

## HERITAGE ANALYSIS AND EVALUATION REPORT

**Building Name and Address:** Canadian Pacific Railway (CPR) Bridge over Rideau River

**Construction Date:** 1898

**Original Owner:** Montreal & Ottawa Railway (Leased to Canadian Pacific Rail)

**Prepared By:** Heritage Planning Staff

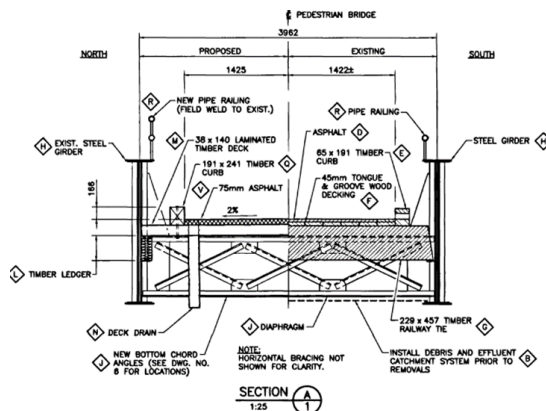


### Executive Summary

The CPR Bridge crossing the Rideau River is an early example of a through plate girder bridge, constructed in 1898 for the Montreal & Ottawa Railway to facilitate Canadian Pacific Railway's Montreal & Ottawa Short Line. The bridge is associated with the development of passenger and industrial rail in late 19<sup>th</sup> and early 20<sup>th</sup> century Ottawa and the transition of Ottawa's waterfronts to recreational space in the 20<sup>th</sup> century. The bridge is one of the last remnants of historical rail infrastructure leading to the core of the city. The property has cultural heritage value for its design, associative and contextual values. It meets three of the nine criteria for designation under Part IV of the *Ontario Heritage Act*.

## Architecture

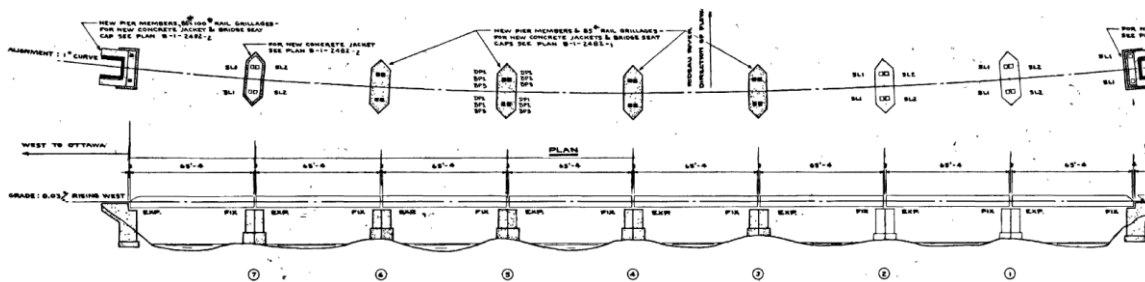
The CPR Rail Bridge is a representative example of a through plate girder bridge. Plate girder bridges, typically either deck style or through style, originated in the early to mid 19<sup>th</sup> century and were regularly constructed as part of North American road and rail projects into the 1960s (University of Vermont, 2011). Through plate girder bridges are characterized by the exterior plate girders that frame the outside of the bridge, most commonly steel I-beams (Brockenbrough & Merritt, 2006). The tracks run on top of a rail deck that sits approximately halfway between the top and bottom of the exterior girders, supported by cross girders and a diaphragm connecting both sides (Brockenbrough & Merritt, 2006). The placement of the deck gives the appearance of trains traveling “through” the girders, rather than on top as seen in deck girder bridges. Typically, bridges of this type are composed of multiple connected segments rather than one continuous span.



**Figure 1:** Left – As-built and proposed cross section of CPR Bridge over Rideau River (1999). Right – CPR Bridge over Rideau River looking west (2023)

The subject bridge is composed of eight connected steel girder segments, each measuring approximately 65 feet (19.5 metres) in length and approximately 6.2 feet (1.9 metres) in height and is designed with a slight curve from end to end (Churcher, 2020). The girders appear to have been painted black and their exterior is characterized by horizontal ribs spaced at regular intervals extending from the top and bottom flange of each beam. The interior of the girder features triangular steel brackets connecting the girder and deck spaced at twice the

interval as the exterior ribs. The flanges (the flat lip on the top and bottom of each girder) measure approximately 1.25 feet (0.38 metres) and have visible riveting and a steel rail on top. Seven hexagonal piers anchored in the base of the river support the spans at their joints. The piers are composed of a masonry core capped with cement parging approximately 2 feet (0.6 metres) in depth (Canadian Pacific Railway, 1952). Some piers appear to be capped with metal flashing on their vertical sides. The girder spans are further supported on each side of the river by abutments built into the riverbank and feature a parged concrete exterior.



