SCHEDULE B

STATEMENT OF CULTURAL VALUE OR INTEREST AND HERITAGE ATTRIBUTES
GANANOQUE SWING BRIDGE, WATER STREET, GANANOQUE, ONTARIO

STATEMENT OF CULTURAL VALUE OR INTEREST:

- Built in 1893, The Gananoque Swing Bridge is a rare example of an early central pivoting bridge in Canada. The site encompasses the area of both approaches to the bridge notably the retaining walls, abutments of the east and west shores, and the pier below the bridge as well as the associated river bed of these supports and access.
- The Swing Bridge required exceptional precision tooling to construct and install the riveted steel structure, pivoting mechanism for a massive cantilevered form, and structural supports.
- The bridge shows exceptional technical and scientific achievement with the engineering requirements to create a rotating horizontal structure of great cantilevered length.
- The Swing Bridge was constructed with municipal financial support, by the Thousand Islands Railway, to give direct rail access to industry on the east side of the Gananoque River, in particular the Gananoque Carriage Company - at the time one of the largest manufacturers of carriages in the Dominion.
- Located where the mouth of the Gananoque River meets the St. Lawrence River, the structure illustrates the development of this area of Gananoque notable for its waterfront presence, amongst marina, wharf and boating facilities – many of which still are accommodated in older structures, and which are in keeping with original scale, function and environs of the bridge. The property may exhibit some archaeological potential. However, archaeology can be addressed through another process.
- The Swing Bridge was designed and constructed by the Leeds Bridge and Iron Works Ltd., of Gananoque. An individual engineer is not known. The Swing Bridge is an important feature in maintaining the riverine and marina character of the Town's south end, particularly where the mouth of the Gananoque River meets the St. Lawrence River.
- The property is of high correlation to the physical, visual and historical surroundings in which it is located. It was designed to better link the east and west sides of mouth of the Gananoque River, particularly to provide improved access to the Gananoque Carriage Company, which still exists in part since 1896 as the Gananoque Inn.
- As a bridge, the structure is very prominent in the community. Further the prominence of the Swing Bridge is heightened by its age, the integrity of the distinctive materials associated with the time of its construction, and the rarity in Canada of its rotating mechanism.

HERITAGE ATTRIBUTES:

- horizontally rotating bridge mechanism on a circular pivot point/pier (also known as a vertical locating point) set on a limestone masonry foundation, located at the centre of gravity of the bridge
- designed to allow clear passage for tall water craft between the St. Lawrence and Gananoque rivers.
- provides vehicular (originally also including rail) and pedestrian traffic – the steel grate/grill road bed with the pivot point consists of two transverse beams that rest on a circular drum that in turn sit on a circular track of wheels, the decking of the sidewalk (south side) consists of cut steel checker plate laid directly on top of the steel grate decking), hinged steel cover plates at each end of the bridge span the gap between the bridge and land-cased access.
- waterfront presence, amongst marina, wharf and boating facilities – many still accommodated in older structures, which are in keeping with original scale, function and environs of the bridge
- clear approaches to the bridge set on limestone abutments, with the abutments protected on the south/St. Lawrence River side by stepped concrete walls on the east and piled rocks on the west

- notable for its engineering significance in the town and nationally
- low-profile, riveted steel-sided superstructure that gently slopes up from the abutment ends to a horizontal centre, with the sides, reinforced with vertical stiffening plates on the interior of the steel side walls (somewhat resembling small buttresses) also providing structural support for the bridge deck and which from an enclosure for the single-lane road bed

SCHEDULE C
HERITAGE DESIGNATION REPORT
GANANOQUE SWING BRIDGE, WATER STREET, GANANOQUE, ONTARIO
Author: Edgar Tumak, 2013, revised 2020

Figure 1:Gananoque Swing Bridge, viewed from the northwest, with the Gananoque Inn in the background (photo E. Tumak, Sept. 2013).

STATEMENT OF REASON FOR DESIGNATION

The Gananoque Swing Bridge of 1893 is proposed for designation under the Ontario Heritage Act for historical, structural and contextual criteria. The designation encompasses the area within both approaches to the bridge notably the retaining walls and abutments of the east and west shores as well as the riverbed and pier below the bridge.

