of the *Ontario Heritage Act* and the Ontario Heritage Bridge Guidelines and draw conclusions about the cultural heritage value or interest of the structure.

The information contained in this report is organized in such a way to inform the evaluation of the subject bridge against criteria outlined in *O. Reg 9/06*. These criteria are divided into three sections: Historical and Associative Value, Design and Physical Value, and Contextual Value.

### 1.1 Location and Study Area Description

A field review of the subject bridge was undertaken by Meredith Stewart, Cultural Heritage Assistant, ASI, on 3 February 2020 to conduct photographic documentation of the bridge crossing from the exiting right-of-way and to collect data relevant for completing a heritage evaluation of the structure.

The subject bridge carries two lanes of north-south vehicular traffic in either direction across the Welland River, between Riverbank Street and Mill Street, in the City of Welland, Regional Municipality of Niagara, Ontario (Figure 2). The bridge is a concrete I-beam and slab bridge (Figure 3). The surrounding area consists of greenspace immediately adjacent to the bridge to the north and commercial properties adjacent to the south. Residential subdivisions are located to the north and commercial streetscapes are located to the south.


Figure 2: Aerial photo. The subject bridge is depicted in red
Base Map: Google Earth Imagery 2018

Figure 3: Photograph of the west elevation of Structure 050205 (Niagara Street Bridge), 2020

The subject bridge is located to the west of the Welland Canal, surrounded by residential settlement to the north and commercial development to the south. The bridge is owned and maintained by the Region of Niagara. According to an inspection reports, the bridge carries two lanes of motor traffic with a total deck length of 68 metres (Associated Engineering Ltd. 2019). The deck has an overall structure width of 14 metres. The OSIM Inspection Form indicates the posted speed limit is 50 km/hr (Associated Engineering Ltd. 2019).

The superstructure of the Niagara Street Bridge is a four-span precast, prestressed concrete I-beam and concrete slab. The deck structure was replaced in 1973 and consists of a concrete slab with an asphalt wearing surface (McCormick, Rankin & Associates Limited 1973). The deck slab is integrated with and supported by longitudinal precast concrete girders, reinforced with steel rods. The bridge's barrier system consists of concrete parapet walls supporting aluminum railings. Two plaques are located in the cement railing at the south east corner of the bridge, indicating that the structure opened to the City of Welland on April 23, 1932 and was 'rebuilt' in 1973 by Antici Construction Company based on designs by McCormick, Rankin & Associates. Based on bridge drawings, dated November 20, 1931, the current substructure, including the abutments and piers, is original to the 1932 bridge. The abutments, wingwalls, and piers are cast-in-place concrete.

### 1.2 Policy Framework

The authority to request this CHER arises from the *Ontario Heritage Act* (1990), *Environmental Assessment Act* (1990), the Regional Municipality of Niagara's *Official Plan* (Regional Municipality of Niagara 2014) and the City of Welland's *Official Plan* (City of Welland 2019).

The following resources were among those reviewed in the preparation of this CHER:

- *Environmental Assessment Act* (Ministry of the Environment 1990)
    - *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (MHSTCI 1992)
    - *Guidelines on the Man-Made Heritage Component of Environmental Assessments* (MHSTCI 1980)
    - *Municipal Heritage Bridges: Cultural, Heritage and Archaeological Resources Assessment Checklist* (Municipal Engineers Association 2014)
- *Ontario Heritage Act* (MHSTCI 1990) and the following documents prepared by the Ministry of Tourism and Culture (MTC), now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI):
    - The *Ontario Heritage Toolkit* (MHSTCI 2006) provides a guide on how to evaluate heritage properties that are subject to or are being considered for municipal designation and/or listing under sections 27, 29, or 41 of the *Ontario Heritage Act*
    - MTCS *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (MHSTCI 2016)
- Ministry of Transportation's (MTO) *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges* (2008)

### 1.3 Cultural Heritage Evaluation Process

The purpose of the CHER is to examine a property as whole, its relationship to surrounding landscapes, and its individual elements. Conducting archival research and site visits inform such an examination. Background information is gathered from heritage stakeholders where available, local archives, land registry offices, local history collections at public libraries, and the MHSTCI when appropriate. Once background data collection is complete, a site visit is carried out to conduct photographic documentation and site analysis. These components provide a means to soundly establish the resource's cultural heritage value.

The scope of a CHER is guided by the *Ontario Heritage Toolkit* (Ministry of Tourism, Culture and Sport 2006, now administered by the Ministry of Heritage, Sport, Tourism and Culture Industries). Generally, CHERs include the following components:

- A general description of the history of a study area as well as a detailed historical summary of property ownership and building(s) development;
- A description of the cultural heritage landscape and built heritage resources;
- Representative photographs of the structure, and character-defining details;
- A cultural heritage resource evaluation guided by the *Ontario Heritage Act* criteria;
- A summary of heritage attributes;
- Historical mapping and photographs; and
- A location plan.

Using background information and data collected during the site visit, the property is evaluated using criteria contained within *O. Reg. 9/06* of the *Ontario Heritage Act*. The criteria are grouped into the following categories which determine the cultural heritage value or interest of a potential heritage resource in a municipality:

i) Design/Physical Value;
ii) Historical/Associative Value; and
iii) Contextual Value.

Should the structure meet one or more of the above-mentioned criteria, a Heritage Impact Assessment (HIA) is required.

When evaluating the cultural heritage significance of the subject bridge, the *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges* (OHGB) (Ministry of Culture and Ministry of Transportation, Ontario (MTO) 2008) and the *Ontario Heritage Bridge Program* (Ministry of Culture and Communications 1991) were consulted as points of reference.

The OHBG provides rationale for the protection and preservation of heritage bridges and is described as follows (MTO 2008:5-6):

> Bridges are important parts of our engineering and architectural heritage. Perhaps more than any other type of structure built by man, they exhibit major historical change and innovation in the development and use of materials, in design, and in construction

> methods. They can be viewed as important elements and make a positive contribution to their surroundings. In some cases, they are rare survivors of an important bridge type or are revered because of their age, historical associations or other publicly perceived values.

Additionally, during the site visit and as part of the evaluation process, attention is paid to surrounding cultural heritage resources that are situated in close proximity to the bridge. The identification of cultural heritage resources within the study area is based on the following definitions and concepts:

> *Built heritage resources* mean one or more buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic, or military history, identified as being important to a community, or reflective of contextual values.
>
> *Cultural heritage landscapes* mean a defined geographical area of heritage significance that has been modified by human activities. Such an area is valued by a community and is of significance to the understanding of the history of a people or place.

The term "significance" in the context of cultural heritage and archaeology resources refers to those that are valued for the important contribution they make to our understanding of the history of a place, an event, or a people.

Criteria for determining significance for the resources are recommended by the Province, but municipal approaches that achieve or exceed the same objective may also be used. While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation.

### 1.4 Project Consultation

The following organizations, websites, online heritage documents, and online heritage mapping tools were consulted to confirm the existing or potential cultural heritage value of the subject bridge and to request additional information generally:[1]

- The City of Welland's list of properties that have Cultural Heritage Value (City of Welland 2020a);
- The City of Welland's Places of Interest (City of Welland 2020b);
- The City of Welland's Historic Tour of Welland (City of Welland 2020c);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust n.d.);
- The Ontario Heritage Trust Plaque Guide (2019);
- The Ontario Heritage Trust Easements Database (n.d.);
- Database of known cemeteries/burial sites curated by the Ontario Genealogical Society (Ontario Genealogical Society n.d.);
- Register of Historic Places (Parks Canada n.d.);

[1] Reviewed 24 January 2020

- Directory of Federal Heritage Designations (Parks Canada n.d.);
- Canadian Heritage River System (Canadian Heritage Rivers Board and Technical Planning Committee n.d.);
- United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites (UNESCO World Heritage Centre n.d.);

The following stakeholders were contacted with inquiries regarding the heritage status and for information concerning the Niagara Street Bridge and any additional adjacent cultural heritage resources (Table 1).

Table 1: Results of Stakeholder Consultation

| Contact | Organization | Date(s) of Communications | Description of Information Received |
|---|---|---|---|
| Rose DiFelice, Manager of Policy Planning | City of Welland | 5 and 12 March 2020 | A response confirmed there are no heritage concerns regarding the subject bridge. |
| Kevin De Mille, Heritage Planner | Ontario Heritage Trust | 5 and 20 March 2020 | A response confirmed there are no heritage concerns regarding the subject bridge. |
| Karla Barboza, Team Lead, Heritage | Ministry of Heritage, Sport, Tourism and Culture Industries | 5 and 5 March 2020 | A response confirmed there are no heritage concerns regarding the subject bridge. |

## 2.0 HISTORICAL AND ASSOCIATIVE RESEARCH

A review of available primary and secondary source material was undertaken to produce a historical overview of the study area, including a general description of Indigenous and Euro-Canadian settlement and land-use. The following section provides the results of this research.

The Niagara Street Bridge was originally constructed in 1932 to carry Niagara Street (formerly North Main Street) over the Welland River in the City of Welland, Regional Municipality of Niagara, Ontario. The bridge has not been identified as a heritage bridge in the *Ontario Heritage Bridge Inventory* and is not currently protected under the *Ontario Heritage Act*.

### 2.1 Overview of Indigenous Land Use

Southern Ontario has a cultural history that begins approximately 11,000 years ago. The land now encompassed by the City of Welland has a cultural history which begins approximately 10,000 years ago and continues to the present. Table 2 provides a general summary of the history of Indigenous land use and settlement of the area.[2]

[2] While many types of information can inform the precontact settlement of the City of Welland, this summary table provides information drawn from archaeological research conducted in southern Ontario over the last century. As such, the terminology used in this review related to standard archaeological terminology for the province rather than relating to specific historical events within the region. The chronological ordering of this summary is made with respect to two temporal referents: BCE – before Common Era and CE – Common Era.

Table 2: Outline of Southern Ontario Indigenous History and Lifeways

| Period | Archaeological/ Material Culture | Date Range | Lifeways/ Attributes |
|---|---|---|---|
| **PALEO-INDIAN PERIOD** | | | |
| Early | Gainey, Barnes, Crowfield | 9000-8500 BCE | Big game hunters |
| Late | Holcombe, Hi-Lo, lanceolate | 8500-7500 BCE | Small nomadic groups |
| **ARCHAIC** | | | |
| Early | Nettling, Bifurcate-base | 7800-6000 BCE | Nomadic hunters and gatherers |
| Middle | Kirk, Stanley, Brewerton, Laurentian | 6000-2000 BCE | Transition to territorial settlements |
| Late | Lamoka, Genesee, Crawford Knoll, Innes | 2500-500 BCE | Polished/ground stone tools (small stemmed) |
| **WOODLAND PERIOD** | | | |
| Early | Meadowood | 800-400 BCE | Introduction of pottery |
| Middle | Point Peninsula, Saugeen | 400 BCE-CE 800 | Incipient horticulture |
| Late | Algonkian, Iroquoian | CE 800-1300 | Transition to village life and agriculture |
| | Algonkian, Iroquoian | CE 1300-1400 | Establishment of large palisaded villages |
| | Algonkian, Iroquoian | CE 1400-1600 | Tribal differentiation and warfare |
| **POST-CONTACT PERIOD** | | | |
| Early | Huron, Neutral, Petun, Odawa, Ojibwa | CE 1600-1650 | Tribal displacements |
| Late | Six Nations Iroquois, Ojibwa | CE 1650-1800's | |
| | Euro-Canadian | CE 1800-present | European settlement |

The subject bridge is located within Treaty 3, the Between the Lakes Purchase. Following the 1764 Niagara Peace Treaty and the follow-up treaties with Pontiac, the English colonial government considered the Mississaugas to be their allies since they had accepted the Covenant Chain. The English administrators followed the terms of the Royal Proclamation and ensured that no settlements were made in the hunting grounds that had been reserved for their use (Johnston 1964; Lytwyn 2005). In 1784, under the terms of the "Between the Lakes Purchase" signed by Sir Frederick Haldimand and the Mississaugas, the Crown acquired over one million acres of land in-part spanning westward from near modern day Niagara-on-the-Lake along the south shore of Lake Ontario to modern day Burlington (Aboriginal Affairs and Northern Development Canada 2016).

## 2.2 Township and Settlement History

Historically, the study area is located in the Village of Welland, on the border of Lot 248, in the former Township of Thorold, and part of Lot 26, Concession 5, in the former Township of Crowland, County of Welland.

### *2.2.1 Village of Welland*

The village of Welland was located on the west side of Crowland Township adjacent to the Welland River. A portion of the village was also located on the west side of the Welland River, situated in Thorold Township. The first Welland Canal was extended through the village to reach Lake Erie and a wooden

aqueduct was built in 1829 to carry the canal over the Welland River. A lock provided access to both sides and the area was simply known as the Aqueduct (City of Welland 2020d). As the village grew around this lock, and the aqueduct was upgraded from wood to stone in 1844, it was named Merrittsville, after William Hamilton Merritt, the initiator of the Welland Canal project (City of Welland 2020d).

In 1876, the population was approximately 1,900 individuals. The village was the County Town for the County of Welland providing a number of amenities and services including several churches, fine brick stores, large mills, a court house, a jail, a registry office and a registrar surrogate office. The Village of Welland owed a great deal to the shipping canal and the Canada Southern Railway, providing many facilities for travellers and shippers (Page 1876).

Dense settlement had already taken place by the turn of the century and Niagara Street (then North Main Street) was lined with commercial and residential properties (Figure 4 and Figure 5).

The Village incorporated as a City on July 1, 1917 and the boundaries expanded on January 1, 1950, annexing approximately 300 acres of Thorold Township. The City later annexed half of Crowland Township and an additional portion of Thorold Township in 1970 (City of Welland 2020d). The City celebrated its 150th anniversary on July 24, 2008.

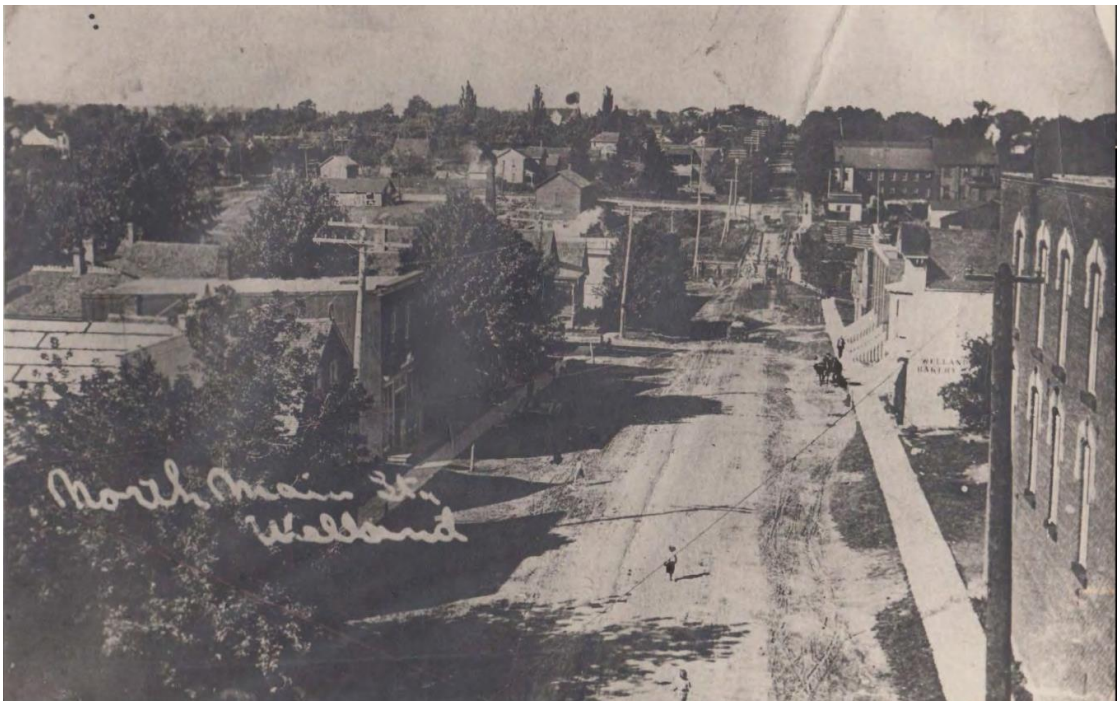


Figure 4: North Main Street (Niagara Street), looking north, 1906. Photo courtesy of the Welland Museum.


Figure 5: North Main Street (Niagara Street), looking north, c. 1920. Photo courtesy of the Welland Museum.