**Figure 2:** Top: As built drawings (1952) Bottom: CPR Bridge, February 2023

The bridge was converted to pedestrian use sometime between 1966 and 1996, but the exact timing is unknown. The bridge was retained by the City of Ottawa in 1996 and was rehabilitated in 1999 to allow it to continue to function as a pedestrian and cycling bridge (City of Ottawa, 1999). The wood decking, timber rail ties, and timber curb on the interior of the bridge were removed. It is not known if these components were original to the bridge. Alterations included the

installation of a timber ledge on the interior of the girder to support a new laminated timber deck and curbs, the installation of drainage pipes, the replacement of an asphalt walking and cycling surface between the curbs, and the installation of an extension to the original pipe railing. Much of the original interior bracing remains in place and can be seen from underneath the bridge.

## Designer/Builder

The bridge was constructed in 1898 for the Montreal & Ottawa Railway but was leased in perpetuity by the Canadian Pacific Rail (CPR) prior to its completion. No designer has been identified; however, the bridge is nearly identical to CPR's standard plans for through plate girder bridges from the early 20<sup>th</sup> century (Canadian Pacific Railway, 1908a, 1908b). This bridge predates CPR standard plans available through various archival sources, suggesting that this is an early example of a through plate girder bridge built for CPR.

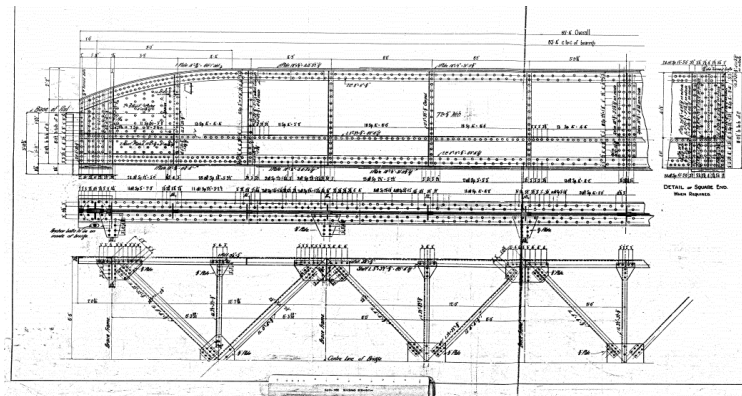


Figure 3: Top – 1908 CPR Standard Drawing, Bottom: CPR Bridge, February 2023

Masonry work was completed by contractor R.J Stewart of Tweed, Ontario, and steelwork was supplied by the Dominion Bridge Company of Lachine, Quebec (Ottawa Citizen, 1898a; Ottawa Free Press, 1898a, 1898b; Railway and Shipping World Co, 1898). Little is known of R.J Stewart, but he is identified as a stonecutter in the 1891 and 1911 Censuses of Canada (Statistics Canada, 1891, 1911). Dominion Bridge Company was a significant builder of steel bridges and steel frame buildings in 20<sup>th</sup> century Canada. Notable local examples of Dominion Bridge Company's work include the Alexandra Bridge, the Chief William Commanda Bridge, and the Chaudière Bridge between Ottawa and Gatineau, the Minto Bridge on Union Street, and the Aberdeen Pavilion at Lansdowne Park. The bridge's steel was produced by Carnegie Steel in Pittsburgh, Pennsylvania (Churcher, 2020). The extent of Dominion Bridge Company's role in constructing the bridge is uncertain. Dominion was contracted to supply iron work for the bridge, following the completion of the bridge's piers and abutments, in April 1898 (Ottawa Free Press, 1898b). By May of 1898, it was noted that most iron for the bridge was already on site awaiting installation (Ottawa Free Press, 1898c). The bridge predates the establishment of large-scale Canadian steel manufacturing, so American and British imports were common, and Carnegie supplied steel for other Dominion projects, including the Alexandra Bridge (Churcher, 2020; Donald, 1915). Newspaper accounts of Dominion's contract for the Alexandra Bridge from 1899 include the construction of spans as part of the company's role, whereas this was not indicated for the subject bridge (Ottawa Free Press, 1899). While the components may have been assembled by Dominion in Lachine, Quebec, it is also possible that the bridge components were pre-assembled by Carnegie Steel in Pittsburgh, shipped to Ottawa, and installed on-site by Dominion. Given the significance of other Dominion Bridge Company projects and their possible lack of involvement in the bridge's design and manufacturing, the subject bridge is not a notable example of their work, locally in Ottawa or nationally.