The bridge was constructed with municipal support by the Thousand Islands Railway, a Rathbun Company subsidiary (based in Deseronto), to give direct rail access to industry on the east side of the Gananoque River, in particular the large Gananoque Carriage Company—at the time one of the largest manufacturers of carriages in the Dominion. Located at the mouth of the Gananoque River, the bridge was designed to rotate horizontally on the limestone-clad central pier and allow passage of tall water craft from the St. Lawrence. The riveted-steel, single-lane structure also originally accommodated vehicular and pedestrian traffic, which continued after the rail tracks were removed in 1913. The direct intervention by the municipality to guarantee the construction of the structure, illustrates the notable commitment the Town invested in infrastructure for industry in the late 19th century. The construction of the structure is attributed to the Leeds Bridge and Iron Works Ltd., of Gananoque.

A compatible setting for the Swing Bridge is present with the traditional wharf and boating facilities along the shores of the south end of the Gananoque River—many older structures themselves. This environment is in keeping with the original scale, function and environs of the bridge. The approaches to the bridge on either side of the Gananoque River are also consistent with the early history of the bridge, featuring industrial land on the west and residential and visitor accommodation on the east.

HISTORY

Trends

The Gananoque Swing Bridge of 1893[1] illustrates the notable investment and support by the Town of Gananoque in industrial activities in the late-19th century. It was constructed to give direct rail access for the Gananoque Carriage Company (GCC) which was lacking at its location on the east side of the Gananoque River at its confluence with the St. Lawrence. Direct rail access was

[1] *Gananoque Reporter*, 23 July, 8 Oct., and 31 Dec. 1892, and 1 July 1893; and Privy Council Minute 2865, 31 Oct., 1893, in Douglas N.W. Smith, *By Rail, Road and Water to Gananoque* (Ottawa: Trackside Canada, 1995), p 39-41.

considered essential for the GCC to remain competitive within the Dominion, and not be restricted by the limitations of the navigation along the St. Lawrence—both seasonal and navigable (prior to the mid-20th century St. Lawrence Seaway).[2]

In addition to rail, the bridge also originally accommodated vehicular and pedestrian traffic when closed and, when open by rotating 90 degrees, movement of water craft between the Gananoque and St. Lawrence rivers. It is a horizontally rotating structure that has as its primary support a vertical locating pin and ring at its centre of gravity, about which the arms of equal length pivot.

The Swing Bridge became the southern terminus of the Thousand Islands Railway (TIR) a decade after the construction of the line to link Gananoque with the main, east-west rail line, the Grand Trunk Railroad (now CN) which ran 8 km north of the municipality. The coming of the railroad into Gananoque had a major impact on the industrial and tourism base of Gananoque. Many new manufacturers located in the town and existing ones expanded, such as the GCC, as the new railroad linked the municipality to the growing industrial base of southwestern Ontario. With low operating costs and heavy freight traffic, the TIR enjoyed huge profits until the Depression of the 1930s.

The event that precipitated the construction of the Swing Bridge occurred in the fall of 1891 when the GCC was wooed to relocate their plant to Brockville with a $50,000 incentive. This was quite the challenge for Town officials as the GCC was very much tied to the growth and pride of Gananoque as an industrial centre. The company was established through the merger of two town businesses in the 1870s by brothers C.W. and George Taylor who became leading Gananoque citizens. George became an MP, and in 1885 the Taylors sold the GCC to a group of Americans led by George Burrows. Adopting a new production policy, and with access to greater capital, the company became one of the largest carriage producers in the Dominion.[3]

The GCC was interested in the Brockville offer because its site on the east bank of the Gananoque River at its confluence with the St. Lawrence no longer had advantageous transportation in the railway age. By contrast, the Brockville location was adjacent to the Grand Trunk and Canadian Pacific Railway lines. This offered direct shipment to any part of the continent without incurring the expense of cartage from the factory to and from the railway.