### *2.2.2 Welland River*

The Welland River, originally called the Chippewa Creek, flows from its source to the south of Hamilton to the Niagara River. The river was renamed by John Graves Simcoe, Canada's first lieutenant governor in 1792, after a river of the same name in Lincolnshire, England (Hogue 2014). The Welland Canal was named after the river and the City of Welland was later named after both waterways, which crossed in the city. The river flows under two aqueducts, the Welland Recreational Waterway and the new alignment of the Welland Canal. The Welland River is carried under the Welland Canal by a siphon complex. Six tubes, designed to divert the flow of the river under the Old Welland Canal were constructed in the 1930s. Normally, the Welland River flows towards the Niagara River but, due to hydroelectric operations at Niagara Falls, flow in the river frequently reverses and changes direction (Biotactic Inc. 2020).

### *2.2.3 Review of Nineteenth and Twentieth-Century Mapping*

The 1876 *Illustrated Historical Atlas* detail of the Village of Welland (Ross 1876) was examined to determine the presence of historical features within the study area during the nineteenth century (Figure 6).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope

of the atlases. The use of historical map sources to reconstruct or predict the location of former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results of this exercise can be often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

The 1876 map of the Village of Welland clearly illustrates individual lots within the village of Welland, although tenure information is only indicated for a few individual lots (Figure 6). Properties adjacent to the bridge on the west side are labelled with property owners. Part of Lot 248 was owned by “Phelps” and part of Lot 26 was owned by “Gross”. Niagara Street is labelled as “North Main Street” and there is a bridge illustrated crossing the Welland River, though no information as to type is included.

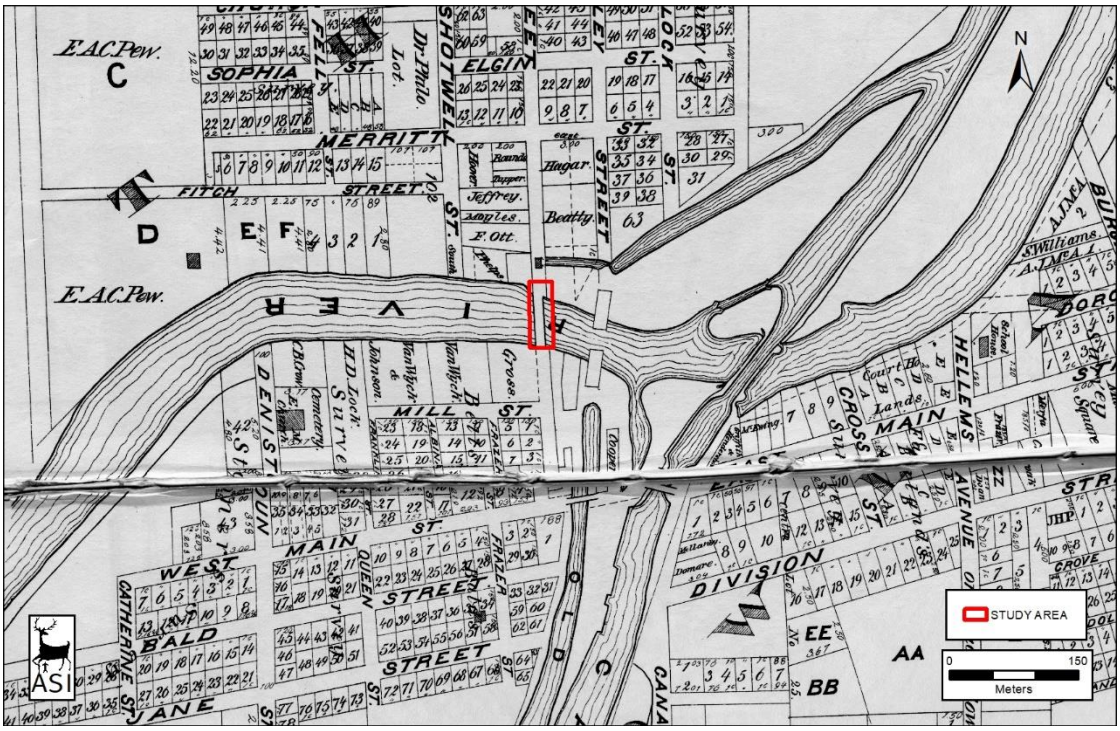

Figure 6: The study area overlaid on the 1876 Historical Atlas insert of the Village of Welland
Base Map: (Ross 1876)

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents maps and aerial photographs from 1921, 1929, 1934, 1968, 1973, and 1996 (Figure 7 to Figure 12).

Aerial photography from 1921 shows an earlier bridge in the location of the subject bridge (Figure 7). The surrounding area is densely developed. Contemporaneous topographic mapping shows a bridge with no detail as to what type (Figure 8). Niagara Street is illustrated as a “metalled” (or paved) road between Main Street and Merritt Street. A 1934 photograph shows the newly constructed subject bridge, noticeably wider in comparison to the previous bridge (Figure 9 compared to Figure 7). The study area appears to have undergone few changes through the twentieth century. Aerial photography from

1968 shows the subject bridge in much the same context (Figure 10). The 1973 topographic map shows the same dense development surrounding the bridge (Figure 11). This same year the superstructure of the Niagara Street Bridge is replaced. Further development has taken place in the City of Welland by 1996 (Figure 12).

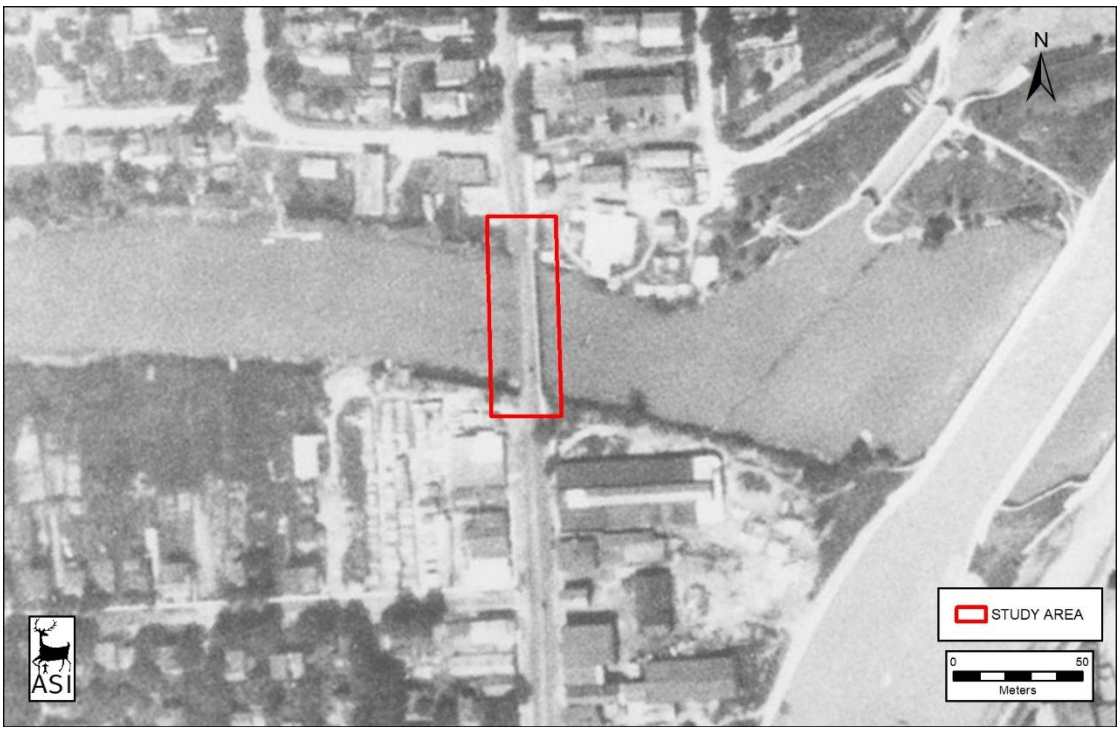


Figure 7: The study area overlaid on 1921 aerial photography

Base Map: (Anon 1921:H21-9–1921)

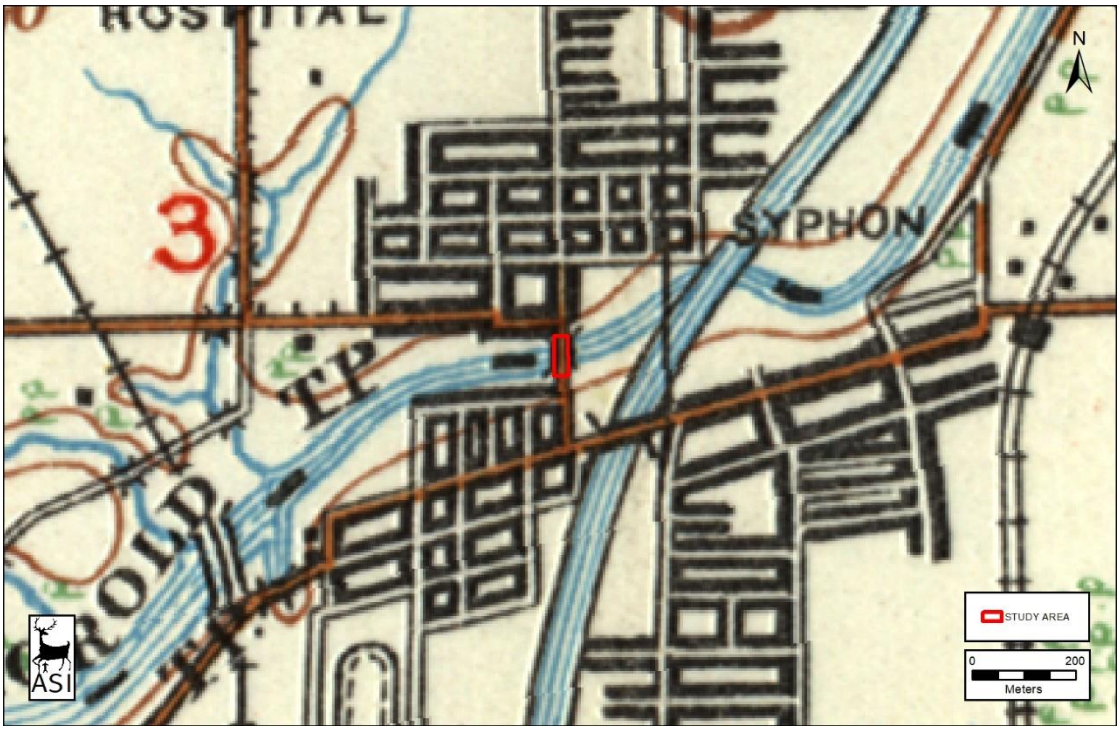


Figure 8: The study area overlaid on the 1929 topographic map of Welland
Base Map: (Department of National Defence 1929)

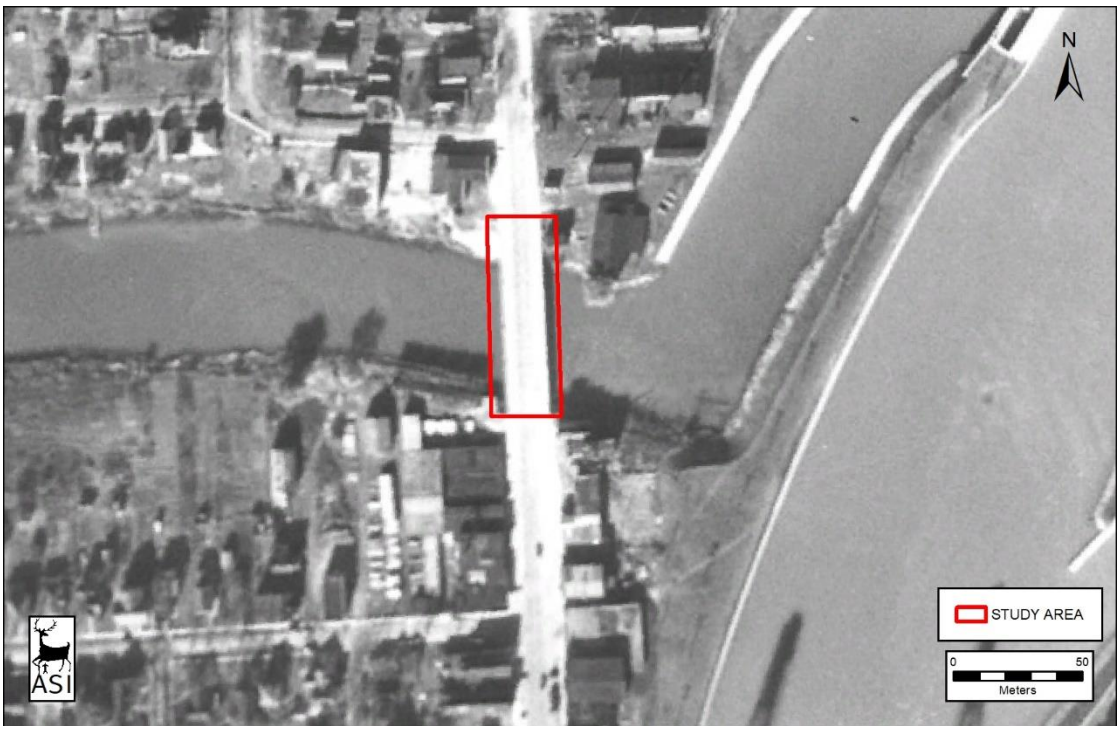


Figure 9: The study area overlaid on 1934 aerial photography
Base Map: (Anon 1934:A4873-59)


Figure 10: The study area overlaid on 1968 aerial photography

Base Map: (Anon 1968:20444–159)

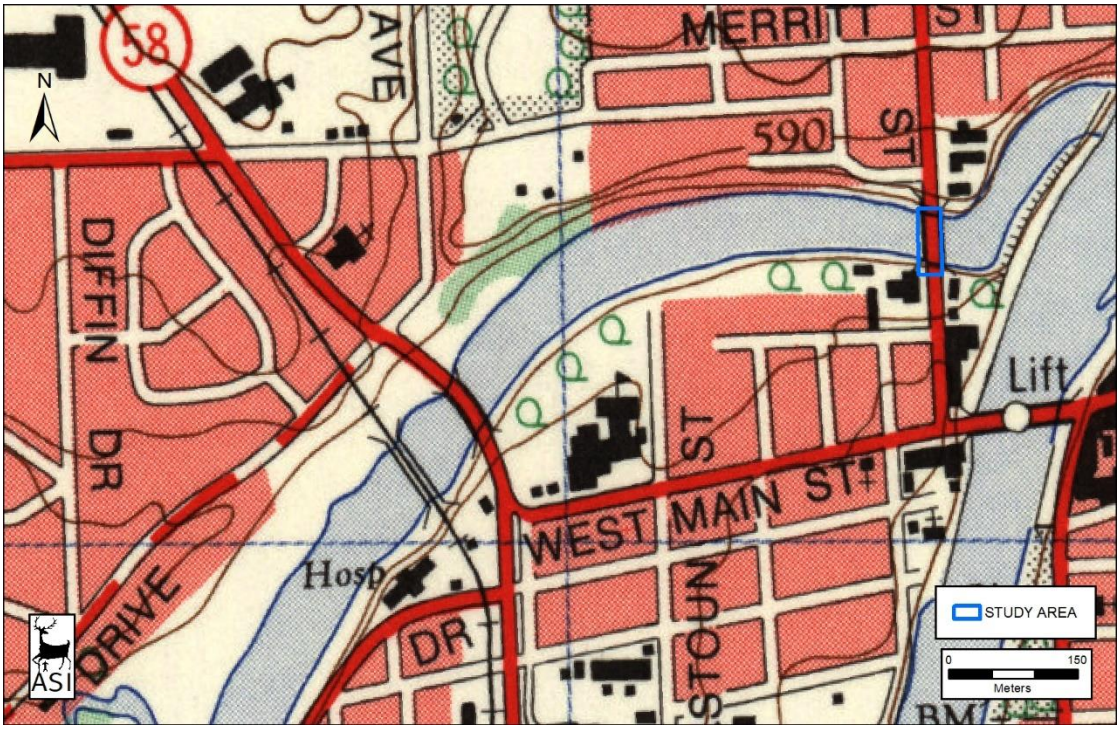


Figure 11: The study area overlaid on the 1973 topographic map of Welland

Base Map: (Department of Energy, Mines and Resources 1973)

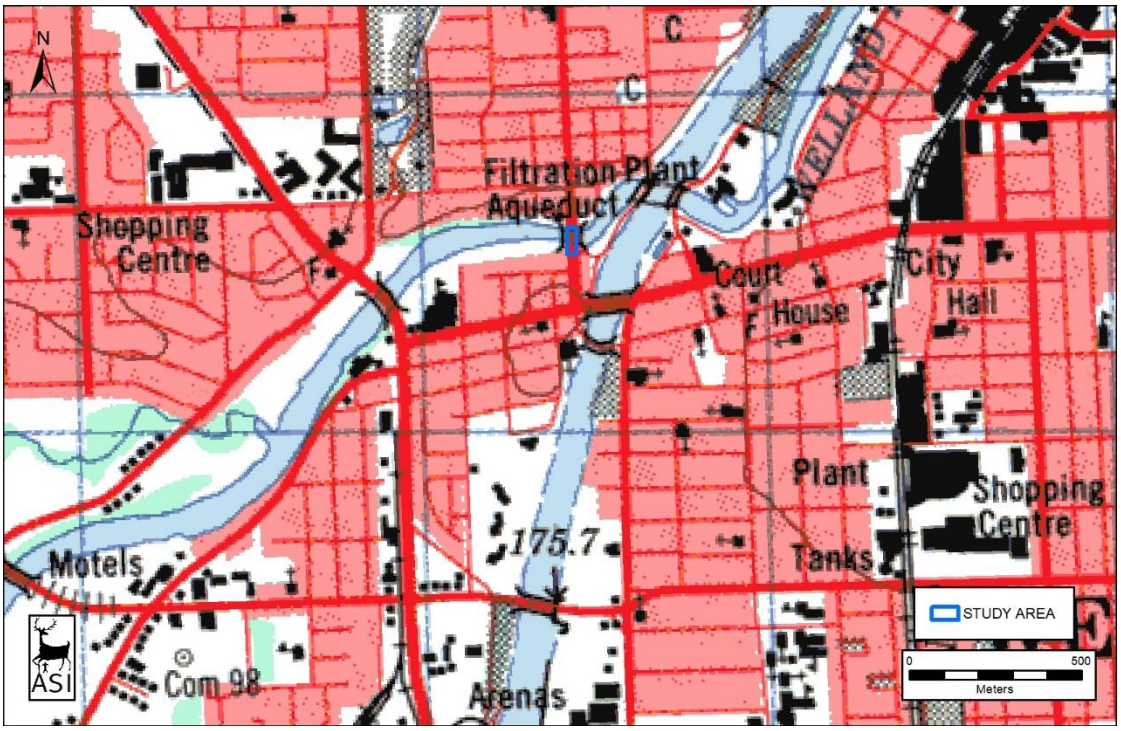


Figure 12: The study area overlaid on the 1996 NTS map of Welland
Base Map: (Natural Resources Canada 1996)

## 2.3 Transportation History

### *2.3.1 Previous Bridges*

At least one bridge is evidenced to have existed at this crossing prior to 1932. Late nineteenth- and early twentieth-century photographs show a timber plank bridge with wooden railings (Figure 13 to Figure 15). This previous bridge is substantially narrower than the subject bridge as evidenced by these photographs as well as aerial photography (Figure 7 and Figure 9). Based on these photographs alone it is difficult to identify the type of substructure supporting the bridge.