## History

The bridge was constructed for the Montreal & Ottawa Railway but was leased in perpetuity by the Montreal & Ottawa (M&O) Subdivision of Canadian Pacific Rail (CPR) to facilitate the Montreal and Ottawa Short Line, an intercity passenger line offering direct service between Montreal and Ottawa (Churcher, 2020). The Short Line was a commercially important line for CPR that competed with the Canadian Atlantic Railway (predecessor of CNR) on the lucrative Montreal-Ottawa intercity route in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries (Churcher et al., 2015). In the era before air travel and widespread private car ownership this link between Ottawa, the national capital, and Montreal, the fiscal capital, was significant. Bridge construction commenced in January 1898 and was completed by August 1898 (Ottawa Citizen, 1898b; Railway and Shipping World Co, 1898). The bridge was removed from service in 1966 and was later converted to its present use as a pedestrian and cycling bridge. The bridge is one of the oldest existing rail bridges in Ottawa and is one of ten local examples of a through plate girder bridge, with construction dates ranging from 1898 to 2016. Research has not identified an older existing through plate girder bridge in Ontario.



Figure 4: Bridge in service (Paterson & George, 1956)

The bridge is directly associated with the history and development of industrial and passenger rail service in Ottawa. Institutionally, the bridge's most significant association is with CPR, its primary user and later owner. The bridge formed part of CPR's aforementioned Montreal & Ottawa Short Line in addition to the Intercontinental Line between Montreal and Vancouver. The bridge was also used by the New York and Ottawa Railway (later absorbed into the New York Central Railway) for access to their freight yard near the present-day intersection of Mann Avenue and King Edward Avenue (Churcher, 2020; Granger, 2022). East of the Rideau River, the bridge connected to new tracks laid by CPR for the Short Line that routed through Rigaud, Quebec and Vankleek Hill, Ontario (Churcher et al., 2015). West of the Rideau, the bridge connected to Canada Atlantic's tracks, terminating at J.R Booth's Grand Trunk Depot south of Rideau Street, the future site of Ottawa Union Station (Unterman McPhail Associates, 2011). Both the bridge and Short Line pre-date the construction of Ottawa Union Station and the Chateau Laurier by approximately 10 years.

The bridge is a physical remnant of a wider historic landscape of rail and industrial infrastructure centred around the Rideau Canal corridor and contributes to an understanding of the transition of Ottawa's waterfronts from industrial to recreational spaces in the mid-twentieth century. Following the 1950 Gréber Plan, industrial and passenger rail was gradually relocated out of the core, culminating with the 1966 closure of Ottawa Union Station (Gordon, 2001; McClelland, 2009). Former rail corridors on the east side of the canal were converted to scenic driveways with pedestrian paths and public parks along the canal beginning with the work of the Ottawa Improvement Commission as early as 1900 (Stephenson, 2019). This mirrors similar changes in other North American cities, such as Pittsburgh and New York, where waterfronts gradually transitioned to recreational spaces (Hutton, 2020). The conversion of the subject bridge for recreational use occurred significantly later; however, the bridge serves as a key connection point linking pedestrian and cycling networks on the Rideau Canal and Rideau River, mirroring its original movement of passenger and freight traffic. As one of the few remaining pieces of historic rail infrastructure in the area, and one that continues to facilitate the movement of people across the Rideau River, the bridge is both historically and functionally linked to its surroundings.