In a well-attended public meeting in Gananoque on 19 November 1891, it was noted that the Town could not compete with the $50,000 offer and site, but it was suggested that if the municipality contributed to the construction of a railway bridge over the river, the company would probably remain. That night it was resolved to do just that with a bridge that would also accommodate water craft that traditionally used the lower end of the Gananoque River. Rapid support such as this reflected municipal boosterism then prevalent across Canada, and which was particularly heady in Gananoque at the time, as the municipality had recently been upgraded in 1890 in its corporate status from a village to a Town.

The construction of the swing bridge was also symptomatic of an era of growth in Canadian municipalities spurred by notable improvements in the mechanisation and capitalisation of industrial activity. More direct municipal investment in infrastructure would follow, such as the Gananoque Waterworks Pump House of 1903-05—Gananoque's first initiative with municipal waterworks.[4]

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2 Smith, *By Rail, Road and Water to Gananoque*, p 39-42; Donald H. Akenson, *The Irish in Ontario: a study in rural history*, chapter 6, "Gananoque 1849-71," (McGill – Queen's University Press, 1984 and 1999), p. 289 and 291; Gananoque Historical Society Newsletter, Special Ed., 1990, p. 4; and George de Zwaan, "The Little Birminghan on the St. Lawrence: An Industrial and Labour History of Gananoque, Ontario, 1871-1921," PhD thesis (History), Queen's University, 1987, passim and p. 56-78.

3 Smith, *By Rail, Road and Water to Gananoque*, p 39.

4 Edgar Tumak, Heritage Designation Report, "Gananoque Waterworks Pump House, 110 Kate Street, Gananoque," 2009.

The provision of core utilities by the municipality was seen as a major inducement for industrial investment as such infrastructure kept the Town competitive in the region.

As part of the November public meeting, a bridge committee was formed which, among other tasks, was to inquire into the cost of the bridge and lobby the Dominion and Provincial governments for grants to assist with its construction. Committee members consisted of leading industrialists and citizens such as George Taylor who had helped create the TIR in 1882-83. The next day a surveyor was at work taking levels, sounding and lengths for the proposed bridge.

In July 1892, the Rathbun Company, the parent company of the TIR, confirmed that it would build the bridge, on the contingency that the Dominion government grant an expected $14,000. The company also required the municipality to acquire the land at the approaches to the bridge, to fill and grade this land, and to allow the railway to lay its tracks in the streets to reach the bridge. The Rathbun Company provided for vehicular and pedestrian traffic by placing a plank floor which the municipality would maintain. A contract was signed on 22 December 1892, and an amendment in 1893 had Gananoque provide incandescent lights and gates at each end of the bridge (which the TIR was to close when the bridge was opened).

The construction of the bridge did not achieve the goal of keeping the carriage works in Gananoque. In 1892 part of the GCC relocated to Brockville, with complete transfer in 1894. The Gananoque Inn opened in the remodeled carriage works by the end of the 1890s, and the TIR only made use of the bridge to shuttle the occasional special carload of passengers to the inn. Due to lack of traffic, the railway removed the tracks from the bridge in 1913. It was not until November 1942, however, that the bridge ceased to be controlled by the railway, by then CN.

Swing bridges from the late-19th and early-20th centuries can still be found across Canada. Most were built for railway concerns, and feature a variety of structural solutions, such as asymmetrical or single arm pivoting decks, or higher truss forms like covered bridges without the cladding. A great many of these bridges are no longer openable or have had significant alterations. A still operable example is at the Hogs Back crossing of the Rideau Canal in Ottawa. The Rideau Canal system has World Heritage Site status for the entire Kingston – Ottawa length, with the heritage designation extending to all structures whether the individual components are of early origin or not. The Hogs Back Swing Bridge has been significantly modified and expanded to meet the needs of a regional transportation corridor and no longer represents a structure from the late-19th or early 20th century. Another designated swing bridge is located in the small community of Little Current, in the municipality of Northeastern Manitoulin and the Islands, Ontario. It was built by the Algoma Eastern Railway in 1913. The Little Current Swing Bridge appears more in keeping with its original form, but it was built 20 years after the Gananoque example (see Figures 8 – 9).

Therefore while examples of swing bridges can be found scattered across Canada, the Gananoque Swing Bridge is rare because it clearly expresses its original form and function. Further, while it was built for and by a railway concern, it is also distinctive for its significant connection with a municipality both at its inception as an incorporated town, and its on-going maintenance and operation by the town. It was conceived by municipal concerns, ahead of rail company dictates, to protect local industry both land-based and the marina operations at the mouth of the Gananoque River—the latter still benefitting to this day.