Figure 13: North Main Street (Niagara Street), looking north, 1800s. Photo courtesy of the Welland Museum.

Figure 14: North bank of the Welland River, looking east towards the Niagara Street (then, North Main Street) Bridge, c. 1906. Photo courtesy of the Welland Public Library.

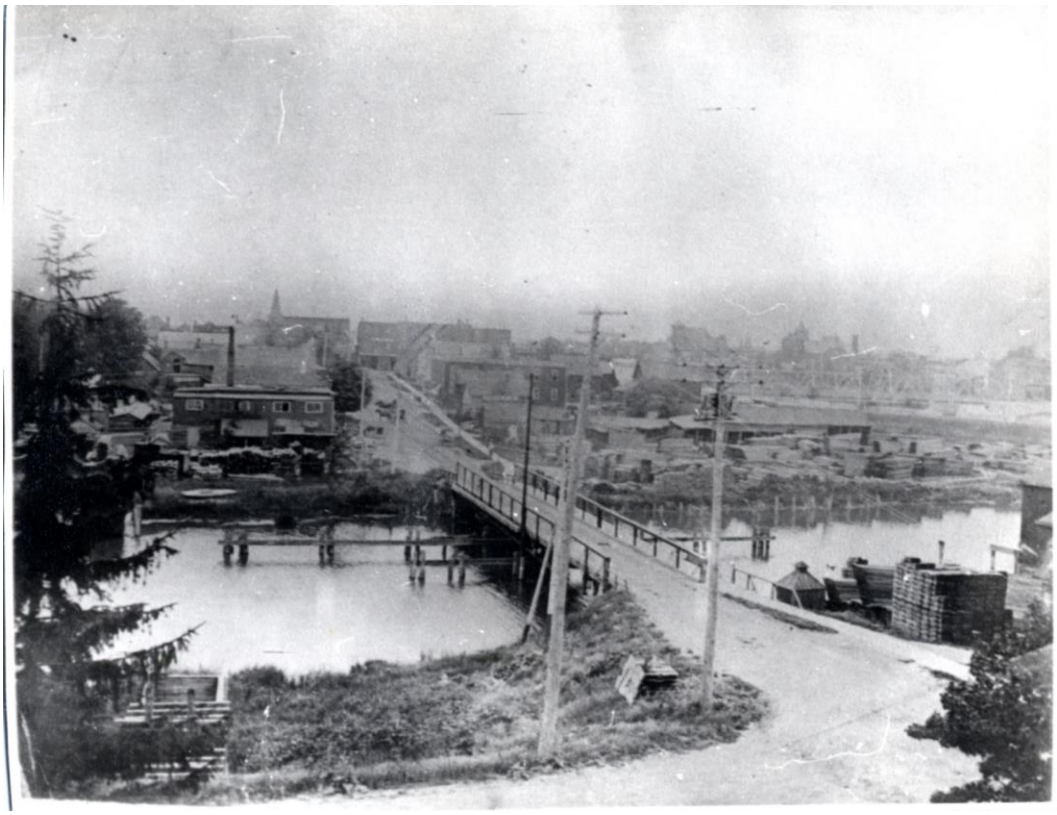

Figure 15: North Main Street (Niagara Street), looking south, c. 1908. Photo courtesy of the Welland Public Library.

### *2.3.2 Early Bridge Building in Ontario*

Up until the 1890s, timber truss bridges were the most common bridge type built in southern Ontario. Stone and wrought iron materials were also employed, but due to their higher costs and a lack of skilled craftsman, these structures were generally restricted to market towns. By the 1890s, steel was becoming the material of choice when constructing bridges given that it was less expensive and more durable than its wood and wrought iron predecessors. Steel truss structures were very common by 1900, as were steel girder bridges. The use of concrete in constructing bridges was introduced at the beginning of the twentieth century, and by the 1930s it was challenging steel as the primary bridge construction material in Ontario (Heritage Resource Centre 2008).

Factors impacting bridge design included increasing road allowances and clearance requirements, heavier traffic, higher speeds, safety standards, and most importantly, cost limitations (Cuming 1983). From the 1930s to the early 1950s, fewer bridges were constructed as a result of a steel shortage, and builders were challenged to develop more efficient ways to build structures with a heavier emphasis on concrete and minimal steel usage. Some of the stronger concrete bridges constructed in the 1930s formed part of the “Depression Era” Public Works Program that created work for the unemployed (Region of Waterloo: Planning Housing and Community Services 2007). Some of the new techniques developed included: pre-casting concrete components off site; “Hi-bond type” of reinforcing concrete;

and prestressed concrete beam construction (Heritage Resource Centre 2008). The rigid frame, hollow concrete box beam and post-tensioned voided slab are some of the bridge types to develop during this period.

Precast concrete girder bridges were introduced as a cost-effective alternative to steel, and an alternative to the traditional construction approach of cast-in-place concrete bridges. The method was adopted in Canada during the 1950s after it proved successful in Europe and the United States.

## 2.4 Relevant People and Organizations

Original drawings of the subject bridge were prepared by Archie B. Crealock, Consulting Engineer and C. L. Coulson, City Engineer (Crealock 1931).

### *2.4.1 Archie B. Crealock, Consulting Engineer*

Archie Burgess Crealock was born on January 9, 1893 in Toronto. He received his education at the Parkdale Collegiate Institute and later, a Bachelor of Science at the University of Toronto in 1915. Upon graduation he worked with the Civic Transportation Committee of Toronto. In 1917 he began work with the Imperial Ministry of Munitions and was made chief inspector before transferring to the aeronautical engine division as a metallurgist. In March of 1919 he began work with the Bridge Department of the Ontario Department of Highways, where he worked until 1929. Crealock partnered with E. V. Deverall in Toronto as structural engineers until Deveralls death in 1932 (Engineering Institute of Canada 1939).

At the time of construction of the Niagara Street Bridge, Crealock was a Consulting Engineer working out of offices located at 156 Yonge Street in Toronto. Crealock is notable for having designed the Freeport Bridge in the City of Kitchener, a well-known concrete bowstring arch bridge built between 1925 and 1926 (Region of Waterloo 2004). He subsequently designed the Main Street Bridge in Galt, a scaled down version of the Freeport Bridge, in 1931, roughly contemporaneous with the subject bridge.

### *2.4.2 Charles Coulson, City Engineer*

Born in 1881, Charles H. L. Coulson graduated from the mining/civil engineering program at the University of Toronto in 1904. He went on to work on engineering projects in Saskatchewan and Pennsylvania before returning to Niagara in 1909 (Paola 2015). After serving in the war, Coulson was appointed City Engineer for the City of Welland in 1918, at the age of 37, and held the position for the next 34 years until his retirement in 1952 (City of Welland 2020e). Coulson continued as an engineering consultant for the city until his death in 1957.

## 3.0 DESIGN AND PHYSICAL VALUE RESEARCH

Original structural drawings, Municipal Bridge Appraisal Rehabilitation/Replacement Reports, bridge condition reports, and the 2019 Ontario Structure Inspection Manual (OSIM) report of the subject bridge

were reviewed as part of this assessment (Crealock 1931; McCormick, Rankin & Associates Limited 1973; Golder Associates Ltd. 2007; Golder Associates Ltd. 2011; Regional Municipality of Niagara 2011; Regional Municipality of Niagara 2013; Ellis Engineering Inc. 2014; Regional Municipality of Niagara 2015; Associated Engineering Ltd. 2019). The following description of the construction, including the dates of the interventions, and existing conditions is based on a combination of the results of the field review and historical background research on the subject bridge. Available original structural drawings are provided in Appendix A. Photographic plates are provided in Appendix B.

### 3.1 Construction and Integrity of the Niagara Street Bridge

Original bridge drawings are dated November 20, 1931, and prepared by Archie B. Crealock, Consulting Engineer, for C. L. Coulson, City Engineer (Crealock 1931). These drawings include plans for the temporary bridge, which was built adjacent to the crossing to the west to facilitate construction and traffic flow while the new bridge was being constructed. A photograph dated January 1932 shows the temporary structure (Figure 16). The 1931 drawings illustrate the bridges components: cast-in-place reinforced concrete abutments and piers supported by timber piles, a concrete T-beam superstructure with 3” of asphaltic concrete on the deck wearing surface, concrete sidewalk finished with rough float, and concrete post and beam railing (Figure 17 and Figure 18). The drawings indicate that the lighting from the previous structure was to be retained and reused. In 1973 the entire superstructure of the bridge was replaced, leaving only the abutments and piers from the original 1932 structure (McCormick, Rankin & Associates Limited 1973). The new superstructure consisted of concrete deck on prestressed concrete CPCI I-beam girders, a concrete parapet wall with aluminum railings, deck drains and catch basins, and new aluminum light standards. The original pier caps and upper portions of the wingwalls were removed and reconstructed to accommodate the new I-beam girders. The drawings indicate repairs were made to Pier 1 (south pier).

Figure 16: Niagara Street Bridge construction, January 1932. Photo courtesy of the Welland Museum.

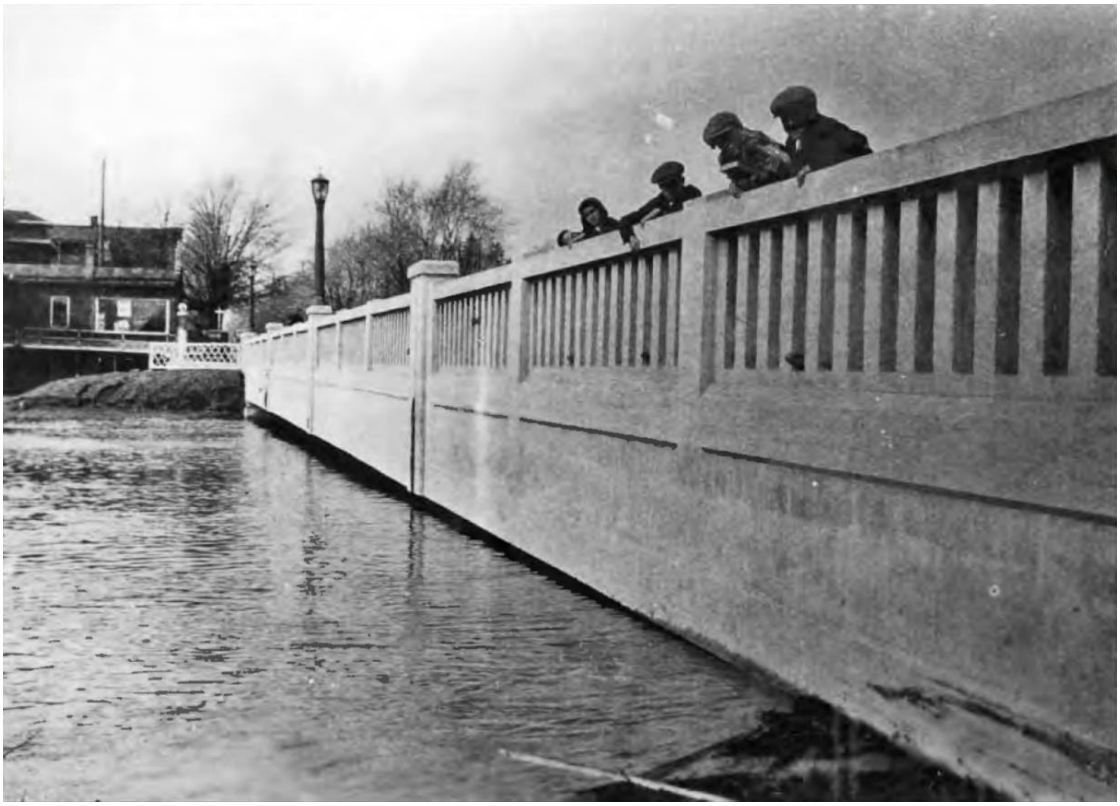
Figure 17: High water levels at Niagara Street Bridge, 1936. Photo courtesy of the Welland Museum.


Figure 18: Niagara Street, looking south, 1958, the Main Street Bridge is visible in the background. Photo courtesy of the Welland Museum.

The OSIM Inspection Form recommended minor rehabilitation in the next 1 to 5 years noting specifically that the concrete on the east corners of the south abutment need rehabilitation and there are severe areas of deterioration on the sidewalks and curbs that need repairs. The following deficiencies were documented in 2019 (Associated Engineering Ltd. 2019):

- Cast-in-place concrete abutment walls- large spall at east corner of south abutment under bearing pedestal, light to medium scaling along the waterline of abutment walls;
- Cast-in-place concrete barriers and parapet walls – some areas of localized light delamination with cracking along the bottom sidewalk/barrier interface on the east side;
- Precast concrete girders – medium cracking of exterior girder near Pier 2 on east side, at south abutment medium to wide cracking on girder near ends;
- Steel deck drains – light to medium corrosion throughout;
  Cast-in-place soffit (thin slab) – several areas of severe spalling with exposed reinforcing steel, areas of active wet patches with signs of delamination occurring near the middle spans in between interior girders;
- Asphalt wearing surface – localized areas of alligator/map cracking;
- Cast-in-place concrete pier caps – Piers 2 and 3 have medium to wide cracking propagating from the east side near the top;
- Cast-in-place concrete pier columns – localized areas of concrete scaling and delamination, some cracking noted near the top portion of Piers 2 and 3;

- Cast-in-place concrete curbs – areas of concrete spalling along curbs which have been repaired, cracking at localized areas, recommend repairing areas where severe concrete deterioration occurs;
- Cast-in-place concrete sidewalks (west and east) – areas of delamination with the first layer of concrete scaling off. Asphalt has been used to patch up some areas of the sidewalk. Several longitudinal cracks run along east and west sidewalks, recommend casting new sidewalk sections in areas of severe deterioration.

### 3.2 Comparative Analysis

The Niagara Street Bridge is a four span, concrete beam structure with a north-south orientation that carries two lanes of vehicular traffic across the Welland River. The subject bridge was constructed in 1932 and the cast-in-place concrete T-beam superstructure was replaced in 1973 with a precast, prestressed concrete I-beam and concrete slab superstructure. The bridge measures 68.7 metres in overall length with a width of 14 metres.