## **Context**

The CPR Bridge is located on the Rideau River, south of the Highway 417 crossing and adjacent to the University of Ottawa Lees campus. The bridge is located at the border of four separate neighbourhoods: Sandy Hill and Old Ottawa East on the west end of the bridge, and Overbrook and Riverview on the east end. The east end of the bridge connects to the Rideau River Eastern Pathway and the west end of the bridge connects to the Rideau River Nature Trail and O-Train pedestrian path. The character of the immediate area is primarily defined by the Rideau River and riverbank, flanked on both sides by pedestrian paths and adjacent to a diversity of uses, including low-rise residential



neighbourhoods, institutional campuses including the University of Ottawa and RCMP Headquarters, Highway 417, and public parks.

The bridge was once part of a cluster of road and rail bridges at this location. Hurdman's Bridge, a road bridge formerly located north of the current Highway 417 Bridge, was initially constructed in 1875 and rebuilt several times, with its final version eventually forming part of the Queensway in 1955 before being demolished in 1986 (Clark, 2022; Unterman McPhail Associates, 2011). The first rail bridge in this area was located south of the subject bridge, built in 1882 for the Canada Atlantic Railway and removed from service in 1966 (Churcher, 2020). An additional rail bridge, similar in design to the subject bridge, was constructed north of the current highway bridge in 1909 for Canadian Northern Ontario Rail, also removed from service in 1966 (Churcher, 2020).

The subject bridge is historically and functionally linked to its surroundings as a rail bridge forming part of a historical rail and industrial landscape in urban Ottawa. Since the bridge was constructed in 1898 its immediate context has shifted dramatically, transitioning from a primarily industrial space at the edge of the city to a semi-naturalized recreational area. Given this contextual shift and the nearby presence of bridges and buildings more widely identifiable to the public, the bridge is not considered a landmark.

### **Evaluation using Ontario Regulation 09/06**

1	<p><i>The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method.</i></p> <p>The bridge is an early local example of a steel through plate girder bridge, a style of rail bridge popular in North America from the late 19<sup>th</sup> century into the early 20<sup>th</sup> century.</p>	Y
2	<p><i>The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit.</i></p> <p>The bridge is a typical rail bridge, similar in design to other steel-construction through-plate girder bridges in North America. The bridge was constructed using standard construction practices of the time and does not display a high degree or craftsmanship or artistic merit.</p>	N
3	<p><i>The property has design value or physical value because it displays a high degree of technical or scientific merit.</i></p> <p>The bridge's design and materials are typical for bridges of its type. Therefore, the bridge does not display a high degree of technical or scientific merit.</p>	N
4	<p><i>The property has historical or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.</i></p> <p>The bridge is associated with the development of Ottawa's industrial and passenger rail networks, particularly the growth of intercity rail in the early 20<sup>th</sup> century. The bridge is also associated with the transition of Ottawa's core and the Rideau Canal waterfront from an industrial to recreational space.</p>	Y
5	<p><i>The property has historical or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture.</i></p> <p>The bridge does not yield or have the potential to yield information that contributes further to an understanding of a community or culture in the city of Ottawa. The bridge's principal associations, namely to the railway history of Ottawa, are generally well documented. There are no known significant associations between the bridge and any individuals or historical communities.</p>	N

6	<p><i>The property has historical or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.</i></p> <p>The bridge is not attributable as a distinct work to any designer or builder. Dominion Bridge Company was contracted to supply iron work for the bridge, following the completion of the bridge's piers and abutments, however, the extent of Dominion's role in constructing the bridge is uncertain. Given the significance of other Dominion Bridge Company projects and their possible lack of involvement in the bridge's design and manufacturing, the subject bridge is not a notable example of their work, locally in Ottawa or nationally.</p>	N
7	<p><i>The property has contextual value because it is important in defining, maintaining or supporting the character of an area.</i></p> <p>The bridge's context has shifted dramatically since its construction in 1898, transitioning from a primarily industrial space to a semi-naturalized recreational area. Given this contextual shift, it is not important in defining or supporting the area's character.</p>	N
8	<p><i>The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings</i></p> <p>The bridge is historically and functionally linked to its surroundings, being the last remnant of a historical cluster of rail bridges located near Hurdman's bridge and continuing to facilitate the movement of people over the Rideau River.</p>	Y
9	<p><i>The property has contextual value because it is a landmark.</i></p> <p>Given the limited visibility of the bridge from vantage points not on the Rideau River pathway system, and the nearby presence of more widely identifiable bridges and buildings, the bridge is not considered a landmark.</p>	N

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