Events

No events of note are yet known to be associated with the Gananoque Swing Bridge.

Persons/Institutions

No individuals or institutions (other than regular functions associated with the municipal government and provision of infrastructure noted in historical trends) are known to be associated with the Gananoque Swing Bridge.

STRUCTURE

Design

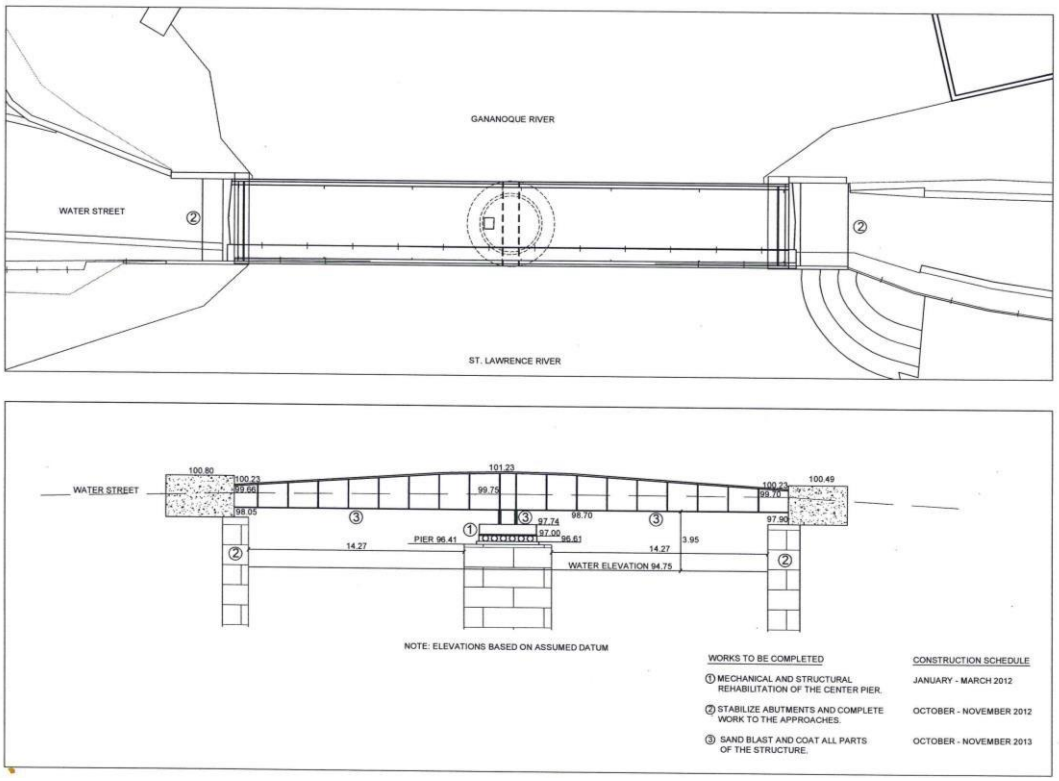


Figure 2: Overhead and side elevation plans of Gananoque Swing Bridge (AECOM, Water Street Swing Bridge Rehabilitation: General Arrangement Drawing, project no. 60219967, Nov. 2011).

The Gananoque Swing Bridge consists of a low-profile, riveted steel-sided superstructure that gently slopes up from the abutment ends to a horizontal centre. The sides provide the structural support for the bridge deck and enclose a single-lane road bed. The bridge rotates horizontally on a circular pivot point, or vertical locating pin, located at its centre of gravity.

Figure 3: Detail of the central support and operating mechanism of the Gananoque Swing Bridge, viewed from the northwest (photo E. Tumak, Sept. 2013).

The connection of the road bed with the pivot point consists of two transverse beams that rest on a circular drum that in turn sit on a circular track of wheels. The metal superstructure and turning apparatus rest on a central circular masonry pier, faced with

large limestone blocks, set in the middle of the Gananoque River. Masonry abutments support the ends of the deck in its closed position and are also faced with large limestone blocks. The abutments are protected on the south or St. Lawrence River side by a stepped concrete retaining wall on the east and piled rocks on the west.