The subject bridge was compared with similar structures found in the Region of Niagara's Structure Database, the MTO Bridge Inventory for the Central Region, and the *Ontario Heritage Bridge List*. According to this comparative sample, there are 101 known concrete beam or girder type bridges in the local area. Plate 9 to Plate 10 of Appendix B provides a selection of images intended to provide a comparison between the subject bridge other local concrete beam structures. A full list of comparative bridges from these sources is available in Appendix C. Of these, the Niagara Street Bridge is one of five known structures of this type in the City of Welland. The closest structures from a geographic and temporal perspective are as follows:

- Emerson Bridge, built in 1969 with a deck length of 167.2 metres, carries Moyer Road over the Welland River (Plate 9);
- Riverview Bridge, built in 1971 with a deck length of 167.2 metres, carries Lincoln Street over the Welland River (Plate 10);
- Woodlawn Road Bridge, built in 1989 with a deck length of 240 metres, carries Woodlawn Road over the Welland Canal;
- Woodlawn Road Bridge, built in 1989 with a deck length of 116 metres, carries Woodlawn Road over the Welland River.

While the Niagara Street Bridge would appear to be the earliest of these bridges, the construction date of 1932 applies only to the substructure and bridge types are typically classified according to their superstructure. When comparing the concrete beam superstructure, which was constructed in 1973, the Niagara Street Bridge is not considered to be an early example of a concrete beam bridge at the local level. Of the 101 bridges in the comparative sample with a known construction date, 77 (or approximately 76%) were constructed prior to the subject bridge. The subject bridge is not considered significant in terms of age.

The subject bridge, measuring 68.7 metres in overall length, is longer than 68 bridges in this comparative sample, and shorter than 32. The CNR Subway, with a total length of 310.5 metres over 9

spans, is the longest of the concrete beam bridges. The subject bridge is not significant in terms of the overall length or number of spans.

Based on the review and comparison of the available bridges in this comparative sample, the subject bridge is not considered to be significant in terms of age, overall length, or overall number of spans.

## 4.0 CONTEXTUAL RESEARCH

### 4.1 Setting and Character

The Niagara Street Bridge is located along Niagara Street between Riverbank Street and Mill Street, crossing the Welland River in the City of Welland. The structure carries two lanes of north-southbound vehicular traffic across the Welland River. The bridge is located in a developed landscape, with residential properties located to the north and commercial properties to the south. Greenspace and recreational trails are located immediately to the north of the bridge, on either side of Niagara Street.

The Niagara Street Bridge is one of several concrete beam bridges in the City of Welland. Concrete beam bridges were commonly constructed to carry roadways due to their low cost, ease of construction, and readily-available construction materials. Popular in the twentieth century, they were commonly used to replace aging nineteenth-century structures. As such, concrete slab and girder type bridges are a ubiquitous part of rural road networks, and their physical and functional connection to the roadway is not regarded as an exceptional contributor to their contextual value. Therefore, the contextual value of the Niagara Street Bridge is limited and not significant.

### 4.2 Community Landmark

The Niagara Street Bridge is located in the core of the City of Welland, bridging the commercial centre on the south side of the Welland River with the residential neighbourhoods to the north of the river. The bridge is located within walking distance of the Main Street Bridge, which is recognizable as the City of Welland's logo and visible from the Niagara Street Bridge (see Figure 18 in Section 3.1 and Plate 8 in Appendix B). Bridges are a ubiquitous part of the landscape in the City of Welland due to the river and the canal and the Main Street Bridge appears to be the most recognizable to the community. The Main Street Bridge is a far more prominent landmark in the area to the local community than the Niagara Street Bridge. As such, the Niagara Street Bridge is not considered to be a significant community landmark.

## 5.0 CULTURAL HERITAGE VALUE

### 5.1 Ontario Regulation 9/06 Evaluation

Table 3 contains the evaluation of the Niagara Street Bridge within the framework set out in *O. Reg. 9/06*. Within the Municipal EA process, *O. Reg. 9/06* is the prevailing evaluation tool when determining if a heritage resource, in this case a bridge, has cultural heritage value.

Table 3: Evaluation of the Niagara Street Bridge (Structure 050205) using *Ontario Regulation 9/06*

| **1. The property has design value or physical value because it:** | |
|---|---|
| *Ontario Heritage Act* Criteria | Analysis |
| i. is a rare, unique, representative or early example of a style, type, expression, material or construction method; | The Niagara Street Bridge was constructed in 1932 and underwent significant rehabilitation in 1973, resulting in the replacement of the original cast-in-place T-beam superstructure entirely. The bridge consists of a precast, prestressed concrete I-beam and concrete slab superstructure built in 1973 atop cast-in-place piers and abutments constructed in 1932, with an overall deck length of 68.7 metres and an overall width of 14 metres. Concrete is a common bridge material used in the twentieth century. Based on a comparative sample of similar beam structures in the City of Welland and Southern Ontario (Section 4.2), the subject bridge is not a rare, unique, representative or early example of this bridge type. As such, the subject bridge does not meet this criterion. |
| ii. displays a high degree of craftsmanship or artistic merit, or; | The subject bridge does not display a high degree of craftsmanship or artistic merit. |
| iii. demonstrates a high degree of technical or scientific achievement. | The subject bridge does not demonstrate a high degree of technical achievement or scientific achievement. |
| **2. The property has historical value or associative value because it:** | |
| *Ontario Heritage Act* Criteria | Analysis |
| i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community; | Based on available documentation, the subject bridge does not have any direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to the City of Welland. The subject structure does not meet this criterion. |
| ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or; | This bridge does not have the potential to yield information that contributes to an understanding of a community or culture. |
| iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. | The substructure of the subject bridge was designed by Archie B. Crealock, who worked as a Consulting Engineer alongside the City's Engineer, Charles Coulson, and was constructed by unknown individuals. The superstructure was replaced in 1973 by the Antici Construction Company based on designs by McCormick, Rankin & Associates. While the substructure of the subject bridge was designed by local engineers Archie B. Crealock and Charles Coulson, the bridge is not of a caliber that would be reflective of their more prominent civil engineering projects. Further, |

| | |
|---|---|
| | the bridge is not known to hold any particular significance to the local community. The subject bridge does not meet this criterion. |
| **3. The property has contextual value because it:** | |
| *Ontario Heritage Act* Criteria | Analysis |
| i. is important in defining, maintaining or supporting the character of an area; | The subject bridge carries Niagara Street over the Welland River in the core of the City of Welland. The subject structure is a common bridge type not considered to define or maintain the commercial and residential character of the area, and as such, does not meet this criterion. |
| ii. is physically, functionally, visually or historically linked to its surroundings, or; | The subject bridge does not meet this criterion. Though the bridge physically and functionally supports the use of Niagara Street, the bridge is a common type and just one piece in a network of structures. It does not exhibit any exemplary features or functions in relation to its surroundings. |
| iii. is a landmark. | The subject structure is not considered to be an important landmark or gateway structure within the City of Welland and is not considered to meet this criterion. |

The above evaluation confirms that this structure does not meet the criteria set out in *O. Reg. 9/06* of the *Ontario Heritage Act* and therefore is currently not considered to be a cultural heritage resource eligible for designation under the *Ontario Heritage Act*.

## 6.0 CONCLUSION AND RECOMMENDATIONS

The Niagara Street Bridge is a four span, concrete I-beam and slab structure with a north-south orientation that carries two lanes of vehicular traffic across the Welland River between Riverbank Street and Mill Street in the City of Welland, Regional Municipality of Niagara, Ontario. The subject bridge was constructed in 1932 and the concrete T-beam superstructure was replaced in 1973 with a precast, prestressed concrete I-beam and concrete slab superstructure. The bridge measures 68.7 metres in overall length with a width of 14 metres.

Based on the results of archival research, an analysis of bridge design and construction in Ontario, field investigations, and application of *O. Reg. 9/06* of the *Ontario Heritage Act*, the Niagara Street Bridge was determined not to have cultural heritage value.

The following recommendations are proposed for the Niagara Street Bridge:

1. This report should be filed with heritage staff at the City of Welland, at the Regional Municipality of Niagara, with the Ministry of Heritage, Sport, Tourism and Cultural Industries, and any other relevant stakeholders that may have an interest in the project.

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**APPENDIX A: SELECT STRUCTURAL DRAWINGS**

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## APPENDIX B: PHOTOGRAPHIC PLATES

Plate 1: Southern approach towards the Niagara Street Bridge, looking north.

Plate 2: Oblique view of the west elevation of the Niagara Street Bridge.

Plate 3: Concrete barrier and aluminum railing on the east side of the bridge.


Plate 4: Plaques located on the southeast corner of the Niagara Street Bridge.

Plate 5: Oblique view of the substructure of the Niagara Street Bridge.

Plate 6: Detailed view of Pier 3 (north pier) and view of precast, prestressed concrete girders of the superstructure.

Plate 7: South abutment, west elevation.

Plate 8: View southeast across the Niagara Street Bridge towards the Main Street Bridge (visible in the background).

Plate 9: Emerson Bridge in the City of Welland (Photo courtesy of Google Earth 2014)(Region of Waterloo 2004)(Region of Waterloo 2004)

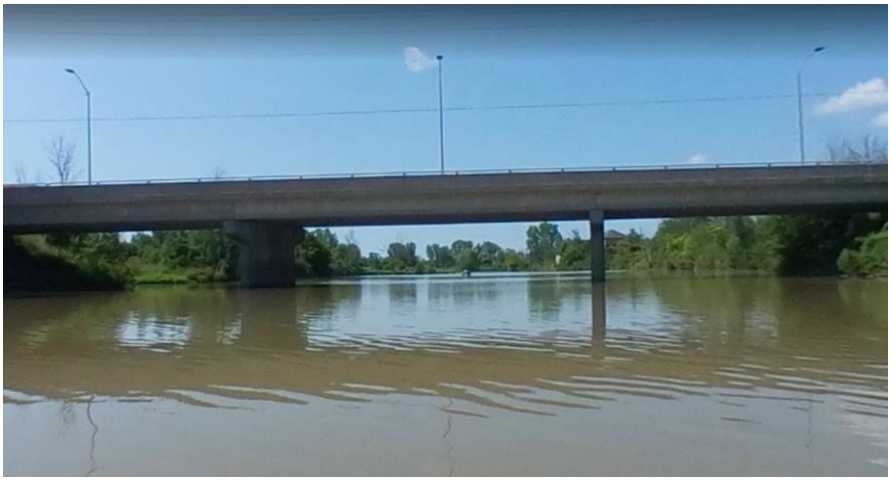

Plate 10: Riverview Bridge in the City of Welland (Photo courtesy of Google Earth 2019)(Region of Waterloo 2004)(Region of Waterloo 2004)

## APPENDIX C: COMPARATIVE CONCRETE BEAM BRIDGES

Compiled by ASI from the Niagara Region Structure Database (Niagara Region 2020), MTO Central Region Structural Inventory (Ministry of Transportation n.d.), and the *Ontario Heritage Bridge List* (Ministry of Transportation 2008).

Table 4: Comparative Slab on Concrete Girder bridges in the City of Welland (Niagara Region 2020)

| Bridge No. | Bridge Name | Year Constructed | Span (m) |
|---|---|---|---|
| 050205 | Niagara Street Bridge | 1932 | 68.7 |
| 084215 | Emerson Bridge | 1969 | 167.2 |
| 029205 | Riverview Bridge | 1971 | 74.1 |
| 041205 | Woodlawn Road Bridge | 1989 | 240 |
| 041210 | Woodlawn Road Bridge | 1989 | 116 |

Table 5: Comparative Slab on Concrete Girder bridges in the Niagara Region (Niagara Region 2020)

| Bridge No. | Bridge Name | Municipality | Year Constructed | Span (m) |
|---|---|---|---|---|
| 027215 | Forks Creek Bridge | Wainfleet | 1923 | 13.1 |
| 420210 | Palmer Avenue Bridge | Niagara Falls | 1927 | 24 |
| 420215 | Ontario Avenue Bridge | Niagara Falls | 1927 | 22.25 |
| 021215 | Thompson Road Bridge | Fort Erie | 1930 | 10 |
| 048205 | Niagara Street Culvert | St. Catharines | 1930 | 3 |
| 020215 | Highway 20 CPR Subway | West Lincoln | 1931 | 33.1 |
| 050205 | Niagara Street Bridge | Welland | 1932 | 68.7 |
| 087210 | Lakeport Road Bridge | St. Catharines | 1940 | 59.4 |
| 116215 | Stevensville Road Bridge | Fort Erie | 1955 | 14.3 |
| 063210 | Coffey Bridge | West Lincoln | 1959 | 12.2 |
| 063205 | Brook's Bridge | Wainfleet | 1965 | 49.4 |
| 089215 | Glendale Avenue Bridge | St. Catharines | 1966 | 30 |
| 002210 | Ellis Bridge | West Lincoln | 1967 | 9.6 |
| 038205 | J. R. Stock Bridge | St. Catharines | 1967 | 25.6 |
| 098220 | White Pigeon Bridge | Niagara Falls | 1967 | 17.1 |
| 084215 | Emerson Bridge | Welland | 1969 | 167.2 |
| 039215 | Sixteen Mile Creek Bridge | Lincoln | 1970 | 162 |
| 040215 | Sixteen Mile Creek Bridge | Lincoln | 1970 | 45.5 |
| 040220 | Fifteen Mile Creek Bridge | Lincoln | 1970 | 46 |

| | | | | |
|---|---|---|---|---|
| 001205 | Dominion Road Bridge | Fort Erie | 1971 | 10.5 |
| 029205 | Riverview Bridge | Welland | 1971 | 74.1 |
| 098240 | Montrose Bridge | Niagara Falls | 1971 | 69.2 |
| 027230 | Schisler Road Bridge | Niagara Falls | 1972 | 43.8 |
| 012205 | Christie Street Bridge | Grimsby | 1973 | 54 |
| 098215 | Wilhelm Road Railway Bridge | Port Colborne | 1973 | 54 |
| 070205 | Beechwood Bridge | Niagara Falls | 1975 | 45.6 |
| 102205 | Stanley Avenue Bridge | Niagara Falls | 1977 | 160 |
| 049205 | Marineland Parkway Bridge | Niagara Falls | 1982 | 32 |
| 041205 | Woodlawn Road Bridge | Welland | 1989 | 240 |
| 041210 | Woodlawn Road Bridge | Welland | 1989 | 116 |
| 039225 | Twenty Mile Creek Bridge | Lincoln | 1994 | 140 |
| 020210 | Twenty Mile Creek Bridge | West Lincoln | 1995 | 30.6 |
| 020225 | Hydro Canal South Bridge | Niagara Falls | 1995 | 85.2 |
| 039220 | Eighteen Mile Creek Bridge | Lincoln | 1995 | 61 |
| 040210 | Eighteen Mile Creek Bridge | Lincoln | 1995 | 61.2 |
| 027205 | Wellandport Bridge | Wainfleet | 1997 | 54.4 |
| 101205 | Portage Road CNR Bridge | Niagara Falls | 1997 | 17.3 |
| 024205 | Beckett's Bridge | Pelham | 2006 | 51.2 |
| 047215 | Dean's Bridge | Niagara Falls | 2009 | 66 |
| 039210 | Fifteen Mile Creek Bridge | Lincoln | 2010 | 40.3 |
| 081225 | St. Paul West Bridge | Lincoln | 2013 | 50.6 |

Table 6: Comparative Concrete Beam Bridges in the MTO Central Region Structural Inventory

| Structure OID | Name | Highway | Spans | Year Constructed | Deck Length (m) | Deck Width (m) |
|---|---|---|---|---|---|---|
| 1109262 | Glass's Bridge | 89 | 1 | 1913 | 8.7 | 10.7 |
| 52772054 | C.P.R. Overhead (North Of Orillia) - N.B.L. | 11 | 3 | 1932 | 40.8 | 11.1 |
| 52772060 | CPR Overhead (North Of Orillia) - S.B.L. | 11 | 3 | 1932 | 40.8 | 13.54 |
| 52767432 | Credit River Bridge | 1 | 7 | 1933 | 242.3 | 14.5 |
| 52771950 | Credit River Bridge | 1 | 7 | 1933 | 242.3 | 14.45 |
| 1231790 | Lyons Creek - SBL | 1 | 3 | 1941 | 30.2 | 12.36 |
| 1231936 | Tee Creek Bridge NBL | 1 | 3 | 1941 | 30.2 | 13.89 |
| 1231675 | Lyons Creek Bridge (NBL) | 1 | 3 | 1941 | 30.2 | 14.4 |

| Structure OID | Name | Highway | Spans | Year Constructed | Deck Length (m) | Deck Width (m) |
|---|---|---|---|---|---|---|
| 1627112 | Black Creek Bridge, WBL | 1 | 3 | 1942 | 30.2 | 14.48 |
| 1626827 | Black Creek Bridge, EBL | 1 | 3 | 1942 | 30.2 | 14 |
| 1230839 | Dixie Road Underpass. At Q.E.W | 1 | 3 | 1953 | 61.6 | 18 |
| 1181060 | Credit R. Br. Widening, EBL | 401 | 3 | 1957 | 68.9 | 16.42 |
| 1181416 | Credit River Bridge Widening West Bound Lane | 401 | 3 | 1957 | 68.9 | 16.42 |
| 1180628 | Credit View Road | 401 | 4 | 1958 | 63.6 | 10.36 |
| 1609100 | 6th Line West Underpass | 401 |  | 1958 | 62.8 | 10.5 |
| 1178467 | First Line Underpass | 401 | 2 | 1959 | 39.1 | 10.36 |
| 1181778 | N/A | 401 | 4 | 1959 | 65.2 | 10.47 |
| 1311631 | Esquesing Twp Br No 5 | 401 | 2 | 1960 | 43 | 17.28 |
| 1202064 | Westchester Ave U/P | 406 | 4 | 1962 | 84.7 | 18.89 |
| 1200150 | Hwy 405 - Mewburn Rd. Underpass (Formerly GRAVEL RD. BR.) | 405 | 4 | 1962 | 64.5 | 10.5 |
| 1312017 | Hwy 405/NIAGARA TWP. QEW. INT.O/P | 405 | 3 | 1962 | 116 | 11.03 |
| 1150530 | Flamborough E. Br. #12 U/P | 403 | 4 | 1962 | 72.2 | 17.98 |
| 1311818 | King's Rd. U'pass | 403 | 4 | 1962 | 75.3 | 10.36 |
| 1200998 | Glendale Ave O/P N.B.L. | 406 | 3 | 1963 | 53.7 | 12.49 |
| 1201309 | Glendale Ave O/P S.B.L. | 406 | 3 | 1963 | 53.7 | 12.49 |
| 1200575 | Geneva St Ramp/Old Welland Can | 406 | 5 | 1965 | 115 | 8.53 |
| 52772369 | Spadina Br.#3 | 401 | 2 | 1966 | 31.2 | 27.85 |
| 52772375 | Spadina Br.#3 | 401 | 2 | 1966 | 31.2 | 22.56 |
| 52772387 | Spadina Br.#3 | 401 | 2 | 1966 | 31.2 | 22.56 |
| 52772362 | Spadina Br.#3 | 401 | 2 | 1966 | 31.2 | 18.9 |
| 1313346 | Gibson L. Br.-Nbl | 406 | 7 | 1968 | 123 | 10.97 |
| 1313360 | Gibson L. Br.-SBL | 406 | 7 | 1968 | 123 | 10.97 |
| 52772393 | Bridge #1 Highway 427 And Dundas Street Overpass | 427 | 2 | 1968 | 42.7 | 27.85 |
| 52772407 | Bridge #1 Highway 427 And Dundas Street Overpass | 427 | 2 | 1968 | 42.7 | 27.85 |
| 52772413 | Bridge #1 Highway 427 And Dundas Street Overpass | 427 | 2 | 1968 | 42.7 | 18.75 |
| 1233616 | Glover Rd Upass | 1 | 4 | 1968 | 94.5 | 11.27 |
| 1233749 | Fifty Rd Upass | 1 | 4 | 1969 | 100.5 | 29.56 |
| 1159350 | Fruitland Road Underpass | 1 | 4 | 1969 | 100.5 | 29.57 |
| 1201706 | St. David Br. #1 Int. | 406 | 4 | 1969 | 108.8 | 23.77 |
| 1233692 | Winona Rd U/P On QEW | 1 | 4 | 1970 | 94.5 | 11.27 |

| Structure OID | Name | Highway | Spans | Year Constructed | Deck Length (m) | Deck Width (m) |
|---|---|---|---|---|---|---|
| 1243860 | CNR Subway | 58 | 9 | 1970 | 310.5 | 6.7 |
| 1207547 | CNR & PCR Overhead Pass | 140 | 5 | 1971 | 204.9 | 11.88 |
| 1207891 | CNR Overhead At Forkes Road | 140 | 3 | 1971 | 41.1 | 12.8 |
| 1630039 | Br #8 Road S-E/Hwy #420 | 420 | | 1971 | 95.9 | 9.6 |
| 1213348 | Brock Rd. U/P S.B.L. | 401 | 5 | 1973 | 106.4 | 14.17 |
| 1227567 | CNR/Maple Ave O'head | 1 | 3 | 1973 | 56.1 | 21.3 |
| 1628780 | Mcleod Road Underpass(N Bridge) | 1 | 2 | 1975 | 67.7 | 14.8 |
| 1628943 | Mcleod Road Underpass(S Bridge) | 1 | 2 | 1975 | 67.7 | 14.8 |
| 1244162 | Welland River & Old Welland Canal Bridge, SBL | 406 | 11 | 1993 | 302.5 | 13.5 |
| 1109262 | Glass's Bridge | 89 | 1 | 1913 | 8.7 | 10.7 |
| 52772054 | C.P.R. Overhead (North Of Orillia) - N.B.L. | 11 | 3 | 1932 | 40.8 | 11.1 |
| 52772060 | CPR Overhead (North Of Orillia) - S.B.L. | 11 | 3 | 1932 | 40.8 | 13.54 |
| 1207547 | Credit River Bridge | 1 | 7 | 1933 | 242.3 | 14.5 |
| 1207891 | Credit River Bridge | 1 | 7 | 1933 | 242.3 | 14.45 |
| 1630039 | Lyons Creek - SBL | 1 | 3 | 1941 | 30.2 | 12.36 |
| 1213348 | Tee Creek Bridge NBL | 1 | 3 | 1941 | 30.2 | 13.89 |
| 1227567 | Lyons Creek Bridge (NBL) | 1 | 3 | 1941 | 30.2 | 14.4 |
| 1628780 | Black Creek Bridge, WBL | 1 | 3 | 1942 | 30.2 | 14.48 |
| 1628943 | Black Creek Bridge, EBL | 1 | 3 | 1942 | 30.2 | 14 |
| 1244162 | Dixie Road Underpass. At Q.E.W | 1 | 3 | 1953 | 61.6 | 18 |

# CULTURAL HERITAGE REPORT:
# EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT

## REGIONAL ROAD 50 (NIAGARA STREET BRIDGE)
## MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

## CITY OF WELLAND
## REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

**FINAL REPORT**

Prepared for:

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March 2020 (Revised August 2021)

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**CULTURAL HERITAGE REPORT:**
**EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT**

**REGIONAL ROAD 50 (NIAGARA STREET BRIDGE)**
**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT**

**CITY OF WELLAND**
**REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO**

## EXECUTIVE SUMMARY

ASI was contracted by Associated Engineering, on behalf of the Regional Municipality of Niagara, to conduct a Cultural Heritage Report as part of the Reconstruction of Regional Road 50 Niagara Street Bridge Municipal Class Environmental Assessment (EA) (hereinafter Niagara Street Bridge Municipal Class EA). The Niagara Street Bridge Municipal Class EA involves the proposed bridge replacement and extension of the 600 mm diameter watermain on Niagara Street between Riverbank Street and Mill Street, in the City of Welland. The Niagara Street Bridge study area is generally bound by Mill Street to the south and Riverbank Street to the north.

The purpose of this report is to present an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

The results of background historical research and a review of secondary source material, including historical mapping, revealed a study area with a land use history dating back to the mid-nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are no previously identified feature of cultural heritage value within the Niagara Street Bridge study area. Five potential features were identified during research and fieldwork.

Based on the results of the preliminary impact assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to the identified BHRs. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified cultural heritage resources, etc. When construction staging and lay down areas are determined during the detailed design phase, the identified BHRs should be reviewed by a qualified heritage professional to assess impacts and confirm recommended conservation and/or mitigation measures.

2. Indirect impacts to 36 Niagara Street (BHR 1), 50-52 Niagara Street (BHR 2), 101 Niagara Street (BHR 4), and 2 Riverbank Street (BHR 5) are anticipated as a result of their location adjacent to

the proposed alignment. To ensure these properties are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Direct impacts to BHR 3 (Niagara Street Bridge) are anticipated as a result of the proposed works involving the complete removal of the bridge and construction of a replacement structure at the bridge crossing. As the structure was determined not to retain cultural heritage value or interest according to a CHER completed by ASI (ASI 2020), no further heritage reporting is required.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on known and potential heritage resources.

5. The report should be submitted by the proponent to the City of Welland and the Ministry of Heritage, Sport, Tourism and Culture Industries for review and comment, and any other local heritage stakeholders that may have an interest in this project. Feedback received will be considered and incorporated into the final report, as appropriate. The final report should be submitted to the City of Welland for their records.

**PROJECT PERSONNEL**

| | |
|---|---|
| *Senior Project Manager:* | Lindsay Graves, MA, CAHP<br>Senior Cultural Heritage Specialist \|Senior Project Manager - Cultural Heritage Division |
| *Project Coordinator:* | Katrina Thach, Hon. BA<br>Associate Archaeologist \| Project Coordinator - Environmental Assessment Division |
| *Project Manager:* | Johanna Kelly, MSc<br>Cultural Heritage Analyst \| Project Manager - Cultural Heritage Division |
| | Rebecca Sciarra, MA, CAHP<br>Partner \| Director - Cultural Heritage Division |
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| | Kirstyn Allam, BA (Hon), Advanced Diploma in Applied Museum Studies<br>Cultural Heritage Technician \| Technical Writer and Researcher - Cultural Heritage Division |
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| *Report Reviewer(s):* | Lindsay Graves, MA, CAHP<br>Senior Cultural Heritage Specialist \|Senior Project Manager - Cultural Heritage Division |
| | Rebecca Sciarra, MA, CAHP<br>Partner \| Director - Cultural Heritage Division |

## QUALIFIED PERSONS INVOLVED IN THE PROJECT

*Lindsay Graves, MA, CAHP*
*Senior Cultural Heritage Specialist |Senior Project Manager - Cultural Heritage Division*

The Senior Project Manager for this Cultural Heritage Report is **Lindsay Graves** (MA, Heritage Conservation), Senior Cultural Heritage Specialist and the Environmental Assessment Coordinator for the Cultural Heritage Division at ASI. She was responsible for: overall project scoping and approach; development and confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfill Class EA processes and has served as Project Manager for over 100 heritage assessments during her time at ASI. Lindsay is a member of the Canadian Association of Heritage Professionals.

*Johanna Kelly, MSc*
*Cultural Heritage Analyst, Project Manager - Cultural Heritage Division*

The Project Manager for this Cultural Heritage Report is **Johanna Kelly** (MSc), who is a Cultural Heritage Analyst and Project Manager within the Cultural Heritage Division. She was responsible for the day-to-day management activities, including scoping of research activities and drafting of study findings and recommendations. With over ten years of experience in the field, Johanna has focused on the identification and evaluation of cultural heritage resources both above and below ground. With a background in archaeology, her current focus is the assessment, evaluation, and protection of above ground cultural heritage resources. Johanna has been involved in numerous large scale and high profile projects in various capacities, including built heritage and cultural heritage landscape assessments under the *Ontario Environmental Assessment Act* for Class Environmental Assessments and Individual Environmental Assessments, and as required for various planning studies throughout the Province of Ontario.

*Rebecca Sciarra, MA, CAHP*
*Partner | Director - Cultural Heritage Division*

The Project Manager for this Cultural Heritage Report, as of August 2021, is **Rebecca Sciarra** (MA, Canadian Studies). She was responsible for: confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Rebecca is a Partner and Director of the Cultural Heritage Division. She is responsible for the highest-level management of a busy and diverse team of heritage professionals who

apply their expertise across a broad range of public and private sector clientele. Rebecca also provides oversight and quality assurance for all deliverables, maintaining responsive and prompt client communications, and providing heritage clients with a direct connection to corporate ownership. In addition to her role as Director of the Cultural Heritage Division, Rebecca is academically trained in heritage conservation principles and practices. She has led a range of high profile and complex heritage planning and conservation management projects for public and private sector clients. Her experience in both the private and public sectors has involved providing expertise around the strategic development of policies and programs to conserve Ontario's cultural heritage resources as part of environmental and land-use planning processes. She has worked with municipal, provincial, federal and private sector clients to lead heritage evaluations and assessment as part of area planning studies, including secondary plans, heritage conservation district studies, and master plans. Rebecca is a member of ICOMOS Canada and the Canadian Association of Heritage Professionals.

*Kirstyn Allam, BA (Hon), Advanced Diploma in Applied Museum Studies*
*Cultural Heritage Technician | Technical Writer and Researcher - Cultural Heritage Division*

One of the report writers for this Cultural Heritage Report is **Kirstyn Allam** (BA (Hon), Advanced Diploma in Applied Museum Studies), who is a Cultural Heritage Technician and Technical Writer and Researcher within the Cultural Heritage Division. She was responsible for preparing and contributing to technical reporting. Kirstyn Allam's education and experience in cultural heritage, historical research, archaeology, and collections management has provided her with a deep knowledge and strong understanding of the issues facing the cultural heritage industry and best practices in the field. Kirstyn has experience in heritage conservation principles and practices in cultural resource management. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario.

## GLOSSARY

| Term | Definition |
|---|---|
| Adjacent | "contiguous properties as well as properties that are separated from a heritage property by narrow strip of land used as a public or private road, highway, street, lane, trail, right-of-way, walkway, green space, park, and/or easement or as otherwise defined in the municipal official plan" (Ministry of Tourism, Culture and Sport 2010). |
| Built Heritage Resource (BHR) | "…a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous community. Built heritage resources are located on property that may be designated under Parts IV or V of the *Ontario Heritage Act*, or that may be included on local, provincial, federal and/or international registers" (Government of Ontario 2020:41). |
| Cultural Heritage Landscape (CHL) | "…a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the *Ontario Heritage Act*, or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms" (Government of Ontario 2020:42). |
| Cultural Heritage Resource | Includes above-ground resources such as built heritage resources and cultural heritage landscapes, and built or natural features below-ground including archaeological resources (Government of Ontario 2020). |
| Known Cultural Heritage Resource | A known cultural heritage resource is a property that has recognized cultural heritage value or interest. This can include a property listed on a Municipal Heritage Register, designated under Part IV or V of the *Ontario Heritage Act*, or protected by a heritage agreement, covenant or easement, protected by the *Heritage Railway Stations Protection Act or* the *Heritage Lighthouse Protection Act*, identified as a Federal Heritage Building, or located within a UNESCO World Heritage Site (Ministry of Tourism, Culture and Sport 2016). |
| Impact | Includes negative and positive, direct and indirect effects to an identified cultural heritage resource. Direct impacts include destruction of any, or part of any, significant heritage attributes or features and/or unsympathetic or incompatible alterations to an identified resource. Indirect impacts include, but are not limited to, creation of shadows, isolation of heritage attributes, direct or indirect obstruction of significant views, change in land use, land disturbances (Ministry of Tourism and Culture 2006). Indirect impacts also include potential vibration impacts |

| | |
|---|---|
| | (See Section 2.5 for complete definition and discussion of potential impacts). |
| Mitigation | Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the cultural heritage landscape and/or built heritage resource if to be demolished or relocated. |
| Potential Cultural Heritage Resource | A potential cultural heritage resource is a property that has the potential for cultural heritage value or interest. This can include properties/project area that contain a parcel of land that is the subject of a commemorative or interpretive plaque, is adjacent to a known burial site and/or cemetery, is in a Canadian Heritage River Watershed, or contains buildings or structures that are 40 or more years old (Ministry of Tourism, Culture and Sport 2016). |
| Significant | With regard to cultural heritage and archaeology resources, significant means "resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the *Ontario Heritage Act.* While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation" (Government of Ontario 2020:51). |
| Vibration Zone of Influence | Area within a 50 m buffer of construction-related activities in which there is potential to affect an identified cultural heritage resource. A 50 m buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the MHSTCI (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D'Apuzzo 2001; Carman et al. 2012). This buffer accommodates the additional threat from collisions with heavy machinery or subsidence (Randl 2001). |

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# 1.0 INTRODUCTION

## 1.1 Report Purpose

ASI was contracted by Associated Engineering, on behalf of the Regional Municipality of Niagara, to conduct a Cultural Heritage Report as part of the Reconstruction of Regional Road 50 Niagara Street Bridge Municipal Class Environmental Assessment (EA) (hereinafter Niagara Street Bridge Municipal Class EA). The purpose of this report is to present an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

## 1.2 Project Overview

The Niagara Street Bridge Municipal Class EA involves the proposed bridge replacement and extension of the 600 mm diameter watermain on Niagara Street between Riverbank Street and Mill Street, in the City of Welland. The Niagara Street Bridge study area is generally bound by Mill Street to the south and Riverbank Street to the north.

## 1.3 Description of Study Area

This Cultural Heritage Report will focus on the project study area and the adjacent properties (Figure **1**). This project study area has been defined as inclusive of those lands that may contain BHRs or CHLs that may be subject to direct or indirect impacts as a result of the proposed undertaking. Properties within the study area are located in the City of Welland.