Figures 4-5: left – detail of the east abutment of the Gananoque Swing Bridge, viewed from the northwest; below middle – east abutment and stepped protective embankment of the Gananoque Swing Bridge, viewed from the northwest; and below bottom – view from the bridge looking north up the Gananoque River showing the bridge deck steel grill of the vehicle lane and one of the stiffening side plates (photo E. Tumak, Sept. 2013)

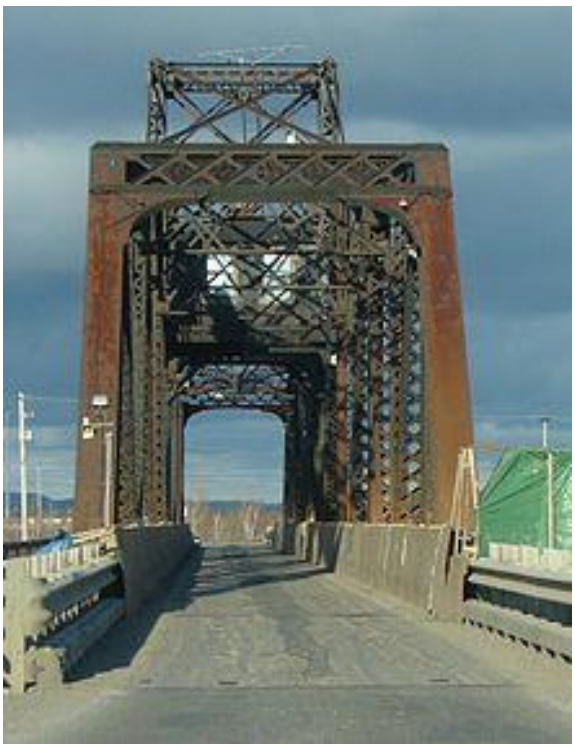
The rotors below the road bed connecting the deck with the central pier, enable the bridge to rotate 90 degrees, thereby allowing tall water vessels to pass on either side. In the closed position the bridge provides a vertical clearance of approximately 2.5m during the 100 year storm event, which is sufficient for smaller craft. During drier periods the vertical clearance is approximately 4m. This type of swing bridge does not require counterweights in comparison with other moveable bridges. However, when open, the bridge must maintain its own weight as a balanced double cantilever, and aiding in this

are vertical stiffening plates (somewhat resembling small buttresses) in the side walls.

The opening and closing of the bridge is facilitated by two guide wheels at both underside ends of the bridge deck. A precise horizontal alignment is critical and even at the time of completion required an adjustment where the tracks on the abutments had to be lowered three inches. More recent repairs have continued to contend with differential settling, including major work in 2012-13 which also involved complete mechanical repairs to the centre pier mechanism, and excavation and shoring of the west bridge abutment which was showing signs of settling due to traffic and age.[5]

Figures 7-9: left – Current bridge deck showing the steel grate deck of the vehicle lane on the left and the pedestrian walk on the right, viewed from the west (photo E. Tumak, Sept. 2013); middle – Prince of Wales Drive/Hogs Back Swing Bridge, Rideau Canal System, Ottawa, showing the asymmetrical structure swinging from one end only, and partially open (Wikimedia Commons, July 2006.; and bottom – Little Current Swing Bridge, Northeastern Manitoulin and the Island, Ontario (Wikipedia).

Significant changes to the Swing Bridge include the removal of the rail tracks in 1913, as well as the original lights and gates. Instead of the original planks on the deck floor, vehicles pass over a steel grate deck, while a pipe handrail barrier separates the sidewalk from the roadway. The decking of the south sidewalk consists of precisely cut steel checker plate laid directly on top of the steel grate decking. Hinged steel cover plates at each end of the bridge span the gap between the bridge and land-based sidewalks.[6] Major restoration programmes have occurred in 1959, 1967 and 2012-13.



A comparison with the Hogs Back and Little Current bridges shows that while the Hogs Back example is a flat deck design somewhat like the Gananoque Swing Bridge the sides are open railings, the deck is three traffic lanes wide, and it opens by swinging from one end only. The Little Current example contrasts with its truss-style superstructure over the deck. It appears that swing bridges are more like the Hogs Back and Little Current examples, with very few examples showing the enclosed sides and as much original integrity as the Gananoque Swing Bridge.

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5 Smith, *By Rail, Road and Water to Gananoque*, p 41; AECOM, Kingston, Ontario, Project Number 60219967, "Town of Gananoque: Water Street Swing Bridge, Structural Design Report," November, 2011.

6 Except for the removal of the rail tracks, the dates of the other features are unknown.

Designer, Builder

The construction of the structure is attributed to the Leeds Bridge and Iron Works Ltd., of Gananoque. An engineer or designer is not known.

ENVIRONMENT

Compatibility with Heritage Environs

Figure 10:1920 aerial view showing the Swing Bridge in the bottom right (photo, McCarthy Aero Service Ltd., Library and Archives Canada).

F igure 11: Swing Bridge viewed from the northeast, ca. 1900 (photo, Gananoque Museum).

The Gananoque Swing Bridge connects Water Street on the west to the intersection of John and Stone Street South on the east side of the Gananoque River, at its confluence with the St. Lawrence River. Lacking a formal municipal roll number, the site can be described as encompassing the area

within both approaches to the bridge which includes the retaining walls and abutments of the east and west shores as well as the riverbed below the bridge.

The Swing Bridge was originally constructed in an area of riverine industrial and shipping facilities. Large and small boat facilities are still present with marina and wharf infrastructure, and compare similarly with early 20th century images. The most significant absence relating to the original context of the bridge are the rail tracks along Mill Street, Water Street to the west, and on the bridge platform. The former TIR station (destroyed by fire) remains somewhat expressed in form as the Thousand Islands Museum, a short distance west on Water Street.

As archival images also indicate, land use since 1900 in the vicinity of the Swing Bridge appears dominated by marine-related structures hugging the shoreline of the Gananoque River, with open land on either side of Mill Street at Water Street with industrial structures from the late-19th and early-20th centuries further north. On the east, residential and visitor accommodation dominates the approach to the bridge.

Figures 12-14: left – east shore of the Gananoque River viewed from the north side of the Swing Bridge; below –looking northeast from the intersection of Main and Water streets, showing the former Cliffe Craft complex; and next page - 15 Clarence Street, former Parmenter & Bulloch/Textron Building, viewed from the southwest (photos, E. Tumak, Sept. 2013).

A large-scale development proposal at the Mill and Water streets (Millier Dickinson Blais, architects) appears to retain the renovated Cliffe Craft buildings with a campus style commercial and residential development further north. While it promotes waterfront planning principals of vibrant, active and community inclusive spaces with new incorporation of public green space, the development at the north end of the site bears no relation to traditional forms, scale and fenestration.

Community Context / Landmark Status

Bridges are very prominent structures because of their prominence in transportation networks. They funnel or restrict traffic both land based or water borne and, because of their expense, are relatively rare. Bridges with distinctive features, such as a swing bridge are even more notable and rare. Therefore, while Gananoque is blessed by a variety of bridges and crossings over the Gananoque River, by its very nature, the Gananoque Swing Bridge is particularly prominent. Its, high state of repair, age, and original integrity make it a rare example in Canada.

Figure 15: proposed development along Mill Street, promoted as 15 Clarence Street / Textron Property, giving a rendering view to the northeast towards the Cliffe Craft complex (Millier Dickinson Blais architects, 2013).

The Town of Gananoque has maintained responsibility for operating the Swing Bridge since it was transferred to it in 1942, with the bridge being opened on an as required basis between May 1st and October 31st between 7:00 a.m. – 3:30 p.m., and on standby on weekends during these months. Currently the bridge is only opened 5 – 6 times per year—generally at the start and close of the boating season to allow larger craft to pass. However, rather than reduce the prominence of the Swing Bridge, this limited operation creates a greater sense of occasion.

The old-style construction of the bridge is distinctive as resident and visitors can readily see the appearance of the riveted steel sides, the limestone central pier and side abutments, and also feel the steel grate deck when driving across the structure.