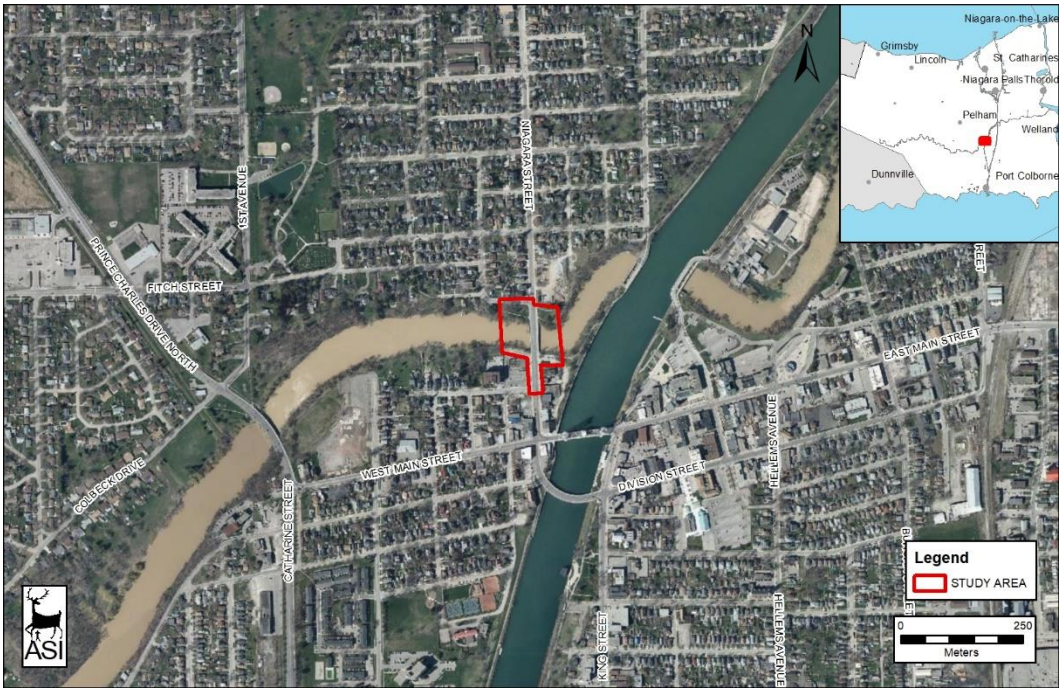


Figure 1: Location of the study area

Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

## 2.0 METHODOLOGY

### 2.1 Regulatory Requirements

The *Ontario Heritage Act* (OHA) (Ministry of Culture 1990) is the primary piece of legislation that determines policies, priorities and programs for the conservation of Ontario's heritage. There are many other provincial acts, regulations and policies governing land use planning and resource development support heritage conservation including:

- The *Planning Act* (Ministry of Municipal Affairs and Housing 1990), which states that "conservation of features of significant architectural, cultural, historical, archaeological or scientific interest" (cultural heritage resources) is a "matter of provincial interest". The Provincial Policy Statement (Government of Ontario 2020), issued under the Planning Act, links heritage conservation to long-term economic prosperity and requires municipalities and the Crown to conserve significant cultural heritage resources.
- The *Environmental Assessment Act* (Ministry of the Environment 1990), which defines "environment" to include cultural conditions that influence the life of humans or a community. Cultural heritage resources, which includes archaeological resources, built heritage resources and cultural heritage landscapes, are important components of those cultural conditions.

The Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) is charged under Section 2.0 of the OHA with the responsibility to determine policies, priorities, and programs for the conservation,

protection, and preservation of the heritage of Ontario. The Ministry of Tourism, Culture and Sport (now administered by MHSTCI) published *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Tourism, Culture and Sport 2010) (hereinafter "Standards and Guidelines"). These Standards and Guidelines apply to properties the Government of Ontario owns or controls that have cultural heritage value or interest (CHVI). The Standards and Guidelines provide a series of guidelines that apply to provincial heritage properties in the areas of identification and evaluation; protection; maintenance; use; and disposal. For the purpose of this report, the Standards and Guidelines provide points of reference to aid in determining potential heritage significance in identification of BHRs and CHLs. While not directly applicable for use in properties not under provincial ownership, the Standards and Guidelines are regarded as best practice for guiding heritage assessments and ensure that additional identification and mitigation measures are considered.

Similarly, the *Ontario Heritage Tool Kit* (Ministry of Culture 2006) provides a guide to evaluate heritage properties. To conserve a BHR or CHL, the *Ontario Heritage Tool Kit* states that a municipality or approval authority may require a heritage impact assessment and/or a conservation plan to guide the approval, modification, or denial of a proposed development.

## 2.2 Municipal/Regional Heritage Policies

The study area is located within the City of Welland, in the Regional Municipality of Niagara. Policies relating to cultural heritage resources were reviewed from the following sources:

- The City of Welland's *Official Plan* (2019); and
- The Region of Niagara's *Official Plan* (2014).

## 2.3 Identification of Built Heritage Resources and Cultural Heritage Landscapes

This Cultural Heritage Report follows guidelines presented in the *Ontario Heritage Tool Kit* (Ministry of Culture 2006) and *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (Ministry of Tourism, Culture and Sport 2016). The objective of this report is to present an inventory of known and potential BHRs and CHLs, and to provide a preliminary understanding of known and potential BHRs and CHLs located within areas anticipated to be directly or indirectly impacted by the proposed project.

In the course of the cultural heritage assessment process, all potentially affected BHRs and CHLs are subject to identification and inventory. Generally, when conducting an identification of BHRs and CHLs within a study area, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of BHRs and CHLs in a geographic area: background research and desktop data collection; field review; and identification.

Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth- and twentieth-century

settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as having cultural heritage value. Typically, resources identified during these stages of the research process are reflective of particular architectural styles or construction methods, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified BHRs and CHLs. The field review is also used to identify potential BHRs or CHLs that have not been previously identified on federal, provincial, or municipal databases or through other appropriate agency data sources.

During the cultural heritage assessment process, a property is identified as a potential BHR or CHL based on research, the MHSTCI screening tool, and professional expertise. In addition, use of a 40-year-old benchmark is a guiding principle when conducting a preliminary identification of BHRs and CHLs. While identification of a resource that is 40 years old or older does not confer outright heritage significance, this benchmark provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from having cultural heritage value or interest.

## 2.4 Background Information Review

To make an identification of previously identified known or potential BHRs and CHLs within the study area, the following resources were consulted as part of this Cultural Heritage Report.

### *2.4.1 Review of Existing Heritage Inventories*

A number of resources were consulted in order to identify previously identified BHRs and CHLs within the study area. These resources, reviewed on 30 January and 12 March, 2020, include:

- The City of Welland's list of properties that have Cultural Heritage Value (City of Welland 2020a);
- The City of Welland's Places of Interest (City of Welland 2020b);
- The City of Welland's Historic Tour of Welland (City of Welland 2020c);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust n.d.);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust n.d.);
- The *Places of Worship Inventory* (Ontario Heritage Trust n.d.);
- *Ontario Heritage Plaque Database* (Ontario Heritage Trust n.d.);
- *Ontario's Historical Plaques* website (Brown 2019);
- Database of known cemeteries/burial sites curated by the Ontario Genealogical Society (Ontario Genealogical Society n.d.);
- *Canada's Historic Places* website (Parks Canada n.d.);
- *Directory of Federal Heritage Designations* (Parks Canada n.d.);

- Canadian Heritage River System (Canadian Heritage Rivers Board and Technical Planning Committee n.d.); and,
- United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites (UNESCO World Heritage Centre n.d.).

### *2.4.2 Stakeholder Data Collection*

The following individuals, groups, and/or organizations were contacted to gather information on known and potential BHRs and CHLs, active and inactive cemeteries, and areas of identified Indigenous interest within the study area:

- Rose DiFelice, Manager of Policy Planning, City of Welland (email communication 5 and 12 March 2020). Communications forwarded from the Heritage Advisory Committee indicated interest in the buildings at 50 Niagara Street and 101 Niagara Street and provided some historical information and research sources.
- The MHSTCI (email communication 5 and 6 March 2020). A response from Karla Barboza, Team Lead, Heritage, confirmed that there are no additional previously identified heritage resources or concerns regarding the study area.
- The Ontario Heritage Trust (email communications 5 and 20 March 2020). A response confirmed that there are no conservation easements or Trust-owned properties within the study area.

## 2.5 Preliminary Impact Assessment Methodology

To assess the potential impacts of the undertaking, identified BHRs and CHLs are considered against a range of possible negative impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Tourism and Culture 2006). These include:

- Direct impacts:
    - Destruction of any, or part of any, significant heritage attributes or features; and
    - Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance.
- Indirect impacts
    - Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
    - Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
    - Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
    - A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
    - Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Indirect impacts from construction-related vibration have the potential to negatively affect BHRs or CHLs depending on the type of construction methods and machinery selected for the project and proximity and composition of the identified resources. Potential vibration impacts are defined as having potential to affect an identified BHRs and CHLs where work is taking place within 50 m of features on the property. A 50 m buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the MHSTCI (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D'Apuzzo 2001; Carman et al. 2012). This buffer accommodates any additional or potential threat from collisions with heavy machinery or subsidence (Randl 2001).

Several additional factors are also considered when evaluating potential impacts on identified BHRs and CHLs. These are outlined in a document set out by the Ministry of Culture and Communications (now MHSTCI) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992) and include:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

The proposed undertaking should endeavor to avoid adversely affecting known and potential BHRs and CHLs and interventions should be managed in such a way that identified significant cultural heritage resources are conserved. When the nature of the undertaking is such that adverse impacts are unavoidable, it may be necessary to implement alternative approaches or mitigation strategies that alleviate the negative effects on identified BHRs and CHLs. Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the BHR or CHL if to be demolished or relocated.

Various works associated with infrastructure improvements have the potential to affect BHRs and CHLs in a variety of ways, and as such, appropriate mitigation measures for the undertaking need to be considered.

## 3.0 SUMMARY OF HISTORICAL DEVELOPMENT WITHIN THE STUDY AREA

This section provides a brief summary of historical research. A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, Indigenous land use, and Euro-Canadian settlement.

### 3.1 Physiography

The study area is located within the Haldimand Clay Plain physiographic region of southern Ontario (Chapman and Putnam 1984). The Haldimand Clay Plain is located between the Niagara Escarpment and

Lake Erie. It occupies all of the Niagara Peninsula except the fruit belt below the escarpment, and has an area of about 349,600 hectares (Chapman and Putnam 1984). The Haldimand clay plain can be described as falling into a series of parallel belts which direct the drainage of the region eastward in parallel streams. In general, the soils of this region have a heavy texture and poor drainage, but irregular areas of better-drained soils do exist.

Clay plains are glaciolacustrine features which are formed when glacial melt waters pond between ice margins, high ground, or flood basins. Clay plains are formed in deep water by sediment sorting (Karrow and Warner 1990).

### 3.2 Summary of Early Indigenous History in Southern Ontario

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years ago, or 11,000 Before the Common Era (B.C.E.) (Ferris 2013).[1] During the Paleo period (c. 11,000 B.C.E. to 9,000 B.C.E), groups tended to be small, nomadic, and non-stratified. The population relied on hunting, fishing, and gathering for sustenance, though their lives went far beyond subsistence strategies to include cultural practices including but not limited to art and astronomy. Fluted points, beaked scrapers, and gravers are among the most important artifacts to have been found at various sites throughout southern Ontario, and particularly along the shorelines of former glacial lakes. Given the low regional population levels at this time, evidence concerning Paleo-Indian period groups is very limited (Ellis and Deller 1990).

Moving into the Archaic period (c. 9,000 B.C.E. to 1,000 B.C.E.), many of the same roles and responsibilities continued as they had for millennia, with groups generally remaining small, nomadic, and non-hierarchical. The seasons dictated the size of groups (with a general tendency to congregate in the spring/summer and disperse in the fall/winter), as well as their various sustenance activities, including fishing, foraging, trapping, and food storage and preparation. There were extensive trade networks which involved the exchange of both raw materials and finished objects such as polished or ground stone tools, beads, and notched or stemmed projectile points. Furthermore, mortuary ceremonialism was evident, meaning that there were burial practices and traditions associated with a group member's death (Ellis and Deller 1990; Ellis et al. 2009).

The Woodland period (c. 1,000 B.C.E. to 1650 C.E.) saw several trends and aspects of life remain consistent with previous generations. Among the more notable changes, however, was the introduction of pottery, the establishment of larger occupations and territorial settlements, incipient horticulture, more stratified societies, and more elaborate burials. Later in this period, settlement patterns, foods, and the socio-political system continued to change. A major shift to agriculture occurred in some regions, and the ability to grow vegetables and legumes such as corn, beans, and squash ensured long-term settlement occupation and less dependence upon hunting and fishing. This development contributed to population growth as well as the emergence of permanent villages and special purpose sites supporting those villages. Furthermore, the socio-political system shifted from one which was

[1] While many types of information can inform the precontact settlement of Ontario, such as oral traditions and histories, this summary provides information drawn from archaeological research conducted in southern Ontario over the last century.

strongly kinship based to one that involved tribal differentiation as well as political alliances across and between regions (Ellis and Deller 1990; Williamson 1990; Dodd et al. 1990; Birch and Williamson 2013).

The arrival of European trade goods in the sixteenth century, Europeans themselves in the seventeenth century, and increasing settlement efforts in the eighteenth century all significantly impacted traditional ways of life in Southern Ontario. Over time, war and disease contributed to death, dispersion, and displacement of many Indigenous peoples across the region. The Euro-Canadian population grew in both numbers and power through the eighteenth and nineteenth centuries and treaties between colonial administrators and First Nations representatives began to be negotiated.

The study area is within Treaty 3, the Between the Lakes Purchase. Following the 1764 Niagara Peace Treaty and the follow-up treaties with Pontiac, the English colonial government considered the Mississaugas to be their allies since they had accepted the Covenant Chain. The English administrators followed the terms of the Royal Proclamation and ensured that no settlements were made in the hunting grounds that had been reserved for their use (Johnston 1964; Lytwyn 2005). In 1784, under the terms of the "Between the Lakes Purchase" signed by Sir Frederick Haldimand and the Mississaugas, the Crown acquired over one million acres of land in-part spanning westward from near modern day Niagara-on-the-Lake along the south shore of Lake Ontario to modern day Burlington (Aboriginal Affairs and Northern Development Canada 2016).

## 3.3 Historical Euro-Canadian Township Survey and Settlement

Historically, the study area is located on part of Lot 248, in the former Township of Thorold, and part of Lot 26, Concession 5, in the former Township of Crowland, County of Welland.

### *3.3.1 Township of Thorold*

The first settlers are believed to have taken up land in Thorold around 1787-88, when the first township survey was undertaken in part by Augustus Jones. Jones also compiled the "Plans of the Townships of this Settlement" in the late autumn of 1791, which included a "List of reduced Provincial Troops" settled in the area, as well as reports on features "towards the public utility" such as water falls, minerals and/or quarries, and the quality of the timber (Fraser 1906:346, 388–389, 426–427).
Thorold acquired its name in 1792, likely in honor of Sir John Thorold (1734-1815), a representative for Lincolnshire in the House of Commons. Settlement in Thorold advanced at a pace that was roughly equal to that seen in the other nearby townships in the county. Most of the early settlement and land allotment was made to Loyalists and disbanded soldiers from Butler's Rangers. Several of the farms within the township suffered damage to fences and crops, and from plunder, during the Battle of Beaver Dams in June 1813 (Gardiner 1899; Armstrong 1985; Rayburn 1997; Smith 1846). By 1846, the township was referred to as one of the "best settled townships in the Niagara District, containing a great number of excellent, well cleared farms" (Smith 1846:191).

When the Regional Municipality of Niagara was formed in 1970, the Town of Thorold expanded to include the former Township of Thorold, and in 1975 the town became the City of Thorold.

### *3.3.2 Township of Crowland*

Crowland Township was established in 1788, named after a town in Lincolnshire, England. The township was settled by United Empire Loyalists who arrived as early as the 1770s. Some of the early families included Buchner, Young, Misner, Cook, Yokam, Bender, Wilson, Brailey, Brookfield, Brown, Doan and Everingham (Mika and Mika 1977).

In 1801, a road from Bertie Township through Crowland to the Welland River was surveyed by Charles Fell. In 1803, Crowland had its first town meeting and the population at this time was 120 males and 96 females. By 1817, the population was approximately 600 individuals (Page 1876).

The first post office opened in 1841 at Cook's Mills, in the store of Luther Boardman. Mr. Boardman was also a hotelkeeper in Cook's Mills and credited for organizing the Crowland Agricultural Society in 1846. The Methodists were the first to build a church in the township, followed by the Presbyterians in 1850. The first school was built at Cook's Mills on land donated by Mr. Street in the mid-1800s (Mika and Mika 1977:505). The hamlet of Cook's Mills was located on Lots 11-13, Concessions 4 and 5; this hamlet later became known as Crowland. During this time waterways were the easiest modes of travel. The Welland River (also known as Chippawa Creek) divides the townships of Crowland, Thorold and Stamford (Page 1876).

In 1970, Crowland Township was dissolved, being incorporated into the Town of Thorold, City of Niagara Falls and City of Welland (Mika and Mika 1977).

### *3.3.3 Village of Welland*

The village of Welland was located on the west side of Crowland Township adjacent to the Welland River. A portion of the village was also located on the west side of the Welland River, situated in Thorold Township; a swing bridge across the river/canal connected the village. In 1876, the population was approximately 1,900 individuals. The village was the County Town for the Country of Welland providing a number of amenities and services including several churches, fine brick stores, large mills, a court house, a jail, a registry office, and a registrar surrogate office. Similar to other villages located along the Welland ship canal, in addition to the Canada Southern Railway, the village of Welland owed a great deal of its growth to that work, providing many facilities for travelers and shippers (Page 1876).

### *3.3.4 The Welland Canal*

William Hamilton Merritt (1793-1861) came to the Niagara area with his United Empire Loyalist parents in 1796. The young Merritt farmed and entered into the mercantile trade around 1809 and served with distinction during the War of 1812. He returned to his mercantile business after the war, but also began milling. His mill was located on the banks of Twelve Mile Creek (Old Welland Canal). Around 1818, Merritt conceived the idea of digging a new channel between the Welland River and the head waters of Twelve Mile Creek, which would ensure a steadier supply of water for the mills and other industries in St. Catharines. By 1824, this idea had evolved into plans for the construction of the First Welland Canal. This enterprise not only supplied a steady source of hydraulic power for local businesses, but also

created a navigational route which linked Lake Ontario to Lake Erie, thus providing ships access to inland markets throughout the rest of the Great Lakes region for the first time (Mackenzie 1836).

The Welland River is carried under the Welland Canal by a siphon complex. Six tubes, designed to divert the flow of the river under the Old Welland Canal were constructed in the 1930s. Normally, the Welland River flows towards the Niagara River but, due to hydroelectric operations at Niagara Falls, flow in the river frequently reverses and changes direction (Biotactic Inc. 2020).

Today the Canal is operated by the St. Lawrence Seaway Management Corporation (St. Catharines Tourism n.d.).

### 3.4 Review of Historical Mapping

The 1862 *Tremaine Map of Welland County* (Tremaine and Tremaine 1862), and the 1876 *Illustrated Historical Atlas of the Counties of Lincoln and Welland* (Page 1876), were examined to determine the presence of historical features within the study area during the nineteenth century (Figure 2 and Figure 3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. The use of historical map sources to reconstruct or predict the location of former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results of this exercise can often be imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

According to the 1862 map, the study area is illustrated straddling the Welland River within the historic Village of Welland (Figure 2). No crossing is illustrated at this time. Property owner information within the study area is not recorded, however the surrounding network of roads is clearly visible. The area surrounding the study area has been developed by this point. The 1876 map of the Village of Welland shows a bridge carrying Niagara Street over the Welland River, suggesting the first crossing may have been constructed between 1862 and 1876. This map clearly illustrates individual lots within the village of Welland, although tenure information is only indicated for a few individual lots (Figure 3). Part of Lot 248 was owned by “Phelps” and part of Lot 26 was owned by “Gross”. Niagara Street is labelled as “North Main Street”.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents maps and aerial photographs from 1929, 1954, 1973, and 1996 (Figure 4 to Figure 7).

Early twentieth-century topographic sheets for the Niagara Region show the study area in a similar context as earlier mapping (Figure 4). Niagara Street is illustrated as a “metalled” (or paved) road between Main Street and Merritt Street on 1929 topographic maps. Aerial photography from 1954

shows structures on all banks of the river surrounding the bridge (Figure 5). This image shows the standing bridge, constructed in 1932 and rehabilitated in 1973. Commercial buildings are visible to the south of the study area and residential subdivisions are adjacent to the north. Late twentieth-century topographic maps show further development in Welland (Figure 6 and Figure 7). Niagara Street is illustrated as a two lane, hard surface, all weather road. Heavy development has taken place in the surrounding area by 1996.

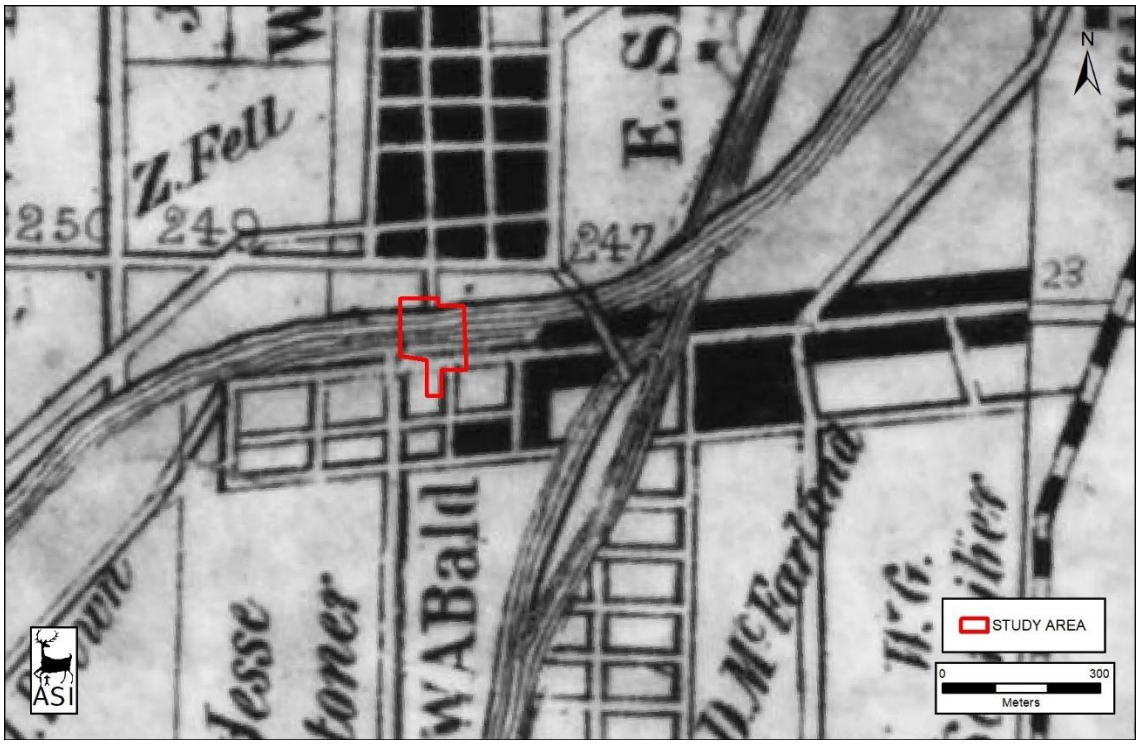



Figure 2: The study area overlaid on the 1862 Tremaine's Map of Welland County
Base Map: (Tremaine and Tremaine 1862)

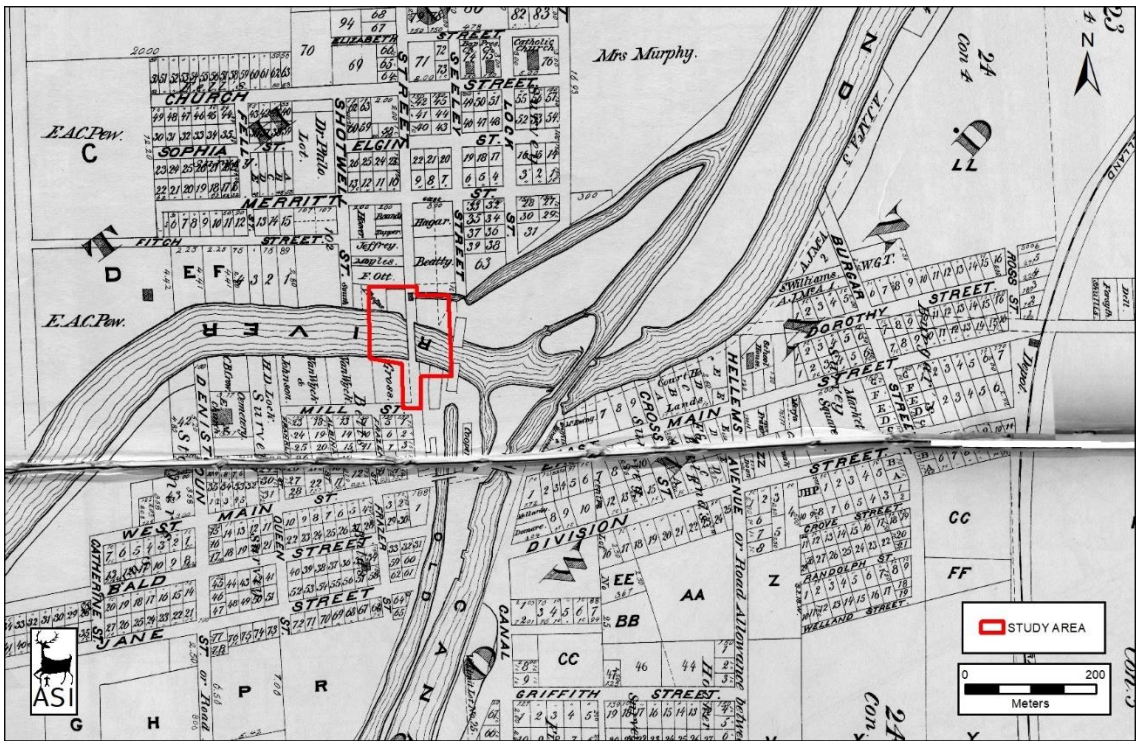



Figure 3: The study area overlaid on the 1876 Historical Atlas insert of the Village of Welland
Base Map: (Ross 1876)

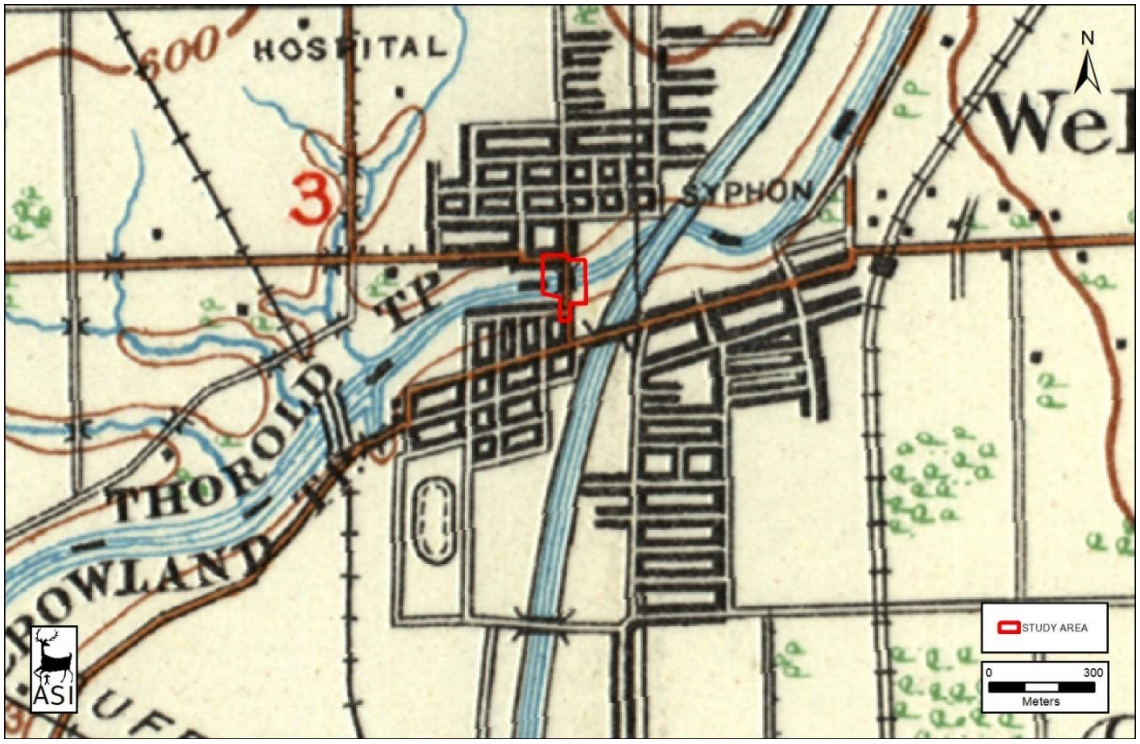



Figure 4: The study area overlaid on the 1929 topographic map of Welland
Base Map: (Department of National Defence 1929)


Figure 5: The study area overlaid on the 1954 aerial photograph of Welland
Base Map: (Hunting Survey Corporation Limited 1954:428.792)

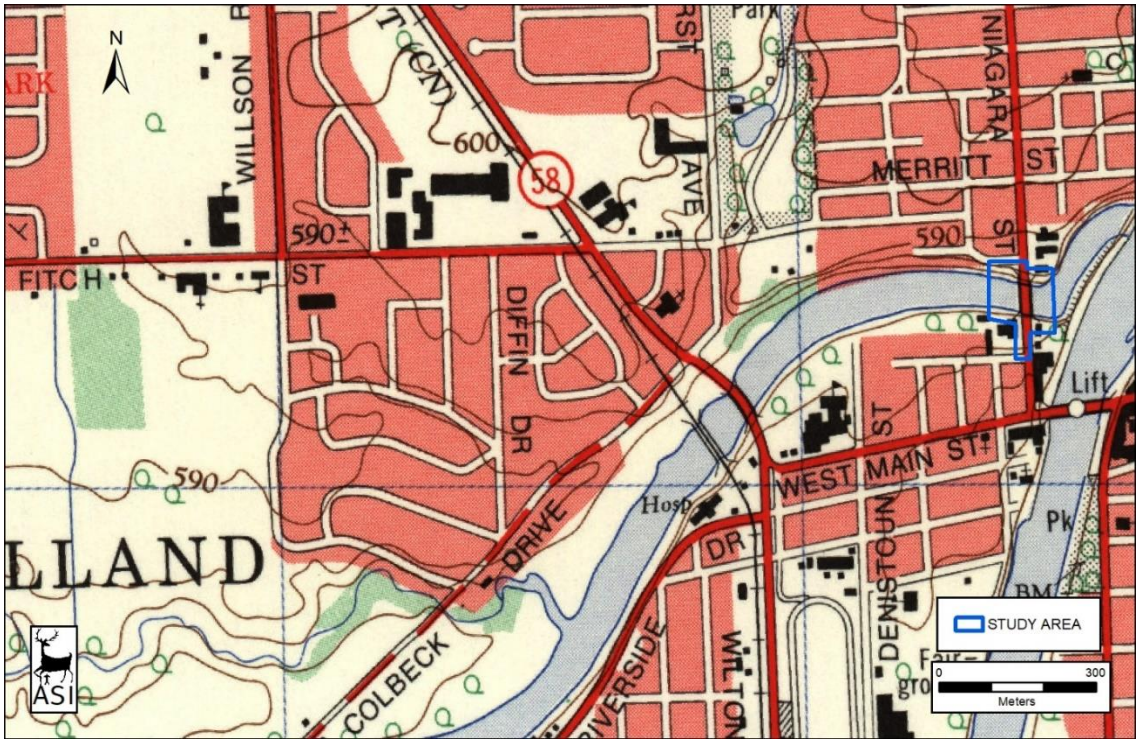



Figure 6: The study area overlaid on the 1973 topographic map of Welland
Base Map: (Department of Energy, Mines and Resources 1973)

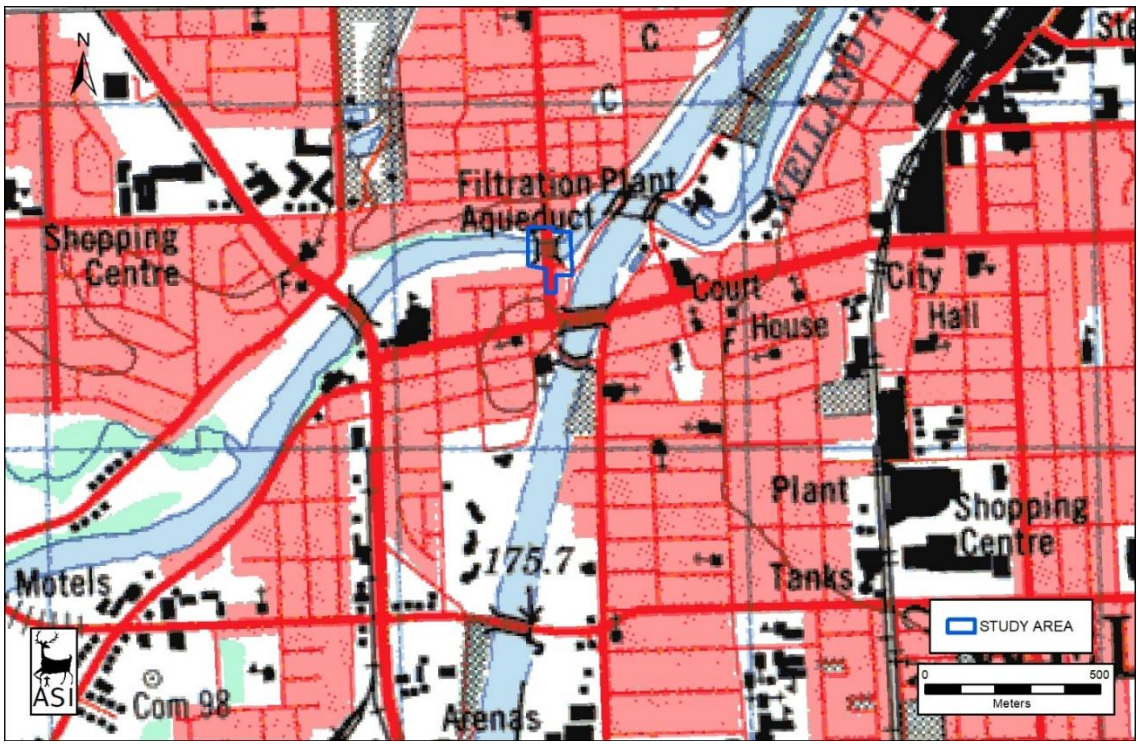



Figure 7: The study area overlaid on the 1996 NTS map of Welland
Base Map: (Natural Resources Canada 1996)

## 4.0 EXISTING CONDITIONS

### 4.1 Description of Field Review

A field review of the study area was undertaken by Meredith Stewart of ASI, on 3 February 2020 to document the existing conditions of the study area from existing rights-of-way. The existing conditions of the study area are described below and captured in Plate 1 to Plate 6.

The study area is located west of the downtown core of the City of Welland, along Regional Road 50 (Niagara Street) from Riverbank Street to Mill Street. In general, the land use of the study area is primarily residential and commercial.

Niagara Street is oriented in a roughly north-south direction and is carried over the Welland River by a four span, concrete girder bridge (Structure 050205). The land within the study area to the south of the bridge is commercial. The west side of Niagara Street features a one storey brick building which, based on aerial photographs, was constructed between 1936 and 1954. The east side of Niagara Street features a row of intact nineteenth-century brick commercial buildings between Welland River and Main Street. Within the study area the northmost building, currently operating as a lounge, appears to be a late twentieth century structure. Based on historical satellite images this building was possibly constructed between 2010 and 2015.

The land within the study area to the north of the bridge is exclusively recreational. The north bank of the river features pedestrian trails, vegetation, and topiary signage to the west of the bridge. Immediately adjacent to the north boundary of the study area are residential properties on the north side of Riverbank Street.

Plate 1: View north overlooking the south half of the study area.


Plate 2: View east along Mill Street towards the nineteenth-century commercial properties in the south half of the study area.

Plate 3: View northeast across the Niagara Street Bridge.

Plate 4: View west across recreational trail towards the Niagara Street Bridge, residential subdivision located to the north of the study area are visible on the right.

Plate 5: View southeast of the Main Street Bridge.

Plate 6: Residential subdivision located to the north of the study area, looking west.

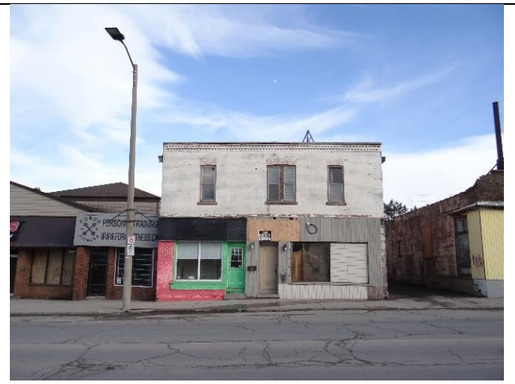
## 4.2 Identification of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes

Based on the results of the background research and field review, five potential BHRs were identified within the study area. The five BHRs were identified during background research and field review. A

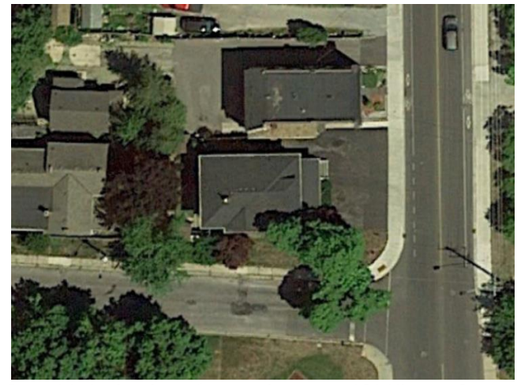
detailed inventory of known and potential BHRs and CHLs within the study area is presented in Table 1. See Figure 8 for mapping showing the location of identified BHRs and CHLs.

**Table 1: Inventory of Known and Potential Built Heritage Resources within the Study Area**

| Feature ID | Type of Property | Address or Location | Heritage Status and Recognition | Description of Property and Known or Potential CHVI | Photographs/ Digital Image |
|---|---|---|---|---|---|
| BHR 1 | Mixed use commercial/residential | 36 Niagara Street | Potential BHR – Identified during background research and field review | Historical:<br>- Development is illustrated along the east side of Niagara Street on the 1929 mapping (Figure 4).<br>- Commercial properties are visible on the east side of Niagara Street between the Welland River and Main Street on 1954 aerial photography (Figure 5).<br><br>Design/Physical:<br>- This Edwardian Classicism style, red brick, two-storey mixed use commercial and residential building features brick half columns and decorative brick details and has been painted white on the lower floor.<br><br>Context:<br>- Located on the east side of Niagara Street South, a nineteenth-century roadway, in a row of early brick commercial buildings.<br>- Contributes to the historical urban character of downtown Welland. |  <br>Plate 7: West elevation of 36 Niagara Street (ASI 2020).<br><br>  <br>Plate 8: Aerial view of 36 Niagara Street, outlined in red (Google Earth 2018). |

| Feature ID | Type of Property | Address or Location | Heritage Status and Recognition | Description of Property and Known or Potential CHVI | Photographs/ Digital Image |
|---|---|---|---|---|---|
| BHR 2 | Mixed use commercial/residential | 50-52 Niagara Street | Potential BHR – Identified during background research and field review | Historical:<br>- Development is illustrated along the east side of Niagara Street on the 1929 mapping (Figure 4).<br>- Commercial properties are visible on the east side of Niagara Street between the Welland River and Main Street on 1954 aerial photography (Figure 5).<br><br>Design/Physical:<br>- The property features a vernacular style, red brick, two-storey commercial building. The brick has been painted and the main storey has been reclad in various types of siding.<br><br>Context:<br>- Located on the east side of Niagara Street South, a nineteenth-century roadway, in a row of early brick commercial buildings.<br>- Contributes to the historical urban character of downtown Welland. |  <br>Plate 9: West elevation of 50-52 Niagara Street (ASI 2020).<br><br>  <br>Plate 10: Aerial view of 50-52 Niagara Street, outlined in red (Google Earth 2018) |

| Feature ID | Type of Property | Address or Location | Heritage Status and Recognition | Description of Property and Known or Potential CHVI | Photographs/ Digital Image |
|---|---|---|---|---|---|
| BHR 3 | Bridge | Niagara Street Bridge (Structure 050205) | Potential BHR – Identified during background research and field review | Historical:<br>- Nineteenth-century mapping indicates a bridge spanned this location as early as 1876 (Figure 3).<br><br>Design/Physical:<br>- The Niagara Street Bridge is a four span, concrete girder bridge that carries two lanes of north-south traffic in either direction over the Welland River.<br>- Drawings indicate that the standing structure was originally constructed in 1931 and was rehabilitated in 1973 (Crealock 1931; McCormick, Rankin & Associates Limited 1973). The superstructure was replaced in its entirety during rehabilitation however the original 1931 substructure appears intact.<br><br>Context:<br>- Carries Niagara Street over the Welland River, to the west of the Welland Canal, in a historical urban and residential context. |  <br>Plate 11: Looking northeast towards the Niagara Street Bridge (ASI 2020).<br><br>  <br>Plate 12: Aerial view of the bridge (Google Earth 2018). |

| Feature ID | Type of Property | Address or Location | Heritage Status and Recognition | Description of Property and Known or Potential CHVI | Photographs/ Digital Image |
|---|---|---|---|---|---|
| BHR 4 | Residential | 101 Niagara Street | Potential BHR – Identified during background research and field review | Historical:<br>- Nineteenth-century mapping indicates the property was owned by F. Ott in 1876 (Figure 3).<br>- The property was subsequently owned by George W. Sutherland, a lumber dealer and Mayor of Welland, who built the house at 2 Riverbank Street (Nora Reid, City of Welland Heritage Advisory Committee, Pers. Comm. 12 March 2020).<br>- The property associated with 101 Niagara Street was originally part of the same lot as 2 Riverbank Street, the original Sutherland House. It was ultimately severed to build a house facing Niagara Street (101 Niagara Street) for one of the Sutherland children (Nora Reid, City of Welland Heritage Advisory Committee, Pers. Comm. 12 March 2020).<br><br>Design/Physical:<br>- The property features a red brick two-storey Edwardian Classicism style residence with a covered porch with classically inspired columns, central dormer, and stone lintels.<br><br>Context:<br>- Located at the northwest corner of Niagara Street and Riverbank Road, two nineteenth century roadways.<br>- Contributes to the historical character of downtown Welland. |  <br>Plate 13: Looking northwest towards the residence at 101 Niagara Street (ASI 2020).<br><br>  <br>Plate 14: Aerial view of the residence at 101 Niagara Street (Google Earth 2018). |

| Feature ID | Type of Property | Address or Location | Heritage Status and Recognition | Description of Property and Known or Potential CHVI | Photographs/ Digital Image |
|---|---|---|---|---|---|
| BHR 5 | Residential | 2 Riverbank Street | Potential BHR – Identified during background research and field review | Historical:<br>- Nineteenth-century mapping indicates the property was owned by F. Ott in 1876 (Figure 3).<br>- The property was subsequently owned by George W. Sutherland, a lumber dealer and Mayor of Welland from 1905-6, who built the house at 2 Riverbank Street in the late nineteenth century. The property would eventually be divided, severing the now 101 Niagara Street, to build a house for one of the Sutherland children (Nora Reid, City of Welland Heritage Advisory Committee, Pers. Comm. 12 March 2020).<br><br>Design/Physical:<br>- This two storey red brick house has an L shaped footprint with a covered porch on the east (front) elevation. A rear tail has been added to the house, with a second storey added later. The south elevation of this rear tale features a covered porch on the main floor and a covered balcony above.<br><br>Context:<br>- Located at the northwest corner of Niagara Street and Riverbank Road, two nineteenth century roadways.<br>- Contributes to the historical character of downtown Welland. |  <br>Plate 15: Looking northwest towards the residence at 2 Riverbank Street (ASI 2020).<br><br>  <br>Plate 16: Aerial view of the property at 2 Riverbank Street (Google Earth 2018). |


Figure 8: Location of Identified Built Heritage Resources in the Study Area

# 5.0 PRELIMINARY IMPACT ASSESSMENT

## 5.1 Description of Proposed Undertaking

The proposed undertaking for the Niagara Street Bridge Municipal Class EA involves the proposed bridge replacement and extension of the 600 mm diameter watermain on Niagara Street between Riverbank Street and Mill Street, in the City of Welland.

## 5.2 Analysis of Potential Impacts

Table 2 outlines the potential impacts on all identified BHRs within the study area.

Table 2: Preliminary Impact Assessment and Recommended Mitigation Measures

| Feature ID | Location/Name | Type and Description of Potential/Anticipated Impact | Mitigation Strategies |
|---|---|---|---|
| BHR 1 | 36 Niagara Street | It is understood that the limits of the proposed alignment will be confined to the existing ROW. No direct adverse impacts to this property are anticipated.<br><br>Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 m from the proposed work. | Where feasible, the proposed alignment should be designed in a manner that avoids all impacts to BHR 1.<br><br>Undertake assessment during detail design to determine potential vibration impacts. |
| BHR 2 | 50-52 Niagara Street | It is understood that the limits of the proposed alignment will be confined to the existing ROW. No direct adverse impacts to this property are anticipated.<br><br>Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 m from the proposed work. | Where feasible, the proposed alignment should be designed in a manner that avoids all impacts to BHR 2.<br><br>Undertake assessment during detail design to determine potential vibration impacts. |
| BHR 3 | Niagara Street Bridge (Structure 050205) | The proposed works will result in the complete removal of the bridge and construction of a replacement structure at the bridge crossing. | As this structure was determined not to retain cultural heritage value or interest during an ASI CHER (ASI 2020), no further heritage reporting is required. |

| Feature ID | Location/Name | Type and Description of Potential/Anticipated Impact | Mitigation Strategies |
|---|---|---|---|
| BHR 4 | 101 Niagara Street | It is understood that the limits of the proposed alignment will be confined to the existing ROW. No direct adverse impacts to this property are anticipated.<br><br>Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 m from the proposed work. | Where feasible, the proposed alignment should be designed in a manner that avoids all impacts to BHR 4.<br><br>Undertake assessment during detail design to determine potential vibration impacts. |
| BHR 5 | 2 Riverbank Street | It is understood that the limits of the proposed alignment will be confined to the existing ROW. No direct adverse impacts to this property are anticipated.<br><br>Indirect adverse impacts due to construction related vibration are possible as the structure sits within 50 m from the proposed work. | Where feasible, the proposed alignment should be designed in a manner that avoids all impacts to BHR 5.<br><br>Undertake assessment during detail design to determine potential vibration impacts. |

Direct impacts to BHR 3 (Niagara Street Bridge) are anticipated as a result of the proposed works involving the complete removal of the bridge and construction of a replacement structure at the bridge crossing. As the structure was determined not to retain cultural heritage value or interest according to a CHER completed by ASI (ASI 2020), no further heritage reporting is required.

Where feasible, the preferred alternative should be designed to avoid indirect impacts to these potential cultural heritage resources. To ensure the structures on these properties are not adversely impacted, construction and staging in the Niagara Street ROW should be suitably planned to avoid all impacts to these properties. Suitable mitigation measures could include the establishment of no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resources.

Vibration impacts during construction activities may affect BHR 1, BHR 2, BHR 4, and BHR 5 as a result of their location in close proximity to the proposed alignment. To ensure the structures on the properties at 36 Niagara Street (BHR 1), 50-52 Niagara Street (BHR 2), 101 Niagara Street (BHR 4), and 2 Riverbank Street (BHR 5) are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advance assessment conclude that the any structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

## 6.0 RESULTS AND MITIGATION RECOMMENDATIONS

The results of background historical research and a review of secondary source material, including historical mapping, revealed a study area with a land use history dating back to the mid-nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed

that there are no previously identified feature of cultural heritage value within the Niagara Street Bridge study area. Five potential features were identified during research and fieldwork.

## 6.1 Key Findings

- A total of five BHRs were identified within the study area.
- One potential BHR is a bridge, two are residences, and two are mixed use commercial properties. All five potential BHRs were identified during background research and field review.
- Identified potential cultural heritage resources are historically, architecturally, and contextually associated with land use patterns in the City of Welland and more specifically representative of the early development of the urban core along Niagara Street (previously known as North Main Street), a nineteenth-century roadway.

**Results of Preliminary Impact Assessment**

- The proposed alignment is anticipated to result in direct impacts to the Niagara Street Bridge (BHR 3).
- Potential vibration impacts as a result of the proposed alignment is anticipated to result in indirect impacts to four potential BHRs: 36 Niagara Street (BHR 1), 50-52 Niagara Street (BHR 2), 101 Niagara Street (BHR 4), and 2 Riverbank Street (BHR 5).

## 6.2 Recommendations

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to the identified BHRs. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified cultural heritage resources, etc. When construction staging and lay down areas are determined during the detailed design phase, the identified BHRs should be reviewed by a qualified heritage professional to assess impacts and confirm recommended conservation and/or mitigation measures.

2. Indirect impacts to 36 Niagara Street (BHR 1), 50-52 Niagara Street (BHR 2), 101 Niagara Street (BHR 4), and 2 Riverbank Street (BHR 5) are anticipated as a result of their location adjacent to the proposed alignment. To ensure these properties are not adversely impacted during construction, a baseline vibration assessment should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

3. Direct impacts to BHR 3 (Niagara Street Bridge) are anticipated as a result of the proposed works involving the complete removal of the bridge and construction of a replacement structure at the bridge crossing. As the structure was determined not to retain cultural heritage value or interest according to a CHER completed by ASI (ASI 2020), no further heritage reporting is required.

4. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on known and potential heritage resources.

5. The report should be submitted by the proponent to the City of Welland and the MHSTCI for review and comment, and any other local heritage stakeholders that may have an interest in this project. Feedback received will be considered and incorporated into the final report, as appropriate. The final report should be submitted to the City of Welland for their records.